Working Paper Series

Geert Bekaert, Roberto A. De Santis

Risk and return in international corporate bond markets

Abstract

Corporate bond returns in the major developed economies increase with risk, as measured by maturity and ratings. From a pricing perspective, we find little to no evidence against the World CAPM model, where the market consists out of equity, sovereign and corporate bonds. However, from a factor model perspective, local factors contribute substantially more to the variation of corporate bond returns than global factors. The factor exposures show intuitive patterns: as ratings worsen, equity betas show a hockey stick pattern, sovereign betas decline monotonically and corporate bond betas increase steeply.

Keywords: Corporate bond markets, CAPM, international market integration, asset class integration, bond ratings, risk, return

JEL classification: G10, G11, G15.

Non-technical summary

While the corporate bond market in the United States (US) is well-established, many countries have witnessed signicant growth in their corporate bond markets over the last two decades. Corporate bonds constitute an important asset class, but surprisingly little is known about their return and risk characteristics. In this paper, we investigate risk and return in the major corporate bond markets of the developed world (US, euro area, Japan, UK, Canada and Australia) of bonds issued in Australian dollar, Canadian dollar, Euro and pre-euro currencies, Japanese Yen, British pound and US dollar. To the best of our knowledge, the sample used in this study represents the largest cross-section and longest times-series of bonds issued worldwide used in an empirical study. It includes 2.4 million bond-month return observations from January 1998 to August 2018. Overall, equity is the dominant asset class representing close to 50% of total market capitalization. The Great Recession made sovereign bonds the dominant asset class for a few years, and in 2018 it represented about 40% of the total market capitalization; while the corporate bond asset class reached 10%. The latter's share has risen steadily from 6% to 10% over the sample period. There are rather important but perhaps not surprising differences across countries. The equity market is most dominant in the US, and the corporate bond market also represents a larger fraction of the total market capitalization there (having increased from about 8% in 1998 to 13% in 2013 and fluctuating thereafter). In the euro area, sovereign bonds dominate representing about 50% of the total market capitalization; equities represent 40% and the corporate bond market accounts for 11% of the total market capitalization.

Our starting point is that of a fully integrated world, integrated across countries and across asset classes. In this theoretical world, the simplest model to price corporate bonds is the World Capital Asset Pricing Model (CAPM), where the market portfolio consists out of equity, sovereign and corporate bonds. From a pricing perspective, we find little evidence against the CAPM model, where systematic risk driving expected returns is captured by the beta exposure relative to the market portfolio. This suggests that systematic risk largely

explains the link between corporate bond volatility and returns. More highly volatile bond portfolios have higher betas with respect to the world market factor and the pattern is near monotone across rating and maturity ranked bonds.

While the global CAPM model fits average returns well, it is not an adequate factor model to explain return variation and comovements. From a factor model perspective, we show that the model is strongly rejected along two dimensions. First, we strongly reject "asset class integration". If we separate the market portfolio into its three components, the corporate bond factor receives much higher exposures than suggested by its relative market capitalization, and a model with the different asset classes as separate risk factors generates much higher adjusted R^2's. Second, we strongly reject international market integration, and this is true for all six considered economic areas: local factors contribute substantially more to the variation of corporate bond returns than do global factors. The increase in fit by adding global factors is mostly so minimal that a local three-factor model featuring the local equity, Treasury and corporate bond returns suffices to explain in excess of 80% of the return variation for 59 of 63 portfolios examined. The factor exposures show intuitive patterns; for example as ratings worsen, equity betas show a hockey stick pattern, sovereign betas decline monotonically and the corporate bond betas increase steeply. The rejection of asset class integration and international market integration suggests that corporate bonds are an adequate diversication vehicle for institutional and retail portfolios. These findings are robust to a series of checks, which perform our tests on currency hedged returns and on portfolios sorted by duration or double sorted by ratings and residual maturity, or which report the results of a panel regression and of sub-sample analyses. Our results strongly suggest that to compute relative expected returns on various corporate bond portfolios, the global CAPM is an adequate pricing model in an international context. However, for risk management and the computation of covariance matrices within a country, a simple factor model with a local Treasury bond, local equity and local corporate bond factor may be a more adequate starting point.

I Introduction

While the corporate bond market in the United States (US) is well-established, many countries have witnessed significant growth in these markets over the last two decades. Corporate bonds are an important asset class, but surprisingly little is known about their return and risk characteristics. Fama and French (1993), in their seminal paper on common risk factors also examine US corporate bond returns, explaining rating differentiated bonds with essentially a government and corporate market return factor. The β's with respect to the government bond return factor are all around one (except for speculative bonds which show lower government bond β's) and the β's on the corporate bond market factor increase as ratings worsen, but only vary between 0.94 for the highest rated bonds and 1.01 for speculative bonds.[1] They also examine exposures to an equity market factor showing small increases in equity β's for lower rated bonds, but the β's spread is small (varying between 0.19 and 0.30). When equity and bond factors are brought together, the higher corporate bond factor β for speculative bonds disappears and is soaked up by equity exposure. Nevertheless, Fama and French (1993) conclude that the two bond factors can explain the cross-section of corporate (and sovereign) bond returns.

In this article, we investigate risk and return in the major corporate bond markets of the developed world, covering the US, the United Kingdom (UK), the euro area, Japan, Canada and Australia using securities level data from 1998. We update, extend and internationalize the evidence in Fama and French (1993). We examine how a series of simple factor models can explain the returns of corporate bonds stratified across rating categories and residual maturity. We also provide insights about how other bond characteristics affect risk and return in a robustness check using the full panel.

Our starting point is that of a fully integrated world, integrated across countries and across asset classes. In this theoretical world, the simplest model to price corporate bonds is

---

[1]We could not determine how many corporate bonds are represented in each rating category used in this article. The t-statistics on the coefficients for the bond factors do seem unusually high, exceeding 30 for the most part.

the World Capital Asset Pricing Model (CAPM, here labelled also as global CAPM), where the market portfolio includes corporate bonds. There is an extensive literature testing market integration in equity markets (see Harvey, 1991; Hardouvelis, Malliaropoulos, and Priestley, 2006), including models and empirical work suggesting partially segmented markets, where both local and global risks determine expected returns (see Errunza and Losq, 1985; Bekaert and Harvey, 1995; de Jong and de Roon, 2005). Although research on government bond markets is less plentiful, it also suggests that this market segment is only partially integrated among developed markets (see e.g. Barr and Priestley, 2004; Chaieb, Errunza, and Gibson, 2019). We are not aware of research on the international integration of corporate bond markets. Corporate bonds are a relatively young asset class. Hence, it is conceivable that they are less internationally integrated than equities and government bonds. The degree of integration may even depend on bond characteristics, such as credit rating, as certain institutional investors have restrictions on the types of bonds they can invest in.

For similar reasons, corporate bonds or sub-segments of this asset class are good candidates for segmented pricing. Segmented pricing has a long tradition in the government bond literature though the "preferred habitat hypothesis" and modern versions of it (e.g. the bond clientele hypothesis in Guibaud, Nosbusch and Vayanos, 2013). Choi and Kim (2018) jointly examine factor risk premiums in the US corporate bond and equity markets and reject market integration. Bali, Subrahmanyam and Wen (2019) find discrepancies in the pricing of economic uncertainty of corporate bonds and equities ascribing the phenomenon to different investor clienteles in the two markets. Greenwood, Hanson, and Liao (2018) more generally suggest that capital may move quickly within but more slowly across asset classes, inducing price fragmentation.

Consequently, we consider factor models incorporating corporate bonds in the market portfolio, complementing equity securities and Treasury bonds, but also use models excluding them. We also consider models where we use aggregate equity, Treasury and corporate bond market portfolios as separate factors, to potentially represent an asset class segmented

world. By considering global versions and local versions of these factors, we can test several forms of international market integration. We formulate tests of "asset class integration" and "international market integration" from two different perspectives, a standard pricing perspective (which factor models drive α's to zero?) and a factor model perspective (which factor models best fit the variation in returns and comovements?).

First, for our time series pricing tests, we run horse races of the various models relative to one another using the tests in Barillas and Shanken (2017) to determine the best parsimonious factor model.[2] We then verify whether the winning model prices the test assets. However, because corporate bond portfolios are highly correlated and exhibit relatively low volatility, mean-variance efficient portfolios may involve extreme portfolio weights (see Best and Grauer, 1991; Green and Hollifield, 1992). As a result, even small α's can result in rejections of the null, given that the pricing tests can be interpreted as mean-variance efficiency tests. Therefore, we examine the small sample properties of the test statistics and study the impact of imposing various forms of short-sale restrictions on the joint hypothesis that α's are equal to zero (see Wang, 1998; Basak, Jagannathan and Sun, 2002).

Second, we investigate the ability of the factor models to explain return variation and comovements, focusing on adjusted R^2's, and testing the significance of the factor exposures, while illustrating their economic patterns. The latter is also important for the construction of risk models and correlation matrices. Moreover, there is a long tradition in the financial market integration literature to infer market integration measures from essentially comovement statistics (see e.g. Carrieri, Errunza and Hogan, 2007; Pukthuangton and Roll, 2009; Akbari, Ng and Solnik, 2019). Recent analysis on equity markets suggests that local factors are necessary to explain variation in returns even for developed markets (see e.g. Bekaert, Hodrick and Zhang, 2009; Hou, Karolyi and Kho, 2011). Moreover, the literature on clientele effects, referenced above, has also focused on their implications for comovements (see e.g. Barberis, Shleifer and Wurgler, 2005).

---

[2]Fama and French (2018) apply their framework to select factor pricing equity returns.

Our main findings are as follows. First, from a pricing perspective, we find little evidence against the global CAPM, where the market portfolio contains all three asset classes (equities, Treasuries and corporate bonds). While standard tests reject the model in the majority of the cases, these tests over-reject in small samples and correcting for small sample biases substantially reduces the number of rejections observed. Moreover, individual portfolio α's are relatively small and mostly insignificant, but rejections result because of unrealistic long and short positions in optimal portfolios of the test assets. A short-sale constraint of 50% on these portfolios suffices to nearly eliminate all rejections.

Second, the performance of the global CAPM model is not surprising, as the CAPM β's help fit the return pattern observed in maturity and ratings ranked portfolios. Average returns broadly increase with residual maturity and ratings class (where ratings go from high to low), inducing a strong link between average returns and volatility: more volatile bond portfolios have higher returns, producing a return slope of about 30 basis points per volatility point (annualized). Systematic risk, as produced by the global CAPM, largely explains the link between volatility and returns. More highly volatile bond portfolios have higher β's with respect to the world market factor and the pattern is near monotone across rating and maturity ranked bonds.

Third, the expected returns of models, where we split the market portfolio in its different asset classes or where we consider local factors, are mostly highly correlated with the expected returns produced by the global CAPM.

Fourth, the factor model results are very different. From a factor model perspective, the global CAPM model fits a non-negligible part of the variation in corporate bond returns; yet, we strongly reject "asset class integration". If we separate the market portfolio into its three components, the corporate bond factor receives much higher exposures than suggested by its relative market capitalization, and a model with the different asset classes as separate risk factors generates much higher adjusted R^2's.

Fifth, we also very strongly reject international market integration, and this is true for all

six considered economic areas: local factors contribute substantially more to the variation of corporate bond returns than do global factors. The increase in fit by adding global factors is mostly so minimal that a local three-factor model featuring the local equity, Treasury and corporate bond returns suffices to explain in excess of 80% of the return variation for 59 of 63 portfolios examined.

Sixth, the factor exposures β's show intuitive patterns. In the preferred "local" three-factor model, for ratings ranked portfolios, sovereign bond β's decrease as ratings deteriorate and become strongly negative for the lowest rating; the equity β's increase but only from the speculative bond categories onwards. The corporate bond factor β's increase steeply as ratings worsen, with β's mostly lower than 0.8 for AAA bonds, but higher than 2.0 for C rated bonds. These β increases are much stronger than those recorded by Fama and French (1993) for the old US data. We observe fewer clear patterns for maturity ranked portfolios, where the clearest pattern is one of increasing sovereign bond β's with residual maturity.

Finally, we examine whether our factor models explain all common variation in corporate bond returns, by examining the correlation structure of the model residuals. Surprisingly, we still find a strong correlation pattern that suggests the presence of a "spread factor".

Our results are robust to the use of hedged versus unhedged returns, to the use of double sorted portfolio returns by ratings and residual maturity, and also show up in a panel regression at the CUSIP level.[3] They also hold in two subsamples of our data.

This analysis comes at an opportune time, as several large asset managers have started in 2018 to offer investment vehicles with exposure to international corporate credit, including Vanguard and AQR. Extant research on risk and return in international bond markets is hard to find outside practitioner's brochures. There are a few related articles studying the cross-section of corporate bond returns, focusing on US data. Gebhardt, Hvidkjaer and Swaminathan (2005) and Jostova et al. (2013) study momentum in corporate bonds;

---

[3]CUSIP is an acronym that refers to Committee Uniform Security Identification Procedures, which consists of nine-digit alphanumeric numbers that are used to identify securities. The first six characters are known as the base, or CUSIP-6, and uniquely identify the bond issuer. The seventh and eighth digit identify the exact bond maturity and the ninth digit is an automatically generated "check digit."

while Israel, Palhares and Richardson (2018) and Bai, Bali and Wen (2019) attempt to explain the cross-section of corporate bond returns using various bond characteristics. The practitioner's paper by Israel, Palhares and Richardson (2018) focuses on intricate measures of carry, quality, momentum and value. Instead Bai, Bali and Wen (2019) focus on downside risk, credit quality (ratings), bond liquidity and bond β's (relative to the corporate bond market) to explain the cross-section of bond returns creating risk factors associated with them. Chen and Choi (2019) document a "reaching for yield" factor in US corporate bonds. Given our results, an international extension of their work would necessitate country by country analysis.

The remainder of the paper is organized as follows. Section II sets out our empirical modeling framework. Section III presents the data and provides summary statistics, documenting the size and the growth of the corporate bond markets, and establishing basic facts regarding the returns and risks in corporate bonds. Section IV contains the pricing tests. Section V discusses the factor model tests using international and "local" factor models for the various bond markets and investigates the correlation structure in the factor model residuals. Section VI conducts a series of robustness checks, performing our tests on currency hedged returns and on portfolios sorted by duration or double sorted, reporting the results of a panel regression and of sub-sample analysis. Section VII provides the conclusions.

II Empirical Model and Hypotheses

II.A Returns, Benchmarks and Factors

Our analysis uses price and yield data on individual corporate bonds. In accordance with Bai, Bali and Wen (2019) and the methodology adopted by Bank of America Merrill Lynch (BofAML), a leading fixed income index provider, to calculate total returns, monthly returns

for bond i in currency j are constructed as follows

$$R_{i,t}^{j} = \frac{\left(P_{i,t}^{j} + AI_{i,t}^{j} + Coupon_{i,t}^{j}\right)}{\left(P_{i,t-1}^{j} + AI_{i,t-1}^{j}\right)} - 1 \qquad (1)$$

where $R_{i,t}^{j}$ is bond i's return at time t, $P_{i,t}^{j}$ is its price (per unit of face value), $AI_{i,t}^{j}$ is its accrued interest, and $Coupon_{i,t}^{j}$ is any coupon paid between $t-1$ and t. All asset prices and exchange rates used in this paper are based on the last Friday of the month.

We take the perspective of a dollar-based investor. This requires converting $R_{i,t}^{j}$ using exchange rates and subtracting the one-month US T-bill, instead of the local Treasury bill rate. Therefore, the US dollar-based excess return, $r_{i,t}$, is:

$$r_{i,t} = \left(1 + R_{i,t}^{j}\right) \frac{S_t^j}{S_{t-1}^j} - \left(1 + rf_{t-1}\right), \qquad (2)$$

where S_t^j is the spot exchange rate of asset currency j in terms of the US dollar and rf_{t-1} is the 1-month US Treasury rate in the previous period. We omit the j superscript from dollar denominated returns. We revisit local excess returns in the robustness section, both to verify robustness to the currency perspective and to examine a proxy to hedged returns. Returns hedged one-for-one with forward contracts yield excess returns that are approximately equal to local excess returns, when covered interest parity holds. Exchange rate changes are more volatile than bond returns, making currency hedging popular in fixed income markets.

Most of our analysis uses portfolios of individual bonds. Each month t, bonds are sorted into portfolios based on ratings or residual maturity. Within each portfolio, portfolio returns are a weighted average of individual bond returns with weights based on prior-month relative market capitalization. Therefore, the US dollar-based excess returns of corporate bond portfolio p at time t, $r_{p,t}$, is defined as follows

$$r_{p,t} = \sum_i w_{cb,i,t-1} r_{i,t}, \text{ if } i \in p, \qquad (3)$$

where $w_{cb,i,t} = P_{i,t}^j F_{i,t} / \sum_i P_{i,t}^j F_{i,t}$ and $F_{i,t}$ is the outstanding face value of corporate bond i at time t.

We investigate corporate bond markets in the US, the Euro area, Japan, the UK, Canada and Australia, which represent the bulk of the global corporate bond market. As a pricing factor, some of our models use global factors (upper script G), some use local factors (upper script L). For corporate bond returns, global and local factors are indicated and computed as follows: $r_{cb,t}^G = \sum_{i \in G} w_{cb,i,t-1} r_{i,t}$, $\sum_{i \in G} w_{cb,i,t} = 1$, and $r_{cb,t}^L = \sum_{i \in L} w_{cb,i,t-1} r_{i,t}$, $\sum_{i \in L} w_{cb,i,t} = 1$.

We also use global and local equity and sovereign bond index returns, which we indicate by subscripts eq and sb, respectively, and collect their market capitalizations over time (see Section III for more detail). Let $w_{k,t-1}^M$ indicate the relative weight of asset class k (cb, eq or sb) at time $t-1$ for global or local portfolios M (G, or L). Then, we can define the excess return for the aggregate market as:

$$r_t^M = w_{cb,t-1}^M r_{cb,t}^M + w_{sb,t-1}^M r_{sb,t}^M + w_{eq,t-1}^M r_{eq,t}^M, \qquad w_{cb,t}^M + w_{sb,t}^M + w_{eq,t}^M = 1.$$

Because corporate bonds are a relatively young asset class, and are mostly ignored in CAPM studies, we also consider specifications where the world market portfolio omits the corporate bond class. Nevertheless, from a theoretical perspective, corporate bonds surely belong in the market portfolio, whereas arguments (such as Ricardian equivalence) could be used against (fully) incorporating sovereign bonds.

To create test portfolios, we use two standard dimensions of risk in corporate bonds, rating class and residual maturity. The portfolios stratified according to credit ratings have seven buckets ranging from AAA to C, those stratified according to residual maturity have 5 buckets, namely 1 to 3-year bonds, 3 to 5-year bonds, 5 to 7-year bonds, 7 to 10-year bonds, and bonds with a residual maturity longer than 10 years. Credit ratings are a good proxy for default risk with AAA being the least risky category and C the riskiest category; whereas

higher residual maturity bonds face more interest rate risk. Interest rate risk is potentially better captured by duration, but the link between duration and maturity is tight, and we want to avoid using a measure that depends on the level of interest rates. Nonetheless, the robustness section considers duration ranked bonds.

II.B Factor Model Tests

The models are linear factor models and can generally be presented as:

$$r_{p,t} = \alpha_p + \beta'_p F_t + \varepsilon_{p,t}, \quad \forall p = 1, ..., N, \tag{4}$$

where F_t represent (excess) factor returns, α_p is the vector of the intercepts, $\varepsilon_{p,t}$ are the model residuals and N is the number of assets. As factors, we use well-diversified tradeable asset class returns (Treasury bonds, equities, corporate bonds), or value-weighted portfolios of these asset classes, as would be implied by CAPM models. We view the fit of these models from two perspectives. First, when viewed from a pure pricing perspective, the factor model imposes the restriction that the α's are jointly zero, which can be easily tested using a Wald test. A special case of this test is where F_t represents the market portfolio (local or global) and the hypothesis coincides with testing the mean-variance efficiency of the market portfolio, representing the pricing implications of the CAPM. Second, the model can also be viewed as a factor model aimed at explaining variation in the portfolio returns and their comovements. In such a model, we are interested in how much portfolio return variation the model fits, for example, as measured by the adjusted R^2 and whether the risk exposures make economic sense.

II.C   Asset Class Integration

The first model we test is the global CAPM, using the following time series regression:

$$r_{p,t} = \alpha_p + \beta_p r_t^G + \varepsilon_{p,t}, \tag{5}$$

where $\varepsilon_{p,t}$ represents the residuals. We use heteroskedasticity and autocorrelation consistent (HAC) Newey-West standard errors with two lags.

The asset pricing test for the global CAPM is represented by the hypothesis $H_0 : \alpha_p = 0$ $\forall p$. This test is equivalent to a test of the mean-variance efficiency of the world market factor with respect to the corporate bond portfolios. We perform both the standard Gibbons, Ross and Shanken (1989, GRS henceforth) and the Generalized Method of Moments (GMM) test of Mackinlay and Richardson (1989, MR henceforth). We also use these tests to apply the model selection framework of Barillas and Shanken (2017), which tests whether a sub-set of the model factor portfolios price all model portfolios (see below).

The GRS test statistic can be written as

$$W_{GRS} = \frac{T - N - K}{N} \frac{\alpha_p' \widehat{\Sigma}^{-1} \alpha_p}{1 + \widehat{SR}_f^2}, \tag{6}$$

where $\widehat{\Sigma}$ is an estimator of the variance-covariance matrix of the residuals (in the case of the global CAPM model, the residuals in Equation (5)), $\widehat{SR}_f$ is the Sharpe ratio of the factor portfolio (e.g. the global market portfolio), T is the number of observations, N is the number of test assets and K the number of factor assets (e.g. $K=1$). Under normality of the residuals, the test statistic follows a central F distribution, $W_{GRS} \sim F(N, T - N - K)$.

The GMM test is standard (Hansen, 1992). The orthogonality conditions are the vector of the residuals and the residuals multiplied with the factor returns. The estimated parameters are the OLS coefficients, and we perform a Wald test on the α_p coefficients. The GMM test

can be written as

$$W_{MR} = T\alpha_p'\widehat{V}^{-1}\alpha_p, \tag{7}$$

where $\widehat{V} = D'\widehat{S}^{-1}D$, D is the gradient of the orthogonality conditions with respect to the parameters and S is the spectral density at frequency zero of the orthogonality conditions. We use a heteroskedasticity consistent, Newey-West (1987) estimator using 3 lags. The optimal bandwidth procedure of Andrews (1991) mostly produces a value between 2 and 3, motivating this lag-length choice.

Our sample starts in February 1998, and ends in August 2018, so it comprises 247 monthly observations. While our sample size seems adequate, small sample biases are a concern. We therefore conduct a block bootstrap analysis of the two tests under $H_0 : \alpha_p = 0 \; \forall p$. We estimate the system

$$
\begin{aligned}
r_{p,t} &= \alpha_p + \beta_p'F_t + \varepsilon_{p,t} \\
F_t &= \mu + v_t
\end{aligned}
\tag{8}
$$

and resample with replacement 6 month blocks of $(\varepsilon_{p,t}, v_t)$, maintaining the covariance structure that exists between the residuals. We then reconstitute factor observations and test asset returns, setting $\alpha_p = 0$, thus creating a sample of 247 observations for each portfolio imposing the null. We use 1,000 replications of this procedure to generate empirical critical values and detect any size bias.

However, there is an additional problem with these test statistics. It is well-known that the weights of the mean-variance efficient portfolios are extremely sensitive to small changes in expected returns, when portfolio returns are highly correlated (see Best and Grauer, 1991; Green and Hollifield, 1992). As we will see below, simple factor models can explain much of the variation in corporate bond portfolio returns, suggesting an intuitive factor structure in corporate bonds returns. However, coupled with the relatively low variances of various corporate bond portfolios, their high correlations render unconstrained mean-

variance efficiency tests hard to interpret. In particular, the resulting mean-variance efficient portfolios imply extremely unrealistic long and short portfolio positions, making statistical rejections economically not meaningful.

Therefore, we also consider mean-variance efficiency tests which impose realistic portfolio constraints on the problem. Incorporating short-sale constraints in mean-variance efficiency tests has somewhat fallen out of vogue, despite noteworthy contributions by Wang (1998) and Basak, Jagannathan and Sun (2002). While transaction costs are now lower than before, the corporate bond market is not liquid and implied portfolio positions that are really extreme are simply unrealistic. We therefore also use the bootstrap method estimating the system (8) to address the issue of the impact on the tests of short-sale constraints. We focus on the GRS test statistic for the global CAPM, which has an intuitive economic interpretation as it is proportional to the squared information ratio for the test assets. Equation (6) can also be written as follows:

$$W_{GRS} = \frac{T - N - 1}{N} \frac{\widehat{SR}_c^2 - \widehat{SR}_f^2}{1 + \widehat{SR}_f^2} \tag{9}$$

where $\widehat{SR}_c$ is the Sharpe ratio of the optimal portfolio of the test and factor assets and, as before, $\widehat{SR}_f$ is the Sharpe ratio of the factor portfolio. Given this expression, we can also compute the statistic imposing short-sale constraints. While the expression for a mean-variance efficient portfolio is available in closed form, when using short-sale restrictions we must solve an optimization problem subject to constraints. We minimize the variance of the optimal portfolio subject to the average return matching the return of the factor portfolio and then consider no short-sale, 100% short-sale constraints and 50% short-sale constraints. The latter constraints allow short positions adding up to less than 100% and 50%, respectively. We can then compare the statistics based on the distributions generated under the null of zero α's, while imposing various short-sale restrictions.

From a factor model perspective, we are also interested in how the factor exposures, β_p,

vary with the risk dimensions (ratings and residual maturity) and how much return variation the model fits (which can be measured using the adjusted R^2).

A plausible alternative hypothesis is that the corporate bond factor, $r_{cb,t}^G$, has better ability to explain differential corporate bond risks. This would effectively suggest that there is market segmentation across these asset classes explaining corporate bond risks. It is straightforward to test this hypothesis using the following model:

$$r_{p,t} = \alpha_p + \delta_{cb,p} r_{cb,t}^G + \delta_{sb,p} r_{sb,t}^G + \delta_{eq,p} r_{eq,t}^G +$$

$$\beta_{cb,p} w_{cb,t-1}^G r_{cb,t}^G + \beta_{sb,p} w_{sb,t-1}^G r_{sb,t}^G + \beta_{eq,p} w_{eq,t-1}^G r_{eq,t}^G + \varepsilon_{p,t}, \tag{10}$$

where $w_{cb,t}^G$, $w_{sb,t}^G$ and $w_{eb,t}^G$ denote respectively the global market shares of corporate bonds, sovereign bonds and stocks, $w_{cb,t}^G + w_{sb,t}^G + w_{eb,t}^G = 1$. Under the null of the global CAPM factor model, the following restrictions should hold, which we refer to as a test of factor model *asset class integration*:

$$\begin{aligned} \text{H}_0: \quad & \beta_{cb,p} = \beta_{sb,p} = \beta_{eq,p} = \beta_p \\ & \gamma_{cb,p} = \gamma_{sb,p} = \gamma_{eq,p} = 0 \end{aligned} \tag{11}$$

The test statistic follows a $\chi^2(5)$ distribution.

A simple alternative "asset-segmented" model may describe the data better, simply allowing the coefficients on the three factors to be different and not linked to market capitalization:

$$r_{p,t} = \alpha_p + \beta_{cb,p} r_{cb,t}^G + \beta_{sb,p} r_{sb,t}^G + \beta_{eq,p} r_{eq,t}^G + \varepsilon_{p,t}. \tag{12}$$

Again, a test implying $\text{H}_0: \alpha_p = 0 \ \forall p$ is an asset pricing test of the validity of the factor model, but we also verify how well the model fits corporate bond return variation in the various countries.

II.D   International Market Integration

If markets are segmented, the global CAPM model is mis-specified and the use of local (risk) factors is desirable. Therefore, we repeat the factor models (5) and (12) using the local market portfolios.

To test the null of *international market integration*, we include both global and local factors:

$$r_{p,t} = \alpha_p + \beta_p r_t^G + \gamma_p r_t^L + \varepsilon_{p,t}, \tag{13}$$

or

$$r_{p,t} = \alpha_p + \beta_{cb,p} r_{cb,t}^G + \beta_{sb,p} r_{sb,t}^G + \beta_{eq,p} r_{eq,t}^G + \gamma_{cb,p} r_{cb,t}^L + \gamma_{sb,p} r_{sb,t}^L + \gamma_{eq,p} r_{eq,t}^L + \varepsilon_{p,t}. \tag{14}$$

The asset pricing restrictions again simply involve testing $H_0 : \alpha_p = 0 \; \forall p$. From an asset pricing perspective, the model in Equation (13) nests the global CAPM model, and the model in Equation (14) nests the global three-factor model in Equation (12). We use the testing framework of Barillas and Shanken (2017) to test these models relative to one another. The key insight of the Barillas-Shanken paper is that the test assets do not matter to test the relative performance of nested models. In particular, if the factors of the parsimonious models price the other factors of the larger model, we fail to reject the simpler model. Given the principle of parsimony, the simpler model should be chosen as the preferred model. In the context of Equations (13)-(14), these tests amount to asset pricing tests of international market integration. As before, we are also interested in the various models as pure factor models. From a factor model perspective, the null of international market integration implies $\gamma_p = 0$ in model (13) or $\gamma_{cb} = \gamma_{sb} = \gamma_{eq} = 0$ in model (14), yielding a $\chi^2(1)$ or $\chi^2(3)$ statistic, respectively. We also test the joint hypothesis: $\beta_{cb} = \beta_{sb} = \beta_{eq} = 0$. This hypothesis tests the null of market segmentation, where international factors do not have explanatory power for corporate bonds returns. If both global and local factors matter, the corresponding bond market can be viewed as partially integrated, from a factor model perspective.

II.E   Comovements

Factor models must also fit the comovements of corporate bonds of differential risks. To test the ability of the models to do so, we test whether the associated residuals, $\varepsilon_{p,t}$ in the various models, show zero-comovement. Therefore, we test the following restrictions through a GMM test (for one pair):

$$
\begin{bmatrix}
\varepsilon_{p_l,t}^2 - \sigma_{p_l}^2 & = 0 \\
\varepsilon_{p_m,t}^2 - \sigma_{p_m}^2 & = 0 \\
\varepsilon_{p_l,t}\varepsilon_{p_m,t} - c_{p_l p_m}\sigma_{p_l}\sigma_{pm} & = 0
\end{bmatrix}
\tag{15}
$$

where $\varepsilon_{p_l,t}$ and $\varepsilon_{p_m,t}$ represent different residuals for a particular factor model, p_l and p_m ($l \neq m$) denote the two portfolios with a different risk profile, $\sigma_{p_l}^2$ and $\sigma_{p_m}^2$ provide the residual variances and $c_{p_l p_m}$ measures the bilateral correlations across two portfolios.

The null hypothesis is then H_0: $c_{p_l p_m} = 0$. This exercise is carried out for credit rating portfolios as well as for residual maturity portfolios. The test above only tests the zero restriction for one correlation pair, but the factor model comovement test requires testing the hypothesis that all residual correlations are jointly zero. For the ratings-based portfolios, when all ratings classes are available, this involves 21 restrictions (and thus a $\chi^2(21)$ test statistic results); for the residual maturity bonds, there are 10 zero restrictions (and thus a $\chi^2(10)$ test statistic results). The null hypothesis is equivalent to the factor model matching the correlation structure of corporate bond portfolio excess returns.

III   Data and Summary Statistics

III.A   Data Sources and Coverage

Data are compiled using the individual bond data of BofAML, which is part of Interconti-nental Exchange (NYSE: ICE), an operator of global exchanges and clearing houses which

includes the New York Stock Exchange (NYSE). Blackrock, JP Morgan and PIMCO have all launched exchange-traded funds designed to capture exposure to the corporate bond sector tracking the ICE BofAML indices and the Wall Street Journal publishes their performance daily.

The data cover investment grade and high yield corporate debt publicly issued in the major markets. Qualifying securities must satisfy the following requirements to be included: (i) a minimum size, (2) a rating issued by Moody's, S&P or Fitch, (3) a fixed coupon schedule and (4) a minimum 18 month maturity at issuance. Qualifying currencies and their respective minimum size requirements (in local currency terms) are: Australian dollar (AUD) 100 million; Canadian dollar (CAD) 100 million; Euro (EUR) 250 million; Japanese Yen (JPY) 20 billion; British pound (GBP) 100 million; and US dollar (USD) 250 million. Eurodollar bonds (bonds not issued in the domestic market but offshore in several markets) also qualify for inclusion in the data set.

We collect data at the monthly frequency, specifically the last Friday of the month. This avoids potential statistical biases resulting from the rebalancing of constituents on the last calendar day of the month.[4] We retain bonds with a residual maturity above 11 months that are available for at least two consecutive months and are issued by companies whose "country of risk" is based in Australia, Canada, the Euro area, Japan, the UK, or the US and are issued in one of the six economies' respective currencies.[5] This also includes bonds issued in pre-euro currencies (European Currency Unit/ECU, Deutsche mark, the Dutch guilder, the French franc, Italian lira and Spanish pesetas), because these bonds remained in the market until 2002. Bond prices are based on quotes, not transaction prices.

---

[4]The BofAML constituents are rebalanced on the last calendar day of the month, based on information available up to and including the third business day before the last business day of the month. Bond issues that meet the qualifying criteria are included in the BofAML constituents for the following month. Issues that no longer meet the criteria during the course of the month remain in the BofAML data set until the next month-end rebalancing, at which point they are removed.

[5]The country of risk is based on the physical location of the issuer's operating headquarters with the following exceptions: (i) holding company issuers are assigned a country of risk based on the location of the majority of operating assets. If no single country represents a majority of operating assets, or if this cannot be determined, the country of risk is the issuer's operating headquarters; (ii) bank branch issues are assigned the country of risk of the parent entity.

To the best of our knowledge, our sample represents the largest cross-section and longest times-series of bonds issued worldwide used in an empirical study. It includes 2.4 million bond-month return observations from February 1998 to August 2018.[6] The number of bonds in the sample increases over time: 7187 bonds in January 1998 to 13887 in August 2018, with the largest number of bonds issued in USD (5237/8629), EUR and pre-EUR currencies (628/2772) followed by GBP (278/799), JPY (626/430), CAD (330/916) and AUD (88/341). The only country recording a contraction in the corporate bond market is Japan with the number of bonds starting a steady decline in September 2008 after having reached 1096 bond issues. One curious phenomenon is that there are no speculative bonds issued in Japan during our sample period. Some Japanese companies do issue speculative bonds, but they do so in the international bond markets.

Panel A of Table 1 contains information about the relative sizes of the various markets. The columns split up the various bonds in our data set by currency denomination, including USD, EUR, JPY, GPB, CAD and AUD. The rows show the country of risk of the bond issuer, split up across our six economies, and the rest of the world ("Other").

The first column shows that over the sample period there are on average 4 trillion USD denominated corporate bonds outstanding; EUR issuance comes second at USD 1.5 trillion. Panel B shows that about 72% of the USD corporate bonds are issued by corporations with their main activity in the US, and 88% by companies in our six economic areas. This implies that a large fraction of the USD bonds are international bonds, issued by non-US companies. However, some of the USD bonds issued by foreign companies may be issued within the US (Yankee bonds) targeting US investors; whereas US companies may issue USD bonds not in the local bond market but the international Eurobond market. Therefore, it

---

[6]Some currency portfolios are not included either because of lack of issuance, data or due to an insufficient number of observations. This applies to JPY and AUD AAA, BB, B and C rating portfolios as well as to CAD C portfolio. All other individual currency ratings and maturity portfolios are available from February 1998 to August 2018, except for the EUR BB, which is available from May 1999, the GBP BB and C rating portfolios, which are available from May 1999 and January 1999 respectively, and for the AUD above 10-year maturity portfolio, which is available from January 2000 with a break without observations between July 2010 and April 2011.

is not clear which fraction of the total bonds outstanding in dollars is actually owned by American investors. While 88% of all USD bonds is issued in our six economies, this fraction is much larger for all other currencies; it is even 99.7% for CAD-denominated bonds. This difference is due to bond issuance of firms in emerging markets, which typically issue USD-denominated bonds not covered in this paper. The domestic shares vary between 50.6% for the AUD bonds and 88.6% for the JPY bonds. In terms of size, the JPY and GPB markets represent about 25% of the EUR market (USD 350 to 400 billion on average). The CAD market is about USD 200 billion, and the AUD market about USD 50 billion.

The coverage of our sample is also extensive in a relative sense. The market share of the six economies for our corporate bond sample is 89.6% of the entire BofAML database. Because BofAML uses several screens (see above) before including a bond issuance, the question arises what percentage of all bonds our data set represents. Bloomberg is likely the most comprehensive source for bond quotes. The Online Appendix compares the outstanding face value for December 2018 compiled using Bloomberg data against the BofAML data. For the six currencies, the BofAML data set represents 62% of the face value of all bonds available on Bloomberg. However, this share rises to 86%, if we exclude bonds with a floating coupon and bonds with a callability below 1-year, which are not part of the BofAML data set.

Our bond data set can be organized in six areas according to two principles, the "area of risk" or the "currency of issuance." Because of the importance of international bonds, these two principles do deliver different relative market sizes, with, for example, the USD and EUR market capitalizations larger than the bonds issued by US and Euro area companies (see the last column in Table 1 for the size from the area perspective). Conversely, the bond markets in Australia and the UK are relatively larger from the "risk area" perspective, because companies in these countries issue a relatively large number of international bonds; in fact, they issue more bonds internationally than domestically. We use the currency perspective to avoid currency translations to affect returns within one area. Apart from USD denominated bonds, which dominate multinational Eurobond issuances, it is well-known that companies

cater their bond issuance to local clienteles, e.g. US companies may issue AUD bonds in the Australian bond market. Burger, Warnock, and Warnock (2018) and Maggiori, Neiman and Schreger (2018) document "currency" home bias in corporate bond holdings, suggesting that a currency perspective may get us closer to investor holdings. In the robustness section, we use our panel analysis at the CUSIP level to examine whether our results differ for domestic and international bonds.

Using the currency issuance perspective for corporate bonds, Panels C and D compare the relative size of the three asset classes, equities, sovereign bonds and corporate bonds. The corporate bond market capitalization uses market values converted in USD. The stock market capitalization at market value is provided by Thomson DataStream,[7] the sovereign bond market capitalization is the universe based on book value provided by the BIS. Panel C shows average actual dollar amounts; Panel D shows the average fractions of market capitalization across all three asset classes. Overall, equity is the dominant asset class representing close to 50% of total market capitalization. The Great Recession made sovereign bonds the dominant asset class for a few years, and in 2018 it represented about 40% of the total market capitalization; while the corporate bond asset class reached 10%. The latter's share has risen steadily from 6% to 10% over the sample period. There are rather important but perhaps not surprising differences across countries. The equity market is most dominant in the US, and the corporate bond market also represents a larger fraction of the total market capitalization there (having increased from about 8% in 1998 to 13% in 2013 and fluctuating thereafter). In the euro area, sovereign bonds dominate representing about 50% of the total market capitalization; equities represent 40% and the corporate bond market accounts for 11% of the total market capitalization. Japan is unusual. The sovereign bond market represents 65% of the total; the equity market 31%; and the corporate bond market only 3% on average, but has shrunk to 0.8% by the end of the sample period. In the UK, Canada and Australia, the equity market is also dominant with shares ranging from 54% in Canada to

---

[7]Thomson DataStream indices are calculated on a representative list of stocks for each market. The sample for each economy covers a minimum of 80% of total market capitalisation.

70% in Australia. The sovereign bond market capitalization, which is commensurately lower in the UK and Australia, has increased substantially in these two countries since the Great Recession. The relative size of the corporate bond market capitalization is the smallest in Japan and Australia (less than 5% of the total market capitalization).

III.B Return and Risk

To characterize risk and return in international corporate bond markets, we stratify bonds in portfolios according to credit ratings (7 buckets) and according to residual maturity (5 buckets). Credit ratings are a good proxy for default risk; whereas higher maturity bonds face more interest rate risk. Specifically, the seven portfolios based on credit ratings pull together excess returns of bonds with AAA, AA (AA1, AA2, AA3), A (A1, A2, A3), BBB (BBB1, BBB2, BBB3), BB (BB1, BB2, BB3), B (B1, B2, B3) and jointly the categories C (CCC1, CCC2, CCC3, CC, C) and D, which we refer to as "C" hereafter.[8] Ratings AAA through BBB are investment grade. We use the average credit rating reviews associated with the bond, as carried out by Moody's, S&P and Fitch, the three largest credit rating agencies. The composite ratings are calculated by assigning a numeric equivalent to the ratings in each agency's scale, and averaging those numbers. The average is then rounded to the nearest integer and finally converted back to an equivalent composite letter rating using the scale in the Online Appendix.[9] The five portfolios based on residual maturity include excess returns of bonds with residual maturity ranging between 1-to-3 years, 3-to-5 years,

---

[8]The number of D-rated bonds is marginal.

[9]If only two of the designated agencies rate a bond, the composite rating is based on an average of the two. Likewise, if only one of the designated agencies rates a bond, the composite rating is based on that one rating. The composite ratings are updated once a month as part of the rebalancing process. Composite rating changes take effect on the last calendar day of the month based on information available up to and including the rebalancing lock-out date (the third business day prior to the last business day of the month). Rating upgrades or downgrades occurring after that day will not be considered in the current month rebalancing and will get incorporated at the following month's rebalancing. For example, assuming there are no global holidays in between, if August 31 fell on a Friday the rebalancing lock-out date would occur on August 28. Therefore, a bond that was downgraded to below investment grade on August 28 would transition from the investment grade index to the high yield index at the August 31 rebalancing. Conversely, if the bond was downgraded on August 29, it would remain in the investment grade index for the month of September and transition to high yield at the September 30 rebalancing.

5-to-7 years, 7-to-10 years, and above 10 years. Weights are market capitalization based.

In Table 2, we report summary statistics for the global portfolios with the currency specific tables relegated to the Online Appendix. These bond portfolios are aggregated across the six economic areas and thus represent a good proxy to the world corporate bond market. The last line reports the relative market capitalization of the various bond "buckets". In the aggregate, about 85% of the bonds in the sample are investment grade mainly concentrated among the A and BBB categories. Across the different currencies (see the Online Appendix), the USD denominated bonds have the largest share of high yield bonds, amounting to about 20%; for EUR bonds this proportion is less than 10%. In terms of residual maturity, EUR-denominated bonds (55%), JPY-denominated bonds (70%) and Australian-denominated bonds (84%) have the largest share of bonds with residual maturity below 5 years. In contrast, GBP-denominated bonds (44%) have the largest share of bonds with residual maturity above 10 years. USD denominated bonds are rather evenly split over the different maturity buckets.

We also report the correlations with the three global risk factors: the global corporate bond portfolio, the global sovereign bond portfolio and the global equity portfolio. Sovereign bond and equity excess returns, expressed in US dollars, are constructed using the 7-10 year Thomson DataStream benchmark bond total price index and the Thomson DataStream equity total price index, respectively, for the above six economies. In order to compile the global factors, we use the capitalization based on book value for the sovereign bond market and the market value for the equity market.[10] When we correlate the various bond portfolios with the corporate bond risk factor, we exclude the portfolio segment considered from the market portfolio computation, to avoid spurious correlation. This is necessary because bonds in the various risk spectrums represent such different market capitalizations.

For the correlation with the global corporate bond portfolio, we find a reverse V-shaped

---

[10]The Online Appendix reports summary statistics for all the factor portfolios used in this article. Importantly, sovereign bond portfolios do not universally feature less volatile returns than the corporate bond portfolios because corporate bonds have overall lower duration than do sovereign bonds. The average duration of corporate bonds for the world portfolio in the sample amounts to 5.4 years.

pattern, with correlations increasing at first, then decreasing. The pattern is the natural outcome of increasing factor exposures with respect to this portfolio, which we document in Section V, and portfolio standard deviations increasing with risk, with the latter effect eventually dominating. The patterns for the correlation with sovereign bonds show a very high positive correlation for A-rated bonds, which then decreases quickly to become even negative for the C-category, while we find a V-shaped pattern in the residual maturity space in the 0.55-0.65 range. In terms of the correlation with the global equity portfolio, we find the opposite patterns: correlations monotonically increase as the credit rating worsens, up and till the B-category; correlations show an inverse V-shaped pattern in the residual maturity space. These simple statistics already show substantial differences between the risk exposures of the various bond portfolios.

The first few lines of Table 2 report average and standard deviations of the global portfolios. Average returns generally increase both as the rating worsens and residual maturity increases, but the pattern is not 100% monotonic. The same is true for the standard deviation of portfolios, with AAA bonds have an unusually large return standard deviation, higher than AA, A and BBB bonds; while 7-to-10 year maturity bonds have a slightly smaller standard deviation than the 5-to-7 year bonds.

Figure 1 verifies whether the cross-portfolio relationship between risk, as measured by rating and residual maturity, the portfolio's volatility and average returns is more generally applicable. It shows the corporate bond portfolios in average return (in dollars) against their respective standard deviation. The nearly linear, upward sloping relationship for all currencies is immediately apparent. We report the constant and slope coefficients of regressing average returns on standard deviations, country by country, and overall, using all the portfolios (75 in total). For the latter specification, we use a simple pooled specification and one with country fixed effects. The slope coefficients are highly statistically significant for all regressions, varying between 0.135 for EUR-bonds and 1.44 for JPY-bonds. The pooled coefficient is 0.260 (0.338 with fixed effects). Individual portfolio volatility should not be

priced, but we find a significant price of volatility risk. An earlier version of Bai, Bali and Wen (2019) also finds a positive relation between returns and volatility in the cross-section of US corporate bonds. A successful risk model should fit the strong pattern of average returns increasing in the volatility of the underlying portfolios and we test this formally in Section IV.

Panel B of the table in Figure 1 tests where the riskiest bonds receive significantly higher returns than the safest bonds during our sample period, for the World and our six economic area portfolios. We compare the riskiest available high yield credit category with AAA, and the longest residual maturity bonds with the 1-3-year bond category. The differences are always positive, and statistically significant at the 10% level or better in half the cases. Except for GBP- and AUD-bonds, this always involves maturity risk receiving significantly higher returns. This suggests some, but not overwhelming, power emanating from historical returns to reject pricing models. In Section V, we also examine how differential factor exposures help fit the volatility-return pattern.

IV   Asset Pricing Tests

In this section, we test the asset pricing implications of the various models discussed in Section II. Section IV.A makes use of the test asset Irrelevance theorem of Barillas-Shanken (2017) to compare the performance of the various factor models, showing that there is no evidence against the global CAPM model. Section IV.B tests whether this model actually fits the data, relying on bootstrapped critical test values and also accommodating short selling constraints in some of our tests.

IV.A   Model Selection

Barillas-Shanken (2017) show that the impact of test assets on a model's ability to fit the test-asset returns (produce zero α's) is the same for each model and thus cancels in model

comparison. Thus, to pit a parsimonious model versus an alternative encompassing model, testing whether the parsimonious model prices the additional factors in the alternative model suffices; the test assets are irrelevant. For example, we test the global CAPM versus the global and local CAPM by testing whether the global market portfolio prices the local market portfolio. To increase the information generated by the Barillas-Shanken tests, we enlarge the three- and six-factor models with the global market portfolio. We then test the global CAPM also versus these enlarged models. All the tests are summarised in Table 3, where we report both GRS tests using Equation 6 and GMM tests using Equation 7. The first and second colummns of each portfolio provide the standard p-value and the p-value based on the bootstrapped distribution, respectively.

The global CAPM, the most parsimonious, fully integrated model (both in terms of asset and international integration) is tested relative to the global three-factor model. So, this test verifies whether the global market portfolio prices the global equity, sovereign bonds and corporate bond portfolios. The most parsimonious model featuring local factors, is the combination of a global and local market factor. In this case, we can either have the local (segmentation) or global CAPM (integration) as the benchmark (null) model. We also test the CAPM models relative to the six-factor model, including the three local factors for each currency. For completeness, we test the three-factor model relative to the six-factor model (these models are fully nested). Finally, we consider the polar opposite of the global CAPM, using a totally segmented model, namely the local corporate bond market as a factor and test it relative to the local three-factor and the full six-factor models.

Let us first focus on the GRS test, reported in Panel A, even though we view the GMM test as more relevant, given the non-Gaussian nature of any asset return data. The evidence against the global CAPM is limited to 5% rejections for the USD and EUR portfolios. With bootstrapped p-values, the rejections become 10% rejections. The local CAPM is rejected at the 5% level relative to the three-factor model for half the currencies. However, when using bootstrapped critical values, the evidence against the segmented CAPM model weakens

(10% rejections). Pitted against the global and local CAPM or the six-factor model, the local CAPM fares slightly better, but there are still some rejections. The global three-factor model is only rejected at the 10% level by the six-factor model for the USD portfolios. As for the local corporate bond market model, it is rejected only for the JPY portfolios at the 5% level.

In Panel B, we report the GMM tests. There are now more rejections using the asymptotic p-values. In this case, the global CAPM is only rejected relative to the six-factor model for the EUR portfolios at the 5% level and for the USD portfolios at the 10% level. However, the global CAPM is not rejected for the USD portfolios using the bootstrapped critical values. For EUR portfolios, there is a rejection of the global CAPM model relative to the six-factor model, but only at the 10% level of significance. The local CAPM, in contrast, is rejected at the 5% level for almost half the cases considered. However, when considering bootstrapped critical values, all rejections disappear except for the GBP portfolios. The local CAPM is still rejected relative to the global and local CAPM for GBP portfolios at the 1% level,

Using the asymptotic critical values, there are 5% rejections of the local corporate bond factor relative to the six-factor models for the EUR, JPY and the GBP and these rejections persist for testing against the three-factor model for the JPY portfolios. At the bootstrapped critical values, 5% rejections only remain for the JPY portfolios.

Taken together, from a pricing perspective, given the lack of rejections we observe, the global CAPM, which is the most parsimonious model, is to be preferred. This does not necessarily mean that the other factor models do not fit the data. In fact, one interesting finding is that the expected returns from the various models tend to be very highly correlated. For example, taken all portfolios together, the global CAPM expected returns are 0.924 correlated with the expected returns from the local CAPM. The analogous correlations are 0.893 for the global three-factor model; 0.612 for the local three-factor model; 0.774 for the six-factor model and 0.715 for the local corporate bond market model.

IV.B Pricing the Test Assets

While the Barillas-Shanken procedure suggests that the global CAPM model is the preferred model, we must still verify whether the model actually prices the corporate bond portfolios. Table 4 contains the pricing results.

We split the test assets into the 12 portfolios put together (Panel A-D), the 7 ratings portfolios (Panel E-G) and five maturity portfolios (Panel H-J). Panels A, E and H report results from the standard tests, but we show two p-values. The first is the usual p-value from the F or GMM test, respectively. The second p-value is derived from the empirical bootstrap distribution. When employing the GRS test statistic and the F distribution, the global CAPM is rejected at the 5% level for the USD, GBP, and AUD rating portfolios, and for the global, USD and EUR maturity portfolios. Taken jointly, the model is rejected at the 1% level for the global, USD, EUR, JPY and GBP portfolios; and at the 10% level for the CAD portfolios. When using the GMM test and the typical chi-square distribution, the evidence against the global CAPM is weaker for the ratings portfolios, where we only observe a 5% rejection for the GBP and AUD portfolios. However, the model is rejected at the 1% or 5% level for the global, USD, EUR, and CAD maturity portfolios. When combining these portfolios, we observe rejections at the 5% level or less for all portfolios.

This evidence is very surprising given that the α's shown in Section IV are small and mostly statistically insignificant. A first problem with the standard tests is that they over-reject in finite samples. For example, under $H_0 : \alpha_p = 0 \; \forall p$, the F-distribution rejects the null at the 95% level close to 27% of the time, which represents a significant size bias. When we use the bootstrap distribution to compute the p-values, we observe not a single 5% rejection for the ratings portfolios. At the 10% level, there is some evidence against the global CAPM using the AUD rating portfolios. However, there is still evidence against the model using maturity portfolios. Using the GRS test, we observe 5% rejections for the global and EUR portfolios and a rejection at the 1% level for the USD portfolio, with these rejections being preserved for the combination of the ratings and maturity sorted portfolios

for the USD and EUR test assets. Using the GMM test, there are rejections at the 5% level for the global, USD, EUR and CAD maturity portfolios, but no rejections at the 5% level when all 12 portfolios are considered jointly. However, the p-value for the USD portfolios is 5.2% so we would reject at the 10% level. We conclude that the evidence against the global CAPM is rather weak when the over-rejection of the pricing tests is taken into account.

Being puzzled about the rejections we observe, despite the economically small α's, we further investigate their source. Recall that pricing tests amount to testing the mean-variance efficiency of the global CAPM portfolio. The GRS test can in fact be rewritten as proportional to the difference between the square of Sharpe ratio of the test assets and the factor portfolio minus the square of the Sharpe ratio of the factor portfolio (see Equation (9)). Of course, even if the test assets have small α's, a mean-variance efficient portfolio can generate a very high Sharpe ratio through large short and correspondingly large long positions of highly correlated assets with slightly different expected returns. This is exactly what happens among corporate bond portfolios. Panels B, F and I in Table 4 provide some sense of the extent of the problem.

Before assessing the implications of short-sale constraints, we first report in Panels C, G and J the highest portfolio weight in absolute value and subsequently, the largest short position (which may coincide with the highest absolute value portfolio weight). For the ratings portfolios, the optimal portfolio weights are extreme. A number like 10.10 for the CAD portfolios means that 1010% of the portfolio is invested in one test asset (the BBB portfolio) (partially financed by a 902% short of the AA portfolio). The only currency perspectives yielding somewhat fewer extreme weights are the global and USD portfolios, but still the maximum short position in the USD case is 129% and the total short positions (not reported) add up to almost 200% of the portfolio. The maturity portfolios produce even more extreme weights for the global, the EUR and the CAD portfolios. This explains, of course, why we observe stronger rejections for the maturity portfolios. Not surprisingly, the problem is even more extreme when considering portfolios constructed from the ratings

and maturity sorted portfolios combined.

Clearly, whatever statistical rejection such portfolios generate, such a rejection is economically meaningless. Not a single investor would ever invest in these "optimal" portfolios.

We therefore consider the effect of imposing short-sale constraints on the mean-variance efficiency tests. While there is substantial research activity regarding the interaction of such constraints and mean-variance efficiency in the 90's, the recent vast literature on the cross-section of expected returns has mostly not worried about the underlying portfolio weights. Wang (1998) uses a Bayesian framework to assess the effect of short-sale constraints on the efficiency of the NYSE-AMEX equity portfolio. The appproach by Basak, Jagannathan and Sun (2002) consists of computing the difference in variance between the mean-variance optimal portfolio under short-sale constraints and the variance of the benchmark (factor) portfolio, given that they have the same means. They derive the sampling distribution of this measure, as a function of the underlying data moments, using a linear approximation (the delta method). However, as they admit in the paper, when short-sale constraints are imposed, this efficiency measure is a highly nonlinear function of the data, undermining the accuracy of the delta method.

Therefore, we build on their analysis, but use the bootstrap methodology to derive an empirical distribution of the relevant statistics. We solve the same optimizing problem (minimizing the variance of the portfolio given that the mean equals the mean of the world portfolio) under various constraints, but compute the analogue to the GRS statistic. Panels B, F and I show the bootstrapped p-values associated to the GRS statistic when full short-sale constraints are imposed. Recall that the statistics are proportional to the squared information ratio. While we do not report the underlying statistics (only the p-values), they are now mostly close to zero, suggesting that short positions are essential to beat the benchmark global market portfolio. Compared to the bootstrap distribution under the null, we do no longer observe any rejections for the overall and ratings portfolios. However, we still see some weak evidence against the global CAPM portfolio being efficient with respect to

the global and USD maturity portfolios at the 10% and 5% significance levels, respectively. Recognizing that zero short-sale restrictions is unrealistic given the recent growth of financial markets and the availability of derivative contracts (see also Sharpe, 1991), we redo the tests and bootstrap analysis using two alternative constraints, a bound of 100% on all short positions (allowing 100% leverage), and a bound of 50% on all short positions (allowing 50% leverage). With a 100% constraint, we reject the global market portfolios efficiency for the USD ratings sorted, maturity sorted and all portfolios at the 5% level. When we tighten the constraint to 50%, the rejections become more marginal, but persist for the USD portfolio at the 5 or 10% level.[11]

We conclude that, from a pricing perspective, there is no evidence against the global CAPM for all currency bond portfolios except the USD ones, though the evidence is rather weak also for the latter portfolios. To arrive at this conclusion, we must control for the small sample biases in the test and the fact that null rejections implicitly reflect unrealistically extreme long and short positions. Another way to show the good fit of the global CAPM model for expected returns is to correlate historical average returns with the expected returns predicted by the global CAPM. These correlations are reported in Panel D of Table 4. They range from 0.637 for the EUR portfolios to 0.896 for the JPY portfolios.[12] When we use all individual currency portfolios together, the correlation is 0.63. Figure 2 shows the average returns on the vertical axis, and the expected returns generated by the global CAPM on the horizontal axis, with the 45 degree dashed line. The overall good fit is apparent even though there are a few outliers (C portfolios in GBP and EUR, mostly). The outliers only partly disappear when we use the six-factor model, which delivers an overall correlation between expected and average returns of 0.74.

---

[11]Our tests follow the methodology in Wang (1998) and Basak, Jagannathan and Sun (2002) and assume risky portfolio weights adding to 1. However, implicitly, our asset pricing tests do allow for the existence of a risk-free asset. When we allow for unrestricted borrowing and lending in a risk-free asset (with return equal to the average T-bill rate), the results are largely robust, but we still find a rejection of the global CAPM for USD portfolios at the 5% level, even when 100% short sell constraints are imposed.

[12]The zero correlation for the AUD portfolio is driven by the 10-year maturity portfolio, for which we also have incomplete data. If we exclude it the correlation would increase to 84%.

Finally, we revisit Figure 1, which shows a strong relationship between return premiums and portfolio volatility. Before applying a risk model, the pooled model records a volatility slope of around 0.3, suggesting a return spread of 3% associated with a volatility spread of 10%. A successful pricing model should fit this overall volatility slope. In fact, the global CAPM does. In Table 5 (Panel A), we show the results of applying the pooled return-volatility test over all 75 bond portfolios but applied to the α's resulting from the global CAPM model. We also show the slope coefficients from the fixed effect regression (Panel B) and the range of coefficients across currencies (Panel C). For the pooled regression, the volatility slope is in fact now zero. While the slope coefficient is statistically significantly different from zero in the fixed effect regression, it is less than 1 basis point. These results are not surprising given that the overwhelming majority of the α's are statistically insignificant, have both positive and negative signs, and are economically small (a few basis points per month).

Table 5 also shows the results for three alternative models: the global three-factor model, the local three-factor model and the six-factor model with both local and global factors. Because the expected returns of the various factor models are highly correlated, these alternative models also fit the volatility slope in the data. The volatility slopes remain economically small. For example, for the six-factor model, the pooled slope is 1 basis point (but statistically significantly different from zero), and ranges from -1.6 basis points for AUD portfolios (not significant) to 4.9 basis points for the GBP (which is statistically significant). The joint slopes are largest for the local three-factor model, but remain economically tiny. We conclude that various factor models, including a simple global CAPM model, capture the volatility-return relationship present in the data.

One main reason that standard pricing tests are not trustworthy for analyzing corporate bond returns, is the high return correlation between the various bond portfolios. Whereas the global CAPM may be a good pricing model, it is not clear it is a good factor model capable of capturing the factor structure in international corporate bonds returns, which we

now analyze in more detail. By examining actual factor exposures, we also illustrate how the various factor models fit average returns and the strong volatility/return relationship in corporate bond data.

V   Factor Model Results

The main goal of this section is to determine which factor model best fits return variation and comovements in international corporate bond markets. We start out showing the performance of a standard global CAPM model. Subsequently, we test the null of factor model asset class integration using the model in Equation (10) and examine the performance of a simpler global three-factor model. Finally, we test the null of factor model international market integration using the model in Equation (14) and analyze the performance of local factor models.

V.A   The Global CAPM

Panel A of Table 6 shows the performance of the global CAPM models for the global corporate bond market. There is a near monotonic increase of portfolios β's with decreased ratings, or higher residual maturity. Typical bond risks are clearly partially priced in β's exposure. The β's increase from 0.426 for AAA bonds, to 0.952 for C bonds (and 0.701 for B bonds). Short term bonds (1-to-3 years) have likewise β's of 0.402, whereas long-term bonds (longer than 10 years) have β's of 0.560. The β's are all statistically significantly different from zero and the adjusted R^2's follow a hump-shaped part, being in the 0.300 to 0.512 range. This pattern is remarkable because the relative market capitalization represented by some "buckets" is quite small (see Table 1), yet, the bonds behave consistent with their "risk".

Note that none of the α's are statistically significant and there is no clear pattern across bonds with different ratings and residual maturity. As we argue in Section V, the simple

CAPM model already provides a reasonable differentiation of returns with different risk profiles. It is conceivable that the global CAPM works substantially less well for the country specific portfolios, but that is not the case. Figure 3 shows the various β patterns for the ratings portfolios (Panel A) and for the residual maturity portfolios (Panel B). All β's are statistically significantly different from zero. The pattern of monotonically increasing β's repeats itself for USD, EUR, GPB and CAD bond portfolios. The patterns mostly display some convexity induced by the switch from investment trade to speculative bonds for ratings ranked portfolios. Similar, but weaker patterns are observed for the residual maturity portfolios in Panel B. For JPY and AUD portfolios, we only have a limited number of ratings portfolios, but in both countries, the β's are rather flat with respect to increases in default risk or maturity. The highest β's are generally observed for the EUR and AUD bonds; the lowest ones for global, USD, and JPY bonds.

The α's for the various country portfolios are also mostly statistically insignificantly different from zero, with the only exception being five portfolios in the US, comprising investment grade and short maturity bonds. This is consistent with our pricing evidence revealing the USD portfolios to be the only ones where some weak evidence against the global CAPM is found.

V.B Factor Model Asset Class Integration

As a factor model, the global CAPM imposes particular weights on the different asset classes comprising the market portfolio. Relaxing these restrictions may improve the fit of the model. To test factor model asset class integration, we regress our portfolios on the three factors comprising the world market factor (equities, Treasuries, corporate bonds), and the product of their time-varying market capitalization weights with the factors as described in equation (10). The asset market integration hypothesis imposes five restrictions (three zero and two equality restrictions), so the test statistic asymptotically follows a $\chi^2(5)$-distribution. Performing this test for all six currencies and the global portfolio, we find that asset market

integration under the global CAPM is universally rejected. We do not even tabulate the results as the Wald test values are invariably above 40 (in one case, the world portfolio with 5-to-7 years residual maturity, as high as 4966), and the p-values are zero. The parameter values are not informative, often containing both positive and offsetting negative coefficients for the same factor. We delegate these results to the Online Appendix.

Table 7 reports the adjusted R^2's for the global portfolios of four different models: the global six-factor model featuring the global equity, Treasury and corporate bond markets, and their interactions with lagged market cap weights; the global three-factor model eliminating the interaction factors; the global two-factor model featuring only the global equity and Treasury market, and finally, the global CAPM model as a reference point. We show these R^2's for two portfolios only, the AAA and B portfolios. The table delivers two key results. First, the adjusted R^2's only change marginally going from the six-factor model to the three-factor model. Second, the R^2's change more substantially from the two- to the three-factor model. Thus, it is the corporate bond factor that substantially increases the R^2's.

The performance of the global CAPM relative to two- and three-factor models with the separate factors differs greatly across countries. Except for JPY portfolios and CAD B portfolios, their adjusted R^2's are relatively close to that of the two-factor model, thus much lower than the adjusted R^2's for the three-factor model. Overall, the adjusted R^2's generated by the global CAPM model are not impressive, ranging between 0.20 and 0.50. The performance is especially poor for Japanese bonds (R^2's lower than 10%) and US AAA bonds (an R^2 of only 6%). Across different markets, the three global factors generate quite high R^2's, ranging between 35% for the CAD and 85% for the global portfolios. Given that the simple global three-factor model has as much explanatory power as the complicated global six-factor model, we focus on the three-factor model.

Table 6 shows the β exposures of the global portfolios for the three-factor model in Panel B and the two-factor model in Panel C. In the two-factor model, the sovereign bond exposure decreases from 0.727 for an AAA portfolio to -0.158 for a C portfolio (it is 0.005 for B-

portfolios). Equity exposures, in contrast, increase from 0.117 for a AAA portfolio, to 0.622 for a C-portfolio. There is weaker monotonicity for the maturity ranked bonds, and, here the exposure with respect to Treasury bonds also increases with residual maturity, because the duration of the corporate bonds starts to approximate the duration of the sovereign bond portfolio as the maturity is increased.

For the three-factor model, logically the β's for both the sovereign bond and equity factors decrease in magnitude relative to the two-factor model. For the ratings portfolios, the strong monotonicity pattern has somewhat disappeared, but it is still the case that bonds with an A rating have positive Treasury exposure and B-rated bonds a negative Treasury exposure, with the differences in β's economically quite large. Likewise, the equity exposure of investment grade bonds is now economically very close to zero (less than 0.05 in absolute magnitude), but the equity exposure of speculative bonds increases from 0.059 for BB rated bonds to 0.164 for C rated bonds. These latter exposures are statistically significantly different from zero. The exposure relative to the corporate bond market increases from 0.716 for AAA bonds to 2.357 for C bonds. For maturity ranked bonds, there is now a near monotonically increasing pattern in the exposure of the bond portfolios to the corporate bond market factor, increasing from 0.656 for short maturity bonds to 1.324 for the long-term bonds, and a decreasing pattern in the exposure vis-à-vis the equity market factor, decreasing from 0.034 for short maturity bonds to -0.066 for the long-term bonds. There are unclear maturity patterns for sovereign β's.

These patterns are mostly repeated for the currency specific portfolios. We show the coefficients in Figure 4. Panel A graphs the exposures for the three-factor model and Panel B for the two-factor model. We only show the ratings portfolios. The β's with respect to the global corporate bond market are very large for EUR and GBP corporate bonds, roughly ranging between 1.0 and 3.4. The corporate bond β's for the other currencies also largely increase as ratings deteriorate, and, while lower than for the EUR and GBP bonds, they also tend to exceed one for speculative bonds. The exception is the JPY bond market, where this

exposure is negative, but the exposure with respect to the global sovereign market is quite large (around 1.2). This is mainly a currency effect as the β's of all three factors estimated for currency-hedged JPY portfolio excess returns are generally not statistically significant (see Section VI.1). As a counterpart to the corporate bond β's increasing in default risk, sovereign β's monotonically decrease with default risk, except in Japan. These β's are mostly positive for very highly rated bonds, but negative for more lowly rated bonds. The equity β patterns are less monotonic, but tend to be low and even negative for highly rated bonds and higher (and positive) for speculative bonds. When the corporate bond factor is omitted, the equity β's show a more distinct monotonically increasing pattern, capturing higher systematic risk as default risk increases.

In general, equity β's display a "hockey stick" pattern with respect to credit ratings. Note that AAA corporate bonds in the USD are positively exposed to global sovereign bonds and global corporate bonds (with moderate β's), but negatively exposed to global equity. This makes them potential "safe" assets,[13] explaining the low explanatory power of the global CAPM model, which is dominated by the equity asset class, for this portfolio.

We conclude that corporate bonds worldwide have intuitive exposures with respect to global Treasuries and equities, but that a corporate bond factor is necessary to increase the explained variation substantially. Japan is special in that its corporate bonds load negatively on the global corporate bond market factor, and strongly positively on global Treasuries, which is due to a currency effect.

V.C Factor Model International Market Integration

So far, we have only considered global factors. The vast literature on international market integration in equities suggests that local or at least regional factors may be necessary to build adequate international factor models (Bekaert, Hodrick and Zhang, 2009; Hou, Karolyi and Kho, 2011). While this is undoubtedly true when emerging markets are considered, some

---

[13]Baele et al. (2020) show that US bonds with low default risk feature positive returns in periods characterized by flights-to-safety.

have suggested that the developed world (especially Northern America and Europe) should be considered as an integrated market (Bekaert, et al., 2011).

Section IV pitted the global CAPM and the global three-factor model against models with local factors, from a pure pricing perspective. The Barillas-Shanken (2017) tests reveal that there is not much evidence against the global CAPM model with all models generating highly correlated expected returns. However, here we focus on factor model tests. International market integration tests are joint tests of the null of market integration and a "global" risk model. We consider two benchmark models. First, we revisit the global CAPM model, which we test against a model also including the local market factor, involving all three asset classes according to their respective market capitalizations within the country. Second, we use the three-factor global model that generated such high R^2's in the previous sub-section, and test it versus a model that adds the corresponding three local factors.

Table 8 reports a subset of the results for the global CAPM factor models with the full results relegated to the Online Appendix. We show the adjusted R^2's and the β's for the AAA and B portfolios, except for JPY and AUD portfolios for which we show the β's associated with the AA and BBB categories. Panel A shows the global CAPM results; Panel B the model with global and local market factors. First, adding the local market factor substantially increases the adjusted R^2's for all economies. On average, the R^2's increase by about 20-40 percentage points for the AAA/AA portfolios and by 15 percentage points for the B/BBB portfolios. The only exceptions are the JPY and the USD portfolios. The JPY portfolios record an even more considerable increase in R^2's by about 70 percentage points, while the R^2's for the USD market, which constitutes the most significant portion of the global market, remain broadly invariant. For this market, the coefficients on the global market factor are highly statistically significant for all ratings and maturity portfolios (see the Online Appendix), whereas the coefficients on the local market portfolio are predominantly negative.[14] In contrast, for all other currencies, the β exposures show a distinct pattern,

---

[14]The very low R^2's for the US AAA portfolio is perhaps surprising, but the R^2's steadily increase as ratings deteriorate. It also noteworthy that the AAA category represents a very small part of the total

with the global and local risk factor showing a predominantly negative and positive weights, respectively. However, the exposures to the local factor do not monotonically increase as ratings deteriorate or maturity increases for all currencies. This is to be expected as the two factors are highly correlated and the local factor exposures interact with the mostly negative exposures to the global factor. We do not further test this model, as Table 7 shows that the global CAPM model is dominated by the model separating the different asset classes in the market portfolio.

The full local/global version of this model contains six factors (the global and local equity markets; the global and local Treasury bond market, and the global and local corporate bond market). Table 9 summarizes the main results for each currency. The first line reports the p-value of a test of the joint significance of the global factors in the six-factor model, constituting the test of the null of market segmentation (i.e. $\beta_{cb} = \beta_{sb} = \beta_{eq} = 0$ in Equation (14)); the second line reports the p-value from a Wald test on the joint significance of the three local factors, constituting the test of the null of international market integration (i.e. $\gamma_{cb} = \gamma_{sb} = \gamma_{eq} = 0$ in Equation (14)). The other three lines report adjusted R^2's for three different models; the first one repeats the adjusted R^2's of the global model, using the three global factors; the second R^2's is for a three-factor model that only uses the local factors and the final R^2's is that for the six-factor model.

Focusing first on the international market integration test, the second p-value in each panel, the result is quite stark: we reject the null of international market integration at the 1% level for every single portfolio in every single country. In fact, the p-values are zero to the third digit in all cases. For the EUR- and the AUD-denominated portfolios, we also reject the null that the coefficients on the global factors are jointly zero at the 5% level for the majority of the portfolios, although the p-values are mostly not as low as for the international integration test. For the other countries, rejections occur less than half the time; for Japan for only 2 out of the 8 cases.

market capitalization of USD bonds, representing only 2.74% of total market capitalization (see Table 1).

While this appears to suggest that both local and global factors are necessary to explain corporate bond returns, the R^2's results indicate strongly that a local factor model may suffice. First, the R^2's invariably increase substantially when the local factors are added. Second, the adjusted R^2's barely decrease when the global factors are removed from the six-factor model and sometimes actually increase. Moreover, the adjusted R^2's for the local model are generally high, especially for investment grade bonds, and for most maturity ranked portfolios, exceeding 90% in the majority of the cases and 80% for 59 of 63 portfolios examined. For AUD and JPY-denominated bonds, the global factors do not meaningfully improve the fit of the local factors. For JPY bonds, the local model generates adjusted R^2's of over 94%; for AUD bonds, the lowest R^2 is 92%. For the other currencies, the R^2's are lower for the speculative bonds, typically decreasing from around 80%-93% for BB rated bonds to a range of 52% to 82% for C bonds. Thus, when the focus is in maximizing explained variation, local factor returns dominate.

In Figure 5, we show the β's for the local three-factor model. We show the ratings portfolio β's on the left and the residual maturity portfolios on the right. There are three boxes, one for the sovereign β's, one for the equity β's, one for the corporate bond market β's. For the ratings portfolios, the dominant pattern is one where the sovereign β's decrease with worse ratings, and mostly go from positive to negative when the bond category becomes non-investment grade. The pattern for the equity β's is increasing for the high yield categories, but the β's are rather flat and close to zero for investment grade categories. For the corporate bond market factor, the pattern is one of larger and increasing β's. For example, for the USD-bonds, the β's range from 0.354 for AAA rated bonds to 2.382 (1.491) for C-rated (B-rated) bonds. Note that these patterns are very close to the patterns we observe for the global model in Figure 4, so they reflect fundamental properties of the three asset classes. However, there is less dispersion in β's across countries. The patterns emerging for residual maturity ranked bonds are much less uniform. For the corporate bond factor, β's increase with maturity in the USD-, GBP- and CAD-denominated bonds, but decrease in EUR-,

AUD- and JPY-denominated bonds. For the sovereign bond factor, the dominant pattern is one of rising β's with increasing residual maturity for the corporate bond factor at least for the USD-, JPY- and AUD-denominated bonds. For EUR-denominated bonds, only the longest maturity bonds have a high and significant β with respect to the sovereign bond factor. The equity β's are now overall quite close to zero, and the maturity pattern is often flat.

Overall, our analysis of the factor exposures shows how the various models fit patterns of increasing returns with deteriorating ratings and higher maturity. The global CAPM models show a hockey stick beta pattern for ratings and a more linearly increasing pattern for maturity portfolios. This hockey stick pattern in β's is maintained (but with much less dispersion) for betas with respect to the equity factor when we investigate a three factor global model and is even preserved for the local three factor models. Much of the return spread in three factor models for ratings portfolios is delivered by increasing betas with respect to the corporate bond portfolio factor, whereas for residual maturity portfolios, increasing betas with respect to the sovereign bond portfolio play an important role.

V.D Explaining Comovements

The various factor models typically generate relatively high adjusted R^2's suggesting that these models likely fit comovements across corporate bonds of various risks rather well. Explaining covariances is important in asset management and here we address the question whether these models fully explain the correlation structure of corporate bond portfolios.

We compute the correlations of the residuals and their standard errors using system (15) and the GMM method to investigate this issue. We also compute a Wald test for these correlations being jointly zero across either the ratings portfolios or the residual maturity portfolios for the factor models we previously estimated. For the ratings portfolios, the test statistic is a $\chi^2(21)$ when all ratings portfolios are available; for the residual maturity portfolios it is a $\chi^2(10)$.

We do not tabulate the results, as the Wald test statistics are invariably very high. For the global factor models, the statistics mostly exceed 100,000. When local factors are included, the test statistic values fall considerably, but still lead to rejections at any possible significance level.

Table 10 reveals the origin of these results. The table shows residual correlations for four representative factor models, the global CAPM; the global three-factor model; the six-factor model with local and global factors and the local three factor model. Showing all the correlations requires too much space, so we focus on a limited set that suffices to make the main points. Full results are available in the Online Appendix. In particular, the rows are reporting the correlations between the AAA bond portfolio, as a representative investment grade bonds portfolio, with the lowest possible investment grade category bond, BBB and with B rated bonds (we do not use the C-category as it is not available for all currencies). We also show the correlation between BBB rated bond residuals and B residuals, and between BB and B rated bond residuals (correlation within speculative bond categories). For residual maturity ranked bonds, we show the correlation between short term bond residuals (1-to-3 versus 3-to-5 years of remaining maturity); between long term bonds (7-to-10 years remaining maturity, and more than 10 years) and the correlation between the short and long- term bonds (1-to-3 year bonds versus more than 10 year residual maturity bonds).

Investigating the first two columns, the residual correlations are mostly extremely high, often exceeding 0.9. Despite the fact that these factor models often generate reasonably high adjusted R^2's, they do seem to leave a very strong factor structure in the residuals. The reason is, obviously, that they only feature global factors, and that a local corporate bond factor is necessary to substantially lower residual correlations.[15] The next two columns, featuring local factors and, importantly, the local corporate bond factor, show this very clearly. Correlations decrease substantially in most cases. However, they remain relatively

---

[15]There are some exceptions to the high correlations, notably the correlation of the AAA and B portfolios for the USD bonds (and then by extension for global portfolios, which are dominated by USD bonds). This likely arises from the near safe asset properties of USD bonds (see also Section V.B). We see a similar phenomenon for hedged EUR and CAD AAA bonds.

high in absolute magnitude. Moreover, for rating ranked bonds, the correlations tend to be positive within the investment grade category (although not always for BBB bonds) or speculative bond categories, but negative across these two categories. A similar pattern is apparent for the residual maturity rated bonds for short maturity and long maturity bonds. In sum, while our factor models explain risk and return reasonably well, they fail at fully matching the correlation structure in corporate bonds, where there appears to be excessive correlations between bonds in similar rating categories or of similar maturities. The latter is reminiscent of the preferred habitat theory for Treasury bonds, where different clienteles prefer bonds of different maturities types (see e.g. Vayanos, and Vila, 2009) or, more generally, the "habitat" view of comovement proposed in Barberis, Shleifer and Wurgler (2005). The former may reflect clientele effects spurred by reaching for yields incentives (see Becker and Ivashina, 2015; Choi and Kronlund, 2018; Chen and Choi, 2019).

Clearly, this is suggestive that a two-factor structure with a "Level" (first principal component) and "spread" factor (second principal component) would constitute a good factor model. This is analogous to the two-factor model in Lustig, Roussanov and Verdelhan (2011) for interest rate sorted currencies. Of course, such a model would perfectly span two of our test portfolios and is therefore not a good candidate to explain residual correlations. However, it may be a parsimonious option as a factor model.

In Table 11, we show the adjusted R^2's for the local three-factor model, and for two "spread" models. Both spread models use the overall corporate bond factor and they use a spread portfolio, either the return on the portfolio of B-rated bonds minus the return on AAA bonds, or the return on the portfolio of more than 10 years maturity, minus the return on the portfolio of short-term bonds (1-to-3 years). Overall, it is clear that the spread models can approximate the R^2's of the three-factor model or do even (mostly slightly) better. In general, the ratings spread model does a relatively good job for the ratings portfolio, and the maturity spreads model does a good job for the maturity ranked bonds; but the ratings spread model provides a relatively better fit for the maturity ranked bonds, than does the

maturity spread model for the ratings ranked bonds.

For the ratings portfolios, the ratings spread model either generates a higher adjusted R^2 than the local three-factor model, or one that is very close (less than 0.01 difference). The maturity spread model does worse than the local factor model for the USD- and EUR-bonds, but the fit is relatively better for the GBP- and CAD-bonds. For AUD- and JPY-bonds there are too few bond categories to see a clear distinction in R^2's and all models do well. For the maturity portfolios, the roles are largely reversed. The maturity spread model mostly does as well or slightly better than the three-factor model. The ratings model typically generates slightly lower or very similar R^2's to the three-factor model.

In all, it is hard to differentiate these models on R^2's, and so the three-factor model remains a good candidate for a successful factor model for corporate bonds. We plan to investigate more formally the cross-sectional pricing performance of these models with respect to larger cross-sections of bonds in future work.

VI Robustness

VI.A Local Currency/Hedged Returns

All the analysis so far uses dollar returns and is thus relevant for a US investor. One defining feature of fixed income investments is that currency changes are often more volatile than the underlying bond returns, making foreign bond investments contain a large currency component. In this sub-section, we consider local bond excess returns. That is, for example, for the EUR-bonds, we use the return measured in euros and subtract a risk free euro rate, measured by the 1-month overnight indexed swap (OIS) rate. Similarly, for all other bonds issued in the other currencies considered in this paper, we employ local returns and subtract the respective 1-month Treasury yield.

One interpretation of our results here is that they reflect the pricing of the various local bond markets. However, our preferred interpretation is that these local excess returns are a

good approximation for hedged bond returns for a US investor. Hedged fixed income benchmarks typically use rolling one-month forward contracts at the beginning of the investment period to hedge currency risk with a unit hedge ratio. Let F_t^j be the one month forward rate for currency j (relative to the US dollar), $R_{i,t}$ is the dollar return on bond i (originally expressed in currency j). Then, the hedged foreign exchange gross return, $\widetilde{R}_{i,t}$, is:

$$\widetilde{R}_{i,t} \approx R_{i,t+1} + \frac{F_t^j - S_{t+1}^j}{S_t^j} = R_{i,t+1}^j + f_t^j.$$

where $f_t^j = F_t^j / S_t^j - 1$ and $R_{i,t+1}^j$ is the bond's return expressed in currency j. The forward premium is determined by covered interest rate parity: $f_t^j \approx rf_{t-1} - rf_{t-1}^j$, where rf_t and rf_t^j are the risk free rates of the USD base currency and asset currency j at time t, respectively. Therefore, the fully hedged portfolio excess return on a foreign bond denominated in currency j is approximately equal to

$$\widetilde{R}_{i,t} - rf_{t-1} \approx R_{i,t+1}^j - rf_{t-1}^j.$$

Given this interpretation, we also use "hedged" benchmarks as factors, both for the local and global factors and including the equity and sovereign bond factors.

It would take up too much space to tabulate all the results, so here we discuss the robustness of our key results and relegate the actual tables to the Online Appendix. First, the near monotonic pattern of returns increasing in bond risk (by rating or residual maturity) persists. The one glaring exception is Japan, where BBB bonds have had the lowest returns and AA bonds the highest. There are also small deviations from strict monotonicity for the other currencies; in particular B, bonds had lower returns than BB bonds everywhere, which was also true for unhedged returns. The return-volatility relationship persists for hedged returns.

Second, we investigate the β patterns for the global CAPM model, which are increasing with bond risk for unhedged returns. For JPY-bonds, we find, just as was true for unhedged

returns, no relation between bond risk and CAPM β's. The monotonicity patterns across the other bonds largely persist, but the β's are lower than for unhedged returns.[16] This is not surprising, as for unhedged returns, the β's are affected by an exchange rate variability term, which affects the test and factor portfolios simultaneously.

Similar to the pattern shown for the unhedged returns, the β's increase (nearly) monotonically in maturity (with indeed slightly lower β's), whereas for ratings ranked portfolios the β's are higher for speculative than for investment grade bonds, with few exceptions. Because the β's are now lower, there are a few cases where they are not significantly different from zero.

Third, we continue to strongly reject factor model asset class integration with the Wald tests all rejecting at the 1% level.

Fourth, we also reject factor model international market integration very strongly, at the 1% level, for all hedged portfolios, except for GBP C bonds. The local three factor model continues to generate very high R^2's with 52 out of 63 portfolios generating adjusted R^2's higher than 0.78. The portfolios with lower R^2's generally tend to be those including speculative bonds. The evidence against the null of factor model market segmentation is rather weak, with rejections (at the 5% level) occurring for less than half the portfolios.

Fifth, the monotonic pattern of the β's with respect to the corporate bond market factor increasing as ratings deteriorate and maturity increases is also preserved, with very few exceptions. The β drops for the longest maturity EUR- and AUD-bonds for example, and the monotonicity pattern is somewhat weak for the GBP ratings ranked bonds.

Finally, the factor models fail to fully capture the correlations across bond portfolios, with the residuals showing the same patterns we unearthed for unhedged bonds.

---

[16]There are some exceptions, for example for GBP C bonds, which are related to very large covariances between hedged bond returns and exchange rate changes.

VI.B   Duration versus Residual Maturity

Duration and residual maturity are naturally highly correlated and move similarly over time. We repeat all our results with duration ranked portfolios, instead of residual maturity ranked portfolios, finding the results unchanged. All these results are in the Online Appendix.

VI.C   Double Sorting on Ratings and Residual Maturity

Because high yield bonds tend to have slightly lower maturity on average than more highly rated bonds, our residual maturity sorts may partially reflect rating risks offsetting maturity risks. In the Online Appendix, we report results on double sorted portfolios, looking at the whole universe of bonds. In order to have sufficient bonds to construct portfolios, we use four ratings categories only, AA and AAA together, A bonds, BBB bonds and all the speculative bonds combined. The AAA and AA bonds represent on average 16.2% of the market capitalization (see also Table 1); the A and BBB bond categories are the largest categories, representing respectively 36.5% and 31.4% of the total market capitalization on average, and speculative bonds together represent 15.9%. Given that we construct five residual maturity categories, we investigate 20 portfolios. We estimate the global model using the global sovereign bond market, the global equity market and the global corporate bond market as factors. The β exposures show the same intuitive patterns discussed before. The sovereign β's decrease as ratings worsen, being strongly negative for speculative bonds, no matter the residual maturity. They increase with residual maturity for the highest investment grade category but decrease with residual maturity for the BBB and speculative bonds, decreasing to -0.911 for speculative bonds with a residual maturity of longer than 10 years. The equity β patterns are less monotonic, but the β's are generally positive for high yield bonds and change from positive to negative with maturity for investment grade bonds. Finally, the β's on the corporate bond factor increase monotonically as ratings worsen or residual maturity increases. They increase from 0.485 for the AAA/AA low residual maturity bonds to 1.948 for the speculative bond portfolio with residual maturity longer than 10 years.

VI.D Sub-Sample Analysis

We have derived all our results for two sub-samples, February 1998 to July 2007 and August 2007 to August 2018. Again, we relegate detailed results to the Online Appendix. Our main results remain intact over the two sub-samples. Here we highlight some properties that are slightly different across the two halves of the sample.

The monotonic β pattern delivered by the global CAPM is present in both sub-samples; the β's are higher in the second sub-sample however for all currencies except for JPY-bonds, where the β's become insignificantly different from zero in the second sub-sample. In the global bivariate factor model, the Treasury bond exposures are larger in the first sub-sample, but equity exposures are larger in the second sub sample. This pattern is true for all currency specific portfolios except for JPY-bonds, where the equity β's are insignificantly different from zero in the second period. For the global three-factor model, the β exposures for the Treasury and equity bond factors are robustly monotonic across the two sub-samples, with the spread in exposures substantially wider, especially for Treasuries, in the first sample period. Similarly, there is more dispersion in the corporate bond exposures in the second sample period. The monotonicity patterns are largely robust across all currency specific portfolios, with the usual proviso that the JPY bond market is special. In terms of maturity ranked bonds, the Treasury exposures become mostly insignificant in the second subsample, whereas they displayed a positive/negative pattern in the first sample period (short term bonds being positively, long term bonds negatively exposed). For the six-factor model, the adjusted R^2's are generally higher in the second sample (although not always). For the local three-factor model, the R^2's are also mostly higher in the second sub-sample (JPY and AUD excepted). For these two currencies, the relative performance of the global model and the local model in terms of adjusted R^2's is the same across the two sub-samples. For some of the other countries, there is sometimes a bit more difference between the two models in the second sub-sample, but it is not a strong, prevalent phenomenon. Overall, our key results remain invariant across the two sub-samples.

VI.E   Panel Model

The data set records the bond data at the CUSIP level. Therefore, we can also conduct the analysis using individual bonds, rather than aggregate the bonds into portfolios. In the panel regressions (see Table 12), we use "ratings" and "residual maturity" as individual bond characteristics. Ratings are coded as 1 for AAA, 2 for AA1, until 22 for D-rated bonds following the scale in the Online Appendix. Residual maturity is coded as remaining maturity in years. Given our previous factor model results, we focus on the local three-factor model. The full specification is defined as follows

$$r_{i,t} = \alpha_{i,t} + \beta_{i,t} r_{cb,t}^L + \gamma_{i,t} r_{sb,t}^L + \delta_{i,t} r_{eq,t}^L + \varepsilon_{i,t},$$

$$
\begin{aligned}
\alpha_{i,t} &= \quad \alpha_0 + \alpha_1 X_{i,t-1} + \alpha_2 Z_{i,t-1}, \\
\beta_{i,t} &= \quad \beta_0 + \beta_1 X_{i,t-1} + \beta_2 Z_{t-1}, \\
\gamma_{i,t} &= \quad \gamma_0 + \gamma_1 X_{i,t-1} + \gamma_2 Z_{t-1}, \\
\delta_{i,t} &= \quad \delta_0 + \delta_1 X_{i,t-1} + \delta_2 Z_{t-1}.
\end{aligned}
$$

where $X_{i,t}$ includes ratings and residual maturity and $Z_{i,t}$ contains bond characteristics, such as secured and junior/subordinated versus senior bonds. On average, senior unsecured debt represents 85.4% of the total market capitalization, and senior secured debt and junior debt, 7.4% and 7.2%, respectively. Both the α's and β's are interacted with the ratings and maturity characteristics, but we also introduce a dummy for secured bonds and one for junior unsecured debt. The coefficient patterns are therefore to be interpreted as applying for unsecured senior debt.

The ratings effects nicely replicate the portfolio results (see Table 12). The β's with respect to the corporate bond factor as a function of ratings show a positive coefficient for all currencies, which is highly statistically significant. β's increase from 9.3 (GBP) to 19.6 (JPY) basis points per rating point. A coefficient of 0.10 implies that the difference in corporate bond β between a C- and AAA-bond equals 2. Similarly, the β's with respect to

the sovereign bond factor show a negative coefficient with respect to ratings for all currencies, which is highly statistically significant. The ratings interaction coefficient for the β's with respect to the equity factor is positive and significant for the USD-, EUR- and CAD-bonds, not statistically significant for GBP- and AUD-bonds, and negative for JPY-bonds. All in all, we conclude that the patterns we observed for the portfolios are robust in the panel analysis.

The interaction coefficient with respect to the residual maturity for the β's with respect to the corporate bond factor are positive and hence consistent with our previous results for the USD-, the GBP- and the AUD-bonds, while they are statistically insignificant for the EUR-bonds and even negative for JBP- and CAD-bonds. The β's with respect to the equity factor always show an economically small dependence on maturity and are negative in four of the six cases. Conversely, the β's with respect to sovereign bonds increase with residual maturity in a statistically significant manner for all currencies, rising between 1.9 (GBP) and 8.8 (JPY) basis points per year of maturity.[17]

With the panel, we can estimate the effect of other bond characteristics on risk exposures. Secured and junior bonds do show slightly different α's from unsecured debt, but the pattern is different across currencies. In terms of risk exposures, it appears that secured debt has higher sovereign bond exposures, but lower corporate bond exposures, and the latter is true for four out of six currencies. Economically, these results are expected. The equity exposure is significantly lower for secured bonds only for the two main currencies, USD- and JPY-bonds. Junior bonds have lower sovereign bond exposures (five out of six cases), but higher corporate bond exposures (four out of six cases, and one is insignificant). Junior bonds have also higher equity exposure (four out of six cases), but these effects are mostly small and statistically insignificant.

We also examine whether international bonds are priced differently by introducing dummies for international bonds. The results are reported in the Online Appendix. There are no

---

[17]We also also consider a model which introduces a quadratic term on the rating variable (not reported). This model fits the β patterns across portfolios even better.

material differences in the key patterns for pure domestic and international dummies for the USD-bonds, with the dummy coefficients either statistically insignificant, or economically small. Hence, domestic investors likely view bonds issued in the same currency as similar, no matter what the "areas of risk" of the issuer, consistent with the currency home bias results reported in Burger, Warnock and Warnock (2018), and Maggiori, Neiman and Schreger (2018).

While the local three-factor model best fits return variation and comovements, there is no evidence against the global CAPM from a pricing perspective. Therefore, we also report the panel results for this model in the Online Appendix. Consistent with our earlier findings, the global CAPM β's universally and significantly increase with rating and maturity.

VII Conclusions

In this article, we provide a comprehensive investigation of risk and return in the major corporate bond markets of the developed world using the CUSIP level data base of Bank of America Merrill Lynch (BofAML), for the period 1998-2018. We first investigate 75 portfolios ranked on credit ratings (from AAA to C) and residual maturity in six economic areas (US, euro area, UK, Canada, Japan and Australia), and the world. We find that average returns and volatility increase with maturity and ratings class (where ratings go from high to low), generating a strong "return- volatility slope" in the data. We examine how simple factor models fit this pattern, and more generally variation in corporate bond returns. Our starting point is the global CAPM model, where the market consists out of equity, sovereign and corporate bonds. Perhaps surprisingly, this simple model generates intuitive factor exposures that increase with bond risk, rendering most α's statistically insignificant.

We start by examining the pricing implications of the global CAPM and other factor models for our portfolios. We find that according to the Barillas-Shanken (2017) tests, the global CAPM is the preferred model. In addition, formal pricing tests reveal that there

is no evidence against the model, once small sample biases of the test statistics and some restrictions on short-sale constraints are considered. The one set of portfolios for which the CAPM works the least well are the USD portfolios.

While the global CAPM model fits average returns well, it is not an adequate factor model to explain return variation and comovements. From a factor model perspective, we show that the model is strongly rejected along two dimensions. First, we reject "factor model asset class integration," showing that a model which separates the market portfolio into its three components fits a (much) larger fraction of corporate bond return variation. The corporate bond factor receives substantially higher β's than suggested by its relative market capitalization, and the β's with respect to this factor increase nearly monotonically with bond risk. For ratings ranked portfolios, the β's with respect to the equity factor increase as ratings worsen, showing a hockey stick pattern; whereas sovereign β's decrease. This is reminiscent of the results of Choi and Kim (2018), who reject integration of the corporate bond and equity markets in the US using factor risk premiums across the two markets.

Second, we strongly reject factor model international market integration; local factors contribute substantially more to the variation of corporate bond returns than do global factors, and a "local" three-factor model explains more than 80% of the return variation for 59 of 63 portfolios examined. Here too, the factor exposures show intuitive patterns; for example, the corporate bond factor β's increase steeply as ratings worsen. The spread in β's that we find is much larger than what was shown in the seminal Fama and French (1993) paper for a US sample of corporate bonds. Also, the model explains between a low of about 50% of the return variation for some speculative bond portfolios, to typically over 90% of the variation of investment grade and maturity ranked bond portfolios. Our results are robust to the use of hedged versus unhedged returns and are confirmed using a panel regression at the CUSIP level. The intuitive β exposures are preserved when we double sort on residual maturity and ratings.

Our results strongly suggest that to compute relative expected returns on various cor-

porate bond portfolios, the global CAPM is an adequate pricing model in an international context. However, for risk management and the computation of covariance matrices within a country, a simple factor model with a local Treasury bond, local equity and local corporate bond factor may be a more adequate starting point.

An analysis of the return residuals after applying our factor model does reveal an interesting pattern: there appears to be excess correlation between investment grade bond residual on the one hand, and speculative bond residuals, on the other hand; in contrast, the residuals of these two types of bonds are negatively correlated. A similar phenomenon applies to short versus long maturity bonds. This suggests that a model with simply the corporate bond factor and a spread factor may fit the data very well. However, such a model does not perform noticeably better than our local three-factor model in terms of adjusted R^2's. We plan to further investigate the formal pricing of factor models for the cross-section of corporate bonds in future work. Jostova et al (2013) and Bai et al (2019) have already shown strong cross-sectional pricing effects for US corporate bonds, that deserve future exploration with our international data sets. Frazzini and Pedersen (2013) claim that the flattish security market line, observed for stocks, also exists in corporate bonds; whereas Kang, et al. (2018) demonstrate the presence of a volatility puzzle in corporate bonds (low volatility/credit risk bonds outperform high volatility/high credit risk bonds within a particular ratings category). We have also not addressed liquidity issues in corporate bonds, which have been the topic of a large literature (see Bongaerts, de Jongh and Driessen, 2017).

The rejection of asset class and international market integration from a factor model perspective also suggests that corporate bonds are in fact an adequate diversification vehicle for institutional and retail portfolios. Apart from practitioner's articles singing the praises of corporate bonds (e.g. Schlanger, Walker and Roberts, 2018, on investment grade bonds), there is scant academic work on this issue. Liu (2016), using investment grade bonds obtained from the Merrill Lynch constituencies from January 2000 to December 2010, which cover 41% of our data set on the same decade and 20% of our data set over the entire sample period,

shows that international corporate bonds offer diversification benefits to US investors.

In addition, our results raise the intriguing possibility of segmented pricing: between different asset classes, and within the corporate bond asset class, between speculative versus non-speculative bonds. The latter phenomenon may be simply due to an equilibrium where certain institutional investors must hold investment grade bonds. Importantly, we do not find these results in pricing tests, where a simple global CAPM model does an adequate job of generating differential expected returns across the various portfolios, and generates expected returns highly correlated with those of other factor models. Because returns are quite noisy, tests focused on average returns may lack power. Therefore, it may be better to investigate such relations using comovements and/or data on holdings. We defer further analysis of these topics to future research.

References

[1] Akbari, Amir, Lilian K. Ng and Bruno Solnik, 2019. "Emerging markets are catching up: economic or financial integration?", *Journal of Financial and Quantitative Analysis*, forthcoming.

[2] Andrews, Donald W. K., 1991. "Heteroskedasticity and autocorrelation consistent covariance matrix estimation", *Econometrica*, 59, 817-858.

[3] Baele, Lieven, Geert Bekaert, Koen Inghelbrecht and Min Wei, 2020. "Flights to safety", *Review of Financial Studies*, 33, 689-746.

[4] Bai, Jennie, Turan G. Bali and Quan Wen, 2019. "Common risk factors in the cross-section of corporate bond returns", *Journal of Financial Economics*, 131, 619-642.

[5] Bali, Turan G., Avanidhar Subrahmanyam and Quan Wen, 2019. "Economic uncertainty premium in the corporate bond market", SSRN id 2978191.

[6] Barberis, Nicholas, Andrei Shleifer and Jeffrey Wurgler, 2005. "Comovement", *Journal of Financial Economics*, 75, 283-317.

[7] Barillas, Francesco and Jay Shanken, 2017. "Which alpha?", *Review of Financial Studies*, 30, 1316-1338.

[8] Barr, David B. and Richard Priestley, 2004. "Expected returns, risk and the integration of international bond markets", *Journal of International Money and Finance*, 23, 71-97.

[9] Basak, Gopal, Ravi Jagannathan, and Guoqiang Sun, 2002. "A direct test for the mean variance efficiency of a portfolio", *Journal of Economic Dynamics and Control*, 26, 1195-1215.

[10] Becker, Bo, and Victoria Ivashina, 2015. "Reaching for yield in the bond market", *Journal of Finance*, 70, 1863–1902.

[11] Bekaert, Geert and Campbell R. Harvey, 1995. "Time-varying world market integration", *Journal of Finance*, 50, 403-444.

[12] Bekaert, Geert, Campbell R. Harvey, Christian T. Lundblad and Stephan Siegel, 2011. "What segments equity markets?", *Review of Financial Studies*, 24, 3841-3890.

[13] Bekaert, Geert, Robert J. Hodrick and Xiaoyan Zhang, 2009. "International stock return comovements", *Journal of Finance*, 64, 2591-2626.

[14] Best, Michael J. and Robert R. Grauer, 1991. "On the sensitivity of mean-variance-efficient portfolios to changes in asset means: Some analytical and computational results", *Review of Financial Studies*, 4, 315-342.

[15] Bongaerts, Dion, Frank de Jong and Joost Driessen, 2011. "Derivative pricing with liquidity risk: Theory and evidence from the credit default swap market", *Journal of Finance*, 66, 203-240.

[16] Bongaerts, Dion, Frank de Jong and Joost Driessen, 2017. "An asset pricing approach to liquidity effects in corporate bond markets", *Review of Financial Studies*, 30, 1229-1269.

[17] Burger, John D., Francis E. Warnock and Veronica C. Warnock, 2018. "Currency matters: Analyzing international bond portfolios", *Journal of International Economics*, 114, 376-388.

[18] Carrieri, Francesca, Vihang Errunza, and Ked Hogan, 2007. "Characterizing world market integration through time", *Journal of Financial and Quantitative Analysis*, 42, 915-940.

[19] Chaieb, Ines, Vihang Errunza and Rajna Gibson Brandon, 2019. "Measuring sovereign bond market integration", *Review of Financial Studies*, forthcoming.

[20] Chen, Qianwen and Jaewon Choi, 2019. "Reaching for yield and overpricing in bonds", SSRN id 3225209.

[21] Choi, Jaewon and Yongjun Kim, 2018. "Anomalies and market (dis)integration", *Journal of Monetary Economics*, 100, 16-34.

[22] Choi, Jaewon and Mathias Kronlund, 2018. "Reaching for yield in corporate bond mutual funds", *Review of Financial Studies*, 31, 1930-1965.

[23] Errunza, Vihang and Etienne Losq, (1985), "International asset pricing under mild segmentation: Theory and test", *Journal of Finance*, 40, 105-124.

[24] Fama, Eugene F. and Kenneth R. French, 1993. "Common risk factors in the returns on stocks and bonds", *Journal of Financial Economics*, 33, 3-56.

[25] Fama, Eugene F. and Kenneth R. French, 2018. "Choosing factors", *Journal of Financial Economics*, 128, 234-252.

[26] Frazzini, Andrea and Lasse Heje Pedersen, 2013. "Betting against beta", *Journal of Financial Economics*, 111, 1-25.

[27] Gebhardt, William R., Soeren Hvidkjaer and Bhaskaran Swaminathan, 2005. "The cross-section of expected corporate bond returns: Betas or characteristics?", *Journal of Financial Economics*, 75, 85-114.

[28] Gibbons, Michael R., Stephen Ross and Jay Shanken, 1989. "A Test of the efficiency of a given portfolio markets", *Econometrica*, 57, 1121-1152.

[29] Greenwood, Robin, Samuel G. Hanson and Gordon Y. Liao, 2018. "Asset price dynamics in partially segmented markets", *Review of Financial Studies*, 31, 3307–3343.

[30] Green, Richard C. and Burton Hollifield, 1992. "When will mean-variance efficient portfolios be well diversified?", *Journal of Finance*, 47, 1785-1809.

[31] Guibaud, Stephane, Yves Nosbusch and Dimitri Vayanos, 2013. "Bond market clienteles, the yield curve, and the optimal maturity structure of government debt", *Review of Financial Studies*, 26, 1914-1961.

[32] Hansen, Lars P., 1982. "Large sample properties of Generalized Method of Moments estimators", *Econometrica*, 50, 1029-1054.

[33] Hardouvelis, Gikas, Dimitrios Malliaropoulos and Richard Priestley, 2006. "EMU and European stock market integration", *Journal of Business*, 79, 365-392.

[34] Harvey, Campbell R., 1991. "The world price of covariance risk", *Journal of Finance*, 46, 111-157.

[35] Hou, Kewei, G. Andrew Karolyi and Bong-Chan Kho, 2011. "What factors drive global stock returns?", *Review of Financial Studies*, 24, 2527-2574.

[36] Israel, Ronen, Diogo Palhares and Scott Richardson, 2018. "Common factors in corporate bond returns", *Journal of Investment Management*, 2, 17-46.

[37] Jagannathan, Ravi, Gopal Basak, and Steve Guoqiang Sun. 2002. "A Test for Mean Variance Efficiency When Shortselling is Prohibited", *Journal of Economic Dynamics and Control*, 26, 1195-1215.

[38] de Jong, Frank and Frans A. de Roon, 1995. "Time-varying market integration and expected returns in emerging markets", *Journal of Financial Economics* , 78, 583-613.

[39] Jostova, Gergana, Stanislava Nikolova, Alexander Philipov and Christof W. Stahel, 2013. "Momentum in corporate bond returns", *Review of Financial Studies*, 26, 1649–1693.

[40] Kang, Johnny, Tom Parker, Scott Radell and Ralph Smith, 2018. "Reach for safety", *Journal of Fixed Income*, 27, 6-21.

[41] Liu, Edith X., 2016. "Portfolio diversification and international corporate bonds", *Journal of Financial and Quantitative Analysis*, 51, 959-983.

[42] Lustig, Hanno, Nikolai Roussanov and Adrien Verdelhan, 2011. "Common risk factors in currency returns", *Review of Financial Studies*, 24, 3731–3777.

[43] MacKinlay, A. Craig and Matthew P. Richardson, 2018, "Using generalized method of moments to test mean-variance efficiency", *Journal of Finance*, 46, 511-527.

[44] Maggiori, Matteo, Brent Neiman and Jesse Schreger, 2018, "International currencies and capital allocation", *NBER Working paper*, n. 24673.

[45] Newey, Whitney and Kenneth West, 2007. "A Simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix ", *Econometrica* , 55, 703-708.

[46] Pukthuanthong, Kuntara and Richard Roll, 1995. "Global market integration: An alternative measure and its application", *Journal of Financial Economics* , 94, 214-232.

[47] Schlanger, Todd, David J. Walker and Daren R. Roberts, 2018. "Going global with bonds: The benefits of a more global", *Vanguard*, April 2018.

[48] Sharpe, William F., 1991. "Capital asset prices with and without negative holdings", *Journal of Finance*, 46, 489-509.

[49] Vayanos, Dimitri and Jean-Luc Vila, 2009. "A preferred-habitat model of the term structure of interest rates", *NBER Working Paper Series*, No.15487.

[50] Wang, Zhenyu, 1998. "Efficiency loss and constraints on portfolio holdings", *Journal of Financial Economics*, 48, 359-375.

Table 1. Corporate Bond Market: Country and Currency breakdown

(Average in US dollar billions, market share, 1998-2008)

	USD	EUR	JPY	GBP	CAD	AUD	SIX Economies
Panel A: Corporate bond market (USD billions, average 1998-2008)							
Australia	57.4	29.7	4.2	9.0	1.3	27.0	128.6
Canada	116.2	5.9	0.6	1.9	169.0	0.4	294.0
Euro area	255.8	995.5	10.2	90.7	5.7	9.7	1367.5
Japan	47.9	12.3	317.1	3.9	1.8	2.5	385.5
UK	158.1	141.4	3.7	197.6	2.2	2.4	505.4
US	2935.2	183.5	18.3	60.0	20.6	8.6	3226.1
Other	487.9	160.6	4.0	26.3	0.7	2.9	682.4
Six economies	3570.6	1368.3	354.2	363.1	200.6	50.5	5907.2
Total corporate bond	4058.5	1528.9	358.2	389.4	201.3	53.3	6589.6
Panel B: Corporate bond market share relative to the total							
Domestic share	0.723	0.651	0.885	0.507	0.840	0.506	0.896
Six economy share	0.880	0.895	0.989	0.932	0.997	0.947	0.896
Panel C: Asset market size (USD billions, average 1998-2008)							
Corporate bond	4058.5	1528.9	358.2	389.4	201.3	53.3	6589.6
Sovereign bond	9726.1	6825.3	7755.2	1413.7	915.8	302.7	26938.8
Equity	15405.0	5598.3	3785.3	2838.9	1290.4	835.2	29753.2
Total assets	29189.7	13952.5	11898.7	4642.0	2407.5	1191.2	63281.6
Panel D: Asset market share							
Corporate bond	0.139	0.110	0.030	0.084	0.084	0.045	0.104
Sovereign bond	0.333	0.489	0.652	0.305	0.380	0.254	0.426
Equity	0.528	0.401	0.318	0.612	0.536	0.701	0.470

Sources: BIS, Bloomberg, ICE BofA Merril Lynch, Thomson DataStream and authours' calculations.

Notes: Panel A of the table shows the average market value of corporate bonds held by investors world-wide in the six main currencies (i.e. US dollar - USD, euro - EUR, Japanese JPY - JPY, British pounds - GBP, Canadian dollar - CAD, Australian dollar - AUD). Panel B shows the relative market share held by domestic and foreign investors. Panels C and D show the average market size for corporate bonds, sovereign bonds and equity securities and the respective average market shares. The market value of corporate bonds is constructed multiplying the corporate bond price by the face value of the bond, and the aggregation covers all bonds issued in the six currencies (USD, EUR, JPY, GBP, CAD, AUD) in the Merrill Lynch global index. The market value of stocks is the total dollar value of all outstanding shares in Thomson DataStream stock market index. The book value of sovereign bonds is the total dollar value of sovereign debt. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. Sample period: January 1998 – August 2018.

Table 2. Summary Statistics: Global Corporate Bond Portfolios by Ratings and Residual Maturity

	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Mean (%)	2.641	2.623	2.469	3.583	4.530	3.225	4.827	1.969	2.945	3.707	3.360	4.502
Stand. deviation (%)	6.646	5.982	6.246	6.205	7.853	9.561	15.240	5.180	5.659	6.737	6.695	8.285
Correl. global CB	0.602	0.645	0.731	0.770	0.691	0.626	0.562	0.555	0.597	0.608	0.601	0.522
Correl. global SB	0.806	0.845	0.706	0.589	0.142	0.023	-0.058	0.639	0.665	0.556	0.618	0.623
Correl. global EQ	0.299	0.381	0.441	0.493	0.661	0.702	0.643	0.511	0.513	0.577	0.529	0.382
Market weight (%)	3.9	15.6	36.0	29.4	7.2	5.9	2.1	22.3	22.6	16.2	19.8	19.1

Notes: This table shows the annualised mean and standard deviation of corporate portfolio bond excess returns, grouped by rating class and residual maturity, their correlation with market factor excess returns and their market weight. The global portfolios are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD) The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Some currency portfolios are not included either because of lack of issuance, data or due to an insufficient number of observations. This applies to JPY and AUD AAA, BB, B and C rating portfolios as well as to CAD C portfolio. All other individual currency ratings and maturity portfolios are available from February 1998 to August 2018, except for the EUR BB, which is available from May 1999, the GBP BB and C rating portfolios, which are available from May 1999 and January 1999 respectively, and for the AUD above 10-year maturity portfolio, which is available from January 2000 with a break without observations between July 2010 and April 2011.

Table 3. Barillas-Shanken Model Comparison (P-values)

		USD		EUR		JPY		GBP		CAD		AUD	
Benchmark	Altern. model	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
						Panel A: GRS							
Glo CAPM	Glo 3 Fac	0.223	0.370	0.220	0.370	0.220	0.370	0.220	0.370	0.220	0.370	0.220	0.370
Glo CAPM	Glo&Loc CAPM	0.408	0.402	0.903	0.912	0.733	0.753	0.200	0.229	0.617	0.669	0.755	0.774
Glo CAPM	6 Fac	**0.027**	0.091	**0.037**	0.092	0.144	0.245	0.227	0.330	0.497	0.614	0.518	0.578
Glo 3 Fac	6 Fac	0.051	0.078	0.116	0.113	0.149	0.164	0.417	0.373	0.899	0.888	0.802	0.759
Loc CAPM	Glo&Loc CAPM	0.924	0.928	0.236	0.250	0.055	0.071	**0.029**	**0.012**	0.396	0.445	0.360	0.371
Loc CAPM	Loc 3 Fac	**0.018**	0.069	**0.043**	0.082	**0.030**	0.069	0.226	0.262	0.230	0.319	0.370	0.393
Loc CAPM	6 Fac	**0.019**	0.087	**0.030**	0.078	0.060	0.116	0.086	0.128	0.356	0.466	0.474	0.552
Loc 3 Fac	6 Fac	0.382	0.472	0.137	0.158	0.307	0.386	0.095	0.099	0.554	0.641	0.413	0.500
Loc Corp	Loc 3 Fac	0.212	0.245	0.069	0.108	**0.014**	**0.030**	0.495	0.523	0.491	0.538	0.382	0.372
Loc Corp	6 Fac	0.288	0.371	0.053	0.086	**0.032**	0.068	0.164	0.214	0.619	0.695	0.439	0.484
						Panel B: GMM							
Glo CAPM	Glo 3 Fac	0.276	0.361	0.276	0.361	0.276	0.361	0.276	0.361	0.276	0.361	0.276	0.361
Glo CAPM	Glo&Loc CAPM	0.426	0.411	0.904	0.911	0.766	0.760	0.204	0.253	0.652	0.690	0.772	0.788
Glo CAPM	6 Fac	0.053	0.127	**0.025**	0.087	0.203	0.292	0.153	0.253	0.525	0.648	0.574	0.627
Glo 3 Fac	6 Fac	0.091	0.129	0.104	0.135	0.213	0.236	0.286	0.309	0.910	0.923	0.708	0.712
Loc CAPM	Glo&Loc CAPM	0.931	0.926	0.220	0.250	0.059	0.077	**0.011**	**0.007**	0.389	0.444	0.338	0.368
Loc CAPM	Loc 3 Fac	**0.032**	0.073	0.058	0.092	**0.025**	0.052	0.204	0.242	0.418	0.484	0.422	0.455
Loc CAPM	6 Fac	**0.025**	0.090	**0.021**	0.065	**0.043**	0.090	**0.017**	0.061	0.281	0.413	0.350	0.457
Loc 3 Fac	6 Fac	0.459	0.538	0.250	0.302	0.343	0.405	**0.039**	0.052	0.625	0.705	0.426	0.485
Loc Corp	Loc 3 Fac	0.077	0.116	0.051	0.086	**0.006**	**0.014**	0.489	0.530	0.422	0.473	0.285	0.296
Loc Corp	6 Fac	0.190	0.280	**0.028**	0.067	**0.006**	**0.019**	**0.039**	0.066	0.474	0.578	0.297	0.365

Notes: This table shows the p-values from the GRS (F) and GMM (J) test statistics using the factors as the test assets following the Barillas-Shanken test to compare nested models. (1) provides the standard p-value. (2) provides the p-value obtained using the block bootstrapped resample with replacement. 6 month blocks and 1000 replications are employed to generate the empirical critical values. "Glo CAPM" is the Global CAPM. "Loc CAPM" is the Local CAPM. "Glo&Loc CAPM" is the model with Global and Local CAPM. "GLO 3 Fac" is the global three- factor model, comprising global aggregate corporate bonds, sovereign bonds and stocks. In the first row of each panel, while we repeat the test value for all currencies, the test only uses global portfolios. "LOC 3 Fac" is the local three-factor model comprising local aggregate corporate bonds, sovereign bonds and stocks. "6 Fac" is the six-factor model, comprising global and local aggregate corporate bonds, sovereign bonds and stocks. "Loc Corp" is the local coporate bond return. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. The p-values in bold indicate that the t-statistics are significant at least at 5% level. Sample period: February 1998 – August 2018.

Table 4. Global CAPM – Test Statistics

	Global	USD	EUR	JPY	GBP	CAD	AUD
All portfolios							
Panel A: Pricing tests (p-value)							
GRS	**0.009**	**0.000**	**0.000**	**0.011**	**0.001**	0.078	0.125
GRS – Bootstrapped	0.134	**0.007**	**0.029**	0.116	0.086	0.159	0.305
GMM	**0.015**	**0.000**	**0.001**	**0.021**	**0.011**	**0.046**	**0.044**
GMM – Bootstrapped	0.231	0.052	0.136	0.161	0.249	0.185	0.269
Panel B: Short-sale constraints (bootstrapped p-value)							
Short-constraints	0.176	0.103	0.188	0.153	0.274	0.204	0.397
Short-constraints, <100%	0.207	**0.023**	0.504	0.431	0.465	0.647	0.703
Short-constraints, <50%	0.178	**0.049**	0.437	0.362	0.626	0.605	0.739
Panel C: Optimal mean-variance weights							
Max ($|w_i|$)	262.262	1.792	99.602	168.416	74.614	94.738	37.228
Min (w_i)	-262.262	-1.792	-96.370	-122.474	-74.614	-69.562	-37.228
Panel D: Correlation between expected returns and historical average returns							
Correl. expected vs historical returns	0.710	0.793	0.637	0.896	0.694	0.809	-0.042
Ratings							
Panel E: Pricing tests (p-value)							
GRS (P-value)	0.098	**0.028**	0.501	0.273	**0.015**	0.453	**0.038**
GRS – Bootstrapped (P-value)	0.283	0.108	0.719	0.455	0.107	0.567	0.095
GMM (P-value)	0.307	0.073	0.715	0.347	**0.006**	0.550	**0.013**
GMM – Bootstrapped (P-value)	0.528	0.235	0.831	0.443	0.115	0.652	0.051
Panel F: Short-sale constraints (bootstrapped p-value)							
Short-constraints (P-value)	0.161	0.118	0.269	0.278	0.224	0.159	0.816
Short-constraints, <100% (P-value)	0.155	**0.034**	0.394	0.337	0.301	0.599	0.431
Short-constraints, <50% (P-value)	0.137	**0.042**	0.440	0.391	0.394	0.512	0.491
Panel G: Optimal mean-variance weights							
Max ($|w_i|$)	2.834	1.807	11.455	111.567	7.850	10.100	21.501
Min (w_i)	-2.834	-1.289	-11.455	-105.952	-7.850	-9.020	-11.730
Maturity							
Panel H: Pricing tests (p-value)							
GRS (P-value)	**0.003**	**0.000**	**0.002**	0.141	0.791	0.072	0.523
GRS – Bootstrapped (P-value)	**0.036**	**0.008**	**0.016**	0.193	0.829	0.083	0.627
GMM (P-value)	**0.005**	**0.001**	**0.001**	0.139	0.778	**0.031**	0.559
GMM – Bootstrapped (P-value)	**0.048**	**0.011**	**0.010**	0.185	0.807	**0.046**	0.719
Panel I: Short-sale constraints (bootstrapped p-value)							
Short-constraints (P-value)	0.078	**0.045**	0.114	0.633	0.534	0.117	0.441
Short-constraints, <100% (P-value)	0.217	**0.024**	0.310	0.375	0.460	0.481	0.686
Short-constraints, <50% (P-value)	0.199	0.065	0.405	0.312	0.526	0.406	0.723
Panel J: Optimal mean-variance weights							
Max ($|w_i|$)	74.874	2.083	40.198	110..696	5.553	32.080	10.043
Min (w_i)	-64.541	-1.601	-40.198	-90.394	-4.837	-14.848	-10.043

Notes: This table shows the p-values of the pricing tests based on time series analysis (i.e. Panels A, E and H), the p-values of the test statistics using short constraint (i.e. Panels B, F, I), the oprimal portfolio weights (i.e. Panels C, G and J) and the correlation between expected returns and historical average returns (i.e. Panel D). "GRS" and "GRS – Bootstrapped" are the standard and the bootstrapped Gibbons, Ross and Shanken (1989)'s test. "GMM" and "GMM – Bootstrapped" are the standard and the bootstrapped Mackinlay and Richardson (1989)'s test. "Short-constraints" provides the GRS test imposing zero short-sell constraints on the mean variance efficiency tests. "Short-constraints, <100%" provides the GRS test imposing a bound of 100% on all short positions. "Short-constraints, <50%" provides the GRS test imposing a bound of 50% on all short positions. Max($|w_i|$) provides the highest portfolio weight in absolute value. Min(w_i) provides the largest short position. The optimal mean-variance weights add to 1."Correlation, expected vs actual returns"provides the correlation between the expected and actural excess returns.

Table 5. Fitting the Volatility Patterns

	Global CAPM		Global three-Factor		Six-Factor		Local three-Factor	
	coef	s.e.	coef	s.e.	coef	s.e.	coef	s.e.
	Panel A: Pooled regression							
Intercept	0.082**	(0.040)	0.001	(0.058)	-0.093**	(0.037)	-0.156***	(0.054)
Slope	0.000	(0.004)	-0.002	(0.006)	0.010***	(0.004)	0.017***	(0.005)
Adjusted R^2	-0.014		-0.012		0.132		0.323	
Portfolios	75		75		63		63	
	Panel B: Fixed effects regression							
Slope	0.008***	(0.003)	0.015***	(0.002)	0.015***	(0.003)	0.023***	(0.003)
	Panel C: OLS regressions for individual six-currency portoflios (min-max)							
Slope	[-0.014*** , 0.152***]		[-0.006*** , 0.083***]		[-0.016 , 0.049***]		[-0.009** , 0.055***]	

Note: Panel A of this table shows the intercept and the slope coefficient of the alpha regressions against the standard deviation of each portfolio using pooled regression. Panel B provides the slope coefficients using the fixed effects regression. Panel C provides the the miminum and the maximum slope coefficients among the six currency portfolios estimated using OLS regressions. Alphas are obtained from the Global CAPM ("Global CAPM"), the global three-factor model "Global three-Factor" comprising global aggregate corporate bonds, sovereign bonds and stocks, the six-factor model ("Six-Factor") comprising global and local aggregate corporate bonds, sovereign bonds and stocks, and the local three-factor model ("Local three-Factor") comprising local aggregate corporate bonds, sovereign bonds and stocks. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. The p-values in bold indicate that the t-statistics are significant at least at 5% level. Sample period: February 1998 – August 2018.

Table 6. Global CAPM and Global Factor Models

	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Panel A: Global CAPM												
Intercept	0.072	0.064	0.043	0.135	0.178	0.025	0.071	0.024	0.090	0.118	0.092	0.180
s.e.	(0.116)	(0.095)	(0.106)	(0.106)	(0.142)	(0.166)	(0.292)	(0.082)	(0.090)	(0.114)	(0.109)	(0.141)
Glo CAPM	0.426***	0.444***	0.468***	0.469***	0.574***	0.701***	0.952***	0.402***	0.447***	0.548***	0.539***	0.560***
s.e.	(0.066)	(0.049)	(0.079)	(0.080)	(0.101)	(0.118)	(0.169)	(0.05)	(0.054)	(0.084)	(0.079)	(0.108)
Adjust. R^2	0.316	0.426	0.435	0.441	0.413	0.416	0.300	0.466	0.483	0.512	0.501	0.352
Panel B: Global three-factor model												
Intercept	-0.052	-0.049**	-0.059**	0.050*	0.154**	0.030	0.096	-0.051	0.003	0.030	-0.001	0.064
s.e.	(0.048)	(0.024)	(0.027)	(0.026)	(0.077)	(0.090)	(0.172)	(0.044)	(0.031)	(0.019)	(0.026)	(0.074)
Glo Sov.	0.344***	0.369***	0.054	-0.120***	-0.603***	-0.782***	-1.418***	0.093***	0.057*	-0.145***	-0.055***	-0.011
s.e.	(0.044)	(0.026)	(0.033)	(0.034)	(0.096)	(0.118)	(0.163)	(0.034)	(0.031)	(0.021)	(0.021)	(0.065)
Glo Eq.	-0.023	0.021**	-0.030***	-0.034***	0.059*	0.139***	0.164***	0.034***	0.014*	0.006	-0.004	-0.066***
s.e.	(0.014)	(0.009)	(0.009)	(0.012)	(0.032)	(0.034)	(0.060)	(0.011)	(0.008)	(0.007)	(0.007)	(0.019)
Glo Corp.	0.716***	0.591***	1.012***	1.141***	1.378***	1.472***	2.357***	0.656***	0.840***	1.206***	1.139***	1.324***
s.e.	(0.055)	(0.042)	(0.054)	(0.040)	(0.111)	(0.143)	(0.211)	(0.041)	(0.041)	(0.023)	(0.031)	(0.082)
Adjust. R^2	0.852	0.949	0.965	0.946	0.789	0.750	0.678	0.826	0.929	0.977	0.961	0.800
Panel C: Global two-factor model												
Intercept	-0.040	-0.039	-0.042	0.069	0.177	0.055	0.135	-0.040	0.017	0.051	0.018	0.086
s.e.	(0.076)	(0.050)	(0.090)	(0.099)	(0.137)	(0.152)	(0.256)	(0.069)	(0.074)	(0.103)	(0.097)	(0.130)
Glo Sov.	0.727***	0.685***	0.595***	0.490***	0.134*	0.005	-0.158	0.444***	0.506***	0.500***	0.554***	0.697***
s.e.	(0.036)	(0.022)	(0.034)	(0.044)	(0.071)	(0.081)	(0.140)	(0.027)	(0.031)	(0.039)	(0.041)	(0.070)
Glo Eq.	0.117***	0.136***	0.167***	0.188***	0.327***	0.425***	0.622***	0.162***	0.177***	0.240***	0.217***	0.192***
s.e.	(0.030)	(0.021)	(0.039)	(0.042)	(0.053)	(0.063)	(0.095)	(0.026)	(0.029)	(0.045)	(0.041)	(0.053)
Adjust. R^2	0.724	0.841	0.674	0.571	0.448	0.489	0.414	0.649	0.685	0.623	0.641	0.518

Notes: This table shows the OLS coefficients and adjusted R^2 of (i) a CAPM model, where the regressors are global excess returns formed by three securities (corporate bonds, sovereign bonds and stocks) in Panel A, (ii) three Global Factor model, where the regressors are global excess returns of three factors comprising aggregate corporate bonds, sovereign bonds and stocks in Panel B, and (iii) two Global Factor model, where the regressors are global excess returns of two factors comprising sovereign bonds and stocks in Panel C. The dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, > 10 years). The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 – August 2018.

Table 7. Adjusted R^2: Global Factor Models

	Global AAA	Global B	USD AAA	USD B	EUR AAA	EUR B	JPY AA	JPY BBB	GBP AAA	GBP B	CAD AAA	CAD B	AUD AA	AUD BBB
Glo six-factors	0.855	0.758	0.628	0.698	0.711	0.752	0.525	0.481	0.520	0.650	0.573	0.352	0.623	0.634
Glo three-factors	0.852	0.750	0.598	0.685	0.703	0.749	0.521	0.474	0.520	0.643	0.572	0.347	0.625	0.637
Glo two-factors	0.724	0.489	0.537	0.447	0.610	0.531	0.491	0.449	0.356	0.379	0.499	0.325	0.567	0.559
Glo CAPM	0.316	0.416	0.058	0.361	0.306	0.516	0.066	0.070	0.214	0.342	0.459	0.256	0.521	0.517

Notes: This table shows the adjusted R^2 of multi-factor OLS regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, > 10 years) and the regressors are global excess returns of (i) "Glo six-factors" comprising aggregate corporate bonds, sovereign bonds and stocks as well as their interaction with lagged market capitalization weights; (ii) "Glo three-factors" factors comprising aggregate corporate bonds, sovereign bonds and stocks; (iii) "Glo two-factors" factors comprising aggregate sovereign bonds and stocks; and (iii) "Glo CAPM" comprising aggregate corporate bonds, sovereign bonds and stocks. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Sample period: February 1998 – August 2018.

Table 8. Global-Local CAPM

	USD AAA	USD B	EUR AAA	EUR B	JPY AA	JPY BBB	GBP AAA	GBP B	CAD AAA	CAD B	AUD AA	AUD BBB
Panel A: Global CAPM												
Glo CAPM	0.117**	0.614***	0.649***	1.485***	0.322**	0.324**	0.519***	1.132***	0.692***	0.949***	1.013***	1.035***
s.e.	(0.047)	(0.111)	(0.094)	(0.195)	(0.129)	(0.128)	(0.098)	(0.184)	(0.083)	(0.105)	(0.083)	(0.091)
Adjust. R^2	0.058	0.361	0.306	0.516	0.066	0.070	0.214	0.342	0.459	0.256	0.521	0.517
Panel B: Global and Local CAPM												
Glo CAPM	0.265***	0.444**	-0.615***	0.042	-0.415***	-0.396***	-0.304**	-0.492**	-0.089	-0.093	-0.053	-0.030
s.e.	(0.091)	(0.177)	(0.152)	(0.177)	(0.064)	(0.064)	(0.133)	(0.201)	(0.096)	(0.211)	(0.085)	(0.096)
Loc CAPM	-0.162**	0.186	1.043***	1.191***	1.053***	1.028***	0.654***	1.292***	0.622***	0.830***	0.612***	0.612***
s.e.	(0.078)	(0.173)	(0.100)	(0.138)	(0.058)	(0.052)	(0.088)	(0.140)	(0.051)	(0.124)	(0.037)	(0.041)
Adjust. R^2	0.073	0.364	0.717	0.687	0.763	0.760	0.402	0.588	0.777	0.423	0.779	0.763

Notes: This table shows the OLS coefficients and adjusted R^2 of CAPM regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA; high yield: B, except for the Japanese JPY and Australian dollar for which AA and BBB ratings are used) and the regressors are global excess returns of (i) Global CAPM (Panel A); (ii) Global and Local CAPM (Panel B), obtained from corporate bonds, sovereign bonds and stocks; (iii) three factors comprising aggregate corporate bonds, sovereign bonds and stocks (Panel C); and (iv) two factors comprising aggregate sovereign bonds and stocks (Panel D) The portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 – August 2018.

Table 9. Testing International Market Integration

	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
USD												
Chi-Sq. Glo Fac	0.288	0.439	0.750	0.077	0.129	0.013	0.343	0.029	0.010	0.068	0.040	0.128
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R^2 - Glo 3 Fac	0.598	0.659	0.669	0.704	0.644	0.685	0.656	0.668	0.771	0.804	0.745	0.624
R^2 - Loc 3 Fac	0.862	0.899	0.910	0.938	0.826	0.869	0.818	0.840	0.922	0.947	0.983	0.909
R^2 – 6 Fac	0.875	0.911	0.917	0.944	0.805	0.831	0.745	0.803	0.907	0.945	0.977	0.908
EUR												
Chi-Sq. Glo Fac	0.000	0.000	0.167	0.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000
R^2 - Glo 3 Fac	0.703	0.714	0.748	0.750	0.746	0.749	0.589	0.635	0.707	0.768	0.801	0.792
R^2 - Loc 3 Fac	0.970	0.993	0.994	0.990	0.932	0.887	0.733	0.969	0.995	0.994	0.970	0.911
R^2 – 6 Fac	0.982	0.996	0.996	0.988	0.837	0.836	0.608	0.984	0.997	0.996	0.987	0.957
JPY												
Chi-Sq. Glo Fac		0.426	0.252	0.791				0.005	0.592	0.088	0.045	0.523
Chi-Sq. Loc Fac		0.000	0.000	0.000				0.000	0.000	0.000	0.000	0.000
R^2 - Glo 3 Fac		0.521	0.473	0.474				0.459	0.477	0.503	0.551	0.555
R^2 - Loc 3 Fac		0.999	0.993	0.982				0.996	0.999	0.995	0.992	0.942
R^2 – 6 Fac		0.998	0.996	0.989				0.996	0.999	0.996	0.993	0.958
GBP												
Chi-Sq. Glo Fac	0.130	0.000	0.566	0.002	0.202	0.000	0.287	0.001	0.083	0.586	0.000	0.252
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000
R^2 - Glo 3 Fac	0.520	0.562	0.622	0.646	0.622	0.643	0.375	0.47	0.554	0.641	0.679	0.591
R^2 - Loc 3 Fac	0.884	0.976	0.988	0.979	0.854	0.721	0.526	0.857	0.918	0.957	0.986	0.950
R^2 – 6 Fac	0.916	0.982	0.989	0.980	0.808	0.718	0.421	0.862	0.919	0.954	0.982	0.947
CAD												
Chi-Sq. Glo Fac	0.598	0.000	0.132	0.043	0.536	0.213		0.000	0.011	0.185	0.005	0.003
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000
R^2 - Glo 3 Fac	0.572	0.533	0.585	0.584	0.488	0.347		0.504	0.548	0.584	0.590	0.577
R^2 - Loc 3 Fac	0.974	0.986	0.994	0.992	0.801	0.536		0.956	0.982	0.994	0.979	0.915
R^2 – 6 Fac	0.971	0.988	0.995	0.989	0.794	0.505		0.956	0.983	0.993	0.981	0.929
AUD												
Chi-Sq. Glo Fac		0.000	0.016	0.014				0.000	0.022	0.000	0.045	0.109
Chi-Sq. Loc Fac		0.000	0.000	0.000				0.000	0.000	0.000	0.000	0.000
R^2 - Glo 3 Fac		0.625	0.649	0.637				0.613	0.639	0.665	0.660	0.676
R^2 - Loc 3 Fac		0.998	0.993	0.990				0.996	0.998	0.985	0.912	0.897
R^2 – 6 Fac		0.999	0.996	0.992				0.997	0.998	0.989	0.947	0.921

Notes: This table shows the p-value of a market segmentation test (first line), the p-value of an international market integration test (second line) and the adjusted R^2 of multi-factor OLS regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, > 10 years) and the regressors are global excess returns of (i) Six factors (6 Fac), three global and three local factors, comprising aggregate corporate bonds, sovereign bonds and stocks; (ii) global three factors (Glo 3 Fac) comprising aggregate global corporate bonds, sovereign bonds and stocks; and (iii) local three factors (Loc 3 Fac) comprising aggregate local corporate bonds, sovereign bonds and stocks. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. "Chi-Sq. Glo Fac" and "Chi-Sq. Loc Fac" are the Chi-Square's P-value of the Wald test testing the joint significance of all global factors and all local factors, respectively. Sample period: February 1998 – August 2018.

Table 10. Residual Correlations

	Global CAPM	Global three factor	Global and local six factor	Local three factor
Global				
Correlation AAA / AA	0.879***	0.239***		
Correlation AAA / BBB	0.675***	-0.380***		
Correlation AAA / B	-0.058	-0.352***		
Correlation BBB / B	0.433***	0.154		
Correlation BB / B	0.858***	0.686***		
Correlation 1to3 / 3to5	0.948***	0.882***		
Correlation 1to3 / >10	0.401***	-0.859***		
Correlation 7to10 / >10	0.867***	0.487***		
USD				
Correlation AAA / AA	0.921***	0.887***	0.626***	0.613***
Correlation AAA / BBB	0.672***	0.606***	-0.287*	-0.297**
Correlation AAA / B	-0.120	-0.005	-0.489***	-0.454***
Correlation BBB / B	0.475***	0.416***	-0.058	-0.063
Correlation BB / B	0.866***	0.764***	0.578***	0.600***
Correlation 1to3 / 3to5	0.932***	0.829***	0.731***	0.725***
Correlation 1to3 / >10	0.582***	0.201**	-0.681***	-0.682***
Correlation 7to10 / >10	0.874***	0.778***	-0.302***	-0.264***
EUR				
Correlation AAA / AA	0.986***	0.974***	0.397***	0.501***
Correlation AAA / BBB	0.932***	0.927***	-0.273***	-0.339***
Correlation AAA / B	0.514***	0.547***	-0.012	-0.157*
Correlation BBB / B	0.684***	0.591***	0.149	0.231**
Correlation BB / B	0.781***	0.579***	0.333***	0.408***
Correlation 1to3 / 3to5	0.989***	0.985***	0.634***	0.763***
Correlation 1to3 / >10	0.847***	0.697***	-0.792***	-0.865***
Correlation 7to10 / >10	0.962***	0.921***	0.758***	0.845***
JPY				
Correlation AA / A	0.991***	0.985***	-0.416***	-0.400***
Correlation AA / BBB	0.987***	0.978***	-0.351***	-0.348***
Correlation 1to3 / 3to5	0.997***	0.995***	0.440***	0.432***
Correlation 1to3 / >10	0.909***	0.835***	-0.582***	-0.597***
Correlation 7to10 / >10	0.974***	0.946***	0.370***	0.385***
GBP				
Correlation AAA / AA	0.949***	0.932***	0.528***	0.532***
Correlation AAA / BBB	0.866***	0.861***	-0.192	-0.236*
Correlation AAA / B	0.433***	0.372***	-0.064	-0.116
Correlation BBB / B	0.654***	0.462***	0.230	0.346**
Correlation BB / B	0.723***	0.511***	0.345***	0.359***
Correlation 1to3 / 3to5	0.981***	0.975***	0.910***	0.911***
Correlation 1to3 / >10	0.762***	0.628***	-0.900***	-0.887***
Correlation 7to10 / >10	0.922***	0.873***	-0.377***	-0.335***
CAD				
Correlation AAA / AA	0.966***	0.964***	0.365***	0.323**
Correlation AAA / BBB	0.943***	0.936***	-0.275***	-0.261**
Correlation AAA / B	0.350***	0.408***	-0.199***	-0.205***
Correlation BBB / B	0.435***	0.467***	-0.039	-0.030
Correlation BB / B	0.526***	0.509***	0.238***	0.244***
Correlation 1to3 / 3to5	0.980***	0.979***	0.767***	0.782***
Correlation 1to3 / >10	0.767***	0.735***	-0.883***	-0.894***
Correlation 7to10 / >10	0.937***	0.921***	0.426***	0.465***
AUD				
Correlation AA / A	0.990***	0.989***	-0.412***	-0.503***
Correlation AA / BBB	0.985***	0.982***	-0.613***	-0.647***
Correlation 1to3 / 3to5	0.984***	0.984***	-0.715***	-0.725***
Correlation 1to3 / >10	0.733***	0.719***	-0.359***	-0.456***
Correlation 7to10 / >10	0.837***	0.762***	0.304**	0.384**

Note: This table shows the correlation coefficients between the residuals of OLS regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, > 10 years) and the regressors are global excess returns of (i) global CAPM with all securities, (ii) three global factors comprising aggregate corporate bonds, sovereign bonds and stocks; (iii) six factors (three global and three local factors) comprising aggregate corporate bonds, sovereign bonds and stocks; and (iii) three local factors comprising aggregate corporate bonds, sovereign bonds and stocks. The correlations are estimated using GMM methods under sequential weighting matrix and coefficient iteration. *,**, and *** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 – August 2018.

Table 11. Adjusted R² : Factor Models versus Spread Models

	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
USD												
Local 3 Fac	0.872	0.910	0.918	0.943	0.798	0.819	0.745	0.803	0.904	0.944	0.976	0.907
Spread B-AAA	0.913	0.956	0.959	0.941	0.883	0.981	0.842	0.746	0.893	0.963	0.976	0.911
Spread Maturity	0.641	0.798	0.863	0.942	0.692	0.597	0.521	0.930	0.971	0.948	0.973	0.993
EUR												
Local 3 Fac	0.980	0.995	0.996	0.987	0.818	0.809	0.558	0.972	0.996	0.994	0.976	0.937
Spread B-AAA	0.973	0.992	0.995	0.988	0.844	0.991	0.771	0.971	0.995	0.995	0.977	0.916
Spread Maturity	0.949	0.982	0.995	0.984	0.708	0.637	0.329	0.995	0.998	0.995	0.992	0.996
JPY												
Local 3 Fac		0.998	0.996	0.989				0.996	0.999	0.996	0.993	0.957
Spread BBB-AA		0.996	0.992	0.992				0.987	0.997	0.994	0.974	0.901
Spread Maturity		0.997	0.995	0.988				0.998	0.999	0.996	0.992	0.998
GBP												
Local 3 Fac	0.915	0.981	0.989	0.977	0.805	0.661	0.409	0.852	0.916	0.954	0.981	0.947
Spread B-AAA	0.905	0.978	0.991	0.980	0.829	0.968	0.496	0.856	0.922	0.954	0.981	0.954
Spread Maturity	0.864	0.969	0.994	0.976	0.760	0.571	0.369	0.991	0.990	0.970	0.975	0.995
CAD												
Local 3 Fac	0.971	0.987	0.995	0.988	0.793	0.497		0.951	0.982	0.993	0.980	0.923
Spread B-AAA	0.969	0.987	0.995	0.988	0.795	0.991		0.943	0.981	0.993	0.980	0.913
Spread Maturity	0.964	0.995	0.997	0.989	0.777	0.393		0.996	0.996	0.993	0.986	0.998
AUD												
Local 3 Fac		0.998	0.995	0.992				0.997	0.998	0.987	0.941	0.915
Spread BBB-AA		0.999	0.996	0.999				0.995	0.997	0.980	0.924	0.838
Spread Maturity		0.999	0.996	0.992				0.999	0.998	0.994	0.999	0.894

Notes: This table shows the adjusted R² of the the local-three factor model (Local 3 Fac), comprising aggregate corporate bonds, sovereign bonds and stocks, and the local corporate bond market plus a spread factor. The spread factor is computed as a differecen between excess returns in B and AAA rating categories (except for JPY and AUD for which the spread in BBB and AA rating categories is used) and between >10 and 1< to <3 residual maturity ("Spread Maturity") categories. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Sample period: February 1998 – August 2018.

Table 12. Local Factors and Bond Risk Characteristics: Panel Regression

VARIABLES	USD	EUR	JPY	GBP	CAD	AUD
			Intercept and bond characteristics			
Constant	0.044***	0.086***	0.051***	-0.522***	0.172***	0.327***
	(0.013)	(0.025)	(0.015)	(0.151)	(0.026)	(0.027)
Rating	0.004**	-0.001	-0.007***	0.070***	-0.022***	-0.034***
	(0.002)	(0.004)	(0.002)	(0.017)	(0.004)	(0.004)
Maturity	-0.003***	-0.009***	0.001	0.011**	0.004***	-0.030***
	(0.001)	(0.003)	(0.002)	(0.005)	(0.001)	(0.005)
Secured	0.048***	0.169***	0.030***	-0.104*	-0.000	0.049
	(0.012)	(0.039)	(0.009)	(0.053)	(0.016)	(0.034)
Junior	0.189**	0.296***	0.126***	0.254***	-0.055***	0.079
	(0.085)	(0.051)	(0.020)	(0.097)	(0.019)	(0.105)
			Slope and bond characteristics			
Local Sov. * Rating	-0.049***	-0.058***	-0.073***	-0.018**	-0.033***	-0.039***
	(0.001)	(0.004)	(0.001)	(0.008)	(0.002)	(0.002)
Local Eq. * Rating	0.002***	0.006***	-0.001***	0.003	0.001*	-0.000
	(0.000)	(0.001)	(0.000)	(0.003)	(0.001)	(0.001)
Local Corp. * Rating	0.104***	0.126***	0.196***	0.093***	0.139***	0.144***
	(0.002)	(0.004)	(0.002)	(0.010)	(0.003)	(0.003)
Local Sov. * Maturity	0.025***	0.069***	0.088***	0.019***	0.025***	0.066***
	(0.000)	(0.003)	(0.002)	(0.003)	(0.001)	(0.004)
Local Eq. * Maturity	-0.001***	-0.002***	0.001***	-0.003***	-0.002***	0.003
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.002)
Local Corp. * Maturity	0.022***	0.004	-0.049***	0.017***	-0.003**	0.047***
	(0.001)	(0.003)	(0.003)	(0.003)	(0.001)	(0.005)
Local Sov. * Secured	0.122***	0.017	0.040**	0.066	0.059***	0.052
	(0.015)	(0.058)	(0.019)	(0.057)	(0.023)	(0.037)
Local Eq. * Secured	-0.024***	0.011	-0.020***	0.042**	0.005	-0.017
	(0.006)	(0.013)	(0.003)	(0.020)	(0.006)	(0.015)
Local Corp. * Secured	-0.184***	-0.154**	0.175***	-0.157**	0.031	-0.116**
	(0.023)	(0.065)	(0.023)	(0.068)	(0.028)	(0.051)
Local Sov. * Junior	-0.147***	-1.068***	0.042	-1.174***	-0.265***	-0.204***
	(0.043)	(0.085)	(0.038)	(0.117)	(0.028)	(0.078)
Local Eq. * Junior	-0.053***	0.109***	0.003	-0.035	0.010	0.046
	(0.018)	(0.021)	(0.006)	(0.045)	(0.006)	(0.030)
Local Corp. * Junior	-0.125	1.211***	-0.024	1.431***	0.450***	0.092
	(0.187)	(0.104)	(0.045)	(0.152)	(0.032)	(0.100)
Observations	1,493,469	385,295	200,927	158,098	169,586	53,873
R-squared	0.068	0.478	0.844	0.228	0.640	0.797

Notes: This table shows the coefficients of multi factor Panel regressions where the dependent variables are corporate bond-specific excess returns at CUSIP level and the regressors are local sovereign (SOV.), equity (Eq.) and corporate bond (Corp.) excess returns interacted with the following bond characteristics: ratings, residual maturity, secured bonds and junior bonds. Unsecured senior bonds and the interaction between the local factors and the unsecured senior bonds are omitted due to collinearity. Corporate bond excess returns are constructed using all bonds issued in USA, euro area, Japan, UK, Canada and Australia converted in US dollars in six currencies (USD, EUR, JPY, GBP, CAD, AUD). Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Robust standard errors are given in parenthesis.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 – August 2018.

Figure 1. Excess Returns and Volatility among all Currency Portfolios
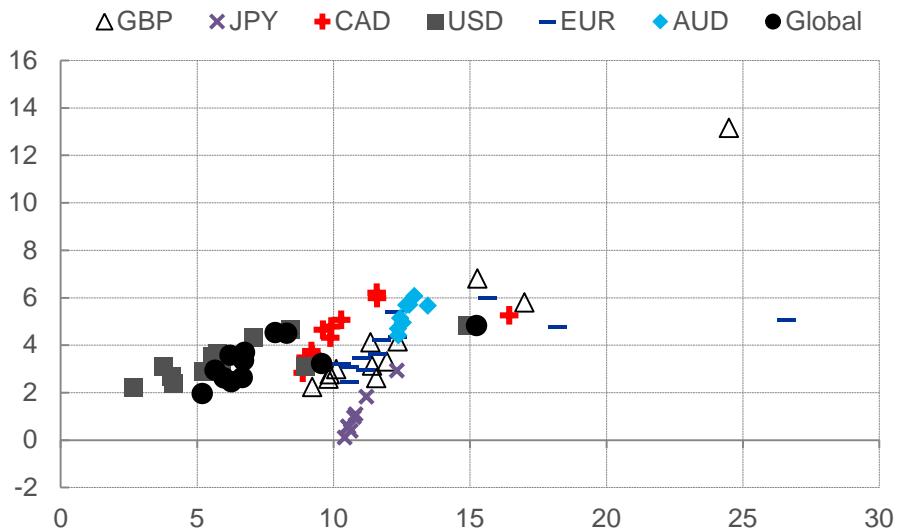
	Global	USD	EUR	JPY	GBP	CAD	AUD	FE	POOL
Panel A: Excess Returns and Volatility									
Intercept	1.635***	2.058***	2.216***	-14.643***	-4.42***	1.429	-9.469	0.237	1.058**
s.e.	(0.377)	(0.246)	(0.635)	(1.03)	(0.349)	(1.348)	(5.329)	(0.431)	(0.483)
Slope	0.230***	0.207***	0.135***	1.441***	0.691***	0.297**	1.163**	0.338***	0.260***
s.e.	(0.039)	(0.040)	(0.039)	(0.093)	(0.028)	(0.125)	(0.420)	(0.039)	(0.043)
Adjusted R^2	0.426	0.588	0.276	0.938	0.942	0.296	0.448	0.674	0.325
Num. Portfolios	12	12	12	8	12	11	8	75	75
Panel B: Relative difference between riskiest and safest portfolios (difference in means)									
Ratings	2.186	2.459	1.853	-	10.815*	1.780	-	-	4.872
s.e.	(4.237)	(4.566)	(6.568)	-	(6.218)	(3.218)	-		(3.579)
Resi. maturity	2.534*	2.454*	2.936**	2.830**	1.925	3.157**	1.664	-	2.601***
s.e.	(1.469)	(1.458)	(1.281)	(1.122)	(1.516)	(1.350)	(1.239)		(0.572)

Notes: This figure shows the average percent annualised excess returns of rating portfolios (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) and residual maturity portfolios (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, > 10 years) for each currency (USD, EUR, JPY, GBP, CAD, AUD) on the y-axis and their respective percent annualised standard deviations on the x-axis. Panel A shows the "Intercept" and "Slope" regression coefficients of the average excess returns vis-à-vis the standard deviations. Panel B of the table shows the difference in annualised average excess returns of highest and lowest risk portfolios. The last two columns show the panel results with country fixed effects (FE) as well as the pooled estimation (POOL). The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns, converted in US dollars, are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. The risk free rate is the one-month US Treasury bill. Heteroskedastic consistent (HC) White standard errors are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 – August 2018.

Figure 2. Excess Returns versus Average Returns
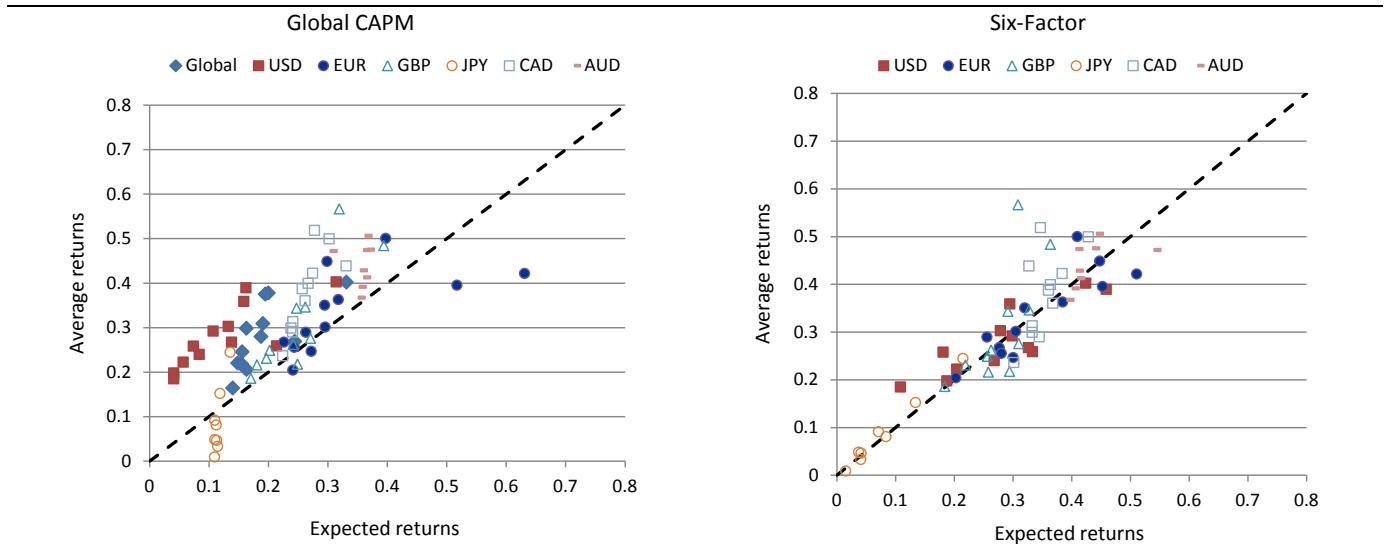
Nore: This Figure shows the relationship between model-specific expected returns and historical average returns. Each colour represents a different currency. The panels include 63 individual currency portfolios and 12 global portfolios.

Figure 3. Global CAPM Betas

Panel A: Rating porfolios

△ GBP   ✕ JPY   ✚ CAD   ▪ USD   — EUR   ◆ AUD   ● Global
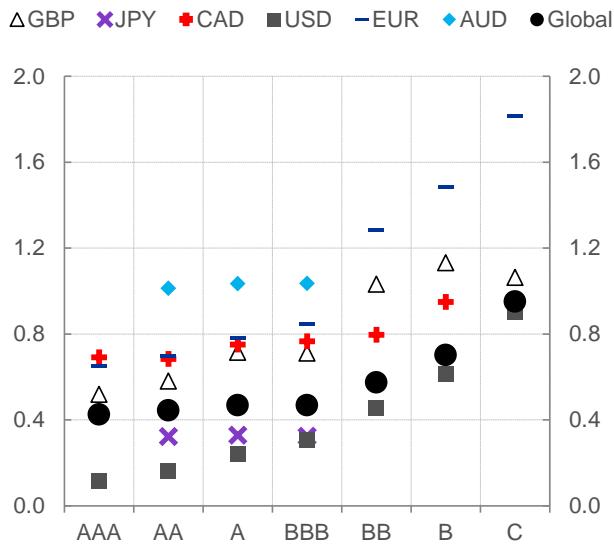
Panel B: Residual maturity portfolios

△ GBP   ✕ JPY   ✚ CAD   ▪ USD   — EUR   ◆ AUD   ● Global
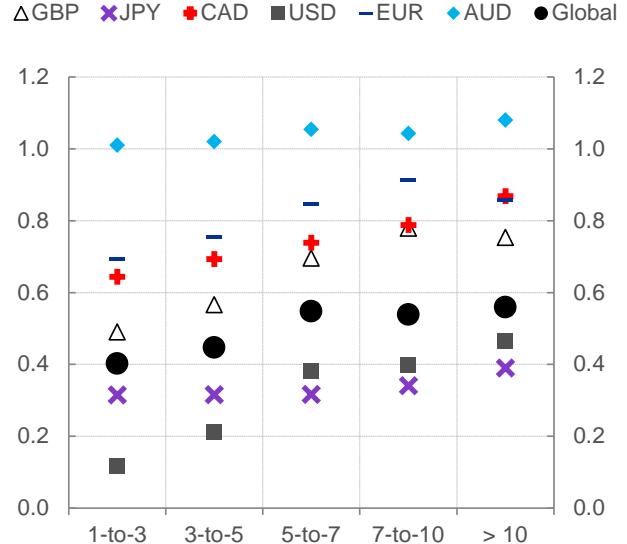
Notes: This figure shows the beta coefficients of OLS regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, > 10 years) and the regressors are global excess returns with three securities (corporate bonds, sovereign bonds and stocks) for each currency (USD, EUR, JPY, GBP, CAD, AUD). The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Sample period: February 1998 – August 2018.

Figure 4. Beta Exposure for the Global Factor Models
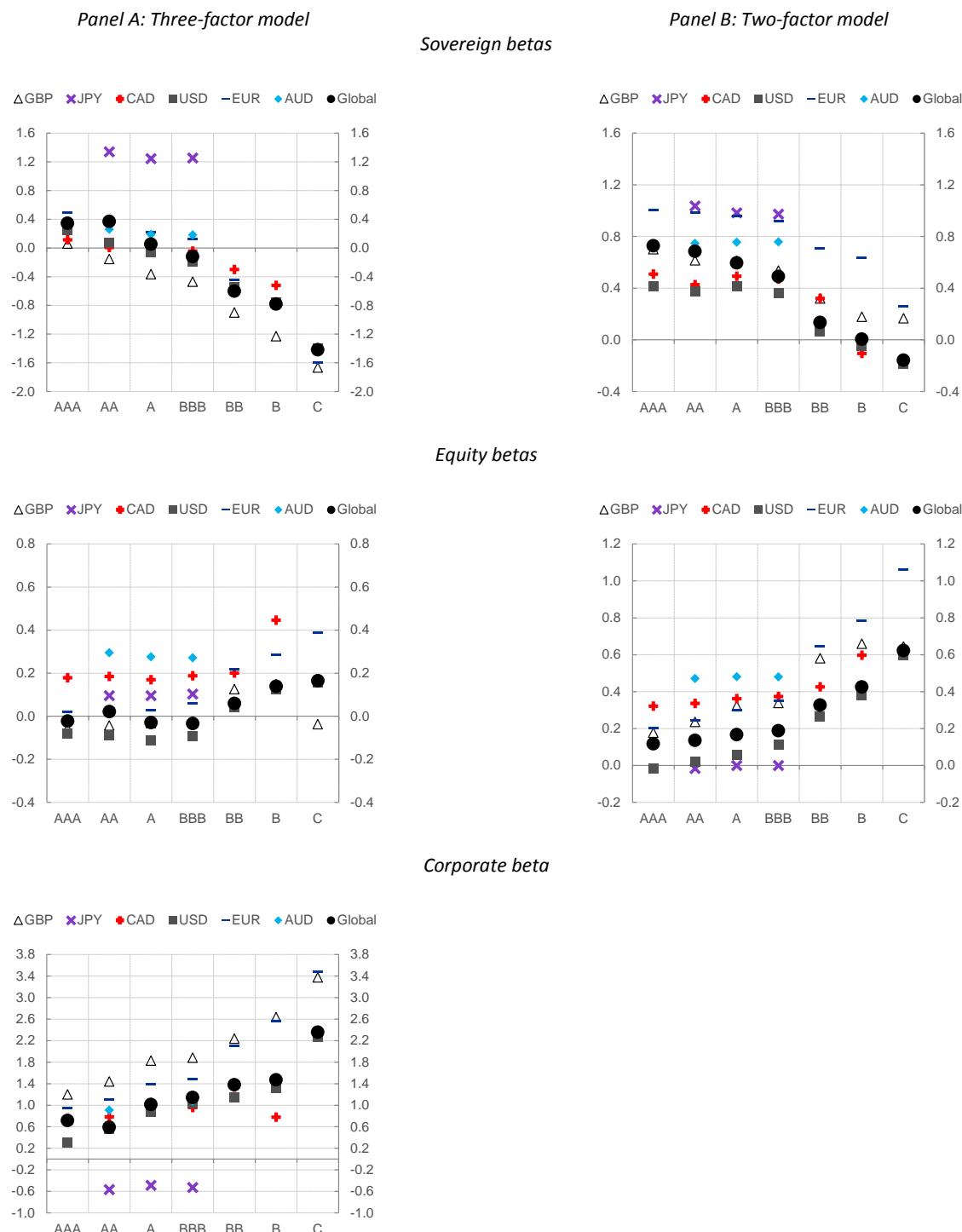
Panel A: Three-factor model

Panel B: Two-factor model

Sovereign betas

Equity betas

Corporate beta

Notes: This figure shows the beta coefficients of multi-factor OLS regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) and the regressors are global excess returns of (i) three factors comprising global aggregate corporate bonds, sovereign bonds and stocks; and (ii) two factors comprising global aggregate sovereign bonds and stocks. The portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Sample period: February 1998 – August 2018.

Figure 5. Beta Exposure for the Local Three-Factor Model

Rating portfolios   Residual maturity portfolios

Sovereign betas

Equity betas

Corporate beta

Notes: This figure shows the beta coefficients of multi-factor OLS regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, > 10 years) and the regressors are global excess returns of local three factors comprising local aggregate corporate bonds, sovereign bonds and stocks. The portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Sample period: February 1998 – August 2018.

Online Appendix

This Appendix contains the following Tables and Figures:

Tables

Figures

Table 1. Corporate Bond Market: Population versus Sample

(Amount outstanding at end-December 2018, US dollar billions)

Bloomberg	World	US	EA	JP	UK	CA	AU	SIX
Panel A: Includes bonds with floating coupons and callability below 1-year								
All currencies	25644	8301	5014	902	1436	824	525	17004
USD	12757	7455	1243	233	527	353	257	10067
JPY	735	30	51	600	16	1	10	707
GBP	853	100	152	3	533	4	14	807
EUR	4985	599	3424	51	331	32	80	4517
CAD	476	40	9	0	5	420	2	476
AUD	249	22	29	11	7	9	143	221
Six economies	20055	8247	4908	898	1419	818	506	16795
Panel B: Excludes bonds with floating coupons and callability below 1-year								
All currencies	19346	6818	3358	727	1075	638	332	12947
USD	10222	6127	975	165	379	251	179	8075
JPY	613	25	40	511	10	1	9	597
GBP	690	96	116	3	423	2	11	650
EUR	3328	483	2133	41	241	16	65	2979
CAD	407	32	8	0	4	362	2	407
AUD	107	15	18	5	4	2	50	94
Six economies	15366	6778	3290	724	1061	1	316	12170

Merrill Lynch	World	US	EA	JP	UK	CA	AU	SIX
USD	8443	5561	585	149	378	230	127	7031
JPY	148	14	23	92	9	1	6	145
GBP	459	73	98	3	237	2	11	424
EUR	2774	440	1657	32	231	20	60	2441
CAD	320	32	7	1	3	276	1	320
AUD	74	11	12	2	3	2	36	67
Six economies	12218	6132	2382	280	862	530	242	10429

Sources: Bloomberg, ICE BofA Merril Lynch and authhours' calculations.

Notes: The outstanding amounts exclude covered bonds, quasi government bonds, bonds with residual maturity below 12 months, bond with maturity below 18 months at issuance and defaulted bonds. In addition, ICE BofA Merril Lynch excludes bonds with a floating coupon and bonds with a callability option below 1-year.

Table 2a. Summary Statistics: Corporate Bond Portfolios in all Currencies

World USD	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	above 10
					February 1998 - August 2018							
Mean	2.641	2.623	2.469	3.583	4.530	3.225	4.827	1.969	2.945	3.707	3.360	4.502
Standard deviation.	6.646	5.982	6.246	6.205	7.853	9.561	15.240	5.180	5.659	6.737	6.695	8.285
Correlation global CB	0.602	0.645	0.731	0.770	0.691	0.626	0.562	0.555	0.597	0.608	0.601	0.522
Correlation global SB	0.806	0.845	0.706	0.589	0.142	0.023	-0.058	0.639	0.665	0.556	0.618	0.623
Correlation global EQ	0.299	0.381	0.441	0.493	0.661	0.702	0.643	0.511	0.513	0.577	0.529	0.382
Market weight	3.9	15.6	36.0	29.4	7.2	5.9	2.1	22.3	22.6	16.2	19.8	19.1
					February 1998 - July 2007							
Mean	2.704	2.603	2.441	2.608	2.110	1.000	0.590	1.978	2.480	2.905	2.242	3.328
Standard deviation.	6.545	5.871	4.898	4.859	5.866	8.040	12.666	4.390	4.856	4.949	5.321	6.398
Correlation global CB	0.451	0.480	0.560	0.613	0.474	0.393	0.316	0.507	0.574	0.593	0.574	0.510
Correlation global SB	0.892	0.957	0.924	0.776	0.141	-0.007	-0.112	0.863	0.913	0.833	0.798	0.722
Correlation global EQ	-0.002	0.107	0.067	0.159	0.433	0.556	0.433	0.177	0.150	0.195	0.213	0.134
Market weight	8.4	19.9	34.7	24.2	5.2	5.9	1.8	22.5	22.2	15.3	21.3	18.7
					August 2007 - August 2018							
Mean	2.587	2.640	2.494	4.419	6.605	5.132	8.458	1.961	3.344	4.395	4.318	5.508
Standard deviation.	6.755	6.098	7.223	7.170	9.203	10.694	17.120	5.790	6.283	7.971	7.690	9.628
Correlation global CB	0.703	0.755	0.811	0.845	0.794	0.748	0.689	0.577	0.609	0.617	0.615	0.528
Correlation global SB	0.733	0.750	0.600	0.496	0.146	0.040	-0.029	0.500	0.506	0.429	0.525	0.588
Correlation global EQ	0.518	0.580	0.636	0.668	0.784	0.789	0.765	0.702	0.724	0.766	0.698	0.510
Market weight	2.2	14.0	36.5	31.4	7.9	5.8	2.2	22.2	22.7	16.6	19.2	19.2

Notes: This table shows the annualised mean and standard deviation of corporate portfolio bond excess returns, grouped by rating class and residual maturity, their correlation with market factor excess returns and their market weight. Portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. (*) refers to corporate bond excess returns computed excluding the bonds of the same portfolio segment. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill.

Table 2b. Summary Statistics: Corporate Bond Portfolios in US Dollars

USD	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	above 10
February 1998 - August 2018												
Mean	2.373	2.670	2.879	3.502	4.307	3.106	4.831	2.219	3.097	3.635	3.208	4.673
Standard deviation.	4.146	4.080	5.238	5.559	7.056	8.978	14.892	2.659	3.778	5.745	5.887	8.439
Correlation glo CB (*)	0.343	0.517	0.564	0.657	0.621	0.580	0.544	0.476	0.526	0.504	0.507	0.437
Correlation glo SB	0.732	0.669	0.580	0.480	0.085	-0.022	-0.074	0.266	0.397	0.295	0.457	0.552
Correlation glo EQ	-0.050	0.100	0.191	0.325	0.593	0.670	0.631	0.332	0.392	0.527	0.453	0.282
Correlation loc CB (*)	0.446	0.592	0.656	0.717	0.596	0.529	0.457	0.550	0.597	0.588	0.597	0.517
Correlation loc SB	0.858	0.733	0.611	0.459	-0.076	-0.227	-0.301	0.158	0.296	0.149	0.395	0.573
Correlation loc EQ	-0.108	0.029	0.113	0.254	0.538	0.620	0.575	0.258	0.309	0.451	0.373	0.210
Market weight	2.741	10.802	33.907	31.993	8.952	8.420	3.185	18.756	20.525	16.087	21.886	22.747
February 1998 - July 2007												
Mean	1.814	1.849	1.964	1.645	1.650	0.799	0.617	1.519	1.988	1.935	1.461	2.626
Standard deviation.	3.326	3.537	4.157	4.697	5.732	7.874	12.565	1.623	2.868	4.040	4.791	6.767
Correlation glo CB (*)	0.376	0.422	0.450	0.520	0.431	0.354	0.295	0.467	0.496	0.437	0.424	0.392
Correlation glo SB	0.728	0.679	0.661	0.550	0.086	-0.059	-0.137	0.543	0.609	0.459	0.486	0.514
Correlation glo EQ	-0.228	-0.193	-0.130	0.070	0.406	0.536	0.419	-0.131	-0.023	0.208	0.204	0.095
Correlation loc CB (*)	0.468	0.523	0.584	0.655	0.501	0.385	0.295	0.552	0.602	0.592	0.597	0.571
Correlation loc SB	0.948	0.928	0.890	0.716	0.072	-0.150	-0.226	0.669	0.753	0.524	0.610	0.700
Correlation loc EQ	-0.236	-0.197	-0.143	0.054	0.367	0.498	0.368	-0.151	-0.056	0.171	0.166	0.083
Market weight	5.821	12.834	32.493	28.814	7.896	9.286	2.856	18.770	20.093	15.766	23.565	21.806
August 2007 - August 2018												
Mean	2.852	3.374	3.665	5.094	6.585	5.084	8.444	2.819	4.048	5.092	4.706	6.427
Standard deviation.	4.746	4.497	6.020	6.185	7.982	9.821	16.606	3.295	4.404	6.867	6.673	9.642
Correlation glo CB (*)	0.330	0.566	0.620	0.731	0.719	0.708	0.675	0.485	0.540	0.534	0.546	0.458
Correlation glo SB	0.757	0.672	0.548	0.441	0.081	0.000	-0.038	0.166	0.288	0.222	0.450	0.592
Correlation glo EQ	0.043	0.272	0.358	0.473	0.701	0.754	0.755	0.518	0.600	0.683	0.591	0.382
Correlation loc CB (*)	0.435	0.627	0.688	0.748	0.638	0.600	0.532	0.554	0.595	0.586	0.599	0.499
Correlation loc SB	0.818	0.617	0.469	0.307	-0.167	-0.282	-0.354	-0.032	0.069	-0.021	0.276	0.508
Correlation loc EQ	-0.036	0.177	0.264	0.383	0.652	0.709	0.715	0.445	0.518	0.610	0.505	0.287
Market weight	1.633	10.071	34.416	33.136	9.332	8.108	3.303	18.751	20.680	16.202	21.282	23.085

Notes: This table shows the annualised mean and standard deviation of corporate portfolio bond excess returns, grouped by rating class and residual maturity, their correlation with market factor excess returns and their market weight. Portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. (*) refers to corporate bond excess returns computed excluding the bonds of the same portfolio segment. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in USD. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies: USD, EUR, JPY, GBP, CAD, AUD. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the US; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the US; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in USD. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill.

Table 2c. Summary Statistics: Corporate Bond Portfolios in Euro

EUR	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	above 10
					February 1998 - August 2018							
Mean	3.204	3.066	2.960	3.615	6.003	4.746	5.058	2.449	3.473	4.204	4.353	5.385
Standard deviation.	10.306	10.606	11.190	11.609	15.630	18.204	26.590	10.579	11.014	11.774	12.350	12.219
Correlation glo CB (*)	0.563	0.604	0.653	0.686	0.722	0.705	0.593	0.488	0.519	0.547	0.562	0.566
Correlation glo SB	0.719	0.685	0.637	0.589	0.350	0.272	0.089	0.595	0.614	0.614	0.624	0.703
Correlation glo EQ	0.331	0.378	0.437	0.490	0.666	0.686	0.633	0.415	0.437	0.470	0.481	0.406
Correlation loc CB (*)	0.803	0.830	0.855	0.871	0.816	0.800	0.629	0.635	0.649	0.653	0.649	0.628
Correlation loc SB	0.957	0.944	0.911	0.877	0.638	0.572	0.337	0.886	0.898	0.892	0.894	0.931
Correlation loc EQ	0.489	0.534	0.587	0.634	0.766	0.776	0.665	0.577	0.594	0.617	0.621	0.540
Market weight	6.220	18.447	37.814	28.132	6.114	2.622	0.651	27.593	27.476	20.063	18.826	6.042
					February 1998 - July 2007							
Mean	3.977	4.181	4.200	3.660	4.991	2.958	0.650	3.435	4.023	4.581	4.713	5.769
Standard deviation.	10.409	10.444	10.407	10.190	13.663	15.493	24.738	9.780	10.226	10.590	10.962	11.594
Correlation glo CB (*)	0.421	0.459	0.480	0.532	0.538	0.500	0.422	0.467	0.488	0.499	0.509	0.536
Correlation glo SB	0.806	0.810	0.802	0.773	0.430	0.367	0.161	0.749	0.788	0.805	0.808	0.825
Correlation glo EQ	0.036	0.042	0.060	0.132	0.426	0.469	0.482	0.073	0.072	0.076	0.089	0.060
Correlation loc CB (*)	0.757	0.762	0.774	0.795	0.656	0.694	0.475	0.646	0.657	0.659	0.656	0.646
Correlation loc SB	0.980	0.982	0.978	0.952	0.583	0.574	0.308	0.941	0.967	0.977	0.982	0.985
Correlation loc EQ	0.223	0.230	0.252	0.317	0.571	0.609	0.546	0.268	0.263	0.265	0.274	0.238
Market weight	16.140	26.062	33.659	19.329	2.151	2.146	0.512	24.750	26.422	19.726	23.583	5.519
					August 2007 - August 2018							
Mean	2.542	2.110	1.897	3.577	6.757	6.278	8.836	1.604	3.002	3.881	4.044	5.055
Standard deviation.	10.253	10.775	11.850	12.738	16.994	20.290	28.129	11.250	11.684	12.741	13.468	12.773
Correlation glo CB (*)	0.667	0.701	0.753	0.765	0.810	0.807	0.697	0.505	0.543	0.575	0.593	0.591
Correlation glo SB	0.642	0.580	0.515	0.467	0.304	0.212	0.030	0.483	0.483	0.479	0.499	0.608
Correlation glo EQ	0.557	0.624	0.687	0.705	0.791	0.813	0.734	0.638	0.677	0.717	0.721	0.643
Correlation loc CB (*)	0.841	0.880	0.906	0.916	0.906	0.865	0.731	0.629	0.645	0.649	0.645	0.617
Correlation loc SB	0.937	0.914	0.868	0.841	0.689	0.588	0.366	0.852	0.852	0.841	0.844	0.894
Correlation loc EQ	0.679	0.738	0.787	0.808	0.858	0.865	0.742	0.760	0.791	0.816	0.813	0.728
Market weight	3.101	16.053	39.120	30.900	7.360	2.772	0.694	28.487	27.808	20.168	17.331	6.207

Notes: This table shows the annualised mean and standard deviation of corporate portfolio bond excess returns, grouped by rating class and residual maturity, their correlation with market factor excess returns and their market weight. Portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. (*) refers to corporate bond excess returns computed excluding the bonds of the same portfolio segment. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in EUR. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies: USD, EUR, JPY, GBP, CAD, AUD. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the euro area; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the euro area; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in EUR. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill.

Table 2d. Summary Statistics: Corporate Bond Portfolios in Japanese JPY

JPY	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	above 10
						February 1998 - August 2018						
Mean	2.265	0.972	0.394	0.559				0.107	0.578	1.097	1.825	2.937
Standard deviation.	11.061	10.741	10.624	10.540				10.406	10.523	10.808	11.204	12.313
Correlation glo CB (*)	0.189	0.145	0.190	0.205				0.193	0.206	0.237	0.244	0.251
Correlation glo SB	0.680	0.704	0.675	0.673				0.662	0.676	0.692	0.723	0.728
Correlation glo EQ	0.051	-0.005	0.017	0.017				0.013	0.006	-0.005	-0.008	0.003
Correlation loc CB (*)	0.981	0.988	0.989	0.993				0.644	0.651	0.655	0.652	0.630
Correlation loc SB	0.971	0.984	0.962	0.960				0.950	0.964	0.979	0.993	0.978
Correlation loc EQ	0.264	0.198	0.231	0.227				0.235	0.221	0.199	0.183	0.178
Market weight	2.163	41.818	43.322	12.697				40.071	29.838	10.173	12.265	7.653
						February 1998 - July 2007						
Mean	-0.227	-0.197	-0.783	-0.759				-1.140	-0.606	0.119	0.752	1.367
Standard deviation.	11.444	11.369	11.147	11.057				11.102	11.155	11.280	11.665	12.704
Correlation glo CB (*)	0.257	0.218	0.235	0.268				0.288	0.316	0.370	0.397	0.397
Correlation glo SB	0.683	0.692	0.654	0.659				0.629	0.653	0.684	0.714	0.721
Correlation glo EQ	0.149	0.150	0.158	0.164				0.167	0.158	0.141	0.139	0.124
Correlation loc CB (*)	0.988	0.990	0.994	0.995				0.635	0.645	0.652	0.648	0.620
Correlation loc SB	0.973	0.979	0.947	0.947				0.923	0.946	0.973	0.993	0.989
Correlation loc EQ	0.417	0.410	0.448	0.456				0.463	0.446	0.413	0.382	0.335
Market weight	3.983	38.634	41.364	16.019				39.624	29.445	9.238	11.774	9.919
						August 2007 - August 2018						
Mean		1.974	1.403	1.688				1.176	1.594	1.935	2.745	4.283
Standard deviation.		10.205	10.188	10.105				9.802	9.983	10.423	10.831	12.002
Correlation glo CB (*)		0.098	0.153	0.156				0.137	0.141	0.152	0.151	0.163
Correlation glo SB		0.716	0.696	0.687				0.695	0.699	0.701	0.731	0.734
Correlation glo EQ		-0.134	-0.098	-0.103				-0.117	-0.121	-0.125	-0.127	-0.094
Correlation loc CB (*)		0.986	0.983	0.989				0.654	0.657	0.658	0.657	0.641
Correlation loc SB		0.990	0.978	0.972				0.979	0.983	0.986	0.993	0.968
Correlation loc EQ		-0.063	-0.031	-0.050				-0.052	-0.057	-0.058	-0.055	-0.005
Market weight		45.604	45.649	8.747				40.594	30.297	11.268	12.841	5.000

Notes: This table shows the annualised mean and standard deviation of corporate portfolio bond excess returns, grouped by rating class and residual maturity, their correlation with market factor excess returns and their market weight. Portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. (*) refers to corporate bond excess returns computed excluding the bonds of the same portfolio segment. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in JPY. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies: USD, EUR, JPY, GBP, CAD, AUD. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in Japan; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in Japan; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in JPY. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill.

Table 2e. Summary Statistics: Corporate Bond Portfolios in British Pounds

GBP	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	above 10
						February 1998 - August 2018						
Mean	2.591	2.988	2.609	4.120	6.772	5.806	13.163	2.231	2.767	3.142	3.309	4.156
Standard deviation.	9.815	10.095	11.560	11.359	15.238	16.994	24.495	9.215	9.866	11.409	11.952	12.349
Correlation glo CB (*)	0.540	0.589	0.612	0.636	0.615	0.612	0.469	0.420	0.454	0.474	0.494	0.465
Correlation glo SB	0.529	0.455	0.398	0.357	0.172	0.093	0.068	0.326	0.354	0.330	0.360	0.421
Correlation glo EQ	0.299	0.381	0.451	0.479	0.605	0.615	0.416	0.409	0.438	0.480	0.500	0.425
Correlation loc CB (*)	0.749	0.813	0.828	0.847	0.776	0.702	0.581	0.609	0.629	0.633	0.630	0.589
Correlation loc SB	0.918	0.906	0.852	0.838	0.620	0.502	0.378	0.815	0.827	0.787	0.809	0.858
Correlation loc EQ	0.464	0.554	0.616	0.643	0.736	0.724	0.508	0.591	0.618	0.651	0.657	0.578
Market weight	5.523	19.204	39.051	29.054	4.469	2.246	0.452	13.577	14.334	12.218	16.212	43.659
						February 1998 - July 2007						
Mean	4.484	4.817	5.087	5.253	6.828	3.129	14.132	4.744	4.680	4.175	4.662	5.717
Standard deviation.	8.309	8.384	8.644	8.334	11.452	13.588	22.084	7.628	7.874	7.836	8.381	9.541
Correlation glo CB (*)	0.392	0.423	0.440	0.465	0.505	0.440	0.269	0.388	0.424	0.444	0.458	0.427
Correlation glo SB	0.709	0.694	0.670	0.629	0.387	0.223	0.197	0.621	0.674	0.672	0.654	0.633
Correlation glo EQ	-0.014	0.018	0.055	0.070	0.421	0.459	0.107	-0.005	0.001	0.043	0.122	0.075
Correlation loc CB (*)	0.733	0.744	0.758	0.759	0.634	0.529	0.356	0.611	0.633	0.636	0.628	0.594
Correlation loc SB	0.975	0.970	0.957	0.938	0.587	0.420	0.283	0.898	0.941	0.949	0.934	0.929
Correlation loc EQ	0.174	0.208	0.243	0.251	0.566	0.570	0.225	0.204	0.202	0.231	0.296	0.246
Market weight	11.912	28.845	37.867	17.997	1.474	1.562	0.343	14.037	13.419	9.865	15.684	46.995
						August 2007 - August 2018						
Mean	0.969	1.420	0.486	3.149	6.730	8.100	12.413	0.077	1.128	2.256	2.150	2.818
Standard deviation.	10.953	11.371	13.574	13.447	17.599	19.473	26.291	10.373	11.306	13.779	14.347	14.351
Correlation glo CB (*)	0.614	0.669	0.689	0.709	0.661	0.690	0.569	0.439	0.470	0.490	0.511	0.483
Correlation glo SB	0.422	0.312	0.265	0.225	0.073	0.013	-0.016	0.145	0.169	0.178	0.229	0.314
Correlation glo EQ	0.479	0.585	0.650	0.679	0.691	0.702	0.590	0.642	0.671	0.680	0.679	0.606
Correlation loc CB (*)	0.761	0.846	0.858	0.883	0.830	0.778	0.685	0.612	0.629	0.634	0.633	0.589
Correlation loc SB	0.892	0.879	0.821	0.814	0.650	0.561	0.437	0.776	0.777	0.746	0.781	0.839
Correlation loc EQ	0.597	0.710	0.761	0.792	0.796	0.792	0.640	0.765	0.794	0.800	0.789	0.713
Market weight	2.852	15.172	39.546	33.678	5.722	2.533	0.498	13.385	14.716	13.202	16.432	42.265

Notes: This table shows the annualised mean and standard deviation of corporate portfolio bond excess returns, grouped by rating class and residual maturity, their correlation with market factor excess returns and their market weight. Portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. (*) refers to corporate bond excess returns computed excluding the bonds of the same portfolio segment. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in GBP. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies: USD, EUR, JPY, GBP, CAD, AUD. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the UK; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the UK; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in GBP. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill.

Table 2f. Summary Statistics: Corporate Bond Portfolios in Canadian Dollars

CAD	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	above 10
					February 1998 - August 2018							
Mean	3.481	3.589	4.324	4.792	6.223	5.261		2.837	3.760	4.650	5.070	5.994
Standard deviation.	8.973	9.206	9.877	9.910	11.580	16.432		8.869	9.186	9.603	10.274	11.593
Correlation glo CB (*)	0.619	0.600	0.627	0.616	0.550	0.355		0.404	0.432	0.447	0.452	0.459
Correlation glo SB	0.429	0.354	0.379	0.362	0.218	-0.031		0.285	0.344	0.380	0.378	0.426
Correlation glo EQ	0.577	0.587	0.589	0.605	0.586	0.573		0.601	0.601	0.598	0.594	0.546
Correlation loc CB (*)	0.755	0.774	0.777	0.778	0.717	0.545		0.627	0.643	0.649	0.643	0.614
Correlation loc SB	0.943	0.919	0.927	0.917	0.752	0.474		0.866	0.907	0.927	0.922	0.922
Correlation loc EQ	0.742	0.765	0.759	0.762	0.704	0.658		0.776	0.774	0.767	0.761	0.692
Market weight	3.749	23.727	43.600	26.603	1.513	0.808		26.562	25.436	12.760	12.469	22.774
					February 1998 - July 2007							
Mean	5.264	5.441	5.952	6.053	5.558	7.757		4.862	5.435	6.005	6.271	7.037
Standard deviation.	7.629	7.772	8.360	8.135	9.318	15.502		7.096	7.822	8.108	8.732	9.974
Correlation glo CB (*)	0.407	0.426	0.444	0.445	0.396	0.183		0.321	0.367	0.370	0.358	0.368
Correlation glo SB	0.521	0.501	0.509	0.469	0.257	-0.071		0.417	0.487	0.518	0.491	0.504
Correlation glo EQ	0.346	0.367	0.369	0.424	0.420	0.540		0.392	0.393	0.379	0.386	0.366
Correlation loc CB (*)	0.703	0.715	0.719	0.721	0.658	0.442		0.625	0.645	0.648	0.644	0.620
Correlation loc SB	0.960	0.964	0.975	0.947	0.767	0.406		0.901	0.948	0.970	0.963	0.957
Correlation loc EQ	0.602	0.620	0.615	0.653	0.636	0.596		0.646	0.635	0.627	0.625	0.585
Market weight	7.914	19.350	54.423	15.619	2.036	0.659		25.032	23.530	12.210	16.738	22.490
					August 2007 - August 2018							
Mean	1.953	2.002	2.929	3.710	6.793	3.121		1.100	2.325	3.488	4.040	5.099
Standard deviation.	9.990	10.286	11.028	11.232	13.249	17.223		10.146	10.223	10.740	11.456	12.852
Correlation glo CB (*)	0.728	0.688	0.724	0.704	0.628	0.468		0.442	0.466	0.487	0.499	0.506
Correlation glo SB	0.379	0.266	0.303	0.305	0.199	0.003		0.215	0.257	0.299	0.311	0.381
Correlation glo EQ	0.712	0.716	0.718	0.709	0.678	0.597		0.718	0.724	0.725	0.716	0.653
Correlation loc CB (*)	0.806	0.830	0.831	0.832	0.767	0.626		0.629	0.643	0.649	0.644	0.611
Correlation loc SB	0.941	0.900	0.906	0.912	0.759	0.523		0.859	0.889	0.910	0.905	0.907
Correlation loc EQ	0.827	0.854	0.847	0.830	0.754	0.699		0.854	0.859	0.853	0.845	0.759
Market weight	2.579	24.956	40.561	29.689	1.366	0.850		26.991	25.970	12.914	11.271	22.853

Notes: This table shows the annualised mean and standard deviation of corporate portfolio bond excess returns, grouped by rating class and residual maturity, their correlation with market factor excess returns and their market weight. Portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. (*) refers to corporate bond excess returns computed excluding the bonds of the same portfolio segment. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in CAD. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies: USD, EUR, JPY, GBP, CAD, AUD. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in Canada; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in Canada; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in CAD. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill.

Table 2g. Summary Statistics: Corporate Bond Portfolios in Australian Dollars

AUD	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	above 10
						February 1998 - August 2018						
Mean	6.793	4.697	4.951	5.689				4.409	5.142	5.701	6.074	5.664
Standard deviation.	13.236	12.358	12.539	12.665				12.374	12.446	12.774	12.963	13.452
Correlation glo CB (*)	0.637	0.623	0.641	0.640				0.457	0.475	0.488	0.491	0.512
Correlation glo SB	0.466	0.457	0.456	0.453				0.430	0.475	0.521	0.552	0.628
Correlation glo EQ	0.626	0.614	0.618	0.610				0.620	0.604	0.588	0.552	0.457
Correlation loc CB (*)	0.993	0.994	0.995	0.997				0.631	0.644	0.648	0.635	0.614
Correlation loc SB	0.946	0.929	0.925	0.922				0.911	0.938	0.956	0.953	0.952
Correlation loc EQ	0.824	0.828	0.826	0.818				0.833	0.818	0.799	0.752	0.643
Market weight	8.714	43.904	35.480	11.903				51.250	32.971	9.718	5.517	0.543
						February 1998 - July 2007						
Mean	4.706	4.844	5.039	5.268				4.757	4.993	5.147	5.609	11.188
Standard deviation.	10.966	10.883	10.916	11.059				10.683	11.124	11.594	12.118	11.942
Correlation glo CB (*)	0.466	0.455	0.467	0.476				0.364	0.396	0.413	0.429	0.512
Correlation glo SB	0.548	0.525	0.529	0.523				0.488	0.557	0.596	0.622	0.756
Correlation glo EQ	0.450	0.471	0.465	0.464				0.484	0.448	0.423	0.405	0.270
Correlation loc CB (*)	0.996	0.997	0.998	0.998				0.630	0.648	0.652	0.648	0.622
Correlation loc SB	0.955	0.942	0.944	0.939				0.918	0.959	0.980	0.990	0.982
Correlation loc EQ	0.763	0.777	0.774	0.768				0.789	0.758	0.734	0.708	0.513
Market weight	30.911	35.059	27.857	6.172				51.385	33.658	8.093	5.743	1.121
						August 2007 - August 2018						
Mean		4.571	4.875	6.049				4.111	5.269	6.177	6.472	1.981
Standard deviation.		13.536	13.821	13.937				13.697	13.519	13.748	13.691	14.320
Correlation glo CB (*)		0.710	0.734	0.729				0.502	0.516	0.530	0.529	0.515
Correlation glo SB		0.415	0.412	0.410				0.398	0.420	0.469	0.499	0.564
Correlation glo EQ		0.701	0.709	0.698				0.702	0.700	0.693	0.649	0.547
Correlation loc CB (*)		0.992	0.993	0.996				0.632	0.642	0.646	0.629	0.610
Correlation loc SB		0.924	0.917	0.916				0.912	0.927	0.942	0.928	0.939
Correlation loc EQ		0.856	0.855	0.847				0.856	0.852	0.838	0.783	0.690
Market weight		47.375	38.473	14.152				51.202	32.725	10.300	5.436	0.337

Notes: This table shows the annualised mean and standard deviation of corporate portfolio bond excess returns, grouped by rating class and residual maturity, their correlation with market factor excess returns and their market weight. Portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. (*) refers to corporate bond excess returns computed excluding the bonds of the same portfolio segment. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in AUD. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies: USD, EUR, JPY, GBP, CAD, AUD. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in Australia; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in Australia; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in AUD. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill.

Table 3. Summary Statistics: Difference in the Riskiest and Safest Corporate Bond Portfolios

	Global	Global	USD	USD	EUR	EUR	GBP	GBP	CAD	CAD	JPY	AUD
	C - AAA	>10 - 1-to-3	C - AAA	>10 - 1-to-3	C - AAA	>10 - 1-to-3	C - AAA	>10 - 1-to-3	B - AAA	>10 - 1-to-3	>10 - 1-to-3	7-to-10 - 1-to-3
						February 1998 - August 2018						
Diff. in means	2.289	2.581*	2.459	2.454*	1.853	2.936**	10.815*	1.925	1.780	3.157**	-0.326	1.664
s.e.	(4.232)	(1.459)	(4.566)	(1.458)	(6.568)	(1.281)	(6.218)	(1.516)	(3.218)	(1.35)	(0.632)	(1.239)
						February 1998 - July 2007						
Diff. in means	-1.868	1.342	-1.197	1.107	-3.327	2.334	10.003	0.973	2.493	2.175	-0.532	0.852
s.e.	(5.357)	(1.656)	(5.461)	(1.646)	(9.684)	(1.528)	(8.081)	(1.427)	(4.869)	(1.523)	(0.576)	(1.099)
						August 2007 - August 2018						
Diff. in means	5.853	3.643	5.592	3.608	6.294	3.451*	11.443	2.741	1.168	3.999*	0.036	2.361
s.e.	(6.308)	(2.294)	(7.035)	(2.311)	(8.88)	(1.981)	(9.075)	(2.523)	(4.313)	(2.126)	(1.407)	(2.092)

Notes: This table shows the difference in annualised average excess returns of highest and lowest risk portfolios. Portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. There are no enough bonds issued in Canadian dollars with "C" ratings, therefore the highest risk portfolio is substituted by B. There are no bonds issued in Japanese JPY and Australian dollars with high yield ratings. Therefore, the difference in mean sorted by ratings is not computed for these two currencies. "Global" includes securities issued in one of these currencies: USD, EUR, JPY, GBP, CAD, AUD, Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses. *,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively.

Table 4. Summary Statistics: Global and Local Factors' Excess Returns

		February 1998 - August 2018		February 1998 - July 2007		August 2007 - August 2018	
		Mean (%)	Standard deviation (%)	Mean (%)	Standard deviation (%)	Mean (%)	Standard deviation (%)
Global	All	4.178	8.816	3.789	8.877	4.512	8.796
Global	Sov. & Eq.	4.298	9.226	3.909	9.402	4.631	9.107
Global	Sovereign	3.325	7.296	2.418	7.487	4.102	7.148
Global	Equity	5.997	15.796	5.478	14.671	6.442	16.753
Global	Corporate	3.144	6.023	2.488	4.752	3.706	6.944
USD	Sovereign	2.962	7.126	1.517	6.685	4.201	7.490
USD	Equity	6.794	15.722	4.031	15.715	9.163	15.756
USD	Corporate	3.325	5.054	1.852	3.937	4.589	5.835
EUR	Sovereign	4.646	10.976	4.780	11.605	4.532	10.452
EUR	Equity	6.553	20.580	9.556	17.955	3.979	22.631
EUR	Corporate	3.493	11.213	4.164	10.355	2.917	11.936
JPY	Sovereign	2.162	11.398	0.456	11.849	3.624	11.023
JPY	Equity	3.730	17.692	3.722	20.070	3.736	15.444
JPY	Corporate	0.713	10.628	-0.445	11.209	1.705	10.138
GBP	Sovereign	3.410	9.304	4.675	9.059	2.326	9.532
GBP	Equity	4.240	17.168	5.627	13.925	3.052	19.571
GBP	Corporate	3.385	11.025	4.971	8.402	2.025	12.874
CAD	Sovereign	4.511	9.424	6.402	9.145	2.890	9.666
CAD	Equity	8.280	19.890	12.854	18.796	4.358	20.785
CAD	Corporate	4.264	9.600	5.812	8.122	2.937	10.721
AUD	Sovereign	5.544	13.045	5.479	12.475	5.599	13.562
AUD	Equity	9.346	21.540	13.132	18.015	6.100	24.185
AUD	Corporate	4.858	12.397	4.906	10.920	4.816	13.577

Notes: This table shows the annualised mean and standard deviation of global and local factors. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Sample period: February 1998 – August 2018.

Table 5a. CAPM and Multi-Factor Regressions with Global Factors: World Portfolios

World	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Panel A: CAPM with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept	0.082	0.073	0.053	0.145	0.186	0.033	0.083	0.031	0.098	0.129	0.103	0.193
s.e.	(0.119)	(0.098)	(0.111)	(0.11)	(0.146)	(0.169)	(0.298)	(0.085)	(0.094)	(0.12)	(0.114)	(0.145)
Global	0.387***	0.407***	0.427***	0.428***	0.535***	0.659***	0.892***	0.37***	0.411***	0.504***	0.494***	0.51***
s.e.	(0.066)	(0.05)	(0.078)	(0.079)	(0.097)	(0.114)	(0.161)	(0.05)	(0.054)	(0.082)	(0.078)	(0.105)
Adjusted R^2	0.285	0.391	0.395	0.403	0.402	0.289		0.433	0.446	0.474	0.462	0.319
Panel A: CAPM with sovereign and equity securities (Feb 98 - Jul 07)												
Intercept	0.16	0.132	0.141	0.149	0.084	-0.061	-0.113	0.096	0.133	0.164	0.102	0.197
s.e.	(0.201)	(0.166)	(0.142)	(0.133)	(0.171)	(0.184)	(0.37)	(0.122)	(0.136)	(0.143)	(0.148)	(0.169)
Global	0.201***	0.26***	0.191***	0.209***	0.281***	0.444***	0.499***	0.21***	0.227***	0.239***	0.261***	0.247***
s.e.	(0.077)	(0.064)	(0.058)	(0.059)	(0.073)	(0.092)	(0.132)	(0.043)	(0.051)	(0.053)	(0.054)	(0.076)
Adjusted R^2	0.075	0.166	0.127	0.156	0.195	0.262	0.129	0.195	0.186	0.199	0.206	0.124
Panel A: CAPM with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept	0.001	0.011	-0.04	0.126	0.255	0.098	0.223	-0.036	0.056	0.079	0.087	0.17
s.e.	(0.107)	(0.095)	(0.106)	(0.127)	(0.192)	(0.243)	(0.414)	(0.097)	(0.098)	(0.126)	(0.118)	(0.177)
Global	0.557***	0.541***	0.642***	0.628***	0.766***	0.854***	1.249***	0.517***	0.578***	0.745***	0.707***	0.749***
s.e.	(0.052)	(0.039)	(0.066)	(0.084)	(0.119)	(0.155)	(0.194)	(0.043)	(0.045)	(0.072)	(0.074)	(0.121)
Adjusted R^2	0.560	0.650	0.653	0.632	0.572	0.525	0.437	0.658	0.699	0.722	0.698	0.498
Panel B: CAPM with all securities (Feb 98 - Aug 18)												
Intercept	0.072	0.064	0.043	0.135	0.178	0.025	0.071	0.024	0.09	0.118	0.092	0.18
s.e.	(0.116)	(0.095)	(0.106)	(0.106)	(0.142)	(0.166)	(0.292)	(0.082)	(0.09)	(0.114)	(0.109)	(0.141)
Global	0.426***	0.444***	0.468***	0.469***	0.574***	0.701***	0.952***	0.402***	0.447***	0.548***	0.539***	0.56***
s.e.	(0.066)	(0.049)	(0.079)	(0.08)	(0.101)	(0.118)	(0.169)	(0.05)	(0.054)	(0.084)	(0.079)	(0.108)
Adjusted R^2	0.316	0.426	0.435	0.441	0.413	0.416	0.300	0.466	0.483	0.512	0.501	0.352
Panel B: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	0.151	0.123	0.133	0.142	0.08	-0.066	-0.119	0.09	0.125	0.157	0.093	0.188
s.e.	(0.199)	(0.163)	(0.14)	(0.13)	(0.17)	(0.182)	(0.368)	(0.12)	(0.134)	(0.14)	(0.146)	(0.167)
Global	0.235***	0.296***	0.222***	0.238***	0.303***	0.472***	0.531***	0.236***	0.258***	0.271***	0.296***	0.283***
s.e.	(0.08)	(0.066)	(0.06)	(0.063)	(0.078)	(0.1)	(0.141)	(0.044)	(0.053)	(0.057)	(0.057)	(0.081)
Adjusted R^2	0.094	0.193	0.154	0.183	0.203	0.265	0.131	0.222	0.216	0.229	0.237	0.147
Panel B: CAPM with all securities (Aug 07 - Aug 18)												
Intercept	-0.007	0.004	-0.049	0.117	0.246	0.089	0.21	-0.042	0.049	0.07	0.004	0.158
s.e.	(0.104)	(0.092)	(0.098)	(0.118)	(0.184)	(0.235)	(0.402)	(0.093)	(0.092)	(0.116)	(0.108)	(0.168)
Global	0.591***	0.573***	0.683***	0.669***	0.81***	0.9***	1.315***	0.546***	0.612***	0.789***	0.75***	0.8***
s.e.	(0.049)	(0.039)	(0.063)	(0.081)	(0.117)	(0.155)	(0.198)	(0.042)	(0.043)	(0.068)	(0.07)	(0.12)
Adjusted R^2	0.590	0.681	0.690	0.670	0.596	0.545	0.453	0.687	0.732	0.756	0.734	0.531
Panel C: Multi-factor regression with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept	-0.04	-0.039	-0.042	0.069	0.177	0.055	0.135	-0.04	0.017	0.051	0.018	0.086
s.e.	(0.076)	(0.05)	(0.09)	(0.099)	(0.137)	(0.152)	(0.256)	(0.069)	(0.074)	(0.103)	(0.097)	(0.13)
Glo Sovereign	0.727***	0.685***	0.595***	0.49***	0.134*	0.005	-0.158	0.444***	0.506***	0.5***	0.554***	0.697***
s.e.	(0.036)	(0.022)	(0.034)	(0.044)	(0.071)	(0.081)	(0.14)	(0.027)	(0.031)	(0.039)	(0.041)	(0.07)
Glo Equity	0.117***	0.136***	0.167***	0.188***	0.327***	0.425***	0.622***	0.162***	0.177***	0.24***	0.217***	0.192***
s.e.	(0.03)	(0.021)	(0.039)	(0.042)	(0.053)	(0.063)	(0.095)	(0.026)	(0.029)	(0.045)	(0.041)	(0.053)
Adjusted R^2	0.724	0.841	0.674	0.571	0.448	0.489	0.414	0.649	0.685	0.623	0.641	0.518
Panel C: Multi-factor regression with sovereign and equity securities (Feb 98 - Jul 07)												
Intercept	0.068	0.045	0.071	0.091	0.074	-0.055	-0.084	0.038	0.064	0.1	0.037	0.126
s.e.	(0.077)	(0.041)	(0.048)	(0.086)	(0.162)	(0.179)	(0.345)	(0.067)	(0.061)	(0.076)	(0.083)	(0.109)
Glo Sovereign	0.78***	0.751***	0.604***	0.504***	0.112	-0.005	-0.186	0.507***	0.592***	0.551***	0.568***	0.617***
s.e.	(0.058)	(0.026)	(0.048)	(0.071)	(0.096)	(0.11)	(0.214)	(0.025)	(0.025)	(0.055)	(0.066)	(0.094)
Glo Equity	0.001	0.045***	0.024**	0.054**	0.173***	0.305***	0.373***	0.054***	0.051***	0.067***	0.078***	0.06*
s.e.	(0.018)	(0.01)	(0.01)	(0.023)	(0.05)	(0.049)	(0.085)	(0.011)	(0.01)	(0.019)	(0.019)	(0.032)
Adjusted R^2	0.793	0.928	0.856	0.622	0.194	0.297	0.185	0.774	0.854	0.728	0.678	0.531
Panel C: Multi-factor regression with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept	-0.118	-0.097*	-0.129	0.062	0.274	0.158	0.339	-0.091	-0.004	0.027	0.014	0.051
s.e.	(0.084)	(0.057)	(0.11)	(0.135)	(0.197)	(0.22)	(0.357)	(0.09)	(0.095)	(0.127)	(0.125)	(0.185)
Glo Sovereign	0.669***	0.616***	0.575***	0.464***	0.136	-0.001	-0.163	0.377***	0.414***	0.436***	0.528***	0.759***
s.e.	(0.033)	(0.021)	(0.036)	(0.058)	(0.116)	(0.124)	(0.204)	(0.037)	(0.039)	(0.046)	(0.045)	(0.086)
Glo Equity	0.194***	0.198***	0.262***	0.276***	0.428***	0.504***	0.785***	0.234***	0.263***	0.355***	0.309***	0.277***
s.e.	(0.026)	(0.016)	(0.038)	(0.048)	(0.06)	(0.085)	(0.107)	(0.023)	(0.025)	(0.042)	(0.044)	(0.069)
Adjusted R^2	0.765	0.854	0.723	0.655	0.620	0.617	0.583	0.705	0.741	0.735	0.723	0.571
Panel D: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	-0.052	-0.049**	-0.059**	0.05*	0.154**	0.03	0.096	-0.051	0.003	0.03	-0.001	0.064
s.e.	(0.048)	(0.024)	(0.027)	(0.026)	(0.077)	(0.077)	(0.09)	(0.044)	(0.031)	(0.019)	(0.026)	(0.074)
Glo Sovereign	0.344***	0.369***	0.054	-0.12***	-0.603***	-0.782***	-1.418***	0.093***	0.057*	-0.145***	-0.055***	-0.011
s.e.	(0.044)	(0.026)	(0.033)	(0.034)	(0.096)	(0.118)	(0.163)	(0.034)	(0.031)	(0.021)	(0.021)	(0.065)
Glo Equity	-0.023	0.021**	-0.03***	-0.034***	0.059*	0.139***	0.164***	0.034***	0.014*	0.006	-0.004	-0.066***
s.e.	(0.014)	(0.009)	(0.009)	(0.012)	(0.032)	(0.034)	(0.06)	(0.011)	(0.008)	(0.007)	(0.007)	(0.019)
Glo Corporate	0.716***	0.591***	1.012***	1.141***	1.378***	1.472***	2.357***	0.656***	0.84***	1.206***	1.139***	1.324***

s.e.	(0.055)	(0.042)	(0.054)	(0.04)	(0.111)	(0.143)	(0.211)	(0.041)	(0.041)	(0.023)	(0.031)	(0.082)
Adjusted R^2	0.852	0.949	0.965	0.946	0.789	0.75	0.678	0.826	0.929	0.977	0.961	0.8
Panel D: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	0.028	0.021	0.017	0.004	-0.058	-0.216*	-0.346	0.017	0.022	0.021	-0.052	0.015
s.e.	(0.066)	(0.035)	(0.026)	(0.039)	(0.11)	(0.126)	(0.23)	(0.062)	(0.038)	(0.027)	(0.04)	(0.078)
Glo Sovereign	0.442***	0.542***	0.141***	-0.242***	-1.028***	-1.395***	-2.444***	0.322***	0.226***	-0.131***	-0.192***	-0.337***
s.e.	(0.114)	(0.051)	(0.055)	(0.05)	(0.219)	(0.168)	(0.267)	(0.05)	(0.04)	(0.036)	(0.035)	(0.069)
Glo Equity	-0.036*	0.022**	-0.027***	-0.027**	0.05*	0.154***	0.129*	0.034***	0.011	-0.007	-0.004	-0.044***
s.e.	(0.02)	(0.01)	(0.006)	(0.013)	(0.028)	(0.037)	(0.071)	(0.012)	(0.008)	(0.009)	(0.009)	(0.017)
Glo Corporate	0.599***	0.37***	0.821***	1.322***	2.019***	2.462***	3.999***	0.327***	0.648***	1.208***	1.347***	1.69***
s.e.	(0.158)	(0.077)	(0.072)	(0.067)	(0.275)	(0.288)	(0.466)	(0.072)	(0.049)	(0.053)	(0.057)	(0.103)
Adjusted R^2	0.825	0.943	0.968	0.918	0.665	0.669	0.581	0.794	0.925	0.966	0.934	0.809
Panel D: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	-0.109	-0.09***	-0.117***	0.075**	0.29***	0.175	0.365*	-0.083	0.006	0.041	0.027	0.068
s.e.	(0.067)	(0.029)	(0.037)	(0.033)	(0.107)	(0.114)	(0.221)	(0.062)	(0.047)	(0.026)	(0.033)	(0.117)
Glo Sovereign	0.338***	0.32***	0.058	-0.109**	-0.514***	-0.726***	-1.219***	0.047	0.005	-0.136***	-0.031	0.062
s.e.	(0.038)	(0.027)	(0.044)	(0.045)	(0.164)	(0.181)	(0.247)	(0.039)	(0.03)	(0.027)	(0.024)	(0.077)
Glo Equity	0.005	0.029**	-0.034*	-0.052***	0.056	0.089*	0.182*	0.046***	0.029**	0.028***	-0.01	-0.122***
s.e.	(0.02)	(0.011)	(0.017)	(0.019)	(0.053)	(0.046)	(0.094)	(0.016)	(0.013)	(0.009)	(0.01)	(0.032)
Glo Corporate	0.67***	0.597***	1.045***	1.159***	1.314***	1.465***	2.134***	0.667***	0.826***	1.156***	1.129***	1.409***
s.e.	(0.057)	(0.046)	(0.071)	(0.053)	(0.171)	(0.187)	(0.263)	(0.044)	(0.041)	(0.028)	(0.039)	(0.085)
Adjusted R^2	0.88	0.967	0.969	0.961	0.858	0.836	0.764	0.86	0.944	0.982	0.976	0.821
Panel E: Multi-factor regression with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept	-0.024	-0.016	-0.058**	0.036	0.108*	-0.024	-0.01	-0.038	0.01	0.019	-0.007	0.055
s.e.	(0.037)	(0.029)	(0.026)	(0.027)	(0.06)	(0.037)	(0.108)	(0.045)	(0.03)	(0.02)	(0.025)	(0.075)
Glo Corporate	0.982***	0.93***	1.02***	0.994***	0.942***	0.982***	1.362***	0.782***	0.908***	1.091***	1.085***	1.225***
s.e.	(0.027)	(0.032)	(0.029)	(0.022)	(0.035)	(0.027)	(0.111)	(0.028)	(0.03)	(0.017)	(0.016)	(0.07)
Spread B-AAA	-0.277***	-0.184***	-0.083***	0.051***	0.458***	0.723***	1.13***	-0.051***	-0.042**	0.083***	0.052***	-0.011
s.e.	(0.02)	(0.016)	(0.011)	(0.016)	(0.047)	(0.02)	(0.057)	(0.02)	(0.018)	(0.012)	(0.013)	(0.038)
Adjusted R^2	0.921	0.938	0.973	0.944	0.879	0.962	0.841	0.827	0.932	0.976	0.966	0.79
Panel E: Multi-factor regression with sovereign and equity securities (Feb 98 - Jul 07)												
Intercept	-0.027	-0.023	-0.006	0.018	0.057	-0.027	-0.067	-0.002	0.004	0.031	-0.035	0.032
s.e.	(0.06)	(0.042)	(0.024)	(0.044)	(0.101)	(0.06)	(0.176)	(0.062)	(0.036)	(0.025)	(0.036)	(0.08)
Glo Corporate	1.046***	1.047***	0.954***	0.999***	0.858***	1.046***	1.293***	0.743***	0.921***	1.044***	1.122***	1.246***
s.e.	(0.058)	(0.049)	(0.018)	(0.04)	(0.054)	(0.058)	(0.219)	(0.041)	(0.024)	(0.026)	(0.025)	(0.065)
Spread B-AAA	-0.251***	-0.158***	-0.082***	0.054***	0.417***	0.749***	1.069***	-0.091***	-0.085***	0.04***	0.078***	0.089***
s.e.	(0.019)	(0.024)	(0.014)	(0.02)	(0.078)	(0.019)	(0.096)	(0.024)	(0.018)	(0.01)	(0.017)	(0.029)
Adjusted R^2	0.891	0.92	0.972	0.904	0.706	0.928	0.715	0.781	0.931	0.965	0.94	0.799
Panel E: Multi-factor regression with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept	-0.022	-0.016	-0.097***	0.051	0.153**	-0.022	0.036	-0.073	0.006	0.005	0.019	0.09
s.e.	(0.046)	(0.032)	(0.037)	(0.033)	(0.066)	(0.046)	(0.135)	(0.064)	(0.048)	(0.027)	(0.035)	(0.121)
Glo Corporate	0.968***	0.89***	1.053***	0.993***	0.956***	0.968***	1.356***	0.776***	0.876***	1.087***	1.084***	1.276***
s.e.	(0.027)	(0.028)	(0.032)	(0.028)	(0.057)	(0.027)	(0.148)	(0.039)	(0.04)	(0.023)	(0.022)	(0.103)
Spread B-AAA	-0.291***	-0.185***	-0.097***	0.048*	0.481***	0.709***	1.18***	-0.014	0.009	0.12***	0.03***	-0.118**
s.e.	(0.037)	(0.014)	(0.011)	(0.026)	(0.05)	(0.037)	(0.071)	(0.024)	(0.021)	(0.014)	(0.011)	(0.049)
Adjusted R^2	0.947	0.96	0.976	0.959	0.94	0.979	0.898	0.855	0.942	0.984	0.977	0.804
Panel F: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)												
Intercept	-0.027	-0.007	-0.064**	0.025	0.119	-0.009	0.031	-0.006	0.031**	0.029	-0.019	-0.006
s.e.	(0.069)	(0.055)	(0.028)	(0.028)	(0.11)	(0.159)	(0.279)	(0.015)	(0.014)	(0.028)	(0.02)	(0.015)
Glo Corporate	0.984***	0.982***	0.994***	0.942***	0.963***	1.01***	1.485***	0.938***	1.014***	1.133***	1.027***	0.938***
s.e.	(0.064)	(0.061)	(0.016)	(0.024)	(0.101)	(0.157)	(0.267)	(0.017)	(0.019)	(0.027)	(0.02)	(0.017)
Spread Mat	-0.052	-0.15***	0.045**	0.126***	0.031	0.061	-0.082	-0.358***	-0.244***	-0.081***	0.139***	0.642***
s.e.	(0.06)	(0.041)	(0.02)	(0.024)	(0.087)	(0.113)	(0.216)	(0.015)	(0.013)	(0.024)	(0.018)	(0.015)
Adjusted R^2	0.759	0.870	0.958	0.951	0.558	0.424	0.323	0.977	0.989	0.967	0.974	0.991
Panel F: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)												
Intercept	-0.017	-0.023	-0.006	0.018	0.057	-0.027	-0.067	-0.002	0.004	0.031	-0.035	0.032
s.e.	(0.085)	(0.042)	(0.024)	(0.044)	(0.101)	(0.06)	(0.176)	(0.062)	(0.036)	(0.025)	(0.036)	(0.08)
Glo Corporate	1.274***	1.047***	0.954***	0.999***	0.858***	1.046***	1.293***	0.743***	0.921***	1.044***	1.122***	1.246***
s.e.	(0.087)	(0.049)	(0.018)	(0.04)	(0.054)	(0.058)	(0.219)	(0.041)	(0.024)	(0.026)	(0.025)	(0.065)
Spread Mat	-0.193***	-0.158***	-0.082***	0.054***	0.417***	0.749***	1.069***	-0.091***	-0.085***	0.04***	0.078***	0.089***
s.e.	(0.071)	(0.024)	(0.014)	(0.02)	(0.078)	(0.019)	(0.096)	(0.024)	(0.018)	(0.01)	(0.017)	(0.029)
Adjusted R^2	0.773	0.920	0.972	0.904	0.706	0.928	0.715	0.781	0.931	0.965	0.940	0.799
Panel F: Multi-factor regression with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept	-0.057	-0.028	-0.118***	0.044	0.233*	0.081	0.234	-0.026	0.042**	0.04	0.005	-0.026
s.e.	(0.089)	(0.072)	(0.037)	(0.034)	(0.129)	(0.204)	(0.353)	(0.02)	(0.018)	(0.036)	(0.027)	(0.02)
Glo Corporate	0.852***	0.847***	0.987***	0.971***	1.211***	1.294***	1.985***	0.922***	0.983***	1.195***	1.043***	0.922***
s.e.	(0.061)	(0.054)	(0.016)	(0.026)	(0.081)	(0.153)	(0.241)	(0.017)	(0.017)	(0.022)	(0.02)	(0.017)
Spread Mat	0.033	-0.046	0.07***	0.081***	-0.192**	-0.179*	-0.481**	-0.323***	-0.225***	-0.145***	0.109***	0.677***
s.e.	(0.077)	(0.033)	(0.023)	(0.019)	(0.077)	(0.101)	(0.228)	(0.012)	(0.006)	(0.017)	(0.017)	(0.012)
Adjusted R^2	0.793	0.886	0.964	0.96	0.73	0.624	0.535	0.982	0.994	0.978	0.984	0.994

Notes: This table shows the OLS coefficients of CAPM (Panels A-B) and multi-factor (Panels C-F) regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global excess returns, except in Panels E-F where the spread between excess returns in B and AAA rating categories and between >10 and 1< to <3 residual maturity ("Spread Mat") are employed. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 – August 2018.

Table 5b. CAPM and Multi-Factor Regressions with Global Factors: US Dollar Portfolios

USD	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Panel A: CAPM with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept	0.162**	0.171**	0.164	0.193*	0.207	0.052	0.1	0.148**	0.19**	0.178	0.138	0.238
s.e.	(0.081)	(0.081)	(0.103)	(0.113)	(0.141)	(0.163)	(0.297)	(0.064)	(0.082)	(0.124)	(0.109)	(0.15)
Global	0.1**	0.143***	0.212***	0.277***	0.424***	0.578***	0.846***	0.104***	0.191***	0.348***	0.363***	0.422***
s.e.	(0.046)	(0.048)	(0.068)	(0.08)	(0.091)	(0.106)	(0.16)	(0.038)	(0.049)	(0.083)	(0.078)	(0.112)
Adjusted R^2	0.046	0.100	0.136	0.207	0.305	0.350	0.272	0.127	0.213	0.310	0.320	0.209
Panel A: CAPM with sovereign and equity securities (Feb 98 - Jul 07)												
Intercept	0.148	0.149	0.149	0.097	0.057	-0.065	-0.1	0.124**	0.148	0.113	0.063	0.158
s.e.	(0.106)	(0.112)	(0.123)	(0.132)	(0.171)	(0.179)	(0.371)	(0.061)	(0.092)	(0.118)	(0.127)	(0.182)
Global	0.009	0.017	0.044	0.123**	0.248***	0.403***	0.466***	0.009	0.055	0.149***	0.18***	0.186**
s.e.	(0.044)	(0.046)	(0.054)	(0.061)	(0.07)	(0.093)	(0.131)	(0.02)	(0.036)	(0.045)	(0.048)	(0.084)
Adjusted R^2	-0.008	-0.007	0.001	0.052	0.158	0.225	0.114	-0.006	0.024	0.112	0.117	0.059
Panel A: CAPM with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept	0.167	0.182**	0.164	0.264*	0.324*	0.14	0.244	0.161*	0.216**	0.22	0.188	0.29
s.e.	(0.11)	(0.092)	(0.125)	(0.147)	(0.193)	(0.239)	(0.413)	(0.089)	(0.104)	(0.166)	(0.137)	(0.195)
Global	0.183***	0.257***	0.365***	0.416***	0.584***	0.735***	1.19***	0.191***	0.314***	0.53***	0.528***	0.635***
s.e.	(0.06)	(0.047)	(0.077)	(0.11)	(0.129)	(0.15)	(0.193)	(0.05)	(0.057)	(0.107)	(0.097)	(0.144)
Adjusted R^2	0.116	0.265	0.300	0.370	0.439	0.461	0.422	0.272	0.417	0.490	0.515	0.355
Panel B: CAPM with all securities (Feb 98 - Aug 18)												
Intercept	0.157*	0.166**	0.156	0.185*	0.2	0.045	0.089	0.144**	0.184**	0.17	0.129	0.227
s.e.	(0.081)	(0.08)	(0.101)	(0.11)	(0.138)	(0.16)	(0.292)	(0.063)	(0.08)	(0.12)	(0.106)	(0.147)
Global	0.117**	0.163***	0.24***	0.307***	0.455***	0.614***	0.902***	0.117***	0.212***	0.38***	0.397***	0.466***
s.e.	(0.047)	(0.049)	(0.071)	(0.083)	(0.095)	(0.111)	(0.168)	(0.041)	(0.051)	(0.087)	(0.08)	(0.117)
Adjusted R^2	0.058	0.120	0.160	0.234	0.321	0.361	0.282	0.148	0.241	0.338	0.350	0.234
Panel B: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	0.144	0.144	0.144	0.092	0.053	-0.068	-0.105	0.122**	0.144	0.108	0.057	0.151
s.e.	(0.107)	(0.113)	(0.124)	(0.131)	(0.17)	(0.178)	(0.369)	(0.061)	(0.092)	(0.117)	(0.126)	(0.181)
Global	0.022	0.03	0.061	0.144**	0.268***	0.428***	0.495***	0.015	0.068*	0.168***	0.204***	0.216**
s.e.	(0.046)	(0.049)	(0.057)	(0.066)	(0.075)	(0.101)	(0.14)	(0.021)	(0.038)	(0.049)	(0.052)	(0.09)
Adjusted R^2	-0.005	-0.003	0.008	0.066	0.164	0.226	0.115	-0.002	0.035	0.128	0.136	0.072
Panel B: CAPM with all securities (Aug 07 - Aug 18)												
Intercept	0.163	0.177*	0.157	0.256*	0.317*	0.132	0.232	0.157*	0.211**	0.212	0.134	0.279
s.e.	(0.11)	(0.09)	(0.121)	(0.141)	(0.188)	(0.232)	(0.401)	(0.086)	(0.1)	(0.159)	(0.131)	(0.189)
Global	0.199***	0.278***	0.395***	0.448***	0.617***	0.775***	1.254***	0.206***	0.337***	0.565***	0.563***	0.683***
s.e.	(0.061)	(0.047)	(0.077)	(0.11)	(0.129)	(0.151)	(0.197)	(0.051)	(0.056)	(0.107)	(0.097)	(0.146)
Adjusted R^2	0.129	0.290	0.328	0.402	0.458	0.478	0.437	0.297	0.448	0.519	0.548	0.383
Panel C: CAPM with all securities (Feb 98 - Aug 18)												
Intercept	0.166**	0.175**	0.167	0.191*	0.196	0.035	0.086	0.15**	0.192**	0.177	0.134	0.235
s.e.	(0.081)	(0.081)	(0.103)	(0.113)	(0.141)	(0.162)	(0.299)	(0.065)	(0.082)	(0.124)	(0.109)	(0.15)
Global	0.265***	0.317***	0.411***	0.403***	0.38***	0.444**	0.865**	0.21***	0.347***	0.483***	0.482***	0.592***
s.e.	(0.091)	(0.086)	(0.11)	(0.122)	(0.139)	(0.177)	(0.347)	(0.059)	(0.07)	(0.118)	(0.115)	(0.211)
Local	-0.162**	-0.169**	-0.188**	-0.104	0.082	0.186	0.04	-0.101**	-0.147**	-0.113	-0.094	-0.137
s.e.	(0.078)	(0.076)	(0.094)	(0.101)	(0.14)	(0.173)	(0.312)	(0.048)	(0.063)	(0.099)	(0.1)	(0.16)
Adjusted R^2	0.073	0.138	0.172	0.236	0.319	0.364	0.279	0.163	0.257	0.340	0.351	0.234
Panel C: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	0.127	0.132	0.13	0.086	0.066	-0.039	-0.081	0.115*	0.132	0.102	0.052	0.15
s.e.	(0.105)	(0.111)	(0.122)	(0.129)	(0.158)	(0.173)	(0.355)	(0.061)	(0.091)	(0.114)	(0.123)	(0.178)
Global	0.185**	0.154*	0.198*	0.196	0.142	0.144	0.266	0.083*	0.183**	0.23*	0.258*	0.225
s.e.	(0.084)	(0.091)	(0.119)	(0.15)	(0.182)	(0.212)	(0.397)	(0.048)	(0.083)	(0.118)	(0.14)	(0.208)
Local	-0.16**	-0.121	-0.134	-0.05	0.123	0.278	0.225	-0.067*	-0.113*	-0.061	-0.052	-0.009
s.e.	(0.076)	(0.081)	(0.1)	(0.119)	(0.188)	(0.213)	(0.357)	(0.038)	(0.067)	(0.096)	(0.121)	(0.166)
Adjusted R^2	0.023	0.007	0.016	0.060	0.164	0.239	0.112	0.017	0.052	0.124	0.130	0.064
Panel C: CAPM with all securities (Aug 07 - Aug 18)												
Intercept	0.174	0.193*	0.165	0.254	0.261	0.067	0.17	0.163	0.215*	0.194	0.161	0.282
s.e.	(0.113)	(0.1)	(0.146)	(0.175)	(0.217)	(0.27)	(0.464)	(0.109)	(0.123)	(0.197)	(0.159)	(0.212)
Global	0.244	0.347***	0.429***	0.44**	0.385***	0.505**	0.994*	0.229**	0.355***	0.49***	0.483***	0.695**
s.e.	(0.151)	(0.132)	(0.166)	(0.172)	(0.128)	(0.226)	(0.525)	(0.105)	(0.11)	(0.184)	(0.142)	(0.313)
Local	-0.055	-0.084	-0.041	0.01	0.283	0.329	0.316	-0.028	-0.022	0.091	0.098	-0.015
s.e.	(0.15)	(0.147)	(0.199)	(0.226)	(0.201)	(0.288)	(0.517)	(0.131)	(0.149)	(0.24)	(0.197)	(0.31)
Adjusted R^2	0.123	0.288	0.323	0.398	0.464	0.483	0.435	0.292	0.444	0.517	0.546	0.378
Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept	0.091	0.109*	0.097	0.137	0.209	0.082	0.156	0.132**	0.157**	0.147	0.086	0.143
s.e.	(0.058)	(0.065)	(0.093)	(0.107)	(0.134)	(0.146)	(0.256)	(0.062)	(0.078)	(0.117)	(0.104)	(0.139)
Glo Sovereign	0.417***	0.373***	0.413***	0.359***	0.066	-0.049	-0.186	0.094***	0.2***	0.221***	0.359***	0.631***
s.e.	(0.04)	(0.038)	(0.047)	(0.051)	(0.072)	(0.079)	(0.133)	(0.021)	(0.033)	(0.051)	(0.051)	(0.098)
Glo Equity	-0.018	0.021	0.058*	0.11**	0.264***	0.382***	0.597***	0.055**	0.091***	0.189***	0.164***	0.143***
s.e.	(0.017)	(0.021)	(0.033)	(0.045)	(0.052)	(0.06)	(0.095)	(0.023)	(0.028)	(0.049)	(0.042)	(0.054)
Adjusted R^2	0.537	0.450	0.362	0.323	0.351	0.447	0.401	0.170	0.297	0.352	0.398	0.371

Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Jul 07)

Intercept	0.109*	0.11	0.106	0.057	0.052	-0.052	-0.066	0.109**	0.12*	0.085	0.028	0.105
s.e.	(0.063)	(0.072)	(0.081)	(0.108)	(0.163)	(0.173)	(0.346)	(0.051)	(0.071)	(0.102)	(0.106)	(0.149)
Glo Sovereign	0.323***	0.32***	0.367***	0.345***	0.067	-0.06	-0.227	0.117***	0.233***	0.248***	0.312***	0.465***
s.e.	(0.037)	(0.046)	(0.062)	(0.076)	(0.093)	(0.103)	(0.212)	(0.021)	(0.04)	(0.062)	(0.079)	(0.114)
Glo Equity	-0.051***	-0.046***	-0.036*	0.023	0.159***	0.287***	0.358***	-0.014	-0.004	0.058**	0.067**	0.045
s.e.	(0.013)	(0.017)	(0.019)	(0.033)	(0.05)	(0.049)	(0.085)	(0.01)	(0.015)	(0.027)	(0.026)	(0.045)
Adjusted R^2	0.573	0.488	0.444	0.295	0.157	0.277	0.179	0.299	0.360	0.242	0.265	0.261

Panel D: Multi-factor regression with sovereign and equity securities (Aug 07 - Aug 18)

Intercept	0.065	0.105	0.089	0.211	0.353*	0.204	0.361	0.159*	0.2*	0.215	0.136	0.162
s.e.	(0.081)	(0.128)	(0.157)	(0.197)	(0.213)	(0.356)		(0.09)	(0.108)	(0.165)	(0.148)	(0.2)
Glo Sovereign	0.502***	0.415***	0.447***	0.362***	0.05	-0.053	-0.179	0.064*	0.159***	0.181**	0.393***	0.774***
s.e.	(0.051)	(0.048)	(0.059)	(0.073)	(0.116)	(0.124)	(0.188)	(0.037)	(0.052)	(0.081)	(0.061)	(0.123)
Glo Equity	0.001	0.064***	0.119***	0.167***	0.333***	0.443***	0.752***	0.1***	0.154***	0.276***	0.227***	0.203***
s.e.	(0.022)	(0.023)	(0.04)	(0.061)	(0.068)	(0.084)	(0.109)	(0.027)	(0.03)	(0.062)	(0.054)	(0.073)
Adjusted R^2	0.566	0.501	0.400	0.389	0.486	0.564	0.569	0.277	0.418	0.493	0.518	0.467

Panel E: Multi-factor regression with all securities (Feb 98 - Aug 18)

Intercept	0.086*	0.099**	0.082	0.12**	0.189**	0.06	0.118	0.122***	0.144***	0.128**	0.068	0.122
s.e.	(0.051)	(0.045)	(0.054)	(0.058)	(0.089)	(0.094)	(0.175)	(0.031)	(0.036)	(0.051)	(0.055)	(0.096)
Glo Sovereign	0.25***	0.072*	-0.055	-0.193***	-0.549***	-0.755***	-1.397***	-0.208***	-0.218***	-0.4***	-0.198***	-0.053
s.e.	(0.057)	(0.042)	(0.061)	(0.056)	(0.119)	(0.126)	(0.161)	(0.043)	(0.039)	(0.069)	(0.053)	(0.093)
Glo Equity	-0.079***	-0.088***	-0.112***	-0.091***	0.04	0.125***	0.157***	-0.055***	-0.061***	-0.037**	-0.039**	-0.106***
s.e.	(0.016)	(0.012)	(0.019)	(0.021)	(0.035)	(0.035)	(0.061)	(0.011)	(0.011)	(0.015)	(0.017)	(0.029)
Glo Corporate	0.312***	0.563***	0.875***	1.033***	1.15***	1.32***	2.264***	0.565***	0.782***	1.162***	1.043***	1.279***
s.e.	(0.082)	(0.049)	(0.109)	(0.076)	(0.149)	(0.155)	(0.213)	(0.063)	(0.04)	(0.079)	(0.089)	(0.118)
Adjusted R^2	0.598	0.659	0.669	0.704	0.644	0.685	0.656	0.668	0.771	0.804	0.745	0.624

Panel E: Multi-factor regression with all securities (Feb 98 - Jul 07)

Intercept	0.079	0.068	0.044	-0.037	-0.076	-0.209*	-0.325	0.078**	0.064	-0.009	-0.076	-0.028
s.e.	(0.057)	(0.061)	(0.066)	(0.072)	(0.116)	(0.12)	(0.226)	(0.034)	(0.04)	(0.058)	(0.067)	(0.116)
Glo Sovereign	0.061	-0.048	-0.165***	-0.467***	-1.026***	-1.404***	-2.453***	-0.151***	-0.256***	-0.56***	-0.582***	-0.679***
s.e.	(0.044)	(0.059)	(0.064)	(0.075)	(0.229)	(0.189)	(0.281)	(0.036)	(0.044)	(0.08)	(0.077)	(0.104)
Glo Equity	-0.079***	-0.086***	-0.094***	-0.065***	0.04	0.142***	0.117	-0.043***	-0.057***	-0.03*	-0.03*	-0.079***
s.e.	(0.014)	(0.015)	(0.017)	(0.021)	(0.029)	(0.036)	(0.072)	(0.008)	(0.011)	(0.016)	(0.018)	(0.027)
Glo Corporate	0.463***	0.653***	0.942***	1.438***	1.936***	2.38***	3.942***	0.475***	0.867***	1.431***	1.583***	2.026***
s.e.	(0.078)	(0.097)	(0.099)	(0.118)	(0.29)	(0.315)	(0.488)	(0.053)	(0.07)	(0.116)	(0.126)	(0.167)
Adjusted R^2	0.647	0.621	0.646	0.668	0.611	0.64	0.57	0.638	0.723	0.742	0.7	0.617

Panel E: Multi-factor regression with all securities (Aug 07 - Aug 18)

Intercept	0.069	0.112*	0.1	0.225***	0.366***	0.219*	0.385*	0.166***	0.21***	0.229***	0.149*	0.178
s.e.	(0.078)	(0.063)	(0.08)	(0.082)	(0.129)	(0.126)	(0.232)	(0.048)	(0.055)	(0.079)	(0.081)	(0.142)
Glo Sovereign	0.339***	0.126**	-0.026	-0.185**	-0.493**	-0.701***	-1.182***	-0.238***	-0.23***	-0.397***	-0.13*	0.093
s.e.	(0.075)	(0.051)	(0.081)	(0.074)	(0.192)	(0.191)	(0.238)	(0.06)	(0.063)	(0.102)	(0.072)	(0.101)
Glo Equity	-0.092***	-0.101***	-0.151***	-0.146***	0.022	0.073	0.179*	-0.072***	-0.068***	-0.054**	-0.072***	-0.187***
s.e.	(0.032)	(0.021)	(0.039)	(0.025)	(0.06)	(0.046)	(0.094)	(0.025)	(0.022)	(0.023)	(0.026)	(0.037)
Glo Corporate	0.33***	0.585***	0.955***	1.106***	1.098***	1.311***	2.027***	0.61***	0.786***	1.168***	1.056***	1.378***
s.e.	(0.121)	(0.068)	(0.164)	(0.086)	(0.228)	(0.202)	(0.262)	(0.09)	(0.069)	(0.1)	(0.128)	(0.142)
Adjusted R^2	0.62	0.698	0.694	0.763	0.706	0.771	0.742	0.678	0.791	0.832	0.811	0.704

Panel F: Multi-factor regression with all securities (Feb 98 - Aug 18)

Intercept	0.01	0.018	-0.028	-0.007	0.064	-0.074	-0.022	0.077***	0.077***	0.024	-0.059***	-0.07
s.e.	(0.031)	(0.024)	(0.032)	(0.023)	(0.057)	(0.071)	(0.144)	(0.022)	(0.021)	(0.025)	(0.015)	(0.044)
Glo Sovereign	0.048	-0.039	-0.039	-0.021	0.194*	0.32***	0.219	0.017	-0.041	-0.011	0.016	0.042
s.e.	(0.047)	(0.045)	(0.039)	(0.045)	(0.109)	(0.12)	(0.214)	(0.059)	(0.05)	(0.043)	(0.028)	(0.109)
Glo Equity	0.039	-0.02	-0.01	-0.062***	0.065	0.168**	0.206	-0.056***	-0.055**	-0.041	0.06***	0.081
s.e.	(0.026)	(0.02)	(0.02)	(0.024)	(0.057)	(0.076)	(0.154)	(0.021)	(0.023)	(0.032)	(0.021)	(0.054)
Glo Corporate	-0.066	0.112	0.066	0.034	-0.463**	-0.735***	-0.43	0.039	0.171*	0.105	-0.085	-0.214
s.e.	(0.087)	(0.082)	(0.09)	(0.081)	(0.215)	(0.236)	(0.362)	(0.111)	(0.098)	(0.075)	(0.055)	(0.208)
Loc Sovereign	0.362***	0.265***	0.198***	0.048	-0.523***	-0.832***	-1.357***	-0.148**	-0.062	-0.216***	0.028	0.28**
s.e.	(0.052)	(0.047)	(0.043)	(0.046)	(0.14)	(0.118)	(0.213)	(0.06)	(0.056)	(0.05)	(0.022)	(0.129)
Loc Equity	-0.044**	-0.005	-0.025	0.039**	0.006	-0.024	-0.06	0.014	0.023	0.041	-0.023	-0.054
s.e.	(0.023)	(0.018)	(0.019)	(0.02)	(0.043)	(0.06)	(0.135)	(0.021)	(0.02)	(0.029)	(0.018)	(0.046)
Loc Corporate	0.39***	0.48***	0.836***	1.055***	1.641***	2.064***	2.677***	0.542***	0.64***	1.101***	1.156***	1.533***
s.e.	(0.102)	(0.085)	(0.132)	(0.096)	(0.249)	(0.234)	(0.397)	(0.133)	(0.095)	(0.07)	(0.043)	(0.217)
Adjusted R^2	0.875	0.911	0.917	0.944	0.805	0.831	0.745	0.803	0.907	0.945	0.977	0.908
Chi-Sq. Glo Fac	0.288	0.439	0.750	0.077	0.129	0.013	0.343	0.029	0.010	0.068	0.040	0.128
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Panel F: Multi-factor regression with all securities (Feb 98 - Jul 07)

Intercept	0.07**	0.06*	0.037	-0.034	-0.059	-0.178	-0.296	0.08***	0.062***	-0.003	-0.076***	-0.026
s.e.	(0.031)	(0.032)	(0.028)	(0.027)	(0.075)	(0.123)	(0.215)	(0.027)	(0.022)	(0.03)	(0.026)	(0.044)
Glo Sovereign	0.015	-0.062	-0.012	0.012	0.15	0.351**	-0.441	0.014	-0.047	0.07	0.024	-0.005
s.e.	(0.057)	(0.062)	(0.074)	(0.055)	(0.21)	(0.169)	(0.407)	(0.036)	(0.048)	(0.045)	(0.061)	(0.126)
Glo Equity	-0.016	-0.032	-0.016	-0.035	0.088	0.162*	0.233	-0.039**	-0.01	0.009	0.078***	-0.023
s.e.	(0.025)	(0.022)	(0.018)	(0.029)	(0.068)	(0.097)	(0.215)	(0.02)	(0.019)	(0.026)	(0.021)	(0.044)

Glo Corporate	0.022	0.099	0.012	-0.021	-0.339	-0.716**	0.693	0.047	0.155*	-0.038	-0.095	-0.111
s.e.	(0.092)	(0.092)	(0.113)	(0.095)	(0.295)	(0.334)	(0.749)	(0.062)	(0.083)	(0.071)	(0.117)	(0.225)
Loc Sovereign	0.337***	0.349***	0.288***	0.048	-0.655***	-1.154***	-1.505***	-0.027	0.064*	-0.203***	-0.042	0.118
s.e.	(0.039)	(0.033)	(0.031)	(0.05)	(0.12)	(0.13)	(0.348)	(0.035)	(0.038)	(0.037)	(0.042)	(0.079)
Loc Equity	-0.002	0.013	-0.004	0.031	-0.046	-0.054	-0.184	0.008	-0.011	-0.009	-0.048***	0.04
s.e.	(0.023)	(0.021)	(0.018)	(0.027)	(0.059)	(0.077)	(0.205)	(0.018)	(0.018)	(0.022)	(0.016)	(0.04)
Loc Corporate	0.248***	0.338***	0.638***	1.12***	1.911***	2.673***	2.841***	0.339***	0.527***	1.182***	1.287***	1.626***
s.e.	(0.079)	(0.066)	(0.068)	(0.094)	(0.258)	(0.245)	(0.71)	(0.06)	(0.071)	(0.067)	(0.087)	(0.17)
Adjusted R^2	0.939	0.951	0.967	0.957	0.779	0.810	0.651	0.784	0.926	0.951	0.968	0.936
Chi-Sq. Glo Fac	0.533	0.270	0.845	0.559	0.389	0.170	0.352	0.025	0.017	0.022	0.000	0.020
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	-0.054	-0.013	-0.081	0.029	0.155*	0.009	0.101	0.078**	0.091***	0.042	-0.059***	-0.094
s.e.	(0.05)	(0.036)	(0.05)	(0.038)	(0.08)	(0.099)	(0.184)	(0.033)	(0.034)	(0.044)	(0.023)	(0.075)
Glo Sovereign	0.054	0.033	-0.011	-0.081	0.16	0.165	0.361	0.065	0.026	-0.006	-0.026	-0.04
s.e.	(0.064)	(0.076)	(0.047)	(0.05)	(0.16)	(0.169)	(0.308)	(0.071)	(0.048)	(0.066)	(0.037)	(0.134)
Glo Equity	0.038	0.006	0.01	-0.082**	0.046	0.097	0.029	-0.007	-0.02	-0.043	-0.004	0.06
s.e.	(0.044)	(0.036)	(0.033)	(0.033)	(0.07)	(0.087)	(0.174)	(0.052)	(0.043)	(0.049)	(0.028)	(0.106)
Glo Corporate	-0.086	0.011	-0.03	0.14*	-0.393	-0.383	-0.319	-0.135	0	0.046	0.037	0.04
s.e.	(0.117)	(0.146)	(0.109)	(0.079)	(0.323)	(0.34)	(0.541)	(0.156)	(0.122)	(0.115)	(0.055)	(0.323)
Loc Sovereign	0.397***	0.208***	0.162***	0.059	-0.467**	-0.672***	-1.314***	-0.209***	-0.147***	-0.237***	0.07**	0.391***
s.e.	(0.066)	(0.076)	(0.063)	(0.051)	(0.22)	(0.193)	(0.292)	(0.058)	(0.048)	(0.07)	(0.031)	(0.143)
Loc Equity	-0.039	-0.027	-0.049	0.032	0.051	0.043	0.191	-0.023	0.005	0.06	0.034	-0.071
s.e.	(0.037)	(0.03)	(0.03)	(0.03)	(0.066)	(0.074)	(0.14)	(0.042)	(0.038)	(0.047)	(0.025)	(0.086)
Loc Corporate	0.443***	0.586***	0.981***	0.991***	1.464***	1.64***	2.291***	0.71***	0.773***	1.125***	1.045***	1.349***
s.e.	(0.124)	(0.137)	(0.164)	(0.11)	(0.371)	(0.342)	(0.494)	(0.149)	(0.099)	(0.102)	(0.043)	(0.286)
Adjusted R^2	0.864	0.899	0.909	0.940	0.829	0.869	0.818	0.840	0.920	0.947	0.984	0.908
Chi-Sq. Glo Fac	0.752	0.693	0.878	0.059	0.669	0.593	0.533	0.619	0.826	0.776	0.886	0.890
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Panel G: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	0.018	0.019	-0.03	-0.004	0.075	-0.06	-0.035	0.074***	0.07***	0.019	-0.059***	-0.055
s.e.	(0.031)	(0.025)	(0.031)	(0.022)	(0.061)	(0.072)	(0.145)	(0.022)	(0.022)	(0.025)	(0.016)	(0.045)
Loc Sovereign	0.392***	0.244***	0.17***	0.045	-0.404***	-0.643***	-1.231***	-0.127***	-0.078***	-0.21***	0.028**	0.286***
s.e.	(0.032)	(0.03)	(0.03)	(0.033)	(0.094)	(0.081)	(0.118)	(0.029)	(0.027)	(0.034)	(0.014)	(0.069)
Loc Equity	-0.011	-0.02**	-0.034***	-0.014	0.051*	0.106***	0.117*	-0.035***	-0.019**	0.011	0.026***	0.009
s.e.	(0.01)	(0.01)	(0.013)	(0.014)	(0.028)	(0.024)	(0.07)	(0.01)	(0.009)	(0.008)	(0.006)	(0.018)
Loc Corporate	0.354***	0.573***	0.893***	1.054***	1.264***	1.491***	2.382***	0.562***	0.769***	1.172***	1.103***	1.37***
s.e.	(0.044)	(0.041)	(0.07)	(0.049)	(0.133)	(0.121)	(0.216)	(0.048)	(0.021)	(0.027)	(0.022)	(0.053)
Adjusted R^2	0.872	0.910	0.918	0.943	0.798	0.819	0.745	0.803	0.904	0.944	0.976	0.907
Panel G: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	0.077***	0.062**	0.038	-0.038	-0.066	-0.184	-0.281	0.077***	0.066***	-0.001	-0.069***	-0.032
s.e.	(0.03)	(0.032)	(0.028)	(0.027)	(0.077)	(0.115)	(0.219)	(0.027)	(0.022)	(0.028)	(0.026)	(0.043)
Loc Sovereign	0.363***	0.325***	0.284***	0.062**	-0.615***	-1.023***	-1.774***	0.003	0.058**	-0.15***	-0.057***	0.095**
s.e.	(0.024)	(0.024)	(0.024)	(0.027)	(0.106)	(0.066)	(0.184)	(0.026)	(0.023)	(0.029)	(0.021)	(0.041)
Loc Equity	-0.013**	-0.015***	-0.019***	0.001	0.026*	0.082***	0.014	-0.023***	-0.017***	0.002	0.018**	0.015
s.e.	(0.006)	(0.005)	(0.004)	(0.01)	(0.014)	(0.024)	(0.078)	(0.006)	(0.005)	(0.007)	(0.007)	(0.013)
Loc Corporate	0.255***	0.396***	0.641***	1.092***	1.706***	2.222***	3.364***	0.361***	0.625***	1.15***	1.245***	1.537***
s.e.	(0.038)	(0.045)	(0.034)	(0.051)	(0.176)	(0.109)	(0.339)	(0.038)	(0.037)	(0.046)	(0.028)	(0.064)
Adjusted R^2	0.940	0.951	0.968	0.957	0.781	0.802	0.648	0.779	0.921	0.949	0.966	0.934
Panel G: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	-0.046	-0.014	-0.081*	0.036	0.18*	0.017	0.117	0.087***	0.091***	0.044	-0.059***	-0.1
s.e.	(0.049)	(0.039)	(0.046)	(0.035)	(0.093)	(0.094)	(0.176)	(0.03)	(0.034)	(0.037)	(0.021)	(0.071)
Loc Sovereign	0.433***	0.233***	0.146***	0.012	-0.36**	-0.562***	-1.045***	-0.169***	-0.127***	-0.232***	0.054***	0.355***
s.e.	(0.039)	(0.042)	(0.044)	(0.042)	(0.144)	(0.114)	(0.147)	(0.03)	(0.028)	(0.043)	(0.017)	(0.087)
Loc Equity	-0.01	-0.02	-0.047*	-0.033	0.071	0.114***	0.217**	-0.042**	-0.013	0.027*	0.033***	-0.012
s.e.	(0.019)	(0.019)	(0.027)	(0.025)	(0.055)	(0.04)	(0.093)	(0.019)	(0.013)	(0.016)	(0.009)	(0.029)
Loc Corporate	0.394***	0.612***	0.967***	1.064***	1.141***	1.338***	2.047***	0.604***	0.771***	1.139***	1.07***	1.398***
s.e.	(0.054)	(0.05)	(0.088)	(0.065)	(0.177)	(0.132)	(0.241)	(0.053)	(0.022)	(0.034)	(0.019)	(0.07)
Adjusted R^2	0.862	0.899	0.910	0.938	0.826	0.869	0.818	0.840	0.922	0.947	0.983	0.909
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)												
Intercept	0.003	0.004	-0.049*	-0.008	0.109**	0.003	0.042	0.064**	0.066***	0.03	-0.046***	-0.067
s.e.	(0.022)	(0.016)	(0.027)	(0.024)	(0.052)	(0.022)	(0.098)	(0.028)	(0.024)	(0.02)	(0.016)	(0.046)
Loc Corporate	0.771***	0.835***	1.085***	1.09***	0.813***	0.771***	1.052***	0.428***	0.689***	0.943***	1.124***	1.691***
s.e.	(0.031)	(0.015)	(0.043)	(0.045)	(0.043)	(0.031)	(0.112)	(0.037)	(0.025)	(0.027)	(0.018)	(0.051)
Spread B-AAA	-0.303***	-0.215***	-0.195***	-0.038	0.409***	0.697***	1.123***	0.034	0.024	0.183***	0.037***	-0.209***
s.e.	(0.017)	(0.012)	(0.015)	(0.026)	(0.04)	(0.017)	(0.046)	(0.024)	(0.022)	(0.025)	(0.014)	(0.044)
Adjusted R^2	0.913	0.956	0.959	0.941	0.883	0.981	0.842	0.746	0.893	0.963	0.976	0.911
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)												
Intercept	0.016	0.007	-0.012	-0.051**	0.037	0.016	0.01	0.066**	0.05**	0.025	-0.05**	-0.045
s.e.	(0.025)	(0.024)	(0.023)	(0.023)	(0.082)	(0.025)	(0.155)	(0.028)	(0.022)	(0.023)	(0.02)	(0.045)
Loc Corporate	0.757***	0.844***	1.037***	1.188***	0.857***	0.757***	0.876***	0.369***	0.714***	0.942***	1.158***	1.68***

s.e.	(0.023)	(0.025)	(0.013)	(0.026)	(0.05)	(0.023)	(0.225)	(0.023)	(0.02)	(0.014)	(0.017)	(0.04)
Spread B-AAA	-0.217***	-0.199***	-0.184***	-0.057***	0.373***	0.783***	1.106***	-0.04***	-0.061***	0.102***	0.082***	-0.052**
s.e.	(0.017)	(0.017)	(0.019)	(0.017)	(0.074)	(0.017)	(0.098)	(0.013)	(0.013)	(0.019)	(0.016)	(0.023)
Adjusted R^2	0.931	0.949	0.973	0.965	0.774	0.988	0.715	0.772	0.928	0.96	0.977	0.935
Panel H: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)												
Intercept	-0.004	0.003	-0.081*	0.031	0.171***	-0.004	0.067	0.057	0.074**	0.031	-0.04*	-0.076
s.e.	(0.032)	(0.022)	(0.044)	(0.037)	(0.061)	(0.032)	(0.138)	(0.037)	(0.034)	(0.023)	(0.02)	(0.063)
Loc Corporate	0.807***	0.836***	1.111***	1.04***	0.777***	0.807***	1.119***	0.428***	0.648***	0.915***	1.124***	1.752***
s.e.	(0.034)	(0.018)	(0.059)	(0.055)	(0.058)	(0.034)	(0.151)	(0.045)	(0.029)	(0.032)	(0.021)	(0.066)
Spread B-AAA	-0.36***	-0.225***	-0.205***	-0.02	0.434***	0.64***	1.123***	0.079**	0.081***	0.235***	0.011	-0.312***
s.e.	(0.021)	(0.013)	(0.022)	(0.039)	(0.039)	(0.021)	(0.042)	(0.031)	(0.025)	(0.018)	(0.012)	(0.044)
Adjusted R^2	0.939	0.96	0.954	0.933	0.932	0.986	0.904	0.799	0.917	0.978	0.981	0.927
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)												
Intercept	0.081	0.057	-0.007	0.006	0.008	-0.156	-0.234	0.032**	0.037**	-0.028	-0.052***	0.032**
s.e.	(0.051)	(0.043)	(0.041)	(0.023)	(0.077)	(0.119)	(0.222)	(0.013)	(0.017)	(0.028)	(0.017)	(0.013)
Loc Corporate	0.124	0.407***	0.765***	0.964***	1.624***	2.02***	3.293***	0.756***	0.984***	1.456***	1.162***	0.756***
s.e.	(0.075)	(0.076)	(0.084)	(0.072)	(0.155)	(0.16)	(0.301)	(0.039)	(0.04)	(0.044)	(0.038)	(0.039)
Spread Mat	0.402***	0.256***	0.171***	0.092	-0.487***	-0.708***	-1.349***	-0.278***	-0.253***	-0.354***	-0.012	0.722***
s.e.	(0.054)	(0.054)	(0.052)	(0.061)	(0.11)	(0.113)	(0.186)	(0.022)	(0.018)	(0.03)	(0.022)	(0.022)
Adjusted R^2	0.641	0.798	0.863	0.942	0.692	0.597	0.521	0.93	0.971	0.948	0.973	0.993
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)												
Intercept	0.036	0.032	0.023	-0.023	-0.038	-0.127	-0.211	0.041**	0.028*	-0.013	-0.069**	0.041**
s.e.	(0.065)	(0.06)	(0.054)	(0.027)	(0.134)	(0.187)	(0.369)	(0.02)	(0.015)	(0.028)	(0.034)	(0.02)
Loc Corporate	0.814***	0.816***	0.863***	0.934***	1.249***	1.408***	2.021**	0.719***	1.063***	1.258***	1.273***	0.719***
s.e.	(0.119)	(0.105)	(0.087)	(0.061)	(0.186)	(0.393)	(0.798)	(0.027)	(0.036)	(0.066)	(0.06)	(0.027)
Spread Mat	-0.109	-0.039	0.077	0.177***	-0.186	-0.26	-0.54	-0.28***	-0.285***	-0.211***	-0.063	0.72***
s.e.	(0.089)	(0.073)	(0.074)	(0.045)	(0.157)	(0.326)	(0.564)	(0.023)	(0.029)	(0.058)	(0.042)	(0.023)
Adjusted R^2	0.63	0.721	0.833	0.962	0.473	0.279	0.165	0.893	0.951	0.93	0.957	0.994
Panel I: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)												
Intercept	0.08	0.055	-0.041	0.039	0.074	-0.145	-0.189	0.024	0.043*	-0.029	-0.042**	0.024
s.e.	(0.063)	(0.051)	(0.056)	(0.034)	(0.076)	(0.136)	(0.243)	(0.017)	(0.026)	(0.041)	(0.019)	(0.017)
Loc Corporate	0.032	0.352***	0.758***	0.956***	1.665***	2.101***	3.478***	0.766***	0.969***	1.483***	1.142***	0.766***
s.e.	(0.071)	(0.071)	(0.096)	(0.075)	(0.168)	(0.164)	(0.319)	(0.042)	(0.041)	(0.051)	(0.04)	(0.042)
Spread Mat	0.485***	0.303***	0.19***	0.067	-0.539***	-0.779***	-1.454***	-0.272***	-0.253***	-0.376***	-0.009	0.728***
s.e.	(0.047)	(0.046)	(0.053)	(0.064)	(0.108)	(0.096)	(0.17)	(0.024)	(0.019)	(0.03)	(0.022)	(0.024)
Adjusted R^2	0.705	0.86	0.876	0.936	0.789	0.775	0.701	0.94	0.98	0.955	0.981	0.993

Notes: This table shows the OLS coefficients of CAPM (Panels A-C) and multi-factor (Panels D-I) regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global and/or local excess returns , except in Panels H-I where the spread between excess returns in B and AAA rating categories and between >10 and 1< to <3 residual maturity ("Spread Mat") are employed. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. "Chi-Sq. Glo Fac" and "Chi-Sq. Loc Fac" in Panel F are the Chi-Square's P-value of the Wald test testing the joint significance of all global factors and all local factors, respectively. Sample period: February 1998 – August 2018.

Table 5c. CAPM and Multi-Factor Regressions with Global Factors: EUR Portfolios

EUR	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Panel A: CAPM with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept	0.054	0.026	-0.01	0.021	0.122	-0.101	-0.187	-0.024	0.041	0.072	0.062	0.167
s.e.	(0.187)	(0.191)	(0.199)	(0.198)	(0.24)	(0.284)	(0.436)	(0.186)	(0.193)	(0.206)	(0.215)	(0.219)
Global	0.595***	0.642***	0.717***	0.781***	1.2***	1.388***	1.698***	0.638***	0.694***	0.778***	0.839***	0.787***
s.e.	(0.094)	(0.102)	(0.119)	(0.117)	(0.154)	(0.19)	(0.232)	(0.103)	(0.108)	(0.122)	(0.132)	(0.124)
Adjusted R^2	0.280	0.309	0.347	0.383	0.496	0.492	0.344	0.306	0.335	0.369	0.390	0.350
Panel A: CAPM with sovereign and equity securities (Feb 98 - Jul 07)												
Intercept	0.226	0.24	0.237	0.173	0.245	-0.056	-0.383	0.182	0.222	0.261	0.262	0.352
s.e.	(0.312)	(0.312)	(0.308)	(0.293)	(0.357)	(0.395)	(0.647)	(0.282)	(0.299)	(0.313)	(0.329)	(0.357)
Global	0.324***	0.333***	0.348***	0.404***	0.772***	0.93***	1.341***	0.321***	0.349***	0.372***	0.401***	0.396***
s.e.	(0.116)	(0.116)	(0.114)	(0.109)	(0.133)	(0.16)	(0.297)	(0.105)	(0.111)	(0.115)	(0.123)	(0.133)
Adjusted R^2	0.077	0.082	0.091	0.131	0.272	0.312	0.253	0.087	0.095	0.101	0.110	0.095
Panel A: CAPM with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept	-0.113	-0.181	-0.249	-0.137	-0.029	-0.173	-0.043	-0.224	-0.139	-0.12	-0.141	-0.02
s.e.	(0.192)	(0.191)	(0.191)	(0.219)	(0.283)	(0.355)	(0.58)	(0.212)	(0.206)	(0.203)	(0.201)	(0.2)
Global	0.842***	0.924***	1.055***	1.126***	1.535***	1.805***	2.021***	0.928***	1.009***	1.149***	1.239***	1.144***
s.e.	(0.07)	(0.073)	(0.084)	(0.089)	(0.151)	(0.217)	(0.309)	(0.081)	(0.079)	(0.085)	(0.088)	(0.079)
Adjusted R^2	0.556	0.606	0.654	0.646	0.675	0.653	0.424	0.560	0.616	0.672	0.700	0.662
Panel B: CAPM with all securities (Feb 98 - Aug 18)												
Intercept	0.041	0.012	-0.025	0.006	0.103	-0.122	-0.21	-0.037	0.027	0.056	0.045	0.15
s.e.	(0.183)	(0.186)	(0.194)	(0.192)	(0.231)	(0.273)	(0.425)	(0.182)	(0.188)	(0.199)	(0.208)	(0.213)
Global	0.649***	0.699***	0.781***	0.848***	1.285***	1.485***	1.812***	0.693***	0.755***	0.847***	0.913***	0.858***
s.e.	(0.094)	(0.102)	(0.119)	(0.118)	(0.156)	(0.195)	(0.243)	(0.104)	(0.108)	(0.122)	(0.132)	(0.123)
Adjusted R^2	0.306	0.335	0.376	0.412	0.521	0.516	0.358	0.331	0.363	0.399	0.422	0.380
Panel B: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	0.213	0.227	0.223	0.161	0.232	-0.071	-0.401	0.17	0.209	0.247	0.248	0.337
s.e.	(0.309)	(0.308)	(0.304)	(0.288)	(0.35)	(0.387)	(0.642)	(0.278)	(0.295)	(0.309)	(0.325)	(0.353)
Global	0.375***	0.385***	0.401***	0.458***	0.839***	1.007***	1.44***	0.367***	0.401***	0.427***	0.459***	0.457***
s.e.	(0.121)	(0.122)	(0.12)	(0.115)	(0.145)	(0.171)	(0.318)	(0.11)	(0.117)	(0.121)	(0.129)	(0.14)
Adjusted R^2	0.094	0.099	0.109	0.151	0.287	0.327	0.261	0.103	0.113	0.120	0.131	0.114
Panel B: CAPM with all securities (Aug 07 - Aug 18)												
Intercept	-0.123	-0.19	-0.26	-0.149	-0.046	-0.192	-0.066	-0.234	-0.15	-0.133	0.062	-0.033
s.e.	(0.189)	(0.187)	(0.184)	(0.212)	(0.268)	(0.336)	(0.559)	(0.208)	(0.201)	(0.195)	(0.191)	(0.192)
Global	0.889***	0.974***	1.113***	1.189***	1.619***	1.902***	2.134***	0.978***	1.065***	1.213***	1.308***	1.208***
s.e.	(0.068)	(0.071)	(0.08)	(0.085)	(0.146)	(0.213)	(0.321)	(0.079)	(0.076)	(0.081)	(0.082)	(0.074)
Adjusted R^2	0.579	0.630	0.680	0.671	0.700	0.677	0.441	0.581	0.640	0.699	0.728	0.689
Panel C: CAPM with all securities (Feb 98 - Aug 18)												
Intercept	0.056	0.027	-0.009	0.022	0.109	-0.105	-0.195	-0.021	0.042	0.072	0.062	0.166
s.e.	(0.123)	(0.118)	(0.121)	(0.119)	(0.18)	(0.22)	(0.407)	(0.11)	(0.114)	(0.124)	(0.134)	(0.15)
Global	-0.615***	-0.607***	-0.561***	-0.511***	-0.064	0.042	0.61	-0.631***	-0.593***	-0.538***	-0.493***	-0.491***
s.e.	(0.152)	(0.15)	(0.144)	(0.13)	(0.139)	(0.177)	(0.384)	(0.14)	(0.14)	(0.142)	(0.147)	(0.162)
Local	1.043***	1.078***	1.107***	1.121***	1.087***	1.191***	0.992***	1.092***	1.112***	1.142***	1.16***	1.113***
s.e.	(0.1)	(0.1)	(0.094)	(0.089)	(0.116)	(0.138)	(0.344)	(0.094)	(0.094)	(0.095)	(0.095)	(0.104)
Adjusted R^2	0.717	0.750	0.769	0.787	0.706	0.687	0.412	0.759	0.773	0.777	0.776	0.713
Panel C: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	-0.037	-0.024	-0.029	-0.082	-0.032	-0.344	-0.644	-0.067	-0.038	-0.008	-0.016	0.065
s.e.	(0.202)	(0.201)	(0.197)	(0.189)	(0.277)	(0.312)	(0.644)	(0.181)	(0.192)	(0.199)	(0.207)	(0.234)
Global	-0.654***	-0.649***	-0.637***	-0.539***	-0.123	-0.116	0.438	-0.607***	-0.615***	-0.622***	-0.624***	-0.662***
s.e.	(0.212)	(0.211)	(0.204)	(0.179)	(0.175)	(0.16)	(0.363)	(0.185)	(0.194)	(0.204)	(0.21)	(0.234)
Local	1.034***	1.039***	1.043***	1.001***	0.933***	1.128***	1.007***	0.979***	1.02***	1.054***	1.088***	1.123***
s.e.	(0.155)	(0.155)	(0.149)	(0.135)	(0.177)	(0.155)	(0.229)	(0.141)	(0.146)	(0.152)	(0.156)	(0.17)
Adjusted R^2	0.591	0.597	0.615	0.638	0.515	0.592	0.339	0.608	0.614	0.619	0.627	0.587
Panel C: CAPM with all securities (Aug 07 - Aug 18)												
Intercept	0.13	0.074	0.006	0.146	0.242	0.081	0.148	0.063	0.138	0.146	0.113	0.2
s.e.	(0.131)	(0.109)	(0.106)	(0.113)	(0.199)	(0.293)	(0.558)	(0.107)	(0.098)	(0.105)	(0.116)	(0.15)
Global	-0.545***	-0.526***	-0.397***	-0.485***	-0.012	0.352	0.918	-0.711***	-0.572***	-0.369***	-0.213**	-0.114
s.e.	(0.14)	(0.119)	(0.117)	(0.111)	(0.239)	(0.43)	(0.956)	(0.146)	(0.116)	(0.105)	(0.102)	(0.148)
Local	1.023***	1.07***	1.077***	1.193***	1.163***	1.105***	0.867	1.204***	1.167***	1.128***	1.085***	0.942***
s.e.	(0.082)	(0.074)	(0.069)	(0.075)	(0.171)	(0.303)	(0.813)	(0.088)	(0.074)	(0.071)	(0.065)	(0.086)
Adjusted R^2	0.829	0.878	0.888	0.892	0.817	0.751	0.461	0.870	0.891	0.896	0.891	0.825
Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept	-0.113	-0.137	-0.168	-0.127	0.024	-0.171	-0.182	-0.164	-0.109	-0.088	-0.106	-0.022
s.e.	(0.128)	(0.139)	(0.156)	(0.162)	(0.22)	(0.264)	(0.404)	(0.149)	(0.152)	(0.163)	(0.17)	(0.163)
Glo Sovereign	1.003***	0.982***	0.96***	0.917***	0.708***	0.633***	0.261	0.848***	0.909***	0.97***	1.036***	1.16***
s.e.	(0.07)	(0.074)	(0.076)	(0.074)	(0.101)	(0.147)	(0.325)	(0.078)	(0.077)	(0.077)	(0.081)	(0.077)
Glo Equity	0.203***	0.242***	0.298***	0.348***	0.647***	0.783***	1.063***	0.267***	0.294***	0.339***	0.363***	0.3***
s.e.	(0.042)	(0.048)	(0.06)	(0.061)	(0.078)	(0.104)	(0.125)	(0.05)	(0.054)	(0.064)	(0.068)	(0.061)
Adjusted R^2	0.610	0.596	0.579	0.568	0.545	0.531	0.401	0.509	0.550	0.579	0.602	0.641

Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Jul 07)												
Intercept	0.093	0.106	0.105	0.05	0.149	-0.134	-0.426	0.066	0.094	0.126	0.123	0.2
s.e.	(0.141)	(0.14)	(0.142)	(0.153)	(0.31)	(0.372)	(0.652)	(0.148)	(0.145)	(0.148)	(0.157)	(0.162)
Glo Sovereign	1.121***	1.131***	1.115***	1.052***	0.8***	0.763***	0.538	0.979***	1.077***	1.139***	1.184***	1.278***
s.e.	(0.115)	(0.117)	(0.117)	(0.113)	(0.174)	(0.262)	(0.435)	(0.113)	(0.116)	(0.119)	(0.125)	(0.128)
Glo Equity	0.028	0.032	0.045	0.094**	0.396***	0.497***	0.813***	0.051	0.053	0.057	0.069*	0.05
s.e.	(0.034)	(0.034)	(0.035)	(0.038)	(0.08)	(0.1)	(0.177)	(0.038)	(0.036)	(0.035)	(0.037)	(0.039)
Adjusted R^2	0.645	0.652	0.640	0.608	0.348	0.345	0.245	0.559	0.620	0.648	0.656	0.679
Panel D: Multi-factor regression with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept	-0.262*	-0.313*	-0.366**	-0.244	-0.075	-0.165	0.085	-0.331*	-0.246	-0.23	-0.263	-0.182
s.e.	(0.158)	(0.169)	(0.181)	(0.208)	(0.276)	(0.337)	(0.516)	(0.196)	(0.192)	(0.192)	(0.195)	(0.19)
Glo Sovereign	0.882***	0.829***	0.797***	0.77***	0.629***	0.484***	-0.031	0.71***	0.735***	0.79***	0.874***	1.03***
s.e.	(0.081)	(0.085)	(0.083)	(0.084)	(0.109)	(0.14)	(0.456)	(0.1)	(0.092)	(0.081)	(0.083)	(0.074)
Glo Equity	0.322***	0.383***	0.468***	0.519***	0.788***	0.974***	1.232***	0.413***	0.456***	0.528***	0.561***	0.467***
s.e.	(0.036)	(0.034)	(0.042)	(0.047)	(0.079)	(0.109)	(0.136)	(0.038)	(0.04)	(0.046)	(0.048)	(0.046)
Adjusted R^2	0.683	0.686	0.698	0.678	0.690	0.685	0.531	0.604	0.655	0.705	0.730	0.740
Panel E: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	-0.128	-0.156	-0.191*	-0.152	-0.061	-0.214	-0.24	-0.183	-0.131	-0.114	-0.133	-0.046
s.e.	(0.102)	(0.105)	(0.106)	(0.111)	(0.146)	(0.194)	(0.369)	(0.12)	(0.113)	(0.106)	(0.105)	(0.102)
Glo Sovereign	0.496***	0.393***	0.22**	0.12	-0.442***	-0.735***	-1.6***	0.243**	0.206*	0.146	0.148	0.396***
s.e.	(0.097)	(0.106)	(0.103)	(0.112)	(0.133)	(0.148)	(0.375)	(0.118)	(0.113)	(0.109)	(0.106)	(0.108)
Glo Equity	0.019	0.028	0.029	0.059*	0.217***	0.286***	0.387***	0.047	0.038	0.039	0.041	0.022
s.e.	(0.03)	(0.032)	(0.033)	(0.031)	(0.051)	(0.065)	(0.126)	(0.035)	(0.032)	(0.032)	(0.032)	(0.033)
Glo Corporate	0.95***	1.101***	1.384***	1.491***	2.108***	2.559***	3.479***	1.131***	1.315***	1.541***	1.659***	1.429***
s.e.	(0.12)	(0.133)	(0.121)	(0.15)	(0.196)	(0.177)	(0.464)	(0.141)	(0.144)	(0.143)	(0.134)	(0.148)
Adjusted R^2	0.703	0.714	0.748	0.75	0.746	0.749	0.589	0.635	0.707	0.768	0.801	0.792
Panel E: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	0.038	0.045	0.032	-0.034	-0.165	-0.333	-0.797	0.008	0.025	0.048	0.039	0.117
s.e.	(0.136)	(0.132)	(0.131)	(0.139)	(0.25)	(0.366)	(0.636)	(0.14)	(0.134)	(0.135)	(0.145)	(0.148)
Glo Sovereign	0.65***	0.606***	0.491**	0.324	-0.964***	-0.945***	-2.656***	0.482**	0.479***	0.471**	0.462**	0.565***
s.e.	(0.215)	(0.213)	(0.206)	(0.204)	(0.315)	(0.358)	(0.616)	(0.225)	(0.211)	(0.201)	(0.205)	(0.204)
Glo Equity	-0.023	-0.025	-0.023	0.015	0.208***	0.312***	0.467***	-0.003	-0.012	-0.015	-0.01	-0.027
s.e.	(0.039)	(0.039)	(0.038)	(0.036)	(0.075)	(0.091)	(0.175)	(0.043)	(0.039)	(0.037)	(0.038)	(0.039)
Glo Corporate	0.833***	0.93***	1.105***	1.29***	2.916***	3.025***	5.657***	0.879***	1.058***	1.183***	1.28***	1.263***
s.e.	(0.297)	(0.293)	(0.277)	(0.292)	(0.479)	(0.507)	(0.82)	(0.311)	(0.293)	(0.273)	(0.279)	(0.274)
Adjusted R^2	0.667	0.681	0.683	0.669	0.509	0.493	0.45	0.587	0.659	0.696	0.708	0.724
Panel E: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	-0.253*	-0.302**	-0.352**	-0.228	-0.05	-0.134	0.128	-0.319*	-0.233	-0.214	-0.245*	-0.167
s.e.	(0.144)	(0.146)	(0.146)	(0.164)	(0.166)	(0.17)	(0.335)	(0.179)	(0.166)	(0.147)	(0.138)	(0.135)
Glo Sovereign	0.493***	0.385***	0.208*	0.114	-0.392***	-0.803***	-1.785***	0.243	0.181	0.126	0.14	0.414***
s.e.	(0.104)	(0.123)	(0.125)	(0.137)	(0.147)	(0.148)	(0.466)	(0.149)	(0.137)	(0.128)	(0.125)	(0.115)
Glo Equity	0.099**	0.13***	0.132***	0.145***	0.205***	0.239***	0.23*	0.146***	0.14***	0.149***	0.142***	0.115***
s.e.	(0.04)	(0.037)	(0.039)	(0.042)	(0.062)	(0.075)	(0.14)	(0.046)	(0.039)	(0.037)	(0.036)	(0.038)
Glo Corporate	0.786***	0.896***	1.191***	1.325***	2.062***	2.601***	3.545***	0.945***	1.119***	1.342***	1.482***	1.245***
s.e.	(0.119)	(0.129)	(0.122)	(0.174)	(0.226)	(0.216)	(0.54)	(0.153)	(0.147)	(0.146)	(0.142)	(0.155)
Adjusted R^2	0.75	0.765	0.815	0.804	0.862	0.877	0.716	0.684	0.761	0.834	0.872	0.851
Panel F: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	-0.01	-0.025*	-0.054***	-0.003	0.091	-0.057	-0.089	0.001	0.034**	0.03**	-0.022	0.001
s.e.	(0.029)	(0.014)	(0.021)	(0.025)	(0.123)	(0.165)	(0.366)	(0.029)	(0.014)	(0.014)	(0.03)	(0.054)
Glo Sovereign	0.142***	0.081***	-0.03	-0.07*	-0.383**	-0.712***	-1.338**	0.189***	0.079***	-0.067***	-0.218***	-0.29***
s.e.	(0.027)	(0.015)	(0.027)	(0.04)	(0.15)	(0.189)	(0.58)	(0.037)	(0.016)	(0.019)	(0.035)	(0.062)
Glo Equity	-0.01	0.006	0.001	0.014	0.034	0.078	0.308	0.006	-0.002	-0.002	-0.012	-0.016
s.e.	(0.016)	(0.007)	(0.008)	(0.012)	(0.056)	(0.061)	(0.199)	(0.014)	(0.008)	(0.008)	(0.017)	(0.028)
Glo Corporate	-0.228***	-0.168***	0.083**	0.126**	0.906***	1.23***	2.284***	-0.492***	-0.17***	0.206***	0.544***	0.737***
s.e.	(0.059)	(0.023)	(0.042)	(0.056)	(0.194)	(0.261)	(0.664)	(0.05)	(0.022)	(0.031)	(0.049)	(0.091)
Loc Sovereign	0.214***	0.139***	0.053**	-0.032	-0.252	-0.236	-0.566	-0.265***	-0.14***	0.003	0.254***	0.753***
s.e.	(0.049)	(0.02)	(0.022)	(0.042)	(0.167)	(0.219)	(0.772)	(0.055)	(0.021)	(0.031)	(0.042)	(0.094)
Loc Equity	-0.007	-0.016**	-0.012*	0.003	0.137**	0.162***	0.038	-0.01	-0.007	0	0.02	0.021
s.e.	(0.012)	(0.007)	(0.007)	(0.012)	(0.066)	(0.074)	(0.19)	(0.012)	(0.006)	(0.006)	(0.013)	(0.025)
Loc Corporate	0.766***	0.873***	0.935***	1.015***	0.925***	1.001***	1.125	1.321***	1.159***	0.978***	0.687***	0.138
s.e.	(0.057)	(0.022)	(0.02)	(0.039)	(0.173)	(0.229)	(0.728)	(0.053)	(0.022)	(0.034)	(0.043)	(0.099)
Adjusted R^2	0.982	0.996	0.996	0.988	0.837	0.836	0.608	0.984	0.997	0.996	0.987	0.957
Chi-Sq. Glo Fac	0.000	0.000	0.167	0.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	0.011	0.014	0.001	-0.053	-0.186	-0.359	-0.878	0.008	0.008	0.016	-0.011	0.047
s.e.	(0.021)	(0.019)	(0.015)	(0.033)	(0.228)	(0.304)	(0.639)	(0.032)	(0.013)	(0.013)	(0.026)	(0.045)
Glo Sovereign	0.128***	0.081***	-0.007	-0.079	-0.764*	-1.18***	-3.312***	0.171***	0.069***	-0.025	-0.169***	-0.215***
s.e.	(0.03)	(0.025)	(0.021)	(0.052)	(0.395)	(0.427)	(1.064)	(0.037)	(0.018)	(0.024)	(0.033)	(0.065)
Glo Equity	0	-0.008	-0.017**	0.016	0.003	0.189	0.42	0.001	-0.006	-0.013*	0.002	-0.004
s.e.	(0.008)	(0.006)	(0.007)	(0.018)	(0.111)	(0.115)	(0.303)	(0.014)	(0.009)	(0.007)	(0.013)	(0.027)

Glo Corporate	-0.251***	-0.124***	0.045	0.191**	1.634***	1.531***	4.934***	-0.388***	-0.09***	0.128***	0.319***	0.442***
s.e.	(0.051)	(0.047)	(0.043)	(0.081)	(0.481)	(0.408)	(1.008)	(0.044)	(0.026)	(0.04)	(0.046)	(0.094)
Loc Sovereign	0.051**	0.097***	0.061***	-0.149***	-0.808*	-0.551	0.776	-0.48***	-0.187***	0.071***	0.396***	0.785***
s.e.	(0.024)	(0.025)	(0.023)	(0.04)	(0.419)	(0.374)	(1.133)	(0.038)	(0.02)	(0.025)	(0.036)	(0.069)
Loc Equity	-0.013	-0.005	0.005	0.002	0.183	0.116	0.079	-0.011	-0.003	0.009	0.009	0.01
s.e.	(0.009)	(0.007)	(0.006)	(0.02)	(0.125)	(0.129)	(0.258)	(0.012)	(0.008)	(0.005)	(0.012)	(0.022)
Loc Corporate	0.971***	0.902***	0.925***	1.109***	1.437***	1.634***	0.037	1.508***	1.186***	0.908***	0.593***	0.193***
s.e.	(0.024)	(0.025)	(0.027)	(0.045)	(0.383)	(0.399)	(1.035)	(0.039)	(0.021)	(0.025)	(0.039)	(0.073)
Adjusted R^2	0.996	0.997	0.998	0.986	0.643	0.703	0.482	0.991	0.998	0.998	0.995	0.982
Chi-Sq. Glo Fac	0.000	0.000	0.122	0.002	0.003	0.003	0.000	0.000	0.002	0.000	0.000	0.000
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	-0.038	-0.066***	-0.113***	0.045	0.226**	0.14	0.414*	-0.005	0.058***	0.042**	-0.029	-0.047
s.e.	(0.047)	(0.019)	(0.034)	(0.034)	(0.093)	(0.133)	(0.226)	(0.04)	(0.021)	(0.02)	(0.046)	(0.091)
Glo Sovereign	0.125***	0.083***	-0.006	-0.11**	-0.374***	-0.607***	-0.344	0.148***	0.057***	-0.056	-0.187***	-0.272**
s.e.	(0.045)	(0.022)	(0.035)	(0.054)	(0.136)	(0.188)	(0.368)	(0.056)	(0.02)	(0.036)	(0.057)	(0.112)
Glo Equity	-0.016	0.025**	0.033***	-0.004	0.043	0.009	0.46	0.003	-0.007	0.009	-0.016	-0.014
s.e.	(0.03)	(0.012)	(0.012)	(0.015)	(0.052)	(0.064)	(0.3)	(0.025)	(0.012)	(0.016)	(0.03)	(0.05)
Glo Corporate	-0.154	-0.18***	0.084	0.119	0.84***	1.493***	1.496***	-0.508***	-0.191***	0.206***	0.609***	0.87***
s.e.	(0.094)	(0.032)	(0.055)	(0.081)	(0.209)	(0.315)	(0.464)	(0.068)	(0.03)	(0.051)	(0.079)	(0.132)
Loc Sovereign	0.245***	0.137***	0.026	0.021	-0.266	-0.448	-2.146***	-0.184***	-0.119***	-0.014	0.214***	0.739***
s.e.	(0.069)	(0.029)	(0.031)	(0.052)	(0.173)	(0.28)	(0.747)	(0.07)	(0.026)	(0.047)	(0.059)	(0.148)
Loc Equity	-0.014	-0.033***	-0.037***	0	0.027	0.117	-0.348	-0.024	-0.006	0.002	0.038*	0.04
s.e.	(0.019)	(0.008)	(0.009)	(0.012)	(0.047)	(0.073)	(0.274)	(0.017)	(0.008)	(0.011)	(0.02)	(0.038)
Loc Corporate	0.719***	0.884***	0.953***	1.021***	1.126***	1.051***	2.703***	1.317***	1.165***	0.973***	0.648***	0.031
s.e.	(0.08)	(0.028)	(0.025)	(0.045)	(0.148)	(0.232)	(0.545)	(0.066)	(0.029)	(0.049)	(0.057)	(0.139)
Adjusted R^2	0.972	0.995	0.995	0.991	0.949	0.923	0.768	0.983	0.997	0.996	0.984	0.943
Chi-Sq. Glo Fac	0.007	0.000	0.003	0.218	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Panel G: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	-0.032	-0.041**	-0.045**	0.011	0.198	0.072	0.174	-0.049	0.016	0.052***	0.032	0.075
s.e.	(0.03)	(0.016)	(0.02)	(0.025)	(0.138)	(0.185)	(0.385)	(0.038)	(0.017)	(0.019)	(0.043)	(0.068)
Loc Sovereign	0.345***	0.213***	0.025	-0.098***	-0.609***	-0.898***	-1.823***	-0.088*	-0.067***	-0.06***	0.051	0.483***
s.e.	(0.037)	(0.019)	(0.024)	(0.029)	(0.151)	(0.221)	(0.617)	(0.052)	(0.021)	(0.023)	(0.052)	(0.084)
Loc Equity	-0.025***	-0.019***	-0.008**	0.019*	0.201***	0.278***	0.377***	-0.026***	-0.015***	0.006	0.033***	0.039***
s.e.	(0.009)	(0.005)	(0.004)	(0.01)	(0.05)	(0.069)	(0.131)	(0.01)	(0.003)	(0.004)	(0.01)	(0.015)
Loc Corporate	0.616***	0.769***	0.982***	1.093***	1.458***	1.786***	2.567***	1.036***	1.057***	1.093***	1.006***	0.569***
s.e.	(0.038)	(0.023)	(0.028)	(0.036)	(0.184)	(0.269)	(0.632)	(0.054)	(0.023)	(0.026)	(0.058)	(0.09)
Adjusted R^2	0.980	0.995	0.996	0.987	0.818	0.809	0.558	0.972	0.996	0.994	0.976	0.937
Panel G: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	-0.004	0.007	0.005	-0.043	-0.045	-0.286	-0.625	-0.015	0.004	0.025**	0.007	0.073
s.e.	(0.021)	(0.016)	(0.013)	(0.031)	(0.241)	(0.29)	(0.636)	(0.035)	(0.014)	(0.012)	(0.027)	(0.052)
Loc Sovereign	0.106***	0.139***	0.063***	-0.174***	-1.096***	-1.205***	-0.936	-0.418***	-0.148***	0.076***	0.322***	0.696***
s.e.	(0.029)	(0.032)	(0.02)	(0.045)	(0.362)	(0.322)	(0.794)	(0.044)	(0.022)	(0.018)	(0.042)	(0.07)
Loc Equity	-0.022***	-0.016***	-0.007***	0.02	0.241***	0.33***	0.607***	-0.023***	-0.012***	0.002	0.023***	0.023***
s.e.	(0.006)	(0.005)	(0.003)	(0.013)	(0.061)	(0.092)	(0.163)	(0.007)	(0.003)	(0.003)	(0.007)	(0.009)
Loc Corporate	0.896***	0.862***	0.938***	1.155***	1.917***	2.16***	1.637	1.4***	1.154***	0.938***	0.69***	0.324***
s.e.	(0.033)	(0.033)	(0.023)	(0.048)	(0.42)	(0.449)	(1.023)	(0.05)	(0.026)	(0.021)	(0.049)	(0.078)
Adjusted R^2	0.995	0.997	0.998	0.984	0.609	0.669	0.346	0.985	0.998	0.998	0.992	0.977
Panel G: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	-0.06	-0.083***	-0.087***	0.056	0.361**	0.362*	0.816**	-0.083	0.025	0.078***	0.06	0.083
s.e.	(0.048)	(0.022)	(0.032)	(0.035)	(0.144)	(0.211)	(0.343)	(0.057)	(0.027)	(0.03)	(0.071)	(0.114)
Loc Sovereign	0.361***	0.21***	0.019	-0.08**	-0.608***	-0.996***	-2.488***	-0.053	-0.068**	-0.064**	0.048	0.498***
s.e.	(0.055)	(0.025)	(0.027)	(0.037)	(0.177)	(0.275)	(0.716)	(0.061)	(0.027)	(0.026)	(0.067)	(0.117)
Loc Equity	-0.035*	-0.024***	-0.008	0.004	0.104**	0.2***	0.075	-0.046***	-0.021***	0.018**	0.055***	0.072**
s.e.	(0.019)	(0.009)	(0.008)	(0.012)	(0.052)	(0.075)	(0.144)	(0.017)	(0.006)	(0.009)	(0.019)	(0.031)
Loc Corporate	0.606***	0.77***	0.988***	1.115***	1.633***	1.939***	3.437***	1.037***	1.059***	1.084***	0.99***	0.52***
s.e.	(0.06)	(0.031)	(0.033)	(0.048)	(0.207)	(0.294)	(0.636)	(0.067)	(0.029)	(0.03)	(0.076)	(0.128)
Adjusted R^2	0.970	0.993	0.994	0.992	0.932	0.887	0.733	0.969	0.995	0.994	0.970	0.911
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)												
Intercept	0.008	-0.016	-0.043**	0.002	0.16	0.008	0.007	-0.066*	0.004	0.045**	0.046	0.147**
s.e.	(0.035)	(0.019)	(0.02)	(0.024)	(0.112)	(0.035)	(0.21)	(0.037)	(0.017)	(0.018)	(0.04)	(0.071)
Glo Corporate	0.948***	0.972***	1.001***	1.003***	0.936***	0.948***	0.799***	0.939***	0.983***	1.035***	1.068***	1.068***
s.e.	(0.015)	(0.009)	(0.006)	(0.011)	(0.055)	(0.015)	(0.155)	(0.01)	(0.006)	(0.006)	(0.012)	(0.022)
Spread B-AAA	-0.132***	-0.085***	-0.013*	0.059***	0.481***	0.868***	1.415***	-0.023**	-0.007	0.03***	0.047***	-0.068***
s.e.	(0.018)	(0.009)	(0.008)	(0.011)	(0.048)	(0.018)	(0.093)	(0.009)	(0.006)	(0.008)	(0.011)	(0.022)
Adjusted R^2	0.973	0.992	0.995	0.988	0.844	0.991	0.771	0.971	0.995	0.995	0.977	0.916
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)												
Intercept	-0.02	-0.004	0	-0.029	0.168	-0.02	-0.126	-0.038	-0.008	0.027**	0.029	0.098
s.e.	(0.019)	(0.016)	(0.01)	(0.03)	(0.25)	(0.019)	(0.346)	(0.045)	(0.018)	(0.013)	(0.035)	(0.069)
Glo Corporate	1.001***	1.006***	1.004***	0.975***	0.809***	1.001***	0.903***	0.933***	0.986***	1.021***	1.052***	1.095***

s.e.	(0.009)	(0.007)	(0.006)	(0.014)	(0.107)	(0.009)	(0.135)	(0.013)	(0.005)	(0.006)	(0.012)	(0.022)
Spread B-AAA	-0.051***	-0.043***	-0.02***	0.05**	0.453***	0.949***	1.564***	-0.007	-0.008**	-0.002	0.019*	-0.036**
s.e.	(0.01)	(0.008)	(0.005)	(0.022)	(0.107)	(0.01)	(0.091)	(0.013)	(0.004)	(0.005)	(0.01)	(0.017)
Adjusted R^2	0.996	0.997	0.998	0.984	0.586	0.998	0.726	0.975	0.997	0.997	0.988	0.957
Panel H: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)												
Intercept	0.038	-0.025	-0.082**	0.032	0.171***	0.038	0.132	-0.086	0.014	0.057**	0.057	0.19
s.e.	(0.045)	(0.025)	(0.033)	(0.033)	(0.062)	(0.045)	(0.23)	(0.054)	(0.028)	(0.024)	(0.066)	(0.118)
Glo Corporate	0.947***	0.965***	0.993***	1.026***	1.027***	0.947***	0.794**	0.954***	0.979***	1.028***	1.067***	1.063***
s.e.	(0.023)	(0.009)	(0.01)	(0.01)	(0.028)	(0.023)	(0.319)	(0.016)	(0.01)	(0.008)	(0.021)	(0.037)
Spread B-AAA	-0.182***	-0.108***	-0.004	0.053***	0.457***	0.818***	1.321***	-0.04***	-0.004	0.054***	0.065***	-0.087**
s.e.	(0.027)	(0.007)	(0.011)	(0.009)	(0.03)	(0.027)	(0.213)	(0.015)	(0.011)	(0.01)	(0.018)	(0.041)
Adjusted R^2	0.968	0.993	0.994	0.992	0.973	0.992	0.805	0.969	0.994	0.994	0.971	0.887
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)												
Intercept	-0.009	-0.022	-0.05**	0.003	0.19	0.058	0.088	0.001	0.03***	0.03	-0.02	0.001
s.e.	(0.057)	(0.032)	(0.02)	(0.029)	(0.167)	(0.255)	(0.48)	(0.016)	(0.01)	(0.019)	(0.026)	(0.016)
Glo Corporate	0.887***	0.935***	0.992***	1.028***	1.177***	1.316***	1.399***	0.965***	0.993***	1.038***	1.053***	0.965***
s.e.	(0.026)	(0.017)	(0.007)	(0.015)	(0.092)	(0.116)	(0.221)	(0.008)	(0.005)	(0.01)	(0.013)	(0.008)
Spread Mat	0.072	0.023	0.033***	-0.005	-0.189**	-0.188	-0.301	-0.316***	-0.122***	0.075***	0.311***	0.684***
s.e.	(0.047)	(0.016)	(0.013)	(0.017)	(0.074)	(0.116)	(0.234)	(0.014)	(0.01)	(0.018)	(0.019)	(0.014)
Adjusted R^2	0.949	0.982	0.995	0.984	0.708	0.637	0.329	0.995	0.998	0.995	0.992	0.996
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)												
Intercept	-0.012	-0.007	-0.004	-0.028	0.124	-0.056	-0.33	0.015	0.011	0.016	-0.013	0.015
s.e.	(0.027)	(0.023)	(0.015)	(0.034)	(0.262)	(0.367)	(0.787)	(0.013)	(0.009)	(0.01)	(0.015)	(0.013)
Glo Corporate	1.006***	0.999***	0.998***	0.981***	0.925***	1.05***	0.813***	0.995***	1.007***	1.008***	1.004***	0.995***
s.e.	(0.008)	(0.007)	(0.006)	(0.013)	(0.113)	(0.151)	(0.286)	(0.005)	(0.003)	(0.005)	(0.005)	(0.005)
Spread Mat	-0.028*	0.043**	0.038***	-0.04	-0.39**	-0.32	0.527	-0.381***	-0.128***	0.084***	0.297***	0.619***
s.e.	(0.016)	(0.018)	(0.015)	(0.028)	(0.196)	(0.25)	(0.578)	(0.013)	(0.009)	(0.011)	(0.013)	(0.013)
Adjusted R^2	0.992	0.995	0.998	0.98	0.446	0.441	0.133	0.998	0.999	0.998	0.998	0.998
Panel I: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)												
Intercept	-0.012	-0.042	-0.091***	0.036	0.261	0.186	0.464	-0.012	0.046***	0.044	-0.021	-0.012
s.e.	(0.092)	(0.046)	(0.034)	(0.04)	(0.18)	(0.308)	(0.532)	(0.025)	(0.014)	(0.031)	(0.041)	(0.025)
Glo Corporate	0.82***	0.893***	0.988***	1.06***	1.337***	1.496***	1.708***	0.95***	0.986***	1.057***	1.085***	0.95***
s.e.	(0.028)	(0.02)	(0.011)	(0.015)	(0.089)	(0.147)	(0.312)	(0.011)	(0.006)	(0.014)	(0.013)	(0.011)
Spread Mat	0.085	0.003	0.031*	0.016	-0.08	-0.091	-0.498**	-0.298***	-0.124***	0.078***	0.326***	0.702***
s.e.	(0.062)	(0.02)	(0.017)	(0.023)	(0.069)	(0.135)	(0.254)	(0.016)	(0.012)	(0.024)	(0.026)	(0.016)
Adjusted R^2	0.926	0.978	0.994	0.989	0.872	0.764	0.506	0.994	0.998	0.993	0.99	0.995

Notes: This table shows the OLS coefficients of CAPM (Panels A-C) and multi-factor (Panels D-I) regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global and/or local excess returns , except in Panels H-I where the spread between excess returns in B and AAA rating categories and between >10 and 1< to <3 residual maturity ("Spread Mat") are employed. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. "Chi-Sq. Glo Fac" and "Chi-Sq. Loc Fac" in Panel F are the Chi-Square's P-value of the Wald test testing the joint significance of all global factors and all local factors, respectively. Sample period: February 1998 – August 2018.

Table 5d. CAPM and Multi-Factor Regressions with Global Factors: Japanese Yen Portfolios

JPY	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Panel A: CAPM with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept		-0.025	-0.075	-0.06				-0.094	-0.055	-0.012	0.041	0.117
s.e.		(0.224)	(0.218)	(0.223)				(0.22)	(0.22)	(0.225)	(0.228)	(0.245)
Global		0.295**	0.302***	0.298**				0.288**	0.289**	0.289**	0.311***	0.356***
s.e.		(0.119)	(0.115)	(0.118)				(0.115)	(0.116)	(0.119)	(0.116)	(0.131)
Adjusted R^2		0.060	0.065	0.064				0.062	0.060	0.057	0.062	0.067
Panel A: CAPM with sovereign and equity securities (Feb 98 - Jul 07)												
Intercept	-0.164	-0.162	-0.206	-0.206				-0.235	-0.191	-0.13	-0.085	-0.043
s.e.	(0.274)	(0.278)	(0.277)	(0.279)				(0.279)	(0.279)	(0.28)	(0.284)	(0.299)
Global	0.445***	0.447***	0.432***	0.437***				0.431***	0.432***	0.429***	0.454***	0.481***
s.e.	(0.104)	(0.103)	(0.104)	(0.099)				(0.104)	(0.103)	(0.102)	(0.102)	(0.109)
Adjusted R^2	0.126	0.129	0.125	0.131				0.125	0.125	0.120	0.126	0.119
Panel A: CAPM with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept		0.104	0.047	0.075				0.037	0.072	0.1	0.159	0.264
s.e.		(0.326)	(0.316)	(0.323)				(0.314)	(0.317)	(0.329)	(0.335)	(0.368)
Global		0.155	0.182	0.17				0.158	0.157	0.159	0.181	0.242
s.e.		(0.171)	(0.169)	(0.175)				(0.165)	(0.168)	(0.177)	(0.169)	(0.205)
Adjusted R^2		0.012	0.019	0.016				0.014	0.013	0.012	0.016	0.026
Panel B: CAPM with all securities (Feb 98 - Aug 18)												
Intercept		-0.031	-0.082	-0.066				-0.101	-0.061	-0.018	0.034	0.109
s.e.		(0.225)	(0.219)	(0.224)				(0.22)	(0.221)	(0.226)	(0.229)	(0.246)
Global		0.322**	0.329***	0.324**				0.314**	0.315**	0.316**	0.34***	0.389***
s.e.		(0.129)	(0.124)	(0.128)				(0.124)	(0.126)	(0.129)	(0.126)	(0.143)
Adjusted R^2		0.066	0.071	0.070				0.067	0.066	0.062	0.068	0.074
Panel B: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	-0.175	-0.173	-0.217	-0.216				-0.246	-0.202	-0.141	-0.097	-0.055
s.e.	(0.27)	(0.274)	(0.273)	(0.276)				(0.276)	(0.275)	(0.277)	(0.281)	(0.296)
Global	0.494***	0.496***	0.479***	0.484***				0.477***	0.479***	0.477***	0.504***	0.535***
s.e.	(0.108)	(0.107)	(0.108)	(0.103)				(0.108)	(0.108)	(0.106)	(0.107)	(0.114)
Adjusted R^2	0.139	0.143	0.138	0.144				0.138	0.137	0.133	0.140	0.132
Panel B: CAPM with all securities (Aug 07 - Aug 18)												
Intercept		0.101	0.042	0.071				0.033	0.068	0.096	0.092	0.259
s.e.		(0.328)	(0.318)	(0.324)				(0.316)	(0.319)	(0.33)	(0.336)	(0.37)
Global		0.17	0.198	0.184				0.172	0.172	0.174	0.197	0.261
s.e.		(0.182)	(0.18)	(0.186)				(0.175)	(0.178)	(0.187)	(0.179)	(0.218)
Adjusted R^2		0.014	0.022	0.018				0.016	0.015	0.014	0.018	0.029
Panel C: CAPM with all securities (Feb 98 - Aug 18)												
Intercept		0.026	-0.026	-0.011				-0.045	-0.006	0.039	0.092	0.172
s.e.		(0.115)	(0.108)	(0.112)				(0.108)	(0.109)	(0.115)	(0.122)	(0.143)
Global		-0.415***	-0.399***	-0.396***				-0.399***	-0.409***	-0.427***	-0.421***	-0.418***
s.e.		(0.064)	(0.056)	(0.064)				(0.058)	(0.06)	(0.064)	(0.061)	(0.082)
Local		1.053***	1.04***	1.028***				1.018***	1.033***	1.059***	1.087***	1.152***
s.e.		(0.058)	(0.054)	(0.052)				(0.054)	(0.055)	(0.056)	(0.059)	(0.07)
Adjusted R^2		0.763	0.766	0.760				0.762	0.765	0.760	0.751	0.709
Panel C: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	-0.016	-0.016	-0.061	-0.061				-0.091	-0.046	0.016	0.062	0.111
s.e.	(0.178)	(0.183)	(0.172)	(0.167)				(0.172)	(0.173)	(0.18)	(0.193)	(0.224)
Global	-0.311***	-0.302***	-0.313***	-0.303***				-0.307***	-0.313***	-0.321***	-0.303***	-0.308**
s.e.	(0.089)	(0.092)	(0.077)	(0.076)				(0.075)	(0.079)	(0.088)	(0.1)	(0.126)
Local	0.909***	0.902***	0.895***	0.889***				0.886***	0.894***	0.901***	0.912***	0.952***
s.e.	(0.089)	(0.093)	(0.083)	(0.075)				(0.082)	(0.084)	(0.087)	(0.095)	(0.11)
Adjusted R^2	0.723	0.724	0.735	0.742				0.726	0.731	0.724	0.705	0.651
Panel C: CAPM with all securities (Aug 07 - Aug 18)												
Intercept		0.024	-0.034	-0.003				-0.04	-0.007	0.017	0.073	0.17
s.e.		(0.109)	(0.104)	(0.12)				(0.107)	(0.108)	(0.112)	(0.111)	(0.127)
Global		-0.527***	-0.492***	-0.491***				-0.492***	-0.506***	-0.535***	-0.542***	-0.541***
s.e.		(0.063)	(0.059)	(0.075)				(0.062)	(0.063)	(0.066)	(0.052)	(0.085)
Local		1.291***	1.278***	1.251***				1.231***	1.256***	1.315***	1.369***	1.486***
s.e.		(0.049)	(0.044)	(0.054)				(0.049)	(0.048)	(0.046)	(0.046)	(0.058)
Adjusted R^2		0.847	0.841	0.815				0.837	0.839	0.843	0.849	0.827
Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept		-0.198	-0.239	-0.223				-0.251	-0.218	-0.185	-0.146	-0.089
s.e.		(0.152)	(0.157)	(0.167)				(0.163)	(0.159)	(0.158)	(0.149)	(0.154)
Glo Sovereign		1.037***	0.984***	0.973***				0.944***	0.975***	1.027***	1.111***	1.229***
s.e.		(0.108)	(0.107)	(0.111)				(0.106)	(0.107)	(0.111)	(0.114)	(0.109)
Glo Equity		-0.016	-0.001	-0.001				-0.003	-0.008	-0.017	-0.019	-0.013
s.e.		(0.059)	(0.056)	(0.059)				(0.057)	(0.057)	(0.059)	(0.057)	(0.066)
Adjusted R^2		0.491	0.452	0.449				0.433	0.453	0.476	0.519	0.526

Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Jul 07)									
Intercept	-0.284	-0.282	-0.318	-0.317	-0.342	-0.303	-0.248	-0.213	-0.183
s.e.	(0.208)	(0.203)	(0.223)	(0.23)	(0.233)	(0.225)	(0.214)	(0.199)	(0.194)
Glo Sovereign	1.045***	1.051***	0.975***	0.974***	0.934***	0.974***	1.031***	1.113***	1.224***
s.e.	(0.15)	(0.143)	(0.146)	(0.144)	(0.145)	(0.144)	(0.145)	(0.15)	(0.163)
Glo Equity	0.119**	0.119**	0.122**	0.126***	0.128***	0.122**	0.111**	0.113**	0.11**
s.e.	(0.049)	(0.05)	(0.05)	(0.047)	(0.049)	(0.05)	(0.05)	(0.051)	(0.054)
Adjusted R^2	0.481	0.493	0.444	0.452	0.414	0.442	0.479	0.521	0.527
Panel D: Multi-factor regression with sovereign and equity securities (Aug 07 - Aug 18)									
Intercept		-0.133	-0.181	-0.15	-0.183	-0.154	-0.138	-0.097	-0.018
s.e.		(0.192)	(0.192)	(0.212)	(0.194)	(0.193)	(0.201)	(0.192)	(0.213)
Glo Sovereign		1.034***	1.001***	0.982***	0.964***	0.988***	1.034***	1.121***	1.244***
s.e.		(0.157)	(0.157)	(0.167)	(0.154)	(0.157)	(0.165)	(0.168)	(0.147)
Glo Equity		-0.104	-0.082	-0.084	-0.089	-0.094	-0.1	-0.106	-0.094
s.e.		(0.073)	(0.071)	(0.075)	(0.071)	(0.072)	(0.076)	(0.07)	(0.087)
Adjusted R^2		0.534	0.494	0.484	0.499	0.506	0.509	0.555	0.550
Panel E: Multi-factor regression with all securities (Feb 98 - Aug 18)									
Intercept		-0.189	-0.231	-0.214	-0.243	-0.209	-0.175	-0.136	-0.079
s.e.		(0.139)	(0.146)	(0.156)	(0.151)	(0.148)	(0.145)	(0.136)	(0.14)
Glo Sovereign		1.341***	1.246***	1.255***	1.222***	1.252***	1.326***	1.44***	1.572***
s.e.		(0.169)	(0.165)	(0.167)	(0.161)	(0.165)	(0.174)	(0.179)	(0.189)
Glo Equity		0.094*	0.095*	0.102**	0.098**	0.092*	0.092*	0.1*	0.111**
s.e.		(0.051)	(0.049)	(0.049)	(0.049)	(0.05)	(0.052)	(0.054)	(0.056)
Glo Corporate		-0.568**	-0.49	-0.528*	-0.52**	-0.516**	-0.56**	-0.615**	-0.641**
s.e.		(0.256)	(0.264)	(0.271)	(0.251)	(0.254)	(0.269)	(0.258)	(0.321)
Adjusted R^2		0.521	0.473	0.474	0.459	0.477	0.503	0.551	0.555
Panel E: Multi-factor regression with all securities (Feb 98 - Jul 07)									
Intercept	-0.219	-0.224	-0.266	-0.266	-0.295	-0.252	-0.189	-0.146	-0.099
s.e.	(0.214)	(0.209)	(0.229)	(0.239)	(0.239)	(0.232)	(0.219)	(0.204)	(0.199)
Glo Sovereign	1.602***	1.551***	1.418***	1.409***	1.336***	1.408***	1.541***	1.69***	1.944***
s.e.	(0.206)	(0.214)	(0.203)	(0.201)	(0.203)	(0.204)	(0.207)	(0.223)	(0.274)
Glo Equity	0.179***	0.173***	0.17***	0.173***	0.172***	0.169***	0.166***	0.175***	0.188***
s.e.	(0.048)	(0.049)	(0.05)	(0.046)	(0.05)	(0.05)	(0.049)	(0.05)	(0.053)
Glo Corporate	-0.986***	-0.884***	-0.784***	-0.771***	-0.712**	-0.77***	-0.903***	-1.023***	-1.275***
s.e.	(0.306)	(0.301)	(0.294)	(0.292)	(0.299)	(0.296)	(0.293)	(0.306)	(0.376)
Adjusted R^2	0.506	0.513	0.459	0.467	0.426	0.456	0.5	0.548	0.564
Panel E: Multi-factor regression with all securities (Aug 07 - Aug 18)									
Intercept		-0.136	-0.184	-0.153	-0.186	-0.157	-0.142	-0.101	-0.022
s.e.		(0.188)	(0.189)	(0.208)	(0.19)	(0.19)	(0.197)	(0.188)	(0.203)
Glo Sovereign		1.172***	1.102***	1.113***	1.086***	1.101***	1.172***	1.281***	1.406***
s.e.		(0.191)	(0.181)	(0.193)	(0.182)	(0.187)	(0.203)	(0.216)	(0.196)
Glo Equity		-0.026	-0.024	-0.009	-0.019	-0.029	-0.021	-0.015	-0.002
s.e.		(0.072)	(0.071)	(0.076)	(0.069)	(0.071)	(0.077)	(0.08)	(0.086)
Glo Corporate		-0.278	-0.204	-0.265	-0.248	-0.23	-0.28	-0.324	-0.328
s.e.		(0.291)	(0.304)	(0.322)	(0.286)	(0.288)	(0.316)	(0.304)	(0.38)
Adjusted R^2		0.54	0.495	0.488	0.503	0.509	0.514	0.562	0.555
Panel F: Multi-factor regression with all securities (Feb 98 - Aug 18)									
Intercept		-0.003	-0.008	0.005	-0.006	0.011	0.02	0.018	0.03
s.e.		(0.01)	(0.016)	(0.025)	(0.013)	(0.008)	(0.014)	(0.019)	(0.049)
Glo Sovereign		-0.014	-0.015	0.013	0.049***	0.003	-0.033**	-0.039**	-0.121
s.e.		(0.009)	(0.019)	(0.018)	(0.017)	(0.01)	(0.014)	(0.019)	(0.086)
Glo Equity		0.001	-0.003	0.009	0.004	-0.002	-0.001	0.001	-0.009
s.e.		(0.003)	(0.006)	(0.01)	(0.005)	(0.003)	(0.004)	(0.007)	(0.018)
Glo Corporate		0.008	0.032	-0.013	-0.042**	0.001	0.016	0.03	0.121
s.e.		(0.01)	(0.021)	(0.028)	(0.016)	(0.011)	(0.016)	(0.023)	(0.095)
Loc Sovereign		0.223***	-0.184***	-0.18***	-0.397***	-0.181***	0.148***	0.631***	1.267***
s.e.		(0.024)	(0.027)	(0.037)	(0.034)	(0.022)	(0.025)	(0.039)	(0.09)
Loc Equity		-0.005*	0.002	-0.002	0.002	-0.001	-0.007*	-0.003	0.014
s.e.		(0.003)	(0.003)	(0.008)	(0.004)	(0.002)	(0.004)	(0.005)	(0.014)
Loc Corporate		0.782***	1.189***	1.17***	1.373***	1.176***	0.874***	0.394***	-0.198**
s.e.		(0.026)	(0.026)	(0.043)	(0.035)	(0.022)	(0.025)	(0.038)	(0.096)
Adjusted R^2		0.998	0.996	0.989	0.996	0.999	0.996	0.993	0.958
Chi-Sq. Glo Fac		0.426	0.252	0.791	0.005	0.592	0.088	0.045	0.523
Chi-Sq. Loc Fac		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Feb 98 - Jul 07)									
Intercept	0.009	0	-0.013	-0.021	-0.027	0.002	0.04**	0.05*	0.053
s.e.	(0.024)	(0.015)	(0.012)	(0.028)	(0.02)	(0.01)	(0.02)	(0.026)	(0.059)
Glo Sovereign	0.033	-0.041	0.013	0.019	0.021	-0.007	-0.008	-0.04	-0.088
s.e.	(0.044)	(0.029)	(0.018)	(0.023)	(0.026)	(0.014)	(0.033)	(0.037)	(0.093)
Glo Equity	0.008	0.007*	-0.003	-0.005	0	-0.002	-0.003	0.005	0.005
s.e.	(0.009)	(0.004)	(0.004)	(0.006)	(0.006)	(0.004)	(0.006)	(0.008)	(0.02)

Glo Corporate	-0.066	0.054	-0.007	0.005	-0.015	0.013	0	0.045	0.059
s.e.	(0.059)	(0.036)	(0.022)	(0.026)	(0.027)	(0.016)	(0.046)	(0.042)	(0.121)
Loc Sovereign	0.194***	0.25***	-0.208***	-0.172***	-0.439***	-0.205***	0.154***	0.646***	1.374***
s.e.	(0.062)	(0.027)	(0.028)	(0.03)	(0.032)	(0.022)	(0.027)	(0.039)	(0.065)
Loc Equity	-0.004	-0.011***	0.002	0.011**	0.002	-0.001	-0.006	-0.007	0.001
s.e.	(0.006)	(0.003)	(0.003)	(0.006)	(0.005)	(0.002)	(0.005)	(0.006)	(0.011)
Loc Corporate	0.819***	0.769***	1.199***	1.14***	1.421***	1.203***	0.856***	0.376***	-0.317***
s.e.	(0.054)	(0.028)	(0.029)	(0.042)	(0.033)	(0.021)	(0.024)	(0.036)	(0.064)
Adjusted R^2	0.990	0.998	0.999	0.995	0.997	0.999	0.996	0.995	0.982
Chi-Sq. Glo Fac	0.421	0.019	0.043	0.558	0.672	0.801	0.881	0.264	0.245
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Aug 07 - Aug 18)									
Intercept	0.003	-0.007	0.025		-0.008	0.007	0.009	-0.004	0.07
s.e.	(0.011)	(0.025)	(0.037)		(0.015)	(0.007)	(0.016)	(0.022)	(0.068)
Glo Sovereign	0.001	-0.033	0.014		0.031	-0.014	-0.04**	-0.04	-0.034
s.e.	(0.009)	(0.029)	(0.036)		(0.02)	(0.01)	(0.018)	(0.026)	(0.13)
Glo Equity	-0.007*	-0.005	0.029		0.008	-0.001	0	-0.006	-0.032
s.e.	(0.004)	(0.014)	(0.024)		(0.007)	(0.004)	(0.007)	(0.01)	(0.03)
Glo Corporate	-0.001	0.04	-0.034		-0.03	0.015	0.003	0.023	0.062
s.e.	(0.01)	(0.034)	(0.044)		(0.021)	(0.01)	(0.021)	(0.036)	(0.115)
Loc Sovereign	0.148***	-0.137***	-0.197**		-0.232***	-0.082**	0.109	0.58***	0.773***
s.e.	(0.038)	(0.051)	(0.097)		(0.063)	(0.033)	(0.074)	(0.123)	(0.282)
Loc Equity	0.001	0.008	-0.017		-0.003	-0.005	0	0.008	0.06*
s.e.	(0.003)	(0.008)	(0.018)		(0.005)	(0.004)	(0.006)	(0.012)	(0.033)
Loc Corporate	0.846***	1.157***	1.202***		1.204***	1.077***	0.928***	0.453***	0.317
s.e.	(0.041)	(0.055)	(0.095)		(0.064)	(0.035)	(0.078)	(0.128)	(0.292)
Adjusted R^2	0.999	0.994	0.983		0.997	0.999	0.995	0.992	0.941
Chi-Sq. Glo Fac	0.034	0.564	0.442		0.428	0.554	0.014	0.435	0.721
Chi-Sq. Loc Fac	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000
Panel G: Multi-factor regression with all securities (Feb 98 - Aug 18)									
Intercept	-0.003	-0.005	0.007		-0.006	0.011	0.019	0.019	0.033
s.e.	(0.009)	(0.016)	(0.025)		(0.015)	(0.008)	(0.014)	(0.02)	(0.05)
Loc Sovereign	0.212***	-0.188***	-0.169***		-0.363***	-0.178***	0.121***	0.604***	1.189***
s.e.	(0.027)	(0.022)	(0.034)		(0.033)	(0.019)	(0.026)	(0.039)	(0.092)
Loc Equity	-0.003*	0.004	0.003		0	-0.002*	-0.006**	0.001	0.022*
s.e.	(0.002)	(0.003)	(0.003)		(0.002)	(0.001)	(0.003)	(0.003)	(0.011)
Loc Corporate	0.787***	1.191***	1.161***		1.352***	1.175***	0.89***	0.408***	-0.152
s.e.	(0.028)	(0.024)	(0.04)		(0.035)	(0.02)	(0.028)	(0.04)	(0.102)
Adjusted R^2	0.998	0.996	0.989		0.996	0.999	0.996	0.993	0.957
Panel G: Multi-factor regression with all securities (Feb 98 - Jul 07)									
Intercept	0.004	0.005	-0.013	-0.017	-0.027	0.003	0.038*	0.053**	0.05
s.e.	(0.022)	(0.013)	(0.012)	(0.026)	(0.018)	(0.01)	(0.02)	(0.024)	(0.056)
Loc Sovereign	0.201***	0.239***	-0.203***	-0.159***	-0.429***	-0.206***	0.147***	0.633***	1.333***
s.e.	(0.059)	(0.038)	(0.023)	(0.033)	(0.028)	(0.018)	(0.027)	(0.041)	(0.059)
Loc Equity	-0.001	-0.005**	0	0.008**	0.001	-0.002	-0.007*	-0.002	0.008
s.e.	(0.006)	(0.002)	(0.002)	(0.003)	(0.004)	(0.002)	(0.004)	(0.006)	(0.008)
Loc Corporate	0.811***	0.771***	1.199***	1.139***	1.418***	1.205***	0.859***	0.379***	-0.304***
s.e.	(0.054)	(0.036)	(0.025)	(0.043)	(0.03)	(0.019)	(0.024)	(0.038)	(0.058)
Adjusted R^2	0.990	0.998	0.999	0.995	0.997	0.999	0.996	0.995	0.982
Panel G: Multi-factor regression with all securities (Aug 07 - Aug 18)									
Intercept	0	-0.003	0.03		-0.01	0.009	0.009	-0.002	0.068
s.e.	(0.011)	(0.025)	(0.037)		(0.016)	(0.008)	(0.017)	(0.025)	(0.071)
Loc Sovereign	0.152***	-0.179***	-0.197***		-0.192***	-0.102***	0.046	0.525***	0.747***
s.e.	(0.034)	(0.047)	(0.069)		(0.051)	(0.03)	(0.067)	(0.1)	(0.239)
Loc Equity	-0.005	0.012*	0		-0.001	-0.004**	-0.002	0.006	0.047**
s.e.	(0.003)	(0.006)	(0.005)		(0.002)	(0.002)	(0.004)	(0.005)	(0.022)
Loc Corporate	0.842***	1.194***	1.198***		1.171***	1.093***	0.976***	0.498***	0.343
s.e.	(0.038)	(0.054)	(0.074)		(0.054)	(0.033)	(0.073)	(0.107)	(0.264)
Adjusted R^2	0.999	0.993	0.982		0.996	0.999	0.995	0.992	0.942
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)									
Intercept	0.025	-0.033	-0.022		-0.043	-0.005	0.029	0.071*	0.115
s.e.	(0.019)	(0.024)	(0.023)		(0.029)	(0.016)	(0.022)	(0.042)	(0.095)
Glo Corporate	1.006***	0.997***	0.989***		0.972***	0.988***	1.016***	1.038***	1.098***
s.e.	(0.005)	(0.007)	(0.009)		(0.009)	(0.003)	(0.008)	(0.014)	(0.031)
Spread B-AAA	-0.161***	0.047	0.406***		0.168**	0.077**	-0.021	-0.28***	-0.527**
s.e.	(0.05)	(0.047)	(0.098)		(0.07)	(0.031)	(0.052)	(0.102)	(0.233)
Adjusted R^2	0.996	0.992	0.992		0.987	0.997	0.994	0.974	0.901
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)									
Intercept	-0.009	0.007	-0.02	-0.009	-0.039	-0.004	0.038*	0.07	0.087
s.e.	(0.015)	(0.023)	(0.02)	(0.015)	(0.037)	(0.02)	(0.022)	(0.051)	(0.112)
Glo Corporate	0.995***	1.002***	0.998***	0.995***	0.995***	1***	0.997***	1.001***	1.014***

s.e.	(0.009)	(0.005)	(0.004)	(0.009)	(0.01)	(0.004)	(0.008)	(0.015)	(0.028)
Spread B-AAA	-0.609***	-0.301***	0.178***	0.391***	0.436***	0.203***	-0.196***	-0.673***	-1.445***
s.e.	(0.082)	(0.066)	(0.057)	(0.082)	(0.107)	(0.056)	(0.067)	(0.163)	(0.298)
Adjusted R^2	0.997	0.996	0.997	0.997	0.988	0.997	0.995	0.977	0.92
Panel H: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)									
Intercept		0.047*	-0.051	-0.038	-0.013	0.011	-0.016	0.018	0.035
s.e.		(0.028)	(0.057)	(0.054)	(0.034)	(0.017)	(0.035)	(0.055)	(0.127)
Glo Corporate		1***	1.009***	0.976***	0.95***	0.978***	1.037***	1.074***	1.178***
s.e.		(0.008)	(0.02)	(0.018)	(0.012)	(0.003)	(0.01)	(0.023)	(0.044)
Spread B-AAA		-0.047	-0.068	0.435***	-0.021	-0.011	0.096**	-0.009	0.11
s.e.		(0.044)	(0.053)	(0.161)	(0.029)	(0.025)	(0.045)	(0.088)	(0.087)
Adjusted R^2		0.997	0.986	0.982	0.993	0.998	0.995	0.984	0.927
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)									
Intercept		0	-0.014	0.006	-0.001	0.012*	0.011	0.02	-0.001
s.e.		(0.015)	(0.02)	(0.028)	(0.008)	(0.006)	(0.014)	(0.015)	(0.008)
Glo Corporate		0.997***	1.003***	0.995***	1***	1.001***	1.003***	1.002***	1***
s.e.		(0.003)	(0.005)	(0.01)	(0.004)	(0.002)	(0.005)	(0.008)	(0.004)
Spread Mat		0.093***	-0.055**	-0.079***	-0.208***	-0.099***	0.087***	0.306***	0.792***
s.e.		(0.018)	(0.026)	(0.016)	(0.014)	(0.008)	(0.012)	(0.022)	(0.014)
Adjusted R^2		0.997	0.995	0.988	0.998	0.999	0.996	0.992	0.998
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)									
Intercept	-0.004	-0.008	-0.004	-0.008	-0.007	0.01	0.029	0.028	-0.007
s.e.	(0.024)	(0.014)	(0.008)	(0.03)	(0.01)	(0.009)	(0.02)	(0.02)	(0.01)
Glo Corporate	1.006***	1***	1.001***	0.99***	1.001***	1.002***	0.997***	0.996***	1.001***
s.e.	(0.007)	(0.003)	(0.002)	(0.014)	(0.003)	(0.002)	(0.006)	(0.006)	(0.003)
Spread Mat	0.107***	0.139***	-0.114***	-0.089***	-0.242***	-0.112***	0.088***	0.343***	0.758***
s.e.	(0.035)	(0.018)	(0.01)	(0.02)	(0.007)	(0.009)	(0.012)	(0.015)	(0.007)
Adjusted R^2	0.99	0.999	0.999	0.995	0.999	0.999	0.996	0.995	0.999
Panel I: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)									
Intercept		0.022	-0.042	0.015	-0.008	0.009	-0.003	0.027	-0.008
s.e.		(0.019)	(0.03)	(0.046)	(0.011)	(0.008)	(0.022)	(0.025)	(0.011)
Glo Corporate		1.006***	0.988***	0.999***	0.988***	0.996***	1.012***	1.021***	0.988***
s.e.		(0.004)	(0.008)	(0.01)	(0.006)	(0.003)	(0.007)	(0.013)	(0.006)
Spread Mat		-0.003	0.072*	-0.062**	-0.133***	-0.069***	0.08***	0.221***	0.867***
s.e.		(0.021)	(0.037)	(0.028)	(0.016)	(0.009)	(0.029)	(0.052)	(0.016)
Adjusted R^2		0.998	0.993	0.982	0.998	0.999	0.996	0.99	0.999

Notes: This table shows the OLS coefficients of CAPM (Panels A-C) and multi-factor (Panels D-I) regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global and/or local excess returns , except in Panels H-I where the spread between excess returns in BBB and AA rating categories and between >10 and 1< to <3 residual maturity ("Spread Mat") are employed. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. "Chi-Sq. Glo Fac" and "Chi-Sq. Loc Fac" in Panel F are the Chi-Square's P-value of the Wald test testing the joint significance of all global factors and all local factors, respectively. Sample period: February 1998 – August 2018.

Table 5e. CAPM and Multi-Factor Regressions with Global Factors: British Pound Portfolios

GBP	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Panel A: CAPM with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept	0.047	0.059	-0.017	0.11	0.263	0.106	0.777	0.025	0.045	0.034	0.02	0.1
s.e.	(0.167)	(0.177)	(0.215)	(0.205)	(0.271)	(0.303)	(0.495)	(0.165)	(0.175)	(0.208)	(0.219)	(0.217)
Global	0.472***	0.53***	0.655***	0.651***	0.961***	1.056***	0.982***	0.449***	0.517***	0.636***	0.714***	0.689***
s.e.	(0.098)	(0.099)	(0.124)	(0.123)	(0.122)	(0.177)	(0.219)	(0.089)	(0.101)	(0.121)	(0.123)	(0.128)
Adjusted R^2	0.193	0.232	0.270	0.277	0.332	0.326	0.133	0.199	0.231	0.262	0.301	0.262
Panel A: CAPM with sovereign and equity securities (Feb 98 - Jul 07)												
Intercept	0.31	0.33	0.342*	0.359*	0.434*	0.022	1.085*	0.342*	0.329*	0.276	0.292	0.384*
s.e.	(0.208)	(0.205)	(0.205)	(0.199)	(0.226)	(0.297)	(0.632)	(0.188)	(0.195)	(0.181)	(0.202)	(0.226)
Global	0.196*	0.22**	0.251**	0.243**	0.634***	0.733***	0.373	0.163	0.188*	0.219**	0.296***	0.282**
s.e.	(0.106)	(0.106)	(0.109)	(0.112)	(0.106)	(0.145)	(0.288)	(0.102)	(0.104)	(0.102)	(0.103)	(0.118)
Adjusted R^2	0.041	0.052	0.066	0.067	0.258	0.251	0.015	0.032	0.042	0.061	0.102	0.069
Panel A: CAPM with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept	-0.199	-0.196	-0.355	-0.133	0.091	0.155	0.462	-0.268	-0.222	-0.205	-0.244	-0.175
s.e.	(0.192)	(0.2)	(0.25)	(0.249)	(0.394)	(0.472)	(0.684)	(0.195)	(0.203)	(0.258)	(0.265)	(0.255)
Global	0.724***	0.815***	1.025***	1.025***	1.218***	1.349***	1.483***	0.711***	0.819***	1.017***	1.097***	1.062***
s.e.	(0.102)	(0.091)	(0.108)	(0.119)	(0.171)	(0.266)	(0.246)	(0.084)	(0.105)	(0.113)	(0.114)	(0.12)
Adjusted R^2	0.358	0.422	0.469	0.478	0.393	0.393	0.258	0.385	0.431	0.448	0.481	0.450
Panel B: CAPM with all securities (Feb 98 - Aug 18)												
Intercept	0.035	0.047	-0.031	0.096	0.248	0.09	0.759	0.015	0.034	0.02	0.005	0.084
s.e.	(0.163)	(0.172)	(0.209)	(0.198)	(0.261)	(0.294)	(0.487)	(0.161)	(0.17)	(0.201)	(0.211)	(0.21)
Global	0.519***	0.581***	0.715***	0.711***	1.032***	1.132***	1.063***	0.49***	0.565***	0.695***	0.778***	0.752***
s.e.	(0.098)	(0.1)	(0.126)	(0.126)	(0.131)	(0.184)	(0.228)	(0.091)	(0.102)	(0.124)	(0.126)	(0.129)
Adjusted R^2	0.214	0.254	0.294	0.301	0.350	0.342	0.142	0.216	0.252	0.285	0.327	0.286
Panel B: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	0.3	0.32	0.332	0.349*	0.423*	0.011	1.076*	0.334*	0.32*	0.267	0.282	0.374*
s.e.	(0.206)	(0.203)	(0.203)	(0.196)	(0.223)	(0.292)	(0.628)	(0.187)	(0.193)	(0.178)	(0.198)	(0.224)
Global	0.233**	0.258**	0.291**	0.281**	0.689***	0.79***	0.417	0.193*	0.222**	0.256**	0.338***	0.326***
s.e.	(0.11)	(0.111)	(0.114)	(0.117)	(0.113)	(0.153)	(0.304)	(0.106)	(0.108)	(0.106)	(0.108)	(0.123)
Adjusted R^2	0.054	0.066	0.081	0.082	0.272	0.260	0.018	0.042	0.054	0.076	0.120	0.084
Panel B: CAPM with all securities (Aug 07 - Aug 18)												
Intercept	-0.209	-0.207	-0.368	-0.146	0.076	0.138	0.444	-0.276	-0.231	-0.217	0.156	-0.188
s.e.	(0.186)	(0.192)	(0.239)	(0.236)	(0.377)	(0.456)	(0.669)	(0.189)	(0.195)	(0.246)	(0.251)	(0.243)
Global	0.77***	0.864***	1.086***	1.086***	1.29***	1.429***	1.571***	0.75***	0.866***	1.079***	1.163***	1.126***
s.e.	(0.101)	(0.092)	(0.108)	(0.121)	(0.187)	(0.27)	(0.256)	(0.088)	(0.108)	(0.117)	(0.116)	(0.119)
Adjusted R^2	0.377	0.443	0.491	0.500	0.411	0.412	0.271	0.400	0.449	0.470	0.505	0.472
Panel C: CAPM with all securities (Feb 98 - Aug 18)												
Intercept	0.138	0.17	0.114	0.244	0.452**	0.292	0.974**	0.141	0.166	0.171	0.156	0.228
s.e.	(0.144)	(0.141)	(0.163)	(0.149)	(0.192)	(0.236)	(0.401)	(0.123)	(0.131)	(0.154)	(0.165)	(0.171)
Global	-0.304**	-0.414***	-0.455***	-0.483***	-0.67***	-0.492**	-0.837***	-0.523***	-0.495***	-0.52***	-0.435***	-0.404**
s.e.	(0.133)	(0.129)	(0.145)	(0.129)	(0.174)	(0.201)	(0.317)	(0.111)	(0.116)	(0.151)	(0.152)	(0.164)
Local	0.654***	0.792***	0.931***	0.949***	1.326***	1.292***	1.501***	0.806***	0.843***	0.966***	0.965***	0.92***
s.e.	(0.088)	(0.084)	(0.096)	(0.095)	(0.16)	(0.14)	(0.206)	(0.075)	(0.079)	(0.118)	(0.111)	(0.102)
Adjusted R^2	0.402	0.515	0.570	0.598	0.662	0.588	0.300	0.541	0.562	0.590	0.604	0.521
Panel C: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	0.264	0.281	0.29	0.308	0.324	-0.062	0.95	0.294	0.282	0.23	0.242	0.329
s.e.	(0.22)	(0.217)	(0.215)	(0.205)	(0.212)	(0.279)	(0.591)	(0.198)	(0.204)	(0.188)	(0.212)	(0.235)
Global	-0.255	-0.269	-0.28*	-0.279*	-0.355*	-0.207	-0.722	-0.356**	-0.296*	-0.248	-0.206	-0.283
s.e.	(0.166)	(0.164)	(0.167)	(0.157)	(0.214)	(0.262)	(0.499)	(0.153)	(0.163)	(0.157)	(0.164)	(0.191)
Local	0.452***	0.487***	0.529***	0.518***	0.936***	0.923***	1.051***	0.508***	0.479***	0.466***	0.503***	0.563***
s.e.	(0.157)	(0.155)	(0.154)	(0.144)	(0.188)	(0.197)	(0.364)	(0.147)	(0.154)	(0.145)	(0.15)	(0.165)
Adjusted R^2	0.137	0.163	0.189	0.193	0.445	0.396	0.076	0.170	0.160	0.177	0.224	0.183
Panel C: CAPM with all securities (Aug 07 - Aug 18)												
Intercept	0.042	0.113	0.009	0.246*	0.613**	0.679*	1.022*	0.052	0.118	0.194	0.144	0.177
s.e.	(0.155)	(0.135)	(0.17)	(0.148)	(0.289)	(0.348)	(0.55)	(0.112)	(0.114)	(0.172)	(0.177)	(0.183)
Global	-0.191	-0.361**	-0.358*	-0.416***	-0.769***	-0.644**	-0.645*	-0.504***	-0.471***	-0.496**	-0.376*	-0.272
s.e.	(0.17)	(0.163)	(0.189)	(0.144)	(0.218)	(0.259)	(0.368)	(0.127)	(0.121)	(0.196)	(0.197)	(0.214)
Local	0.681***	0.868***	1.023***	1.064***	1.458***	1.468***	1.57***	0.888***	0.947***	1.115***	1.09***	0.99***
s.e.	(0.108)	(0.1)	(0.112)	(0.101)	(0.189)	(0.149)	(0.229)	(0.081)	(0.077)	(0.139)	(0.133)	(0.124)
Adjusted R^2	0.563	0.726	0.768	0.806	0.746	0.689	0.441	0.758	0.792	0.790	0.787	0.703
Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept	-0.067	-0.04	-0.113	0.026	0.226	0.105	0.756*	-0.041	-0.031	-0.046	-0.067	-0.008
s.e.	(0.141)	(0.152)	(0.189)	(0.181)	(0.236)	(0.286)	(0.455)	(0.145)	(0.153)	(0.183)	(0.192)	(0.192)
Glo Sovereign	0.701***	0.615***	0.611***	0.536***	0.32	0.178	0.167	0.398***	0.463***	0.496***	0.568***	0.694***
s.e.	(0.108)	(0.113)	(0.118)	(0.126)	(0.195)	(0.205)	(0.287)	(0.106)	(0.116)	(0.112)	(0.118)	(0.125)
Glo Equity	0.177***	0.236***	0.323***	0.338***	0.581***	0.659***	0.644***	0.234***	0.268***	0.34***	0.371***	0.324***
s.e.	(0.058)	(0.06)	(0.077)	(0.077)	(0.072)	(0.096)	(0.132)	(0.057)	(0.064)	(0.076)	(0.076)	(0.077)
Adjusted R^2	0.356	0.338	0.347	0.343	0.386	0.379	0.169	0.260	0.303	0.325	0.365	0.343

Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Jul 07)												
Intercept	0.218**	0.239**	0.252**	0.278**	0.362*	-0.016	1.038	0.268**	0.246**	0.195*	0.208*	0.291**
s.e.	(0.108)	(0.108)	(0.112)	(0.125)	(0.208)	(0.281)	(0.639)	(0.125)	(0.114)	(0.109)	(0.116)	(0.133)
Glo Sovereign	0.787***	0.777***	0.774***	0.701***	0.607***	0.408	0.587**	0.633***	0.709***	0.703***	0.733***	0.807***
s.e.	(0.1)	(0.108)	(0.122)	(0.116)	(0.168)	(0.25)	(0.295)	(0.086)	(0.091)	(0.094)	(0.125)	(0.142)
Glo Equity	-0.006	0.012	0.034	0.041	0.333***	0.426***	0.153	-0.001	0.002	0.024	0.071*	0.051
s.e.	(0.037)	(0.038)	(0.041)	(0.044)	(0.07)	(0.093)	(0.193)	(0.042)	(0.039)	(0.036)	(0.04)	(0.048)
Adjusted R^2	0.494	0.472	0.442	0.391	0.313	0.248	0.030	0.375	0.445	0.443	0.433	0.396
Panel D: Multi-factor regression with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept	-0.289	-0.243	-0.388	-0.149	0.141	0.258	0.594	-0.261	-0.22	-0.204	-0.262	-0.232
s.e.	(0.195)	(0.239)	(0.239)	(0.242)	(0.353)	(0.462)	(0.623)	(0.185)	(0.194)	(0.235)	(0.248)	(0.257)
Glo Sovereign	0.611***	0.45***	0.441***	0.359*	0.092	-0.064	-0.172	0.163	0.213	0.277*	0.391**	0.569***
s.e.	(0.174)	(0.162)	(0.164)	(0.192)	(0.283)	(0.301)	(0.393)	(0.143)	(0.162)	(0.16)	(0.164)	(0.18)
Glo Equity	0.3***	0.388***	0.517***	0.537***	0.723***	0.817***	0.93***	0.394***	0.448***	0.553***	0.573***	0.506***
s.e.	(0.06)	(0.054)	(0.068)	(0.067)	(0.08)	(0.111)	(0.095)	(0.042)	(0.047)	(0.061)	(0.064)	(0.077)
Adjusted R^2	0.379	0.414	0.468	0.490	0.470	0.485	0.340	0.416	0.461	0.475	0.491	0.439
Panel E: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	-0.087	-0.064	-0.144	-0.006	0.136	0.061	0.636*	-0.062	-0.056	-0.078	-0.101	-0.039
s.e.	(0.108)	(0.104)	(0.123)	(0.105)	(0.155)	(0.205)	(0.357)	(0.108)	(0.103)	(0.117)	(0.115)	(0.126)
Glo Sovereign	0.059	-0.155	-0.366***	-0.471***	-0.901***	-1.23***	-1.666***	-0.283***	-0.335***	-0.536***	-0.511***	-0.297**
s.e.	(0.119)	(0.102)	(0.111)	(0.115)	(0.238)	(0.246)	(0.286)	(0.096)	(0.106)	(0.134)	(0.115)	(0.123)
Glo Equity	-0.056	-0.044	-0.033	-0.028	0.125*	0.147*	-0.038	-0.014	-0.022	-0.035	-0.021	-0.036
s.e.	(0.039)	(0.041)	(0.051)	(0.047)	(0.071)	(0.08)	(0.105)	(0.043)	(0.045)	(0.054)	(0.051)	(0.051)
Glo Corporate	1.201***	1.441***	1.827***	1.882***	2.238***	2.634***	3.375***	1.273***	1.491***	1.93***	2.018***	1.853***
s.e.	(0.107)	(0.136)	(0.166)	(0.178)	(0.476)	(0.272)	(0.451)	(0.156)	(0.168)	(0.258)	(0.216)	(0.16)
Adjusted R^2	0.52	0.562	0.622	0.646	0.622	0.643	0.375	0.47	0.554	0.641	0.679	0.591
Panel E: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	0.154	0.166	0.162	0.18	0.067	-0.224	0.641	0.218*	0.185	0.117	0.106	0.188
s.e.	(0.118)	(0.117)	(0.12)	(0.128)	(0.202)	(0.271)	(0.506)	(0.129)	(0.119)	(0.109)	(0.12)	(0.144)
Glo Sovereign	0.238	0.148	-0.006	-0.138	-1.057***	-1.385***	-1.681**	0.197	0.188	0.028	-0.148	-0.078
s.e.	(0.222)	(0.233)	(0.246)	(0.222)	(0.363)	(0.343)	(0.806)	(0.203)	(0.203)	(0.177)	(0.209)	(0.286)
Glo Equity	-0.066*	-0.056	-0.05	-0.05	0.157***	0.232***	-0.084	-0.049	-0.054	-0.049	-0.025	-0.045
s.e.	(0.037)	(0.038)	(0.044)	(0.045)	(0.05)	(0.086)	(0.138)	(0.04)	(0.038)	(0.034)	(0.039)	(0.053)
Glo Corporate	0.972***	1.114***	1.38***	1.486***	2.749***	3.175***	3.766***	0.772**	0.923***	1.196***	1.561***	1.567***
s.e.	(0.332)	(0.354)	(0.357)	(0.339)	(0.475)	(0.464)	(1.371)	(0.338)	(0.328)	(0.292)	(0.3)	(0.41)
Adjusted R^2	0.545	0.539	0.54	0.514	0.516	0.462	0.126	0.41	0.495	0.533	0.568	0.499
Panel E: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	-0.275	-0.227	-0.366*	-0.127	0.168	0.292	0.632	-0.247	-0.203	-0.181	-0.238	-0.21
s.e.	(0.169)	(0.161)	(0.191)	(0.159)	(0.253)	(0.292)	(0.488)	(0.156)	(0.152)	(0.19)	(0.184)	(0.192)
Glo Sovereign	0.031	-0.238	-0.434**	-0.534***	-1.023***	-1.471***	-1.728***	-0.397***	-0.461***	-0.659***	-0.604***	-0.335*
s.e.	(0.195)	(0.151)	(0.172)	(0.175)	(0.303)	(0.361)	(0.368)	(0.141)	(0.164)	(0.207)	(0.182)	(0.179)
Glo Equity	-0.031	-0.005	0.017	0.027	0.086	0.013	0.041	0.074	0.063	0.019	0.004	-0.01
s.e.	(0.082)	(0.084)	(0.109)	(0.097)	(0.16)	(0.122)	(0.152)	(0.081)	(0.088)	(0.124)	(0.114)	(0.103)
Glo Corporate	1.172***	1.39***	1.768***	1.804***	2.254***	2.845***	3.145***	1.132***	1.362***	1.892***	2.011***	1.828***
s.e.	(0.195)	(0.25)	(0.325)	(0.32)	(0.706)	(0.387)	(0.592)	(0.281)	(0.299)	(0.453)	(0.391)	(0.284)
Adjusted R^2	0.51	0.586	0.665	0.699	0.66	0.734	0.505	0.553	0.628	0.695	0.719	0.626
Panel F: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	-0.042	-0.008	-0.077**	0.052	0.258*	0.12	0.745**	0.002	0.011	-0.001	-0.034	0.019
s.e.	(0.057)	(0.024)	(0.032)	(0.032)	(0.133)	(0.193)	(0.342)	(0.059)	(0.052)	(0.04)	(0.029)	(0.049)
Glo Sovereign	0.149	0.078**	0.065	-0.217***	-0.355	-1.335***	-1.105*	-0.103	-0.063	-0.054	-0.06	0.053
s.e.	(0.104)	(0.033)	(0.063)	(0.076)	(0.226)	(0.397)	(0.582)	(0.095)	(0.079)	(0.106)	(0.08)	(0.083)
Glo Equity	-0.034	-0.017	0.026	0	0.061	-0.085	-0.061	-0.097**	-0.079**	-0.045	0.03	0.067*
s.e.	(0.041)	(0.014)	(0.022)	(0.023)	(0.075)	(0.18)	(0.209)	(0.038)	(0.036)	(0.032)	(0.022)	(0.034)
Glo Corporate	-0.141	-0.146***	-0.084	0.266***	0.305	1.947***	1.617*	-0.066	-0.002	0.104	0.171	-0.052
s.e.	(0.17)	(0.053)	(0.1)	(0.1)	(0.488)	(0.558)	(0.878)	(0.116)	(0.099)	(0.153)	(0.122)	(0.118)
Loc Sovereign	0.33***	0.164***	-0.085	0.137*	-0.227	0.562*	-0.331	0.221**	0.102	-0.174	-0.142	0.034
s.e.	(0.104)	(0.035)	(0.058)	(0.078)	(0.173)	(0.331)	(0.653)	(0.104)	(0.091)	(0.139)	(0.09)	(0.093)
Loc Equity	0.002	0	-0.034*	-0.002	0.113	0.294*	0.061	0.126***	0.098***	0.046	-0.027	-0.087**
s.e.	(0.035)	(0.014)	(0.019)	(0.024)	(0.078)	(0.152)	(0.205)	(0.041)	(0.036)	(0.028)	(0.017)	(0.034)
Loc Corporate	0.625***	0.834***	1.139***	0.863***	1.128***	0.008	1.097	0.606***	0.757***	1.087***	1.123***	1.113***
s.e.	(0.111)	(0.039)	(0.072)	(0.084)	(0.229)	(0.417)	(0.705)	(0.11)	(0.096)	(0.148)	(0.103)	(0.097)
Adjusted R^2	0.916	0.982	0.989	0.980	0.808	0.718	0.421	0.862	0.919	0.954	0.982	0.947
Chi-Sq. Glo Fac	0.130	0.000	0.566	0.002	0.202	0.000	0.287	0.001	0.083	0.586	0.000	0.252
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	-0.001	0.008	-0.001	0.02	-0.063	-0.342	0.501	0.081	0.043	-0.026	-0.045	0.006
s.e.	(0.025)	(0.019)	(0.018)	(0.03)	(0.194)	(0.254)	(0.493)	(0.07)	(0.049)	(0.037)	(0.04)	(0.058)
Glo Sovereign	0.15***	0.114***	-0.019	-0.165***	-0.992**	-1.056***	-0.858	0.24*	0.179*	-0.062	-0.232***	-0.109
s.e.	(0.049)	(0.03)	(0.042)	(0.043)	(0.438)	(0.371)	(1.057)	(0.133)	(0.095)	(0.084)	(0.065)	(0.116)
Glo Equity	-0.029	-0.012	0.003	0.025	0.121	0.127	-0.263	-0.084*	-0.059*	-0.03	0.023	0.056
s.e.	(0.018)	(0.01)	(0.012)	(0.024)	(0.145)	(0.132)	(0.302)	(0.051)	(0.035)	(0.026)	(0.024)	(0.044)

Glo Corporate	-0.212***	-0.177***	0.02	0.175**	1.362**	1.637***	1.531	-0.479***	-0.287**	0.116	0.413***	0.086
s.e.	(0.056)	(0.051)	(0.058)	(0.084)	(0.68)	(0.617)	(1.999)	(0.162)	(0.119)	(0.106)	(0.11)	(0.153)
Loc Sovereign	0.167	0.049	0.001	0.014	-0.429	-0.617	-1.877*	-0.061	0.027	0.181	0.151	0.005
s.e.	(0.105)	(0.047)	(0.068)	(0.068)	(0.339)	(0.483)	(1.014)	(0.286)	(0.198)	(0.128)	(0.093)	(0.23)
Loc Equity	0.011	0.002	-0.009	-0.036	0.073	0.158	0.228	0.09	0.055	0.029	-0.004	-0.062
s.e.	(0.024)	(0.011)	(0.013)	(0.029)	(0.156)	(0.123)	(0.316)	(0.06)	(0.042)	(0.032)	(0.021)	(0.049)
Loc Corporate	0.8***	0.948***	1.032***	1.001***	1.341***	1.41***	2.668**	0.931***	0.871***	0.704***	0.789***	1.149***
s.e.	(0.109)	(0.05)	(0.073)	(0.083)	(0.454)	(0.545)	(1.253)	(0.299)	(0.208)	(0.14)	(0.1)	(0.243)
Adjusted R^2	0.986	0.994	0.994	0.975	0.719	0.593	0.186	0.867	0.935	0.956	0.973	0.946
Chi-Sq. Glo Fac	0.000	0.000	0.956	0.000	0.045	0.002	0.735	0.004	0.024	0.442	0.000	0.460
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	-0.092	-0.025	-0.149***	0.084	0.432**	0.479*	0.761	-0.055	0.002	0.052	-0.02	0.005
s.e.	(0.103)	(0.043)	(0.052)	(0.057)	(0.185)	(0.245)	(0.476)	(0.089)	(0.082)	(0.065)	(0.04)	(0.074)
Glo Sovereign	0.137	0.033	0.117	-0.221*	-0.323	-1.797***	-1.362*	-0.261***	-0.164*	-0.02	0.009	0.131
s.e.	(0.156)	(0.049)	(0.082)	(0.113)	(0.234)	(0.527)	(0.799)	(0.1)	(0.095)	(0.162)	(0.105)	(0.115)
Glo Equity	-0.045	-0.022	0.047	-0.016	-0.044	-0.327	0.207	-0.064	-0.068	-0.073	0.009	0.064
s.e.	(0.092)	(0.027)	(0.035)	(0.038)	(0.112)	(0.258)	(0.278)	(0.059)	(0.061)	(0.059)	(0.035)	(0.051)
Glo Corporate	-0.058	-0.093	-0.126	0.274**	0.225	2.527***	1.72	0.039	0.043	0.046	0.11	-0.063
s.e.	(0.234)	(0.072)	(0.131)	(0.138)	(0.56)	(0.705)	(1.088)	(0.142)	(0.132)	(0.216)	(0.157)	(0.158)
Loc Sovereign	0.365***	0.199***	-0.112*	0.16	-0.236	0.832**	-0.062	0.307***	0.133	-0.231	-0.204**	0.011
s.e.	(0.129)	(0.039)	(0.063)	(0.098)	(0.187)	(0.381)	(0.714)	(0.093)	(0.095)	(0.167)	(0.092)	(0.109)
Loc Equity	-0.026	-0.014	-0.054*	0.019	0.143	0.339	-0.211	0.127**	0.128**	0.1**	-0.017	-0.114**
s.e.	(0.069)	(0.023)	(0.03)	(0.036)	(0.087)	(0.223)	(0.279)	(0.059)	(0.052)	(0.043)	(0.026)	(0.049)
Loc Corporate	0.619***	0.815***	1.177***	0.839***	1.197***	-0.251	0.963	0.48***	0.669***	1.11***	1.192***	1.165***
s.e.	(0.139)	(0.044)	(0.083)	(0.106)	(0.224)	(0.487)	(0.753)	(0.107)	(0.102)	(0.172)	(0.108)	(0.117)
Adjusted R^2	0.884	0.976	0.988	0.981	0.855	0.807	0.547	0.872	0.922	0.957	0.986	0.951
Chi-Sq. Glo Fac	0.244	0.100	0.146	0.068	0.232	0.000	0.237	0.002	0.098	0.512	0.002	0.221
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.024	0.000	0.000	0.000	0.000	0.000
Panel G: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	-0.048	-0.02	-0.073**	0.057*	0.265**	0.174	0.807**	-0.043	-0.016	-0.006	-0.013	0.035
s.e.	(0.057)	(0.024)	(0.03)	(0.032)	(0.12)	(0.203)	(0.364)	(0.062)	(0.05)	(0.039)	(0.031)	(0.048)
Loc Sovereign	0.447***	0.219***	-0.033	-0.032	-0.507***	-0.463***	-1.161***	0.118**	0.04	-0.217***	-0.179***	0.082
s.e.	(0.077)	(0.034)	(0.028)	(0.044)	(0.147)	(0.156)	(0.4)	(0.056)	(0.062)	(0.082)	(0.039)	(0.055)
Loc Equity	-0.042**	-0.028***	-0.015**	0.019	0.199***	0.36***	0.133	0.028	0.021	0.011	0.015	-0.026
s.e.	(0.02)	(0.008)	(0.007)	(0.016)	(0.053)	(0.065)	(0.126)	(0.022)	(0.017)	(0.015)	(0.01)	(0.017)
Loc Corporate	0.54***	0.768***	1.081***	1.023***	1.322***	1.113***	1.99***	0.657***	0.807***	1.153***	1.186***	1.055***
s.e.	(0.076)	(0.03)	(0.034)	(0.047)	(0.157)	(0.188)	(0.442)	(0.055)	(0.06)	(0.092)	(0.049)	(0.058)
Adjusted R^2	0.915	0.981	0.989	0.977	0.805	0.661	0.409	0.852	0.916	0.954	0.981	0.947
Panel G: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	-0.012	0	0	0.03	0.031	-0.267	0.561	0.054	0.025	-0.026	-0.027	0.017
s.e.	(0.024)	(0.018)	(0.018)	(0.029)	(0.187)	(0.256)	(0.532)	(0.068)	(0.047)	(0.037)	(0.047)	(0.054)
Loc Sovereign	0.282***	0.139***	-0.015	-0.121*	-1.176***	-1.447***	-2.639***	0.089	0.149	0.116	-0.029	-0.067
s.e.	(0.083)	(0.047)	(0.044)	(0.067)	(0.327)	(0.392)	(0.651)	(0.208)	(0.143)	(0.074)	(0.064)	(0.159)
Loc Equity	-0.023**	-0.015**	-0.006	-0.008	0.238***	0.326***	-0.001	-0.009	-0.012	0.001	0.03**	-0.004
s.e.	(0.012)	(0.006)	(0.008)	(0.013)	(0.062)	(0.087)	(0.179)	(0.03)	(0.022)	(0.013)	(0.012)	(0.025)
Loc Corporate	0.693***	0.855***	1.044***	1.107***	2.015***	2.266***	3.654***	0.751***	0.754***	0.792***	0.997***	1.175***
s.e.	(0.09)	(0.051)	(0.051)	(0.078)	(0.3)	(0.418)	(0.671)	(0.23)	(0.16)	(0.085)	(0.065)	(0.178)
Adjusted R^2	0.983	0.993	0.994	0.973	0.681	0.556	0.199	0.853	0.930	0.957	0.966	0.945
Panel G: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	-0.087	-0.045	-0.132***	0.085	0.388**	0.486	0.877*	-0.133	-0.052	0.032	0.01	0.045
s.e.	(0.102)	(0.04)	(0.049)	(0.054)	(0.173)	(0.297)	(0.486)	(0.092)	(0.078)	(0.061)	(0.038)	(0.074)
Loc Sovereign	0.468***	0.217***	-0.029	0.007	-0.475***	-0.392**	-1**	0.102*	0.005	-0.244***	-0.187***	0.111*
s.e.	(0.103)	(0.043)	(0.03)	(0.049)	(0.162)	(0.174)	(0.429)	(0.06)	(0.071)	(0.094)	(0.037)	(0.062)
Loc Equity	-0.077**	-0.046***	-0.026**	0.039	0.134***	0.356***	0.199	0.077**	0.074***	0.038	0.004	-0.065***
s.e.	(0.037)	(0.013)	(0.012)	(0.026)	(0.049)	(0.098)	(0.144)	(0.032)	(0.023)	(0.025)	(0.014)	(0.024)
Loc Corporate	0.571***	0.786***	1.097***	0.982***	1.369***	1.036***	1.782***	0.59***	0.749***	1.145***	1.214***	1.092***
s.e.	(0.101)	(0.033)	(0.037)	(0.058)	(0.172)	(0.225)	(0.479)	(0.058)	(0.06)	(0.108)	(0.052)	(0.065)
Adjusted R^2	0.884	0.976	0.988	0.979	0.854	0.721	0.526	0.857	0.918	0.957	0.986	0.950
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)												
Intercept	0.014	0.01	-0.069**	0.046*	0.162	0.014	0.587*	-0.042	-0.022	-0.037	-0.039	0.055
s.e.	(0.06)	(0.028)	(0.027)	(0.027)	(0.113)	(0.06)	(0.328)	(0.064)	(0.05)	(0.044)	(0.032)	(0.046)
Glo Corporate	0.874***	0.925***	1.056***	1.001***	1.041***	0.874***	1.051***	0.753***	0.839***	0.981***	1.048***	1.116***
s.e.	(0.042)	(0.02)	(0.017)	(0.014)	(0.074)	(0.042)	(0.132)	(0.022)	(0.023)	(0.034)	(0.026)	(0.02)
Spread B-AAA	-0.165***	-0.083***	-0.045***	0.055***	0.362***	0.835***	0.729***	0.058*	0.059**	0.081***	0.073***	-0.09***
s.e.	(0.044)	(0.019)	(0.012)	(0.021)	(0.057)	(0.044)	(0.151)	(0.032)	(0.028)	(0.026)	(0.024)	(0.025)
Adjusted R^2	0.905	0.978	0.991	0.98	0.829	0.968	0.496	0.856	0.922	0.954	0.981	0.954
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)												
Intercept	-0.036	-0.014	-0.002	0.033	0.198	-0.036	0.82	0.045	0.013	-0.031	-0.009	0.018
s.e.	(0.031)	(0.018)	(0.016)	(0.032)	(0.185)	(0.031)	(0.58)	(0.07)	(0.051)	(0.039)	(0.034)	(0.054)
Glo Corporate	0.97***	0.989***	1.025***	0.979***	0.947***	0.97***	0.964***	0.837***	0.901***	0.911***	0.987***	1.104***

s.e.	(0.013)	(0.009)	(0.006)	(0.027)	(0.122)	(0.013)	(0.242)	(0.03)	(0.02)	(0.021)	(0.01)	(0.02)
Spread B-AAA	-0.066***	-0.046***	-0.014**	0.008	0.398***	0.935***	0.352	-0.033	-0.033	-0.011	0.101***	-0.006
s.e.	(0.011)	(0.008)	(0.007)	(0.015)	(0.078)	(0.011)	(0.28)	(0.033)	(0.022)	(0.013)	(0.013)	(0.025)
Adjusted R^2	0.981	0.994	0.995	0.972	0.654	0.993	0.156	0.855	0.93	0.956	0.985	0.945
Panel H: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)												
Intercept	0.063	0.022	-0.101**	0.046	0.18	0.063	0.32	-0.189*	-0.115	-0.054	-0.03	0.129*
s.e.	(0.08)	(0.039)	(0.04)	(0.036)	(0.127)	(0.08)	(0.321)	(0.098)	(0.075)	(0.061)	(0.038)	(0.072)
Glo Corporate	0.864***	0.909***	1.078***	0.997***	1.087***	0.864***	0.99***	0.683***	0.78***	0.983***	1.084***	1.15***
s.e.	(0.068)	(0.031)	(0.021)	(0.018)	(0.083)	(0.068)	(0.137)	(0.022)	(0.023)	(0.052)	(0.035)	(0.032)
Spread B-AAA	-0.215***	-0.096***	-0.067***	0.081***	0.332***	0.785***	0.922***	0.135***	0.131***	0.128***	0.044	-0.148***
s.e.	(0.082)	(0.034)	(0.014)	(0.027)	(0.062)	(0.082)	(0.096)	(0.036)	(0.031)	(0.047)	(0.033)	(0.039)
Adjusted R^2	0.886	0.974	0.992	0.985	0.886	0.964	0.708	0.884	0.938	0.962	0.982	0.965
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)												
Intercept	-0.027	-0.012	-0.086***	0.059	0.255	0.202	0.791*	0.008	0.019	-0.001	-0.023	0.008
s.e.	(0.08)	(0.038)	(0.03)	(0.037)	(0.156)	(0.238)	(0.423)	(0.019)	(0.02)	(0.042)	(0.039)	(0.019)
Glo Corporate	0.773***	0.87***	1.001***	1.031***	1.295***	1.297***	1.493***	0.948***	0.993***	1.099***	1.085***	0.948***
s.e.	(0.048)	(0.025)	(0.01)	(0.018)	(0.095)	(0.111)	(0.139)	(0.012)	(0.015)	(0.037)	(0.027)	(0.012)
Spread Mat	0.157*	0.094***	0.129***	-0.04	-0.42***	-0.526***	-0.64***	-0.556***	-0.429***	-0.292***	-0.048*	0.444***
s.e.	(0.082)	(0.028)	(0.013)	(0.027)	(0.087)	(0.155)	(0.186)	(0.011)	(0.012)	(0.02)	(0.029)	(0.011)
Adjusted R^2	0.864	0.969	0.994	0.976	0.76	0.571	0.369	0.991	0.99	0.97	0.975	0.995
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)												
Intercept	-0.035	-0.011	0.002	0.035	0.15	-0.114	0.791	0.031	0.004	-0.037	-0.018	0.031
s.e.	(0.034)	(0.026)	(0.012)	(0.033)	(0.203)	(0.302)	(0.61)	(0.02)	(0.018)	(0.03)	(0.044)	(0.02)
Glo Corporate	1.019***	1.006***	1***	0.959***	0.968***	0.906***	1.017***	0.991***	1.011***	0.973***	0.988***	0.991***
s.e.	(0.016)	(0.009)	(0.007)	(0.026)	(0.173)	(0.166)	(0.281)	(0.008)	(0.007)	(0.026)	(0.022)	(0.008)
Spread Mat	-0.164***	-0.049***	0.097***	0.07**	-0.089	-0.009	-0.231	-0.572***	-0.408***	-0.229***	-0.03	0.428***
s.e.	(0.022)	(0.019)	(0.009)	(0.033)	(0.182)	(0.318)	(0.369)	(0.016)	(0.013)	(0.021)	(0.042)	(0.016)
Adjusted R^2	0.981	0.99	0.997	0.973	0.492	0.3	0.124	0.993	0.994	0.977	0.964	0.995
Panel I: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)												
Intercept	-0.101	-0.056	-0.161***	0.104*	0.45**	0.604*	0.94*	-0.026	0.027	0.069	0.004	-0.026
s.e.	(0.13)	(0.057)	(0.047)	(0.062)	(0.199)	(0.332)	(0.543)	(0.028)	(0.033)	(0.063)	(0.054)	(0.028)
Glo Corporate	0.662***	0.81***	0.998***	1.064***	1.431***	1.484***	1.688***	0.929***	0.987***	1.154***	1.126***	0.929***
s.e.	(0.046)	(0.023)	(0.012)	(0.018)	(0.086)	(0.11)	(0.135)	(0.014)	(0.021)	(0.04)	(0.03)	(0.014)
Spread Mat	0.308***	0.165***	0.146***	-0.092***	-0.573***	-0.785***	-0.834***	-0.544***	-0.436***	-0.332***	-0.065*	0.456***
s.e.	(0.088)	(0.029)	(0.017)	(0.034)	(0.074)	(0.148)	(0.201)	(0.014)	(0.016)	(0.024)	(0.037)	(0.014)
Adjusted R^2	0.851	0.971	0.993	0.981	0.87	0.726	0.517	0.991	0.988	0.975	0.982	0.995

Notes: This table shows the OLS coefficients of CAPM (Panels A-C) and multi-factor (Panels D-I) regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global and/or local excess returns , except in Panels H-I where the spread between excess returns in B and AAA rating categories and between >10 and 1< to <3 residual maturity ("Spread Mat") are employed. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. "Chi-Sq. Glo Fac" and "Chi-Sq. Loc Fac" in Panel F are the Chi-Square's P-value of the Wald test testing the joint significance of all global factors and all local factors, respectively. Sample period: February 1998 – August 2018.

Table 5f. CAPM and Multi-Factor Regressions with Global Factors: Canadian Dollar Portfolios

CAD	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Panel A: CAPM with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept	0.058	0.069	0.109	0.142	0.251	0.113		0.02	0.081	0.14	0.159	0.21
s.e.	(0.136)	(0.137)	(0.153)	(0.149)	(0.196)	(0.282)		(0.133)	(0.137)	(0.144)	(0.162)	(0.181)
Global	0.648***	0.641***	0.703***	0.718***	0.748***	0.908***		0.605***	0.65***	0.691***	0.736***	0.809***
s.e.	(0.082)	(0.076)	(0.09)	(0.088)	(0.104)	(0.098)		(0.071)	(0.072)	(0.082)	(0.091)	(0.117)
Adjusted R^2	0.441	0.411	0.429	0.445	0.353	0.257		0.393	0.423	0.438	0.435	0.412
Panel A: CAPM with sovereign and equity securities (Feb 98 - Jul 07)												
Intercept	0.308*	0.317*	0.348*	0.349*	0.309	0.387		0.281	0.31	0.352*	0.364*	0.411*
s.e.	(0.187)	(0.187)	(0.198)	(0.195)	(0.263)	(0.434)		(0.178)	(0.189)	(0.192)	(0.218)	(0.225)
Global	0.402***	0.42***	0.456***	0.476***	0.472***	0.797***		0.38***	0.438***	0.454***	0.486***	0.538***
s.e.	(0.08)	(0.08)	(0.087)	(0.08)	(0.111)	(0.15)		(0.068)	(0.079)	(0.083)	(0.094)	(0.105)
Adjusted R^2	0.239	0.252	0.256	0.297	0.220	0.227		0.247	0.271	0.271	0.267	0.250
Panel A: CAPM with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept	-0.174	-0.159	-0.115	-0.054	0.18	-0.13		-0.221	-0.132	-0.06	-0.036	0.017
s.e.	(0.145)	(0.161)	(0.178)	(0.181)	(0.252)	(0.359)		(0.157)	(0.162)	(0.171)	(0.188)	(0.228)
Global	0.873***	0.844***	0.929***	0.941***	1***	1.011***		0.811***	0.843***	0.908***	0.966***	1.057***
s.e.	(0.07)	(0.078)	(0.098)	(0.098)	(0.103)	(0.134)		(0.073)	(0.078)	(0.088)	(0.101)	(0.14)
Adjusted R^2	0.630	0.555	0.586	0.578	0.469	0.280		0.526	0.561	0.590	0.586	0.558
Panel B: CAPM with all securities (Feb 98 - Aug 18)												
Intercept	0.049	0.061	0.099	0.132	0.241	0.108		0.012	0.072	0.13	0.148	0.197
s.e.	(0.132)	(0.134)	(0.148)	(0.144)	(0.19)	(0.28)		(0.13)	(0.133)	(0.14)	(0.157)	(0.175)
Global	0.692***	0.684***	0.752***	0.767***	0.797***	0.949***		0.643***	0.692***	0.738***	0.788***	0.868***
s.e.	(0.083)	(0.077)	(0.092)	(0.09)	(0.108)	(0.105)		(0.073)	(0.074)	(0.083)	(0.094)	(0.119)
Adjusted R^2	0.459	0.427	0.448	0.463	0.366	0.256		0.406	0.439	0.457	0.455	0.433
Panel B: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	0.3	0.309*	0.339*	0.341*	0.303	0.382		0.275	0.302	0.344*	0.355*	0.401*
s.e.	(0.185)	(0.185)	(0.195)	(0.193)	(0.26)	(0.438)		(0.176)	(0.187)	(0.19)	(0.215)	(0.222)
Global	0.439***	0.458***	0.497***	0.517***	0.508***	0.837***		0.411***	0.476***	0.495***	0.53***	0.588***
s.e.	(0.084)	(0.085)	(0.092)	(0.085)	(0.12)	(0.161)		(0.073)	(0.085)	(0.088)	(0.099)	(0.112)
Adjusted R^2	0.254	0.267	0.272	0.312	0.227	0.223		0.258	0.286	0.287	0.284	0.267
Panel B: CAPM with all securities (Aug 07 - Aug 18)												
Intercept	-0.181	-0.165	-0.122	-0.062	0.172	-0.135		-0.227	-0.138	-0.067	0.093	0.007
s.e.	(0.14)	(0.155)	(0.17)	(0.173)	(0.243)	(0.351)		(0.153)	(0.156)	(0.164)	(0.179)	(0.218)
Global	0.913***	0.883***	0.975***	0.986***	1.049***	1.05***		0.847***	0.882***	0.951***	1.014***	1.112***
s.e.	(0.069)	(0.08)	(0.099)	(0.098)	(0.107)	(0.146)		(0.075)	(0.08)	(0.088)	(0.104)	(0.141)
Adjusted R^2	0.643	0.567	0.602	0.593	0.481	0.282		0.535	0.573	0.604	0.602	0.576
Panel C: CAPM with all securities (Feb 98 - Aug 18)												
Intercept	0.002	0.008	0.044	0.08	0.186	0.045		-0.039	0.021	0.078	0.093	0.142
s.e.	(0.082)	(0.077)	(0.087)	(0.083)	(0.137)	(0.235)		(0.074)	(0.077)	(0.081)	(0.093)	(0.118)
Global	-0.089	-0.189***	-0.146*	-0.105	-0.11	-0.093		-0.207***	-0.164**	-0.135*	-0.128*	-0.048
s.e.	(0.096)	(0.071)	(0.076)	(0.077)	(0.165)	(0.211)		(0.077)	(0.067)	(0.07)	(0.07)	(0.106)
Local	0.622***	0.695***	0.715***	0.695***	0.723***	0.83***		0.677***	0.682***	0.695***	0.729***	0.729***
s.e.	(0.051)	(0.047)	(0.05)	(0.049)	(0.097)	(0.124)		(0.054)	(0.048)	(0.046)	(0.051)	(0.062)
Adjusted R^2	0.777	0.804	0.795	0.789	0.622	0.423		0.792	0.804	0.804	0.788	0.694
Panel C: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	0.004	0.003	0.014	0.034	-0.032	0.068		-0.006	0.002	0.031	0.023	0.04
s.e.	(0.121)	(0.119)	(0.127)	(0.12)	(0.207)	(0.396)		(0.112)	(0.119)	(0.122)	(0.136)	(0.153)
Global	-0.273***	-0.277***	-0.284***	-0.222***	-0.297***	0.081		-0.266***	-0.245***	-0.256***	-0.269***	-0.279**
s.e.	(0.083)	(0.078)	(0.088)	(0.081)	(0.095)	(0.179)		(0.062)	(0.075)	(0.084)	(0.094)	(0.111)
Local	0.649***	0.67***	0.712***	0.673***	0.734***	0.689***		0.617***	0.658***	0.685***	0.728***	0.791***
s.e.	(0.064)	(0.062)	(0.066)	(0.062)	(0.091)	(0.123)		(0.055)	(0.063)	(0.066)	(0.075)	(0.077)
Adjusted R^2	0.687	0.710	0.706	0.721	0.596	0.335		0.710	0.709	0.714	0.699	0.642
Panel C: CAPM with all securities (Aug 07 - Aug 18)												
Intercept	-0.035	0.013	0.055	0.115	0.35*	0.112		-0.048	0.038	0.108	0.137	0.175
s.e.	(0.094)	(0.094)	(0.109)	(0.109)	(0.2)	(0.261)		(0.091)	(0.093)	(0.1)	(0.121)	(0.169)
Global	0.134	-0.073	0.023	0.039	0.09	-0.273		-0.114	-0.059	0.013	0.038	0.211
s.e.	(0.121)	(0.093)	(0.088)	(0.102)	(0.277)	(0.359)		(0.119)	(0.088)	(0.081)	(0.076)	(0.134)
Local	0.557***	0.684***	0.681***	0.678***	0.687***	0.946***		0.688***	0.674***	0.672***	0.698***	0.645***
s.e.	(0.069)	(0.067)	(0.067)	(0.067)	(0.16)	(0.2)		(0.083)	(0.067)	(0.06)	(0.067)	(0.081)
Adjusted R^2	0.852	0.863	0.857	0.838	0.660	0.481		0.844	0.864	0.867	0.851	0.744
Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept	-0.011	0.013	0.043	0.082	0.217	0.169		-0.021	0.027	0.076	0.091	0.122
s.e.	(0.126)	(0.128)	(0.142)	(0.141)	(0.184)	(0.249)		(0.126)	(0.129)	(0.135)	(0.15)	(0.172)
Glo Sovereign	0.509***	0.427***	0.492***	0.47***	0.321***	-0.105		0.327***	0.414***	0.48***	0.511***	0.654***
s.e.	(0.063)	(0.074)	(0.079)	(0.07)	(0.079)	(0.185)		(0.063)	(0.072)	(0.076)	(0.088)	(0.089)
Glo Equity	0.321***	0.337***	0.362***	0.374***	0.425***	0.597***		0.333***	0.344***	0.357***	0.38***	0.393***
s.e.	(0.045)	(0.042)	(0.052)	(0.05)	(0.054)	(0.05)		(0.039)	(0.04)	(0.046)	(0.054)	(0.069)
Adjusted R^2	0.499	0.454	0.475	0.482	0.379	0.325		0.429	0.465	0.486	0.480	0.463

Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Jul 07)

Intercept	0.249	0.259	0.285	0.294	0.276	0.415	0.238	0.254	0.291	0.301	0.336
s.e.	(0.177)	(0.179)	(0.188)	(0.19)	(0.256)	(0.392)	(0.175)	(0.183)	(0.184)	(0.209)	(0.216)
Glo Sovereign	0.533***	0.522***	0.57***	0.511***	0.322***	-0.142	0.397***	0.511***	0.562***	0.575***	0.674***
s.e.	(0.081)	(0.086)	(0.092)	(0.085)	(0.113)	(0.212)	(0.077)	(0.081)	(0.084)	(0.106)	(0.119)
Glo Equity	0.181***	0.195***	0.211***	0.236***	0.267***	0.57***	0.19***	0.211***	0.211***	0.231***	0.25***
s.e.	(0.041)	(0.042)	(0.047)	(0.047)	(0.065)	(0.088)	(0.037)	(0.045)	(0.044)	(0.056)	(0.059)
Adjusted R^2	0.382	0.376	0.386	0.391	0.229	0.283	0.316	0.382	0.403	0.381	0.379

Panel D: Multi-factor regression with sovereign and equity securities (Aug 07 - Aug 18)

Intercept	-0.224	-0.178	-0.145	-0.086	0.177	-0.047	-0.226	-0.148	-0.089	-0.072	-0.051
s.e.	(0.147)	(0.168)	(0.185)	(0.188)	(0.244)	(0.316)	(0.16)	(0.168)	(0.178)	(0.195)	(0.239)
Glo Sovereign	0.48***	0.331***	0.411***	0.424***	0.306***	-0.066	0.254***	0.316***	0.394***	0.441***	0.627***
s.e.	(0.091)	(0.101)	(0.114)	(0.104)	(0.095)	(0.305)	(0.085)	(0.099)	(0.11)	(0.132)	(0.132)
Glo Equity	0.414***	0.432***	0.464***	0.466***	0.53***	0.615***	0.429***	0.435***	0.456***	0.48***	0.487***
s.e.	(0.046)	(0.044)	(0.06)	(0.06)	(0.06)	(0.059)	(0.039)	(0.041)	(0.05)	(0.062)	(0.09)
Adjusted R^2	0.619	0.558	0.580	0.568	0.479	0.347	0.541	0.567	0.588	0.582	0.540

Panel E: Multi-factor regression with all securities (Feb 98 - Aug 18)

Intercept	-0.024	-0.001	0.026	0.066	0.198	0.156	-0.033	0.013	0.061	0.074	0.102
s.e.	(0.107)	(0.109)	(0.11)	(0.113)	(0.149)	(0.232)	(0.11)	(0.109)	(0.108)	(0.116)	(0.134)
Glo Sovereign	0.115	0.007	-0.038	-0.043	-0.3	-0.52***	-0.069	-0.018	-0.007	-0.04	0.019
s.e.	(0.088)	(0.105)	(0.112)	(0.109)	(0.187)	(0.179)	(0.1)	(0.104)	(0.108)	(0.112)	(0.129)
Glo Equity	0.178***	0.184***	0.169***	0.188***	0.2***	0.446***	0.189***	0.188***	0.181***	0.18***	0.162***
s.e.	(0.031)	(0.034)	(0.036)	(0.037)	(0.062)	(0.08)	(0.032)	(0.034)	(0.035)	(0.04)	(0.045)
Glo Corporate	0.736***	0.785***	0.993***	0.959***	1.16***	0.778***	0.74***	0.806***	0.91***	1.031***	1.187***
s.e.	(0.11)	(0.139)	(0.155)	(0.16)	(0.289)	(0.293)	(0.143)	(0.139)	(0.141)	(0.162)	(0.187)
Adjusted R^2	0.572	0.533	0.585	0.584	0.488	0.347	0.504	0.548	0.584	0.59	0.577

Panel E: Multi-factor regression with all securities (Feb 98 - Jul 07)

Intercept	0.213	0.217	0.226	0.231	0.186	0.286	0.205	0.204	0.239	0.232	0.248
s.e.	(0.165)	(0.164)	(0.17)	(0.167)	(0.213)	(0.374)	(0.163)	(0.163)	(0.165)	(0.187)	(0.196)
Glo Sovereign	0.224	0.157	0.068	-0.029	-0.46	-1.253***	0.108	0.081	0.114	-0.017	-0.092
s.e.	(0.149)	(0.156)	(0.161)	(0.151)	(0.309)	(0.348)	(0.158)	(0.164)	(0.168)	(0.143)	(0.176)
Glo Equity	0.148***	0.156***	0.157***	0.178***	0.183**	0.449***	0.159***	0.164***	0.162***	0.167***	0.167***
s.e.	(0.043)	(0.044)	(0.048)	(0.045)	(0.075)	(0.077)	(0.04)	(0.046)	(0.046)	(0.054)	(0.057)
Glo Corporate	0.546**	0.646**	0.89***	0.956***	1.384***	1.968***	0.511**	0.761***	0.794***	1.048***	1.355***
s.e.	(0.244)	(0.253)	(0.254)	(0.243)	(0.442)	(0.477)	(0.246)	(0.253)	(0.268)	(0.227)	(0.286)
Adjusted R^2	0.397	0.398	0.426	0.441	0.311	0.342	0.331	0.415	0.436	0.434	0.448

Panel E: Multi-factor regression with all securities (Aug 07 - Aug 18)

Intercept	-0.216*	-0.17	-0.134	-0.075	0.19	-0.039	-0.218	-0.139	-0.079	-0.06	-0.036
s.e.	(0.128)	(0.146)	(0.142)	(0.149)	(0.208)	(0.28)	(0.146)	(0.146)	(0.144)	(0.148)	(0.18)
Glo Sovereign	0.161	-0.004	-0.056	-0.033	-0.234	-0.422*	-0.061	-0.034	-0.021	-0.041	0.033
s.e.	(0.115)	(0.148)	(0.149)	(0.156)	(0.25)	(0.244)	(0.139)	(0.142)	(0.149)	(0.153)	(0.169)
Glo Equity	0.232***	0.241***	0.196***	0.205***	0.221**	0.411**	0.249***	0.236***	0.219***	0.204***	0.148**
s.e.	(0.044)	(0.056)	(0.057)	(0.068)	(0.109)	(0.163)	(0.056)	(0.055)	(0.057)	(0.058)	(0.075)
Glo Corporate	0.644***	0.676***	0.945***	0.922***	1.091***	0.72	0.637***	0.706***	0.839***	0.975***	1.2***
s.e.	(0.132)	(0.205)	(0.215)	(0.237)	(0.418)	(0.489)	(0.221)	(0.204)	(0.202)	(0.219)	(0.238)
Adjusted R^2	0.666	0.606	0.663	0.644	0.555	0.362	0.584	0.62	0.657	0.665	0.64

Panel F: Multi-factor regression with all securities (Feb 98 - Aug 18)

Intercept	-0.055*	-0.034*	-0.007	0.035*	0.172*	0.111	-0.065*	-0.02	0.027**	0.038	0.071
s.e.	(0.029)	(0.018)	(0.016)	(0.021)	(0.09)	(0.194)	(0.035)	(0.024)	(0.014)	(0.026)	(0.061)
Glo Sovereign	0.035	0.056***	-0.03	-0.014	-0.054	-0.09	0.11***	0.075***	0.007	-0.058	-0.193***
s.e.	(0.049)	(0.02)	(0.019)	(0.02)	(0.124)	(0.241)	(0.036)	(0.028)	(0.02)	(0.041)	(0.064)
Glo Equity	0.003	-0.001	-0.018**	0.023*	0.078	0.184*	0.012	0.006	-0.008	-0.019	-0.006
s.e.	(0.016)	(0.01)	(0.009)	(0.012)	(0.117)	(0.099)	(0.019)	(0.01)	(0.01)	(0.013)	(0.024)
Glo Corporate	-0.003	-0.132***	0.088**	0.024	0.032	-0.373	-0.228***	-0.118***	0.033	0.138**	0.343***
s.e.	(0.097)	(0.032)	(0.039)	(0.033)	(0.188)	(0.415)	(0.053)	(0.038)	(0.025)	(0.055)	(0.097)
Loc Sovereign	0.205***	-0.05	0.03	-0.025	-0.48***	-0.758**	-0.308***	-0.138**	0.023	0.087	0.447***
s.e.	(0.076)	(0.043)	(0.041)	(0.04)	(0.14)	(0.31)	(0.088)	(0.055)	(0.025)	(0.088)	(0.138)
Loc Equity	0.014	0.007	0.006	-0.023**	-0.076	0.106	0.009	0.009	0.015	0.017	-0.04
s.e.	(0.015)	(0.009)	(0.009)	(0.011)	(0.107)	(0.105)	(0.021)	(0.01)	(0.009)	(0.018)	(0.024)
Loc Corporate	0.696***	1.031***	0.976***	1.055***	1.539***	1.603***	1.223***	1.084***	0.944***	0.926***	0.717***
s.e.	(0.096)	(0.044)	(0.044)	(0.034)	(0.112)	(0.442)	(0.085)	(0.056)	(0.028)	(0.085)	(0.141)
Adjusted R^2	0.971	0.988	0.995	0.989	0.794	0.505	0.956	0.983	0.993	0.981	0.929
Chi-Sq. Glo Fac	0.598	0.000	0.132	0.043	0.536	0.213	0.000	0.011	0.185	0.005	0.003
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Panel F: Multi-factor regression with all securities (Feb 98 - Jul 07)

Intercept	0.004	0.002	-0.002	0.02	-0.037	0.091	0.011	-0.002	0.017	-0.002	-0.006
s.e.	(0.026)	(0.019)	(0.013)	(0.032)	(0.131)	(0.338)	(0.045)	(0.026)	(0.016)	(0.044)	(0.063)
Glo Sovereign	0.239***	0.143***	-0.023*	-0.026	-0.218	-0.99***	0.268***	0.133***	0.062	-0.118*	-0.384***
s.e.	(0.04)	(0.033)	(0.013)	(0.04)	(0.194)	(0.384)	(0.054)	(0.048)	(0.042)	(0.065)	(0.068)
Glo Equity	-0.024*	-0.014	-0.001	0.016	-0.063	0.264	-0.04**	-0.009	-0.01	0.006	0.053*
s.e.	(0.015)	(0.009)	(0.005)	(0.014)	(0.054)	(0.173)	(0.018)	(0.013)	(0.008)	(0.013)	(0.028)

Glo Corporate	-0.319***	-0.222***	0.026*	0.064	0.274	0.828*	-0.414***	-0.147***	-0.048	0.171**	0.527***
s.e.	(0.063)	(0.063)	(0.015)	(0.064)	(0.326)	(0.484)	(0.077)	(0.054)	(0.057)	(0.075)	(0.096)
Loc Sovereign	-0.15**	-0.068*	0.152***	-0.125**	-0.826***	-0.914	-0.572***	-0.264***	0.047	0.178***	0.724***
s.e.	(0.075)	(0.04)	(0.018)	(0.055)	(0.255)	(0.655)	(0.077)	(0.05)	(0.034)	(0.049)	(0.13)
Loc Equity	0.015	0.01	-0.004	-0.002	0.056	-0.011	0.038**	0.01	0.017*	-0.005	-0.053*
s.e.	(0.016)	(0.008)	(0.006)	(0.01)	(0.053)	(0.169)	(0.017)	(0.013)	(0.009)	(0.015)	(0.029)
Loc Corporate	1.089***	1.034***	0.871***	1.11***	1.852***	1.988***	1.461***	1.225***	0.914***	0.867***	0.428***
s.e.	(0.083)	(0.04)	(0.021)	(0.064)	(0.232)	(0.58)	(0.083)	(0.054)	(0.039)	(0.057)	(0.138)
Adjusted R^2	0.981	0.991	0.998	0.986	0.803	0.500	0.958	0.985	0.992	0.982	0.952
Chi-Sq. Glo Fac	0.000	0.000	0.283	0.278	0.440	0.044	0.000	0.042	0.177	0.058	0.000
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Aug 07 - Aug 18)											
Intercept	-0.082*	-0.049	-0.015	0.052**	0.259	0.01	-0.116**	-0.028	0.043*	0.067*	0.117
s.e.	(0.043)	(0.03)	(0.026)	(0.025)	(0.159)	(0.191)	(0.048)	(0.038)	(0.023)	(0.037)	(0.091)
Glo Sovereign	0.001	0.03	-0.015	-0.048	0.046	0.307	0.084	0.046	-0.012	-0.025	-0.162
s.e.	(0.046)	(0.034)	(0.028)	(0.031)	(0.203)	(0.341)	(0.056)	(0.044)	(0.025)	(0.067)	(0.11)
Glo Equity	0.003	0.016	-0.022*	0.006	0.144	0.12	0.043*	0.019	-0.004	-0.035**	-0.058
s.e.	(0.022)	(0.015)	(0.013)	(0.012)	(0.184)	(0.156)	(0.022)	(0.016)	(0.015)	(0.016)	(0.038)
Glo Corporate	0.044	-0.16***	0.103**	0.058	0.02	-0.488	-0.246***	-0.129**	0.035	0.147	0.408***
s.e.	(0.099)	(0.046)	(0.051)	(0.038)	(0.262)	(0.612)	(0.076)	(0.054)	(0.034)	(0.091)	(0.135)
Loc Sovereign	0.345***	-0.005	-0.024	0.034	-0.591***	-1.063***	-0.202*	-0.083	0.038	0.04	0.328*
s.e.	(0.065)	(0.062)	(0.051)	(0.058)	(0.162)	(0.326)	(0.103)	(0.076)	(0.036)	(0.117)	(0.197)
Loc Equity	0.045**	0.016	0.007	-0.044***	-0.188	0.186	0.008	0.018	0.017	0.033	-0.064
s.e.	(0.02)	(0.016)	(0.016)	(0.013)	(0.177)	(0.158)	(0.037)	(0.018)	(0.015)	(0.033)	(0.045)
Loc Corporate	0.529***	0.987***	1.01***	1.061***	1.71***	1.717***	1.134***	1.017***	0.929***	0.942***	0.87***
s.e.	(0.089)	(0.063)	(0.057)	(0.041)	(0.261)	(0.512)	(0.102)	(0.073)	(0.042)	(0.104)	(0.189)
Adjusted R^2	0.974	0.989	0.995	0.992	0.806	0.531	0.960	0.983	0.994	0.980	0.923
Chi-Sq. Glo Fac	0.821	0.002	0.099	0.115	0.312	0.790	0.002	0.120	0.781	0.003	0.027
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Panel G: Multi-factor regression with all securities (Feb 98 - Aug 18)											
Intercept	-0.05*	-0.039*	-0.004	0.037*	0.173*	0.076	-0.072*	-0.021	0.03**	0.043	0.079
s.e.	(0.028)	(0.022)	(0.018)	(0.021)	(0.092)	(0.2)	(0.041)	(0.027)	(0.014)	(0.031)	(0.07)
Loc Sovereign	0.246***	-0.006	0.011	-0.04	-0.546***	-0.95***	-0.217***	-0.068	0.038*	0.043	0.274**
s.e.	(0.051)	(0.038)	(0.036)	(0.032)	(0.164)	(0.294)	(0.068)	(0.046)	(0.021)	(0.06)	(0.112)
Loc Equity	0.013	0.003	-0.006	-0.004	-0.012	0.259***	0.011	0.008	0.007*	0.006	-0.03
s.e.	(0.011)	(0.009)	(0.007)	(0.009)	(0.037)	(0.079)	(0.013)	(0.008)	(0.004)	(0.013)	(0.022)
Loc Corporate	0.672***	0.953***	1.026***	1.069***	1.574***	1.523***	1.077***	0.997***	0.951***	1.01***	0.952***
s.e.	(0.06)	(0.047)	(0.045)	(0.029)	(0.126)	(0.401)	(0.079)	(0.055)	(0.022)	(0.067)	(0.138)
Adjusted R^2	0.971	0.995	0.995	0.988	0.793	0.497	0.951	0.982	0.993	0.980	0.923
Panel G: Multi-factor regression with all securities (Feb 98 - Jul 07)											
Intercept	-0.006	-0.006	-0.001	0.02	-0.015	0.087	-0.001	-0.007	0.016	0.005	0.009
s.e.	(0.029)	(0.021)	(0.012)	(0.034)	(0.132)	(0.342)	(0.047)	(0.025)	(0.014)	(0.041)	(0.064)
Loc Sovereign	0.053	0.036	0.131***	-0.139**	-0.973***	-2.098***	-0.366***	-0.138*	0.12**	0.088	0.397**
s.e.	(0.093)	(0.052)	(0.021)	(0.07)	(0.204)	(0.555)	(0.109)	(0.079)	(0.056)	(0.098)	(0.154)
Loc Equity	-0.012	-0.004	-0.004	0.01	0.017	0.238***	0	-0.003	0.005	0.004	0
s.e.	(0.01)	(0.007)	(0.003)	(0.01)	(0.033)	(0.07)	(0.01)	(0.006)	(0.004)	(0.011)	(0.014)
Loc Corporate	0.886***	0.918***	0.891***	1.13***	2.022***	2.94***	1.24***	1.109***	0.855***	0.963***	0.754***
s.e.	(0.116)	(0.068)	(0.027)	(0.084)	(0.226)	(0.6)	(0.131)	(0.086)	(0.064)	(0.103)	(0.18)
Adjusted R^2	0.973	0.988	0.998	0.986	0.802	0.466	0.944	0.983	0.991	0.981	0.939
Panel G: Multi-factor regression with all securities (Aug 07 - Aug 18)											
Intercept	-0.073*	-0.065*	-0.006	0.053**	0.314**	0.031	-0.127**	-0.034	0.046**	0.077*	0.134
s.e.	(0.039)	(0.034)	(0.028)	(0.026)	(0.122)	(0.246)	(0.06)	(0.04)	(0.021)	(0.045)	(0.106)
Loc Sovereign	0.36***	-0.009	-0.019	-0.006	-0.495***	-0.801**	-0.16*	-0.059	0.033	0.042	0.233
s.e.	(0.055)	(0.052)	(0.042)	(0.038)	(0.176)	(0.365)	(0.082)	(0.055)	(0.023)	(0.074)	(0.145)
Loc Equity	0.049***	0.017	-0.003	-0.031***	-0.079	0.221	0.02	0.022	0.017*	0.015	-0.071
s.e.	(0.014)	(0.019)	(0.017)	(0.01)	(0.069)	(0.143)	(0.031)	(0.019)	(0.009)	(0.026)	(0.051)
Loc Corporate	0.535***	0.932***	1.046***	1.099***	1.634***	1.394**	1.021***	0.957***	0.944***	0.998***	1.066***
s.e.	(0.061)	(0.069)	(0.059)	(0.036)	(0.102)	(0.549)	(0.099)	(0.07)	(0.028)	(0.088)	(0.183)
Adjusted R^2	0.974	0.986	0.994	0.992	0.801	0.536	0.956	0.982	0.994	0.979	0.915
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)											
Intercept	-0.031	-0.038*	-0.003	0.034	0.129	-0.031	-0.083**	-0.024	0.034**	0.045	0.092
s.e.	(0.025)	(0.02)	(0.017)	(0.021)	(0.088)	(0.025)	(0.04)	(0.025)	(0.013)	(0.029)	(0.066)
Glo Corporate	0.926***	0.954***	1.028***	1.026***	1.036***	0.926***	0.896***	0.948***	0.997***	1.057***	1.158***
s.e.	(0.02)	(0.01)	(0.009)	(0.014)	(0.037)	(0.02)	(0.018)	(0.014)	(0.006)	(0.013)	(0.037)
Spread B-AAA	-0.054***	-0.01	-0.011**	0.003	0.144***	0.946***	0.008	0.003	-0.005	0.014	-0.025
s.e.	(0.015)	(0.007)	(0.005)	(0.007)	(0.026)	(0.015)	(0.009)	(0.008)	(0.006)	(0.012)	(0.018)
Adjusted R^2	0.969	0.987	0.995	0.988	0.795	0.991	0.943	0.981	0.993	0.98	0.913
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)											
Intercept	-0.002	-0.002	0.001	0.021	-0.037	-0.002	-0.002	-0.007	0.021	0.003	0.009
s.e.	(0.025)	(0.018)	(0.014)	(0.036)	(0.134)	(0.025)	(0.051)	(0.027)	(0.015)	(0.04)	(0.067)
Glo Corporate	0.93***	0.954***	1.029***	0.993***	0.978***	0.93***	0.844***	0.955***	0.995***	1.063***	1.184***

s.e.	(0.012)	(0.01)	(0.006)	(0.015)	(0.063)	(0.012)	(0.019)	(0.012)	(0.009)	(0.014)	(0.028)
Spread B-AAA	-0.048***	-0.031***	-0.014***	0.011	0.125***	0.952***	-0.009	-0.015	-0.013	0.022	0.017
s.e.	(0.009)	(0.006)	(0.004)	(0.013)	(0.028)	(0.009)	(0.01)	(0.011)	(0.012)	(0.019)	(0.014)
Adjusted R^2	0.98	0.991	0.997	0.984	0.772	0.995	0.93	0.982	0.991	0.982	0.932
Panel H: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)											
Intercept	-0.057	-0.067**	-0.007	0.054**	0.29**	-0.057	-0.135**	-0.038	0.046**	0.078*	0.149
s.e.	(0.044)	(0.033)	(0.029)	(0.025)	(0.112)	(0.044)	(0.06)	(0.04)	(0.02)	(0.043)	(0.105)
Glo Corporate	0.923***	0.951***	1.027***	1.044***	1.066***	0.923***	0.918***	0.941***	0.998***	1.056***	1.152***
s.e.	(0.03)	(0.014)	(0.013)	(0.016)	(0.041)	(0.03)	(0.026)	(0.018)	(0.008)	(0.019)	(0.056)
Spread B-AAA	-0.06**	0.01	-0.008	-0.005	0.16***	0.94***	0.023	0.019**	0.003	0.007	-0.062**
s.e.	(0.029)	(0.008)	(0.007)	(0.007)	(0.04)	(0.029)	(0.016)	(0.009)	(0.003)	(0.017)	(0.031)
Adjusted R^2	0.964	0.986	0.994	0.991	0.81	0.988	0.951	0.981	0.993	0.979	0.907
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)											
Intercept	-0.027	-0.012	-0.019	0.026	0.179*	0.102	-0.018*	0.012	0.042***	0.021	-0.018*
s.e.	(0.031)	(0.013)	(0.013)	(0.021)	(0.103)	(0.261)	(0.01)	(0.011)	(0.012)	(0.023)	(0.01)
Glo Corporate	0.931***	0.993***	1.005***	1.012***	1.112***	1.136***	0.994***	1.001***	1.01***	1.021***	0.994***
s.e.	(0.017)	(0.005)	(0.006)	(0.011)	(0.03)	(0.078)	(0.006)	(0.006)	(0.007)	(0.014)	(0.006)
Spread Mat	-0.052	-0.158***	0.083***	0.054***	-0.211***	-0.257**	-0.377***	-0.206***	-0.05***	0.149***	0.623***
s.e.	(0.032)	(0.01)	(0.009)	(0.017)	(0.063)	(0.117)	(0.009)	(0.009)	(0.012)	(0.014)	(0.009)
Adjusted R^2	0.964	0.995	0.997	0.989	0.777	0.393	0.996	0.996	0.993	0.986	0.998
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)											
Intercept	-0.007	-0.005	-0.003	0.024	-0.012	0.159	0.003	-0.006	0.02	0.005	0.003
s.e.	(0.025)	(0.02)	(0.012)	(0.035)	(0.149)	(0.431)	(0.011)	(0.015)	(0.016)	(0.036)	(0.011)
Glo Corporate	0.997***	0.995***	1.001***	1.004***	1.069***	0.984***	0.985***	1.02***	1.012***	1.016***	0.985***
s.e.	(0.01)	(0.008)	(0.005)	(0.015)	(0.066)	(0.128)	(0.006)	(0.009)	(0.012)	(0.014)	(0.006)
Spread Mat	-0.204***	-0.129***	0.078***	-0.031	-0.235***	0.06	-0.415***	-0.19***	-0.055***	0.141***	0.585***
s.e.	(0.021)	(0.02)	(0.009)	(0.025)	(0.08)	(0.251)	(0.009)	(0.021)	(0.019)	(0.018)	(0.009)
Adjusted R^2	0.987	0.993	0.998	0.984	0.75	0.264	0.997	0.993	0.991	0.986	0.998
Panel I: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)											
Intercept	-0.064	-0.018	-0.031	0.027	0.355***	0.099	-0.035***	0.024*	0.06***	0.035	-0.035***
s.e.	(0.051)	(0.017)	(0.022)	(0.023)	(0.137)	(0.322)	(0.013)	(0.013)	(0.017)	(0.032)	(0.013)
Glo Corporate	0.909***	0.99***	1.007***	1.022***	1.14***	1.185***	1***	0.992***	1.009***	1.024***	1***
s.e.	(0.024)	(0.006)	(0.009)	(0.01)	(0.029)	(0.098)	(0.006)	(0.004)	(0.009)	(0.018)	(0.006)
Spread Mat	0.014	-0.172***	0.088***	0.097***	-0.203**	-0.387***	-0.355***	-0.217***	-0.05***	0.152***	0.645***
s.e.	(0.042)	(0.01)	(0.013)	(0.017)	(0.082)	(0.112)	(0.01)	(0.007)	(0.015)	(0.017)	(0.01)
Adjusted R^2	0.957	0.996	0.996	0.994	0.793	0.48	0.996	0.998	0.994	0.985	0.998

Notes: This table shows the OLS coefficients of CAPM (Panels A-C) and multi-factor (Panels D-I) regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global and/or local excess returns , except in Panels H-I where the spread between excess returns in B and AAA rating categories and between >10 and 1< to <3 residual maturity ("Spread Mat") are employed. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. "Chi-Sq. Glo Fac" and "Chi-Sq. Loc Fac" in Panel F are the Chi-Square's P-value of the Wald test testing the joint significance of all global factors and all local factors, respectively. Sample period: February 1998 – August 2018.

Table 5g. CAPM and Multi-Factor Regressions with Global Factors: Australian Dollar Portfolios

AUD	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Panel A: CAPM with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept		0.051	0.065	0.127				0.028	0.086	0.122	0.158	0.207
s.e.		(0.175)	(0.177)	(0.178)				(0.177)	(0.177)	(0.178)	(0.185)	(0.212)
Global		0.951***	0.97***	0.97***				0.948***	0.955***	0.985***	0.972***	1***
s.e.		(0.083)	(0.087)	(0.091)				(0.085)	(0.086)	(0.091)	(0.086)	(0.132)
Adjusted R^2		0.502	0.507	0.497				0.497	0.499	0.504	0.477	0.431
Panel A: CAPM with sovereign and equity securities (Feb 98 - Jul 07)												
Intercept		0.171	0.188	0.206				0.168	0.183	0.19	0.221	0.741**
s.e.		(0.247)	(0.247)	(0.252)				(0.244)	(0.254)	(0.263)	(0.272)	(0.333)
Global		0.714***	0.711***	0.716***				0.701***	0.717***	0.733***	0.755***	0.735***
s.e.		(0.1)	(0.099)	(0.098)				(0.093)	(0.104)	(0.117)	(0.127)	(0.137)
Adjusted R^2		0.375	0.370	0.365				0.375	0.361	0.348	0.337	0.268
Panel A: CAPM with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept		-0.07	-0.059	0.04				-0.11	-0.014	0.046	0.088	-0.146
s.e.		(0.229)	(0.224)	(0.227)				(0.236)	(0.224)	(0.214)	(0.226)	(0.234)
Global		1.168***	1.206***	1.201***				1.174***	1.173***	1.215***	1.17***	1.156***
s.e.		(0.084)	(0.085)	(0.093)				(0.089)	(0.085)	(0.077)	(0.082)	(0.142)
Adjusted R^2		0.614	0.628	0.613				0.606	0.621	0.645	0.603	0.536
Panel B: CAPM with all securities (Feb 98 - Aug 18)												
Intercept		0.039	0.052	0.114				0.016	0.073	0.108	0.143	0.188
s.e.		(0.169)	(0.171)	(0.171)				(0.172)	(0.17)	(0.171)	(0.179)	(0.205)
Global		1.013***	1.035***	1.035***				1.009***	1.02***	1.053***	1.042***	1.08***
s.e.		(0.083)	(0.087)	(0.091)				(0.086)	(0.086)	(0.09)	(0.086)	(0.13)
Adjusted R^2		0.521	0.527	0.517				0.515	0.520	0.526	0.500	0.459
Panel B: CAPM with all securities (Feb 98 - Jul 07)												
Intercept		0.16	0.177	0.194				0.158	0.171	0.177	0.207	0.715**
s.e.		(0.242)	(0.241)	(0.246)				(0.239)	(0.248)	(0.256)	(0.266)	(0.327)
Global		0.772***	0.77***	0.775***				0.756***	0.777***	0.798***	0.824***	0.828***
s.e.		(0.105)	(0.104)	(0.104)				(0.098)	(0.109)	(0.123)	(0.134)	(0.141)
Adjusted R^2		0.391	0.386	0.382				0.389	0.379	0.368	0.359	0.301
Panel B: CAPM with all securities (Aug 07 - Aug 18)												
Intercept		-0.079	-0.07	0.029				-0.12	-0.024	0.035	0.112	-0.156
s.e.		(0.222)	(0.215)	(0.218)				(0.228)	(0.216)	(0.206)	(0.218)	(0.228)
Global		1.224***	1.266***	1.262***				1.231***	1.231***	1.276***	1.232***	1.219***
s.e.		(0.083)	(0.083)	(0.09)				(0.087)	(0.082)	(0.073)	(0.081)	(0.139)
Adjusted R^2		0.630	0.647	0.632				0.622	0.639	0.664	0.624	0.556
Panel C: CAPM with all securities (Feb 98 - Aug 18)												
Intercept		0.002	0.016	0.077				-0.021	0.038	0.074	0.112	0.121
s.e.		(0.112)	(0.108)	(0.113)				(0.111)	(0.114)	(0.121)	(0.139)	(0.174)
Global		-0.053	-0.026	-0.03				-0.074	-0.029	0.043	0.116	0.332
s.e.		(0.085)	(0.093)	(0.096)				(0.085)	(0.091)	(0.116)	(0.133)	(0.263)
Local		0.612***	0.609***	0.612***				0.622***	0.602***	0.58***	0.532***	0.409***
s.e.		(0.037)	(0.04)	(0.041)				(0.036)	(0.039)	(0.049)	(0.066)	(0.103)
Adjusted R^2		0.779	0.776	0.763				0.781	0.766	0.743	0.676	0.541
Panel C: CAPM with all securities (Feb 98 - Jul 07)												
Intercept		-0.157	-0.141	-0.125				-0.16	-0.147	-0.144	-0.112	0.259
s.e.		(0.167)	(0.167)	(0.172)				(0.163)	(0.175)	(0.185)	(0.197)	(0.307)
Global		-0.113	-0.117	-0.116				-0.132	-0.11	-0.097	-0.067	0.146
s.e.		(0.09)	(0.087)	(0.088)				(0.08)	(0.096)	(0.113)	(0.135)	(0.293)
Local		0.631***	0.632***	0.635***				0.633***	0.632***	0.637***	0.635***	0.472***
s.e.		(0.039)	(0.039)	(0.039)				(0.035)	(0.044)	(0.051)	(0.061)	(0.148)
Adjusted R^2		0.714	0.709	0.699				0.727	0.690	0.658	0.621	0.376
Panel C: CAPM with all securities (Aug 07 - Aug 18)												
Intercept		0.123	0.126	0.228				0.086	0.171	0.212	0.226	-0.031
s.e.		(0.152)	(0.142)	(0.149)				(0.156)	(0.147)	(0.151)	(0.2)	(0.203)
Global		0.015	0.094	0.074				-0.002	0.065	0.218	0.335	0.513
s.e.		(0.146)	(0.16)	(0.172)				(0.155)	(0.151)	(0.187)	(0.206)	(0.374)
Local		0.593***	0.575***	0.583***				0.605***	0.572***	0.519***	0.44***	0.346**
s.e.		(0.061)	(0.068)	(0.072)				(0.063)	(0.062)	(0.078)	(0.102)	(0.139)
Adjusted R^2		0.816	0.814	0.801				0.810	0.812	0.801	0.722	0.611
Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept		-0.051	-0.037	0.024				-0.065	-0.021	-0.002	0.021	-0.025
s.e.		(0.161)	(0.164)	(0.165)				(0.166)	(0.162)	(0.158)	(0.158)	(0.176)
Glo Sovereign		0.746***	0.756***	0.758***				0.701***	0.782***	0.884***	0.954***	1.205***
s.e.		(0.07)	(0.073)	(0.075)				(0.069)	(0.074)	(0.073)	(0.09)	(0.094)
Glo Equity		0.471***	0.481***	0.48***				0.477***	0.466***	0.465***	0.441***	0.4***
s.e.		(0.043)	(0.045)	(0.047)				(0.044)	(0.045)	(0.046)	(0.045)	(0.064)
Adjusted R^2		0.567	0.571	0.559				0.552	0.572	0.598	0.589	0.610

Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Jul 07)									
Intercept	0.089	0.105	0.122		0.094	0.093	0.089	0.11	0.417**
s.e.	(0.216)	(0.216)	(0.221)		(0.219)	(0.216)	(0.213)	(0.216)	(0.186)
Glo Sovereign	0.765***	0.775***	0.775***		0.7***	0.831***	0.925***	1.01***	1.312***
s.e.	(0.095)	(0.097)	(0.101)		(0.094)	(0.097)	(0.101)	(0.111)	(0.115)
Glo Equity	0.351***	0.348***	0.351***		0.354***	0.342***	0.336***	0.337***	0.292***
s.e.	(0.062)	(0.062)	(0.062)		(0.059)	(0.065)	(0.071)	(0.077)	(0.058)
Adjusted R^2	0.490	0.490	0.481		0.465	0.505	0.528	0.546	0.678
Panel D: Multi-factor regression with sovereign and equity securities (Aug 07 - Aug 18)									
Intercept	-0.161	-0.148	-0.049		-0.195	-0.105	-0.067	-0.041	-0.315
s.e.	(0.23)	(0.228)	(0.232)		(0.237)	(0.228)	(0.217)	(0.216)	(0.237)
Glo Sovereign	0.721***	0.729***	0.731***		0.695***	0.728***	0.836***	0.895***	1.114***
s.e.	(0.099)	(0.101)	(0.106)		(0.097)	(0.102)	(0.095)	(0.131)	(0.134)
Glo Equity	0.55***	0.569***	0.565***		0.559***	0.549***	0.55***	0.511***	0.452***
s.e.	(0.042)	(0.043)	(0.049)		(0.045)	(0.043)	(0.042)	(0.044)	(0.076)
Adjusted R^2	0.630	0.639	0.622		0.618	0.633	0.664	0.633	0.597
Panel E: Multi-factor regression with all securities (Feb 98 - Aug 18)									
Intercept	-0.066	-0.055	0.006		-0.081	-0.038	-0.019	0.004	-0.067
s.e.	(0.135)	(0.13)	(0.132)		(0.139)	(0.131)	(0.127)	(0.13)	(0.145)
Glo Sovereign	0.26**	0.19*	0.183		0.203*	0.258**	0.347***	0.396***	0.629***
s.e.	(0.111)	(0.113)	(0.115)		(0.108)	(0.114)	(0.121)	(0.137)	(0.158)
Glo Equity	0.294***	0.275***	0.271***		0.296***	0.276***	0.269***	0.238***	0.169***
s.e.	(0.051)	(0.051)	(0.052)		(0.049)	(0.052)	(0.056)	(0.062)	(0.048)
Glo Corporate	0.909***	1.058***	1.074***		0.931***	0.981***	1.005***	1.045***	1.041***
s.e.	(0.149)	(0.15)	(0.153)		(0.144)	(0.151)	(0.163)	(0.182)	(0.254)
Adjusted R^2	0.625	0.649	0.637		0.613	0.639	0.665	0.66	0.676
Panel E: Multi-factor regression with all securities (Feb 98 - Jul 07)									
Intercept	0.037	0.051	0.064		0.042	0.038	0.029	0.042	0.325*
s.e.	(0.204)	(0.202)	(0.205)		(0.209)	(0.201)	(0.195)	(0.196)	(0.183)
Glo Sovereign	0.312	0.309	0.269		0.254	0.357	0.406	0.422	0.844**
s.e.	(0.276)	(0.273)	(0.272)		(0.268)	(0.271)	(0.296)	(0.317)	(0.34)
Glo Equity	0.302***	0.297***	0.296***		0.306***	0.29***	0.28***	0.273***	0.231***
s.e.	(0.077)	(0.077)	(0.077)		(0.073)	(0.079)	(0.087)	(0.092)	(0.07)
Glo Corporate	0.802*	0.825**	0.897**		0.789*	0.838**	0.92**	1.04**	0.744
s.e.	(0.414)	(0.403)	(0.405)		(0.405)	(0.402)	(0.432)	(0.46)	(0.458)
Adjusted R^2	0.507	0.508	0.503		0.482	0.523	0.549	0.571	0.687
Panel E: Multi-factor regression with all securities (Aug 07 - Aug 18)									
Intercept	-0.149	-0.134	-0.035		-0.183	-0.092	-0.054	-0.027	-0.306
s.e.	(0.192)	(0.179)	(0.184)		(0.198)	(0.185)	(0.183)	(0.183)	(0.205)
Glo Sovereign	0.252**	0.156	0.147		0.208*	0.214*	0.318**	0.319**	0.565***
s.e.	(0.124)	(0.123)	(0.133)		(0.124)	(0.125)	(0.125)	(0.154)	(0.179)
Glo Equity	0.282***	0.242***	0.231***		0.28***	0.256***	0.255***	0.181***	0.127*
s.e.	(0.063)	(0.06)	(0.062)		(0.065)	(0.059)	(0.056)	(0.067)	(0.072)
Glo Corporate	0.948***	1.158***	1.182***		0.985***	1.039***	1.046***	1.165***	1.136***
s.e.	(0.168)	(0.165)	(0.17)		(0.166)	(0.162)	(0.168)	(0.199)	(0.318)
Adjusted R^2	0.685	0.719	0.705		0.676	0.7	0.73	0.716	0.672
Panel F: Multi-factor regression with all securities (Feb 98 - Aug 18)									
Intercept	-0.01	0.002	0.066***		-0.025*	0.02*	0.039	0.063	-0.054
s.e.	(0.01)	(0.017)	(0.021)		(0.013)	(0.011)	(0.031)	(0.064)	(0.087)
Glo Sovereign	0.029***	-0.048***	-0.062***		0.045***	-0.031**	-0.069***	-0.185***	-0.135*
s.e.	(0.008)	(0.019)	(0.023)		(0.011)	(0.013)	(0.027)	(0.065)	(0.074)
Glo Equity	0.002	-0.001	0		0.003	-0.003	0.001	0.002	-0.018
s.e.	(0.003)	(0.009)	(0.009)		(0.005)	(0.005)	(0.014)	(0.028)	(0.043)
Glo Corporate	-0.066***	0.108***	0.104***		-0.094***	0.046***	0.167***	0.356**	0.378**
s.e.	(0.016)	(0.035)	(0.033)		(0.017)	(0.016)	(0.033)	(0.145)	(0.16)
Loc Sovereign	-0.024***	-0.013	-0.019		-0.149***	0.066***	0.284***	0.564***	0.793***
s.e.	(0.008)	(0.015)	(0.022)		(0.016)	(0.013)	(0.032)	(0.053)	(0.119)
Loc Equity	0.009	-0.005	-0.022*		0.008	-0.007	-0.013	-0.04	-0.093**
s.e.	(0.006)	(0.009)	(0.012)		(0.005)	(0.004)	(0.01)	(0.044)	(0.045)
Loc Corporate	1.021***	1.003***	1.047***		1.149***	0.941***	0.717***	0.42***	0.273**
s.e.	(0.009)	(0.017)	(0.023)		(0.013)	(0.011)	(0.026)	(0.054)	(0.139)
Adjusted R^2	0.999	0.996	0.992		0.997	0.998	0.989	0.947	0.921
Chi-Sq. Glo Fac	0.000	0.016	0.014		0.000	0.022	0.000	0.045	0.109
Chi-Sq. Loc Fac	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Feb 98 - Jul 07)									
Intercept	-0.004	0.011	0.032		-0.001	0.001	-0.008	0.008	0.008
s.e.	(0.008)	(0.008)	(0.02)		(0.013)	(0.012)	(0.023)	(0.031)	(0.075)
Glo Sovereign	0.016	0.007	-0.039		0.031**	-0.002	-0.079***	-0.189***	-0.116
s.e.	(0.012)	(0.015)	(0.024)		(0.014)	(0.017)	(0.023)	(0.032)	(0.071)
Glo Equity	0.005	0.001	0.005		0.003	-0.002	-0.008	-0.003	-0.017
s.e.	(0.003)	(0.002)	(0.008)		(0.004)	(0.004)	(0.008)	(0.017)	(0.046)

Glo Corporate	-0.029	-0.007	0.056		-0.052**	0.011	0.108**	0.255***	0.238
s.e.	(0.019)	(0.029)	(0.045)		(0.025)	(0.03)	(0.045)	(0.054)	(0.15)
Loc Sovereign	-0.03**	-0.024***	-0.042*		-0.204***	0.108***	0.416***	0.728***	1.104***
s.e.	(0.012)	(0.008)	(0.025)		(0.015)	(0.015)	(0.032)	(0.034)	(0.09)
Loc Equity	0.003	0.001	-0.017**		0.008*	-0.004	-0.004	-0.009	-0.02
s.e.	(0.003)	(0.002)	(0.008)		(0.005)	(0.006)	(0.008)	(0.015)	(0.04)
Loc Corporate	1.024***	1.023***	1.072***		1.185***	0.905***	0.609***	0.302***	-0.074
s.e.	(0.01)	(0.009)	(0.027)		(0.017)	(0.014)	(0.033)	(0.046)	(0.096)
Adjusted R^2	0.999	0.999	0.995		0.998	0.999	0.995	0.991	0.964
Chi-Sq. Glo Fac	0.190	0.814	0.289		0.077	0.929	0.001	0.000	0.268
Chi-Sq. Loc Fac	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Aug 07 - Aug 18)								
Intercept	-0.012	-0.006	0.095**		-0.047**	0.041**	0.075	0.089	-0.127
s.e.	(0.021)	(0.033)	(0.04)		(0.023)	(0.017)	(0.058)	(0.141)	(0.14)
Glo Sovereign	0.032***	-0.072**	-0.088**		0.045**	-0.045**	-0.029	-0.179*	-0.102
s.e.	(0.01)	(0.034)	(0.037)		(0.019)	(0.019)	(0.054)	(0.093)	(0.109)
Glo Equity	0.003	-0.01	-0.02		0.005	-0.005	0.013	-0.013	-0.012
s.e.	(0.005)	(0.022)	(0.017)		(0.01)	(0.008)	(0.034)	(0.064)	(0.064)
Glo Corporate	-0.089***	0.172***	0.165***		-0.107***	0.05**	0.163***	0.479**	0.4*
s.e.	(0.023)	(0.05)	(0.051)		(0.02)	(0.025)	(0.047)	(0.217)	(0.23)
Loc Sovereign	-0.02	0.001	-0.001		-0.113***	0.044***	0.19***	0.441***	0.682***
s.e.	(0.013)	(0.027)	(0.033)		(0.017)	(0.016)	(0.038)	(0.071)	(0.17)
Loc Equity	0.013	-0.008	-0.019		0.005	-0.004	-0.016	-0.052	-0.121**
s.e.	(0.009)	(0.015)	(0.019)		(0.008)	(0.006)	(0.019)	(0.074)	(0.059)
Loc Corporate	1.022***	0.979***	1.019***		1.134***	0.954***	0.779***	0.476***	0.384*
s.e.	(0.014)	(0.029)	(0.032)		(0.018)	(0.014)	(0.037)	(0.085)	(0.2)
Adjusted R^2	0.998	0.994	0.991		0.997	0.998	0.986	0.924	0.904
Chi-Sq. Glo Fac	0.001	0.002	0.011		0.000	0.088	0.000	0.158	0.350
Chi-Sq. Loc Fac	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000
Panel G: Multi-factor regression with all securities (Feb 98 - Aug 18)								
Intercept	-0.012	0.006	0.068***		-0.028*	0.02*	0.046	0.073	-0.039
s.e.	(0.011)	(0.018)	(0.022)		(0.016)	(0.012)	(0.033)	(0.069)	(0.09)
Loc Sovereign	-0.013*	-0.032**	-0.052**		-0.13***	0.05***	0.257***	0.477***	0.76***
s.e.	(0.007)	(0.016)	(0.02)		(0.017)	(0.012)	(0.025)	(0.074)	(0.091)
Loc Equity	0.006	0.003	-0.012		0.003	-0.004	0	-0.006	-0.075**
s.e.	(0.005)	(0.006)	(0.009)		(0.004)	(0.003)	(0.007)	(0.03)	(0.032)
Loc Corporate	1***	1.037***	1.085***		1.118***	0.96***	0.766***	0.539***	0.379***
s.e.	(0.009)	(0.022)	(0.027)		(0.019)	(0.011)	(0.029)	(0.097)	(0.109)
Adjusted R^2	0.998	0.995	0.992		0.997	0.998	0.987	0.941	0.915
Panel G: Multi-factor regression with all securities (Feb 98 - Jul 07)								
Intercept	-0.006	0.011*	0.032		-0.004	0.002	-0.004	0.013	0.033
s.e.	(0.007)	(0.007)	(0.02)		(0.013)	(0.012)	(0.024)	(0.033)	(0.077)
Loc Sovereign	-0.03**	-0.021**	-0.051**		-0.2***	0.111***	0.396***	0.679***	1.133***
s.e.	(0.012)	(0.009)	(0.021)		(0.012)	(0.01)	(0.021)	(0.04)	(0.075)
Loc Equity	0.005***	0	-0.008*		0.008***	-0.006*	-0.003	0.008	-0.021
s.e.	(0.002)	(0.001)	(0.005)		(0.003)	(0.004)	(0.006)	(0.008)	(0.017)
Loc Corporate	1.021***	1.021***	1.075***		1.18***	0.905***	0.624***	0.332***	-0.083
s.e.	(0.011)	(0.009)	(0.024)		(0.016)	(0.013)	(0.028)	(0.045)	(0.098)
Adjusted R^2	0.999	0.999	0.995		0.998	0.999	0.995	0.989	0.964
Panel G: Multi-factor regression with all securities (Aug 07 - Aug 18)								
Intercept	-0.018	0.003	0.098***		-0.053**	0.039**	0.095*	0.121	-0.089
s.e.	(0.019)	(0.034)	(0.037)		(0.024)	(0.018)	(0.053)	(0.134)	(0.134)
Loc Sovereign	-0.005	-0.035	-0.05		-0.091***	0.013	0.185***	0.356***	0.648***
s.e.	(0.009)	(0.023)	(0.031)		(0.018)	(0.01)	(0.027)	(0.102)	(0.119)
Loc Equity	0.006	0.004	-0.013		-0.003	0	0.007	-0.009	-0.09**
s.e.	(0.008)	(0.01)	(0.015)		(0.006)	(0.004)	(0.011)	(0.05)	(0.045)
Loc Corporate	0.992***	1.041***	1.087***		1.096***	0.983***	0.821***	0.639***	0.505***
s.e.	(0.014)	(0.032)	(0.042)		(0.022)	(0.011)	(0.029)	(0.138)	(0.134)
Adjusted R^2	0.998	0.993	0.990		0.996	0.998	0.985	0.912	0.897
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)								
Intercept	0.007	-0.014	0.007		-0.022	0.016	0.032	0.028	-0.044
s.e.	(0.007)	(0.016)	(0.007)		(0.017)	(0.012)	(0.034)	(0.087)	(0.094)
Glo Corporate	1.001***	1.004***	1.001***		0.999***	1.001***	1.01***	0.977***	0.98***
s.e.	(0.003)	(0.006)	(0.003)		(0.007)	(0.005)	(0.012)	(0.034)	(0.056)
Spread B-AAA	-0.254***	0.243***	0.746***		-0.186***	0.088**	0.409***	0.999**	0.915***
s.e.	(0.032)	(0.052)	(0.032)		(0.037)	(0.036)	(0.073)	(0.427)	(0.257)
Adjusted R^2	0.999	0.996	0.999		0.995	0.997	0.98	0.924	0.838
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)								
Intercept	0.002	0.009	0.002		0	0.001	-0.001	0.027	-0.007
s.e.	(0.007)	(0.007)	(0.007)		(0.023)	(0.017)	(0.045)	(0.068)	(0.138)
Glo Corporate	0.999***	0.998***	0.999***		0.975***	1.017***	1.048***	1.076***	1.07***

s.e.	(0.002)	(0.002)	(0.002)		(0.011)	(0.007)	(0.021)	(0.034)	(0.069)
Spread B-AAA	-0.185***	0.087*	0.815***		-0.054	-0.015	0.048	0.011	1.322*
s.e.	(0.045)	(0.049)	(0.045)		(0.14)	(0.085)	(0.285)	(0.436)	(0.754)
Adjusted R^2	0.999	0.999	0.999		0.992	0.997	0.976	0.939	0.843

Panel H: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)									
Intercept	0.012	-0.032	0.012		-0.037	0.027*	0.057	0.017	-0.116
s.e.	(0.011)	(0.028)	(0.011)		(0.024)	(0.017)	(0.046)	(0.132)	(0.136)
Glo Corporate	1.003***	1.007***	1.003***		1.012***	0.992***	0.99***	0.924***	0.941***
s.e.	(0.005)	(0.009)	(0.005)		(0.005)	(0.004)	(0.011)	(0.035)	(0.073)
Spread B-AAA	-0.269***	0.276***	0.731***		-0.216***	0.111**	0.485***	1.228***	0.874***
s.e.	(0.031)	(0.054)	(0.031)		(0.033)	(0.047)	(0.073)	(0.404)	(0.255)
Adjusted R^2	0.999	0.994	0.999		0.996	0.998	0.985	0.924	0.837
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)									
Intercept	-0.004	-0.006	0.053**		-0.011	0.012	0.016	-0.011	-0.103
s.e.	(0.01)	(0.018)	(0.022)		(0.011)	(0.012)	(0.018)	(0.011)	(0.086)
Glo Corporate	0.996***	1.009***	1.017***		0.996***	1.002***	1.018***	0.996***	1.014***
s.e.	(0.006)	(0.006)	(0.009)		(0.003)	(0.003)	(0.008)	(0.003)	(0.059)
Spread Mat	-0.056***	0.073***	0.071*		-0.178***	0.077***	0.342***	0.822***	0.732***
s.e.	(0.019)	(0.027)	(0.042)		(0.023)	(0.019)	(0.033)	(0.023)	(0.112)
Adjusted R^2	0.999	0.996	0.992		0.999	0.998	0.994	0.999	0.894
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)									
Intercept	-0.003	0.012*	0.027		0.005	-0.004	-0.013	0.005	-0.008
s.e.	(0.007)	(0.006)	(0.02)		(0.007)	(0.009)	(0.014)	(0.007)	(0.079)
Glo Corporate	1***	1.002***	1.013***		0.998***	1.004***	1.005***	0.998***	0.985***
s.e.	(0.003)	(0.002)	(0.006)		(0.003)	(0.004)	(0.005)	(0.003)	(0.029)
Spread Mat	-0.036**	-0.023**	-0.032		-0.23***	0.128***	0.435***	0.77***	1.153***
s.e.	(0.015)	(0.009)	(0.024)		(0.013)	(0.011)	(0.021)	(0.013)	(0.056)
Adjusted R^2	0.999	0.999	0.995		0.999	0.999	0.997	0.999	0.964
Panel I: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)									
Intercept	-0.004	-0.029	0.067**		-0.029*	0.029*	0.048*	-0.029*	-0.146
s.e.	(0.017)	(0.029)	(0.031)		(0.016)	(0.018)	(0.027)	(0.016)	(0.132)
Glo Corporate	0.992***	1.021***	1.028***		0.999***	0.997***	1.018***	0.999***	0.998***
s.e.	(0.009)	(0.009)	(0.012)		(0.004)	(0.004)	(0.01)	(0.004)	(0.082)
Spread Mat	-0.069***	0.129***	0.126***		-0.151***	0.048***	0.298***	0.849***	0.588***
s.e.	(0.023)	(0.028)	(0.045)		(0.025)	(0.019)	(0.033)	(0.025)	(0.111)
Adjusted R^2	0.999	0.995	0.992		0.999	0.998	0.993	0.999	0.871

Notes: This table shows the OLS coefficients of CAPM (Panels A-C) and multi-factor (Panels D-I) regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global and/or local excess returns , except in Panels H-I where the spread between excess returns in BBB and AA rating categories and between >10 and 1< to <3 residual maturity ("Spread Mat") are employed. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. "Chi-Sq. Glo Fac" and "Chi-Sq. Loc Fac" in Panel F are the Chi-Square's P-value of the Wald test testing the joint significance of all global factors and all local factors, respectively. Sample period: February 1998 – August 2018.

Table 6a. Asset Integration Test: World Portfolios

Secured	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Integration test: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	-0.053	-0.051**	-0.061**	0.054**	0.154*	0.062	0.058	-0.051	-0.002	0.02	0.004	0.077
s.e.	(0.051)	(0.024)	(0.026)	(0.027)	(0.08)	(0.088)	(0.168)	(0.047)	(0.031)	(0.018)	(0.028)	(0.072)
Glo Sovereign	0.455*	0.583***	-0.227*	-0.023	-0.556	-0.7	-0.889	0.277*	0.47***	0.137	-0.159	-1.075***
s.e.	(0.261)	(0.119)	(0.128)	(0.152)	(0.515)	(0.502)	(0.99)	(0.159)	(0.08)	(0.089)	(0.107)	(0.195)
Glo Equity	0.148*	0.159***	-0.042	-0.192***	-0.043	-0.316*	0.014	0.289***	0.219***	0.13***	-0.136***	-0.601***
s.e.	(0.078)	(0.047)	(0.049)	(0.049)	(0.147)	(0.168)	(0.479)	(0.056)	(0.047)	(0.027)	(0.044)	(0.096)
Glo Corporate	1.012**	0.696***	1.153***	0.81***	1.085***	1.234*	0.413	1.134***	0.901***	0.968***	1.061***	1.193***
s.e.	(0.427)	(0.208)	(0.167)	(0.211)	(0.376)	(0.654)	(1.055)	(0.292)	(0.209)	(0.126)	(0.224)	(0.396)
Glo Sovereign*w(SB)	-0.239	-0.478*	0.648**	-0.247	-0.115	-0.306	-1.127	-0.404	-0.924***	-0.61***	0.216	2.376***
s.e.	(0.565)	(0.252)	(0.267)	(0.351)	(1.253)	(1.281)	(2.424)	(0.342)	(0.183)	(0.201)	(0.238)	(0.436)
Glo Equity**w(EQ)	-0.334**	-0.268***	0.019	0.312***	0.203	0.892**	0.315	-0.5***	-0.396***	-0.238***	0.258***	1.036***
s.e.	(0.157)	(0.095)	(0.087)	(0.095)	(0.285)	(0.354)	(0.9)	(0.116)	(0.09)	(0.055)	(0.087)	(0.186)
Glo Corporate*w(CB)	-3.489	-1.454	-1.383	3.808*	3.262	3.719	20.116*	-5.576*	-1.214	2.046	1.167	2.876
s.e.	(4.426)	(2.01)	(1.498)	(2.142)	(4.019)	(6.7)	(11.656)	(2.984)	(2.196)	(1.304)	(2.257)	(4.224)
Adjusted R^2	0.855	0.953	0.967	0.949	0.787	0.758	0.68	0.839	0.939	0.98	0.963	0.832
Integration test: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	0.021	0.034	0.02	-0.002	-0.084	-0.218*	-0.396*	0.034	0.024	0.001	-0.045	-0.012
s.e.	(0.082)	(0.036)	(0.028)	(0.045)	(0.101)	(0.129)	(0.231)	(0.067)	(0.039)	(0.028)	(0.045)	(0.081)
Glo Sovereign	0.557	0.481	0.248	-0.236	-1.628*	-0.397	-0.79	0.306	-0.15	-0.142	0.188	-0.614
s.e.	(0.997)	(0.296)	(0.293)	(0.399)	(0.925)	(0.987)	(1.882)	(0.422)	(0.324)	(0.203)	(0.339)	(0.539)
Glo Equity	0.198	-0.045	-0.164**	-0.038	0.447**	0.314	-0.052	0.027	0.068	0.148***	-0.083	-0.086
s.e.	(0.182)	(0.101)	(0.071)	(0.124)	(0.214)	(0.378)	(0.75)	(0.121)	(0.09)	(0.05)	(0.073)	(0.227)
Glo Corporate	0.809	0.582**	0.532***	1.148***	2.651***	1.982**	1.236	0.741*	1.109***	1.038***	1.073***	1.193**
s.e.	(0.673)	(0.256)	(0.204)	(0.313)	(0.73)	(0.97)	(1.195)	(0.397)	(0.289)	(0.158)	(0.285)	(0.522)
Glo Sovereign*w(SB)	-0.239	-0.478*	0.648**	-0.247	-0.115	-0.306	-1.127	-0.404	-0.924***	-0.61***	0.216	2.376***
s.e.	(0.565)	(0.252)	(0.267)	(0.351)	(1.253)	(1.281)	(2.424)	(0.342)	(0.183)	(0.201)	(0.238)	(0.436)
Glo Equity**w(EQ)	-0.334**	-0.268***	0.019	0.312***	0.203	0.892**	0.315	-0.5***	-0.396***	-0.238***	0.258***	1.036***
s.e.	(0.157)	(0.095)	(0.087)	(0.095)	(0.285)	(0.354)	(0.9)	(0.116)	(0.09)	(0.055)	(0.087)	(0.186)
Glo Corporate*w(CB)	-3.489	-1.454	-1.383	3.808*	3.262	3.719	20.116*	-5.576*	-1.214	2.046	1.167	2.876
s.e.	(4.426)	(2.01)	(1.498)	(2.142)	(4.019)	(6.7)	(11.656)	(2.984)	(2.196)	(1.304)	(2.257)	(4.224)
Adjusted R^2	0.822	0.943	0.969	0.942	0.666	0.664	0.588	0.795	0.926	0.968	0.934	0.811
Integration test: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	-0.112	-0.117***	-0.107***	0.091**	0.3***	0.229**	0.32	-0.112*	-0.026	0.031	0.043	0.141
s.e.	(0.07)	(0.029)	(0.034)	(0.037)	(0.113)	(0.109)	(0.217)	(0.061)	(0.043)	(0.024)	(0.032)	(0.111)
Glo Sovereign	0.289	-0.002	-0.413***	0.474*	0.925*	0.837	0.585	-0.032	0.149	0.268*	0.006	-0.679
s.e.	(0.199)	(0.142)	(0.137)	(0.282)	(0.531)	(0.74)	(1.499)	(0.288)	(0.243)	(0.161)	(0.166)	(0.523)
Glo Equity	0.105	0.244***	-0.015	-0.241***	-0.14	-0.301	0.679	0.486***	0.308***	0.137***	-0.186***	-0.866***
s.e.	(0.109)	(0.056)	(0.047)	(0.069)	(0.144)	(0.203)	(0.683)	(0.07)	(0.054)	(0.033)	(0.067)	(0.12)
Glo Corporate	1.1***	0.419	1.708***	0.827***	0.567	1.911**	2.349	1.667***	0.659**	1.191***	0.978***	1.157
s.e.	(0.414)	(0.272)	(0.264)	(0.282)	(0.671)	(0.761)	(1.779)	(0.402)	(0.303)	(0.209)	(0.257)	(0.792)
Glo Sovereign*w(SB)	-0.239	-0.478*	0.648**	-0.247	-0.115	-0.306	-1.127	-0.404	-0.924***	-0.61***	0.216	2.376***
s.e.	(0.565)	(0.252)	(0.267)	(0.351)	(1.253)	(1.281)	(2.424)	(0.342)	(0.183)	(0.201)	(0.238)	(0.436)
Glo Equity**w(EQ)	-0.334**	-0.268***	0.019	0.312***	0.203	0.892**	0.315	-0.5***	-0.396***	-0.238***	0.258***	1.036***
s.e.	(0.157)	(0.095)	(0.087)	(0.095)	(0.285)	(0.354)	(0.9)	(0.116)	(0.09)	(0.055)	(0.087)	(0.186)
Glo Corporate*w(CB)	-3.489	-1.454	-1.383	3.808*	3.262	3.719	20.116*	-5.576*	-1.214	2.046	1.167	2.876
s.e.	(4.426)	(2.01)	(1.498)	(2.142)	(4.019)	(6.7)	(11.656)	(2.984)	(2.196)	(1.304)	(2.257)	(4.224)
Adjusted R^2	0.878	0.975	0.972	0.966	0.868	0.851	0.768	0.877	0.954	0.984	0.978	0.846

Notes: This table shows the OLS coefficients of a multi-factor regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global excess returns and global excess returns interacted with lagged market capitalization weights. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 – August 2018.

Table 6b. Asset Integration Test: US Dollar Portfolios

USD	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	>10
Integration test: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	0.095*	0.108**	0.103**	0.147**	0.222**	0.101	0.083	0.134***	0.145***	0.144***	0.092*	0.162*
s.e.	(0.052)	(0.046)	(0.052)	(0.06)	(0.088)	(0.091)	(0.17)	(0.031)	(0.037)	(0.052)	(0.055)	(0.095)
Glo Sovereign	-0.293*	-0.37***	-0.64***	-0.464**	-0.717*	-0.946***	-1.468**	-0.23***	-0.103	-0.41**	-0.688***	-1.457***
s.e.	(0.153)	(0.121)	(0.178)	(0.191)	(0.379)	(0.333)	(0.626)	(0.087)	(0.109)	(0.195)	(0.151)	(0.292)
Glo Equity	-0.25***	-0.215***	-0.373***	-0.507***	-0.249	-0.394**	-0.053	-0.036	-0.101	-0.196**	-0.42***	-0.828***
s.e.	(0.093)	(0.076)	(0.105)	(0.085)	(0.171)	(0.19)	(0.518)	(0.078)	(0.062)	(0.088)	(0.088)	(0.13)
Glo Corporate	0.52*	0.798***	1.234***	1.082***	1.506***	1.495***	1.101	0.881***	0.672***	1.276***	1.204***	1.724***
s.e.	(0.273)	(0.219)	(0.299)	(0.337)	(0.346)	(0.513)	(0.852)	(0.13)	(0.139)	(0.229)	(0.297)	(0.544)
Glo Sovereign*w(SB)	1.554***	1.262***	1.63***	0.647	0.358	0.35	0.242	0.044	-0.354	-0.045	1.31***	3.91***
s.e.	(0.425)	(0.352)	(0.427)	(0.586)	(1.207)	(1.152)	(1.986)	(0.285)	(0.367)	(0.691)	(0.416)	(0.86)
Glo Equity**w(EQ)	0.284*	0.209	0.437***	0.712***	0.494*	0.891***	0.365	-0.034	0.072	0.273*	0.648***	1.217***
s.e.	(0.147)	(0.128)	(0.162)	(0.154)	(0.295)	(0.346)	(0.855)	(0.124)	(0.1)	(0.152)	(0.148)	(0.234)
Glo Corporate*w(CB)	-1.185	-1.509	-2.168	0.623	-2.118	-0.148	9.706	-2.543***	0.954	-0.525	-0.329	-1.667
s.e.	(2.074)	(1.757)	(2.132)	(2.659)	(2.766)	(4.137)	(7.693)	(0.979)	(1.172)	(1.828)	(2.273)	(4.532)
Adjusted R^2	0.628	0.678	0.695	0.729	0.65	0.698	0.656	0.672	0.771	0.806	0.77	0.693
Integration test: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	0.093	0.093	0.066	-0.041	-0.07	-0.213*	-0.387*	0.084**	0.072*	-0.007	-0.06	-0.045
s.e.	(0.063)	(0.068)	(0.074)	(0.081)	(0.107)	(0.126)	(0.235)	(0.035)	(0.043)	(0.058)	(0.073)	(0.127)
Glo Sovereign	0.042	-0.103	-0.321	-0.841**	-2.102**	-1.481**	-2.473*	-0.268*	-0.398*	-0.889***	-0.669*	-1.288**
s.e.	(0.284)	(0.327)	(0.352)	(0.359)	(0.934)	(0.684)	(1.424)	(0.149)	(0.215)	(0.309)	(0.366)	(0.514)
Glo Equity	-0.298	-0.386*	-0.524**	-0.234	0.132	0.227	-0.149	-0.085	-0.208	-0.124	-0.382*	-0.295
s.e.	(0.21)	(0.229)	(0.246)	(0.3)	(0.281)	(0.481)	(0.909)	(0.088)	(0.136)	(0.17)	(0.204)	(0.427)
Glo Corporate	0.399	0.708**	0.742*	1.279***	2.817***	2.483***	2.173**	0.599***	0.864***	1.493***	1.347***	1.647***
s.e.	(0.318)	(0.354)	(0.388)	(0.415)	(0.737)	(0.909)	(1.087)	(0.16)	(0.223)	(0.312)	(0.389)	(0.621)
Glo Sovereign*w(SB)	1.554***	1.262***	1.63***	0.647	0.358	0.35	0.242	0.044	-0.354	-0.045	1.31***	3.91***
s.e.	(0.425)	(0.352)	(0.427)	(0.586)	(1.207)	(1.152)	(1.986)	(0.285)	(0.367)	(0.691)	(0.416)	(0.86)
Glo Equity**w(EQ)	0.284*	0.209	0.437***	0.712***	0.494*	0.891***	0.365	-0.034	0.072	0.273*	0.648***	1.217***
s.e.	(0.147)	(0.128)	(0.162)	(0.154)	(0.295)	(0.346)	(0.855)	(0.124)	(0.1)	(0.152)	(0.148)	(0.234)
Glo Corporate*w(CB)	-1.185	-1.509	-2.168	0.623	-2.118	-0.148	9.706	-2.543***	0.954	-0.525	-0.329	-1.667
s.e.	(2.074)	(1.757)	(2.132)	(2.659)	(2.766)	(4.137)	(7.693)	(0.979)	(1.172)	(1.828)	(2.273)	(4.532)
Adjusted R^2	0.642	0.619	0.649	0.665	0.618	0.63	0.574	0.633	0.719	0.738	0.698	0.617
Integration test: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	0.104	0.132**	0.148**	0.281***	0.412***	0.282**	0.352	0.174***	0.204***	0.258***	0.203***	0.297**
s.e.	(0.077)	(0.061)	(0.071)	(0.088)	(0.133)	(0.119)	(0.227)	(0.044)	(0.055)	(0.08)	(0.078)	(0.137)
Glo Sovereign	0.19	-0.283	-0.71**	0.313	0.819	0.57	-0.077	-0.073	0.201	0.368	-0.154	-1.052
s.e.	(0.369)	(0.312)	(0.351)	(0.515)	(0.583)	(0.655)	(1.279)	(0.154)	(0.183)	(0.445)	(0.357)	(0.641)
Glo Equity	-0.32**	-0.22	-0.31**	-0.549***	-0.371*	-0.367	0.875	0.157	-0.036	-0.181	-0.433***	-0.95***
s.e.	(0.145)	(0.147)	(0.152)	(0.151)	(0.211)	(0.289)	(0.857)	(0.144)	(0.118)	(0.185)	(0.149)	(0.187)
Glo Corporate	0.633	0.791**	1.837***	1.528***	1.294**	1.867***	3.313**	1.578***	0.746***	1.682***	1.54***	2.422***
s.e.	(0.467)	(0.344)	(0.43)	(0.437)	(0.62)	(0.608)	(1.644)	(0.247)	(0.202)	(0.363)	(0.392)	(0.888)
Glo Sovereign*w(SB)	1.554***	1.262***	1.63***	0.647	0.358	0.35	0.242	0.044	-0.354	-0.045	1.31***	3.91***
s.e.	(0.425)	(0.352)	(0.427)	(0.586)	(1.207)	(1.152)	(1.986)	(0.285)	(0.367)	(0.691)	(0.416)	(0.86)
Glo Equity**w(EQ)	0.284*	0.209	0.437***	0.712***	0.494*	0.891***	0.365	-0.034	0.072	0.273*	0.648***	1.217***
s.e.	(0.147)	(0.128)	(0.162)	(0.154)	(0.295)	(0.346)	(0.855)	(0.124)	(0.1)	(0.152)	(0.148)	(0.234)
Glo Corporate*w(CB)	-1.185	-1.509	-2.168	0.623	-2.118	-0.148	9.706	-2.543***	0.954	-0.525	-0.329	-1.667
s.e.	(2.074)	(1.757)	(2.132)	(2.659)	(2.766)	(4.137)	(7.693)	(0.979)	(1.172)	(1.828)	(2.273)	(4.532)
Adjusted R^2	0.626	0.701	0.71	0.786	0.728	0.79	0.744	0.7	0.792	0.842	0.825	0.745

Notes: This table shows the OLS coefficients of a multi-factor regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global excess returns and global excess returns interacted with lagged market capitalization weights. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in USD. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 – August 2018.

Table 6c. Asset Integration Test: Euro Portfolios

EUR	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Integration test: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	-0.144	-0.189*	-0.226**	-0.189*	-0.084	-0.15	-0.107	-0.224*	-0.171	-0.158	-0.171	-0.07
s.e.	(0.104)	(0.107)	(0.107)	(0.111)	(0.149)	(0.189)	(0.341)	(0.12)	(0.112)	(0.106)	(0.107)	(0.105)
Glo Sovereign	1.586*	1.215	1.137	1.22*	-0.29	0.731	4.125*	1.144	1.252	1.301*	1.148	1.507*
s.e.	(0.833)	(0.818)	(0.771)	(0.739)	(0.684)	(1.202)	(2.453)	(0.886)	(0.815)	(0.771)	(0.783)	(0.785)
Glo Equity	0.34**	0.488***	0.508***	0.536***	0.431**	0.027	-0.167	0.579***	0.58***	0.585***	0.472***	0.309**
s.e.	(0.148)	(0.12)	(0.113)	(0.13)	(0.209)	(0.249)	(0.581)	(0.136)	(0.127)	(0.124)	(0.123)	(0.13)
Glo Corporate	0.957**	1.259***	1.516***	1.445***	2.184***	2.569***	1.774	1.299***	1.437***	1.483***	1.482***	1.092**
s.e.	(0.446)	(0.457)	(0.439)	(0.434)	(0.684)	(0.895)	(1.321)	(0.462)	(0.448)	(0.437)	(0.447)	(0.47)
Glo Sovereign*w(SB)	-2.123	-1.575	-1.758	-2.098	-0.264	-3.015	-11.373**	-1.72	-2.002	-2.19	-1.884	-2.116
s.e.	(1.657)	(1.637)	(1.539)	(1.497)	(1.299)	(2.28)	(4.839)	(1.788)	(1.639)	(1.541)	(1.548)	(1.533)
Glo Equity**w(EQ)	-0.725**	-1.045***	-1.087***	-1.081***	-0.492	0.601	1.314	-1.206***	-1.228***	-1.237***	-0.975***	-0.645**
s.e.	(0.346)	(0.286)	(0.271)	(0.296)	(0.478)	(0.646)	(1.407)	(0.32)	(0.299)	(0.294)	(0.294)	(0.313)
Glo Corporate*w(CB)	-0.926	-2.748	-2.551	-0.876	-1.305	0.741	17.918	-3.045	-2.635	-0.947	0.481	2.404
s.e.	(4.31)	(4.463)	(4.264)	(4.195)	(6.233)	(8.113)	(11.482)	(4.533)	(4.343)	(4.211)	(4.24)	(4.333)
Adjusted R^2	0.711	0.725	0.76	0.761	0.744	0.752	0.608	0.65	0.723	0.784	0.81	0.797
Integration test: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	0.018	0.019	0.01	-0.052	-0.259	-0.227	-0.6	-0.012	0.001	0.018	0.015	0.075
s.e.	(0.165)	(0.161)	(0.159)	(0.161)	(0.262)	(0.39)	(0.597)	(0.166)	(0.161)	(0.163)	(0.174)	(0.176)
Glo Sovereign	1.85	1.769	1.522	1.036	1.136	1.332	3.196	1.372	1.366	1.455	1.618	2.211*
s.e.	(1.267)	(1.28)	(1.239)	(1.133)	(1.689)	(2.163)	(2.303)	(1.284)	(1.25)	(1.251)	(1.254)	(1.247)
Glo Equity	0.414	0.408	0.359	0.414	1.249**	0.021	-0.348	0.444	0.414	0.435	0.382	0.519*
s.e.	(0.292)	(0.285)	(0.288)	(0.295)	(0.539)	(0.631)	(1.204)	(0.306)	(0.29)	(0.291)	(0.306)	(0.316)
Glo Corporate	0.725	0.725	0.929	1.448*	2.681**	2.951*	3.882***	0.997	1.045	1.054	1.022	0.702
s.e.	(0.891)	(0.895)	(0.876)	(0.857)	(1.096)	(1.653)	(1.449)	(0.877)	(0.877)	(0.874)	(0.908)	(0.92)
Glo Sovereign*w(SB)	-2.123	-1.575	-1.758	-2.098	-0.264	-3.015	-11.373**	-1.72	-2.002	-2.19	-1.884	-2.116
s.e.	(1.657)	(1.637)	(1.539)	(1.497)	(1.299)	(2.28)	(4.839)	(1.788)	(1.639)	(1.541)	(1.548)	(1.533)
Glo Equity**w(EQ)	-0.725**	-1.045***	-1.087***	-1.081***	-0.492	0.601	1.314	-1.206***	-1.228***	-1.237***	-0.975***	-0.645**
s.e.	(0.346)	(0.286)	(0.271)	(0.296)	(0.478)	(0.646)	(1.407)	(0.32)	(0.299)	(0.294)	(0.294)	(0.313)
Glo Corporate*w(CB)	-0.926	-2.748	-2.551	-0.876	-1.305	0.741	17.918	-3.045	-2.635	-0.947	0.481	2.404
s.e.	(4.31)	(4.463)	(4.264)	(4.195)	(6.233)	(8.113)	(11.482)	(4.533)	(4.343)	(4.211)	(4.24)	(4.333)
Adjusted R^2	0.666	0.68	0.68	0.666	0.515	0.492	0.464	0.584	0.656	0.694	0.706	0.73
Integration test: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	-0.265*	-0.346**	-0.398***	-0.294*	-0.086	-0.114	0.003	-0.383**	-0.3*	-0.279*	-0.286**	-0.164
s.e.	(0.144)	(0.153)	(0.151)	(0.16)	(0.172)	(0.191)	(0.305)	(0.183)	(0.166)	(0.148)	(0.139)	(0.13)
Glo Sovereign	1.482	0.519	0.553	0.867	0.231	0.558	3.901	0.645	0.601	0.563	0.296	1.068
s.e.	(1.009)	(0.946)	(0.816)	(0.883)	(0.746)	(0.747)	(2.725)	(1.14)	(1.08)	(0.917)	(0.712)	(0.692)
Glo Equity	0.117	0.357**	0.407***	0.456***	0.386	0.14	0.456	0.536***	0.502***	0.434***	0.25*	-0.076
s.e.	(0.183)	(0.153)	(0.144)	(0.171)	(0.238)	(0.335)	(0.805)	(0.194)	(0.173)	(0.163)	(0.152)	(0.155)
Glo Corporate	0.276	0.591	1.04*	0.538	1.707*	2.572**	-0.977	0.856	0.665	0.502	0.451	-0.042
s.e.	(0.678)	(0.674)	(0.596)	(0.69)	(0.877)	(1.009)	(2.53)	(0.806)	(0.701)	(0.616)	(0.534)	(0.587)
Glo Sovereign*w(SB)	-2.123	-1.575	-1.758	-2.098	-0.264	-3.015	-11.373**	-1.72	-2.002	-2.19	-1.884	-2.116
s.e.	(1.657)	(1.637)	(1.539)	(1.497)	(1.299)	(2.28)	(4.839)	(1.788)	(1.639)	(1.541)	(1.548)	(1.533)
Glo Equity**w(EQ)	-0.725**	-1.045***	-1.087***	-1.081***	-0.492	0.601	1.314	-1.206***	-1.228***	-1.237***	-0.975***	-0.645**
s.e.	(0.346)	(0.286)	(0.271)	(0.296)	(0.478)	(0.646)	(1.407)	(0.32)	(0.299)	(0.294)	(0.294)	(0.313)
Glo Corporate*w(CB)	-0.926	-2.748	-2.551	-0.876	-1.305	0.741	17.918	-3.045	-2.635	-0.947	0.481	2.404
s.e.	(4.31)	(4.463)	(4.264)	(4.195)	(6.233)	(8.113)	(11.482)	(4.533)	(4.343)	(4.211)	(4.24)	(4.333)
Adjusted R^2	0.749	0.765	0.816	0.811	0.861	0.876	0.744	0.687	0.767	0.841	0.875	0.853

Notes: This table shows the OLS coefficients of a multi-factor regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global excess returns and global excess returns interacted with lagged market capitalization weights. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in EUR. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 – August 2018.

Table 6d. Asset Integration Test: Japanese Yen Portfolios

JPY	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Integration test: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept		-0.159	-0.2	-0.181				-0.211	-0.178	-0.145	-0.108	-0.062
s.e.		(0.151)	(0.156)	(0.166)				(0.162)	(0.159)	(0.156)	(0.148)	(0.149)
Glo Sovereign		2.686***	2.551***	2.749***				2.48***	2.594***	2.822***	2.873***	2.747***
s.e.		(0.871)	(0.853)	(0.868)				(0.835)	(0.841)	(0.879)	(0.922)	(0.972)
Glo Equity		0.134	0.107	0.15				0.074	0.107	0.182	0.205	0.28
s.e.		(0.171)	(0.166)	(0.177)				(0.167)	(0.173)	(0.175)	(0.199)	
Glo Corporate		-0.232	-0.112	-0.137				-0.128	-0.138	-0.184	-0.27	-0.339
s.e.		(0.394)	(0.399)	(0.405)				(0.39)	(0.391)	(0.401)	(0.398)	(0.461)
Glo Sovereign*w(SB)		-2.081	-2.02	-2.307*				-1.954	-2.078	-2.3*	-2.199	-1.774
s.e.		(1.374)	(1.335)	(1.363)				(1.313)	(1.326)	(1.391)	(1.472)	(1.475)
Glo Equity**w(EQ)		-0.132	-0.054	-0.159				0.049	-0.063	-0.281	-0.321	-0.503
s.e.		(0.468)	(0.468)	(0.491)				(0.469)	(0.47)	(0.472)	(0.463)	(0.541)
Glo Corporate*w(CB)		-9.445	-10.376	-11.013				-10.446	-10.406	-10.98	-10.269	-9.751
s.e.		(7.473)	(7.713)	(7.649)				(7.773)	(7.601)	(7.381)	(7.259)	(8.064)
Adjusted R^2		0.525	0.477	0.481				0.463	0.482	0.51	0.557	0.557
Integration test: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	-0.156	-0.176	-0.203	-0.206				-0.227	-0.191	-0.138	-0.107	-0.062
s.e.	(0.245)	(0.236)	(0.256)	(0.266)				(0.267)	(0.258)	(0.246)	(0.233)	(0.232)
Glo Sovereign	3.518**	3.002*	3.173**	3.052*				3.144**	3.127**	3.126**	3.089*	3.232*
s.e.	(1.649)	(1.57)	(1.58)	(1.565)				(1.58)	(1.561)	(1.582)	(1.632)	(1.718)
Glo Equity	0.273	0.26	0.201	0.207				0.152	0.226	0.318	0.388	0.312
s.e.	(0.252)	(0.267)	(0.245)	(0.246)				(0.245)	(0.25)	(0.26)	(0.288)	(0.343)
Glo Corporate	-0.737	-0.536	-0.323	-0.239				-0.276	-0.29	-0.333	-0.661	-1.278
s.e.	(0.972)	(0.962)	(0.988)	(1.013)				(1.012)	(1.013)	(0.993)	(0.962)	(0.957)
Glo Sovereign*w(SB)	-3.137**	-2.081	-2.02	-2.307*				-1.954	-2.078	-2.3*	-2.199	-1.774
s.e.	(1.361)	(1.374)	(1.335)	(1.363)				(1.313)	(1.326)	(1.391)	(1.472)	(1.475)
Glo Equity**w(EQ)	-0.069	-0.132	-0.054	-0.159				0.049	-0.063	-0.281	-0.321	-0.503
s.e.	(0.488)	(0.468)	(0.468)	(0.491)				(0.469)	(0.47)	(0.472)	(0.463)	(0.541)
Glo Corporate*w(CB)	-10.524	-9.445	-10.376	-11.013				-10.446	-10.406	-10.98	-10.269	-9.751
s.e.	(10.053)	(7.473)	(7.713)	(7.649)				(7.773)	(7.601)	(7.381)	(7.259)	(8.064)
Adjusted R^2	0.506	0.507	0.457	0.464				0.424	0.454	0.497	0.543	0.557
Integration test: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept		-0.194	-0.237	-0.209				-0.241	-0.213	-0.2	-0.154	-0.095
s.e.		(0.172)	(0.179)	(0.194)				(0.177)	(0.177)	(0.181)	(0.176)	(0.182)
Glo Sovereign		1.348	1.374	1.91*				1.174	1.358	1.806	2.112*	0.732
s.e.		(1.021)	(1.07)	(1.059)				(0.96)	(1.016)	(1.107)	(1.147)	(1.311)
Glo Equity		0.465**	0.447*	0.507**				0.425*	0.452*	0.514**	0.491**	0.66**
s.e.		(0.231)	(0.246)	(0.25)				(0.233)	(0.235)	(0.239)	(0.223)	(0.285)
Glo Corporate		0.378	0.361	0.369				0.412	0.414	0.352	0.238	0.254
s.e.		(0.521)	(0.53)	(0.547)				(0.512)	(0.522)	(0.534)	(0.532)	(0.569)
Glo Sovereign*w(SB)		-2.081	-2.02	-2.307*				-1.954	-2.078	-2.3*	-2.199	-1.774
s.e.		(1.374)	(1.335)	(1.363)				(1.313)	(1.326)	(1.391)	(1.472)	(1.475)
Glo Equity**w(EQ)		-0.132	-0.054	-0.159				0.049	-0.063	-0.281	-0.321	-0.503
s.e.		(0.468)	(0.468)	(0.491)				(0.469)	(0.47)	(0.472)	(0.463)	(0.541)
Glo Corporate*w(CB)		-9.445	-10.376	-11.013				-10.446	-10.406	-10.98	-10.269	-9.751
s.e.		(7.473)	(7.713)	(7.649)				(7.773)	(7.601)	(7.381)	(7.259)	(8.064)
Adjusted R^2		0.565	0.515	0.517				0.525	0.533	0.542	0.585	0.579

Notes: This table shows the OLS coefficients of a multi-factor regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBBC) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global excess returns and global excess returns interacted with lagged market capitalization weights. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in JPY. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 – August 2018.

Table 6e. Asset Integration Test: British Pound Portfolios

GBP	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Integration test: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	-0.096	-0.08	-0.169	-0.039	0.124	0.122	0.594	-0.103	-0.101	-0.12	-0.124	-0.055
s.e.	(0.111)	(0.11)	(0.131)	(0.112)	(0.161)	(0.206)	(0.382)	(0.11)	(0.105)	(0.122)	(0.122)	(0.133)
Glo Sovereign	-0.196	-0.231	-0.345	-0.328	-0.941**	-0.91**	-1.489**	0.326	0.229	-0.138	-0.451	-0.585
s.e.	(0.3)	(0.312)	(0.317)	(0.292)	(0.453)	(0.399)	(0.646)	(0.259)	(0.264)	(0.288)	(0.305)	(0.359)
Glo Equity	0.079	0.199	0.316	0.431*	0.276	-0.474	0.456	0.605***	0.653***	0.555*	0.319	0.172
s.e.	(0.253)	(0.246)	(0.282)	(0.26)	(0.424)	(0.353)	(0.598)	(0.22)	(0.231)	(0.287)	(0.276)	(0.325)
Glo Corporate	1.941***	2.097***	2.302***	2.205***	3.719***	3.018**	3.364*	1.581***	1.943***	2.1***	2.541***	2.466***
s.e.	(0.627)	(0.633)	(0.646)	(0.694)	(1.1)	(1.299)	(1.862)	(0.609)	(0.65)	(0.694)	(0.695)	(0.676)
Glo Sovereign*w(SB)	0.796	0.202	-0.057	-0.42	-0.106	-1.566	-0.423	-2.071**	-1.919**	-1.265	-0.223	0.982
s.e.	(1.062)	(1.014)	(1.034)	(0.941)	(1.203)	(1.027)	(1.839)	(0.816)	(0.811)	(0.824)	(0.952)	(1.208)
Glo Equity**w(EQ)	-0.21	-0.361	-0.512	-0.669*	-0.235	0.909*	-0.724	-0.893***	-0.977***	-0.853**	-0.5	-0.315
s.e.	(0.347)	(0.339)	(0.381)	(0.357)	(0.571)	(0.498)	(0.884)	(0.309)	(0.315)	(0.374)	(0.365)	(0.45)
Glo Corporate*w(CB)	-8.452	-7.911	-6.274	-4.993	-16.709	-2.382	-1.384	-5.439	-7.188	-3.792	-6.793	-7.269
s.e.	(6.6)	(7.058)	(7.228)	(7.879)	(14.729)	(13.386)	(21.44)	(6.654)	(6.996)	(7.729)	(7.932)	(7.522)
Adjusted R^2	0.52	0.564	0.624	0.651	0.628	0.65	0.369	0.51	0.594	0.655	0.682	0.591
Integration test: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	0.17	0.172	0.18	0.187	0.018	-0.104	0.402	0.237**	0.202*	0.122	0.152	0.197
s.e.	(0.12)	(0.123)	(0.13)	(0.136)	(0.217)	(0.281)	(0.499)	(0.118)	(0.117)	(0.113)	(0.129)	(0.162)
Glo Sovereign	1.145	1.185	1.229	0.813	-2.073	0.925	-1.737	0.941	0.882	0.38	0.934	1.48
s.e.	(0.985)	(1)	(1.063)	(0.95)	(1.51)	(1.332)	(3.324)	(0.871)	(0.901)	(0.793)	(0.946)	(1.224)
Glo Equity	-0.412	-0.245	-0.408	-0.434	0.98	-1.433	2.699	-0.257	-0.284	-0.445	-0.787	-0.283
s.e.	(0.796)	(0.825)	(0.879)	(0.926)	(1.215)	(1.449)	(3.447)	(0.86)	(0.836)	(0.812)	(0.795)	(1.01)
Glo Corporate	0.085	0.107	0.261	0.301	3.264***	1.705	1.91	0.289	0.395	0.46	0.643	0.122
s.e.	(0.628)	(0.66)	(0.677)	(0.679)	(0.821)	(1.17)	(2.003)	(0.627)	(0.599)	(0.56)	(0.618)	(0.822)
Glo Sovereign*w(SB)	0.796	0.202	-0.057	-0.42	-0.106	-1.566	-0.423	-2.071**	-1.919**	-1.265	-0.223	0.982
s.e.	(1.062)	(1.014)	(1.034)	(0.941)	(1.203)	(1.027)	(1.839)	(0.816)	(0.811)	(0.824)	(0.952)	(1.208)
Glo Equity**w(EQ)	-0.21	-0.361	-0.512	-0.669*	-0.235	0.909*	-0.724	-0.893***	-0.977***	-0.853**	-0.5	-0.315
s.e.	(0.347)	(0.339)	(0.381)	(0.357)	(0.571)	(0.498)	(0.884)	(0.309)	(0.315)	(0.374)	(0.365)	(0.45)
Glo Corporate*w(CB)	-8.452	-7.911	-6.274	-4.993	-16.709	-2.382	-1.384	-5.439	-7.188	-3.792	-6.793	-7.269
s.e.	(6.6)	(7.058)	(7.228)	(7.879)	(14.729)	(13.386)	(21.44)	(6.654)	(6.996)	(7.729)	(7.932)	(7.522)
Adjusted R^2	0.547	0.544	0.549	0.524	0.505	0.477	0.121	0.401	0.488	0.53	0.577	0.514
Integration test: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	-0.282	-0.255	-0.425*	-0.227	-0.015	0.264	0.55	-0.38**	-0.354**	-0.319	-0.338	-0.239
s.e.	(0.186)	(0.188)	(0.218)	(0.181)	(0.252)	(0.299)	(0.501)	(0.168)	(0.164)	(0.211)	(0.211)	(0.223)
Glo Sovereign	0.084	-0.719	-0.739	-0.439	-0.799	-0.974	-3.257**	0.529	0.532	-0.286	-0.745	-1.122*
s.e.	(0.443)	(0.497)	(0.49)	(0.441)	(0.931)	(0.702)	(1.283)	(0.344)	(0.325)	(0.405)	(0.456)	(0.619)
Glo Equity	-0.64	-0.127	0.087	0.277	0.962	-0.077	0.987	0.433	0.427	0.581	0.373	-0.096
s.e.	(0.573)	(0.467)	(0.5)	(0.537)	(0.618)	(0.761)	(0.792)	(0.422)	(0.418)	(0.422)	(0.426)	(0.598)
Glo Corporate	5.896***	4.428***	4.774***	5.125***	5.171*	4.307	2.611	4.222***	5.276***	4.52**	4.791**	5.077***
s.e.	(1.555)	(1.715)	(1.767)	(1.804)	(2.747)	(3.381)	(3.395)	(1.563)	(1.672)	(1.972)	(1.914)	(1.687)
Glo Sovereign*w(SB)	0.796	0.202	-0.057	-0.42	-0.106	-1.566	-0.423	-2.071**	-1.919**	-1.265	-0.223	0.982
s.e.	(1.062)	(1.014)	(1.034)	(0.941)	(1.203)	(1.027)	(1.839)	(0.816)	(0.811)	(0.824)	(0.952)	(1.208)
Glo Equity**w(EQ)	-0.21	-0.361	-0.512	-0.669*	-0.235	0.909*	-0.724	-0.893***	-0.977***	-0.853**	-0.5	-0.315
s.e.	(0.347)	(0.339)	(0.381)	(0.357)	(0.571)	(0.498)	(0.884)	(0.309)	(0.315)	(0.374)	(0.365)	(0.45)
Glo Corporate*w(CB)	-8.452	-7.911	-6.274	-4.993	-16.709	-2.382	-1.384	-5.439	-7.188	-3.792	-6.793	-7.269
s.e.	(6.6)	(7.058)	(7.228)	(7.879)	(14.729)	(13.386)	(21.44)	(6.654)	(6.996)	(7.729)	(7.932)	(7.522)
Adjusted R^2	0.554	0.613	0.681	0.719	0.677	0.729	0.5	0.587	0.673	0.712	0.735	0.651

Notes: This table shows the OLS coefficients of a multi-factor regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global excess returns and global excess returns interacted with lagged market capitalization weights. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in GBP. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 – August 2018.

Table 6f. Asset Integration Test: Canadian Dollar Portfolios

CAD	AAA	AA	A	BBB	BB	B		1-to-3	3-to-5	5-to-7	7-to-10	> 10
Integration test: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	-0.013	0	0.029	0.062	0.137	0.095		-0.038	0.006	0.059	0.068	0.108
s.e.	(0.116)	(0.12)	(0.119)	(0.121)	(0.158)	(0.227)		(0.121)	(0.12)	(0.119)	(0.124)	(0.14)
Glo Sovereign	-0.292	-0.508	-0.355	-0.372	-1.241**	0.008		-0.669*	-0.603	-0.485	-0.171	0.047
s.e.	(0.368)	(0.392)	(0.436)	(0.431)	(0.482)	(0.87)		(0.374)	(0.385)	(0.416)	(0.454)	(0.58)
Glo Equity	-0.158	0.085	0.104	0.174	0.756**	1.577***		0.108	0.222	0.111	0.255	0.076
s.e.	(0.29)	(0.296)	(0.341)	(0.342)	(0.374)	(0.429)		(0.269)	(0.279)	(0.303)	(0.375)	(0.461)
Glo Corporate	0.274	0.648	1.005*	0.783	0.183	1.289		0.383	0.76	0.768	1.04	1.167*
s.e.	(0.499)	(0.592)	(0.608)	(0.584)	(0.702)	(1.198)		(0.526)	(0.595)	(0.622)	(0.669)	(0.677)
Glo Sovereign*w(SB)	1.127	1.286	0.777	0.827	2.32*	-1.589		1.525*	1.416	1.193	0.299	-0.047
s.e.	(0.914)	(0.998)	(1.1)	(1.059)	(1.191)	(2.187)		(0.909)	(0.996)	(1.089)	(1.149)	(1.427)
Glo Equity**w(EQ)	0.677	0.199	0.131	0.028	-1.119	-2.277***		0.164	-0.068	0.14	-0.15	0.173
s.e.	(0.574)	(0.585)	(0.686)	(0.687)	(0.747)	(0.797)		(0.54)	(0.547)	(0.599)	(0.739)	(0.928)
Glo Corporate*w(CB)	4.29	1.248	-0.268	1.827	11.369*	-3.366		3.619	0.52	1.355	0.031	0.062
s.e.	(5.069)	(5.991)	(6.358)	(5.924)	(6.738)	(13.307)		(5.29)	(6.069)	(6.349)	(7.209)	(7.107)
Adjusted R^2	0.573	0.531	0.582	0.58	0.495	0.352		0.503	0.548	0.582	0.585	0.572
Integration test: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	0.141	0.147	0.154	0.158	0.052	0.241		0.141	0.125	0.162	0.16	0.159
s.e.	(0.173)	(0.171)	(0.176)	(0.169)	(0.242)	(0.388)		(0.171)	(0.171)	(0.173)	(0.192)	(0.202)
Glo Sovereign	-0.552	-0.499	-0.575	-0.723	-1.639**	-0.42		-0.611	-0.816	-0.728	-0.377	-0.58
s.e.	(0.534)	(0.555)	(0.561)	(0.511)	(0.828)	(0.822)		(0.539)	(0.519)	(0.545)	(0.543)	(0.629)
Glo Equity	0.311	0.381	0.465	0.627	0.858*	1.45***		0.318	0.534	0.437	0.581	0.704
s.e.	(0.376)	(0.378)	(0.401)	(0.395)	(0.468)	(0.561)		(0.356)	(0.382)	(0.383)	(0.441)	(0.477)
Glo Corporate	-0.7	-0.626	-0.41	-0.216	-0.984	0.282		-0.548	-0.411	-0.461	-0.527	-0.489
s.e.	(0.674)	(0.705)	(0.676)	(0.619)	(0.805)	(1.457)		(0.687)	(0.676)	(0.651)	(0.649)	(0.763)
Glo Sovereign*w(SB)	1.127	1.286	0.777	0.827	2.32*	-1.589		1.525*	1.416	1.193	0.299	-0.047
s.e.	(0.914)	(0.998)	(1.1)	(1.059)	(1.191)	(2.187)		(0.909)	(0.996)	(1.089)	(1.149)	(1.427)
Glo Equity**w(EQ)	0.677	0.199	0.131	0.028	-1.119	-2.277***		0.164	-0.068	0.14	-0.15	0.173
s.e.	(0.574)	(0.585)	(0.686)	(0.687)	(0.747)	(0.797)		(0.54)	(0.547)	(0.599)	(0.739)	(0.928)
Glo Corporate*w(CB)	4.29	1.248	-0.268	1.827	11.369*	-3.366		3.619	0.52	1.355	0.031	0.062
s.e.	(5.069)	(5.991)	(6.358)	(5.924)	(6.738)	(13.307)		(5.29)	(6.069)	(6.349)	(7.209)	(7.107)
Adjusted R^2	0.399	0.427	0.446	0.446	0.342	0.346		0.329	0.423	0.441	0.439	0.456
Integration test: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	-0.164	-0.161	-0.111	-0.038	0.161	-0.105		-0.224	-0.136	-0.063	-0.051	0.046
s.e.	(0.142)	(0.156)	(0.149)	(0.158)	(0.21)	(0.279)		(0.159)	(0.156)	(0.152)	(0.151)	(0.182)
Glo Sovereign	0.009	0.28	0.258	-0.008	-2.168*	-1.104		-0.001	0.377	0.497	0.432	-0.06
s.e.	(1.099)	(1.377)	(1.493)	(1.581)	(1.256)	(3.9)		(1.054)	(1.264)	(1.462)	(1.794)	(1.92)
Glo Equity	-0.186	0.202	0.095	-0.176	0.73	1.056		0.423	0.233	0.054	0.168	-0.713
s.e.	(0.511)	(0.633)	(0.731)	(0.737)	(0.72)	(1.384)		(0.581)	(0.599)	(0.636)	(0.816)	(0.944)
Glo Corporate	1.973	1.262	2.267	1.338	1.585	-0.555		1.442	1.083	1.169	1.719	2.009
s.e.	(1.872)	(2.49)	(2.356)	(2.835)	(3.044)	(3.848)		(2.518)	(2.46)	(2.421)	(2.512)	(2.929)
Glo Sovereign*w(SB)	1.127	1.286	0.777	0.827	2.32*	-1.589		1.525*	1.416	1.193	0.299	-0.047
s.e.	(0.914)	(0.998)	(1.1)	(1.059)	(1.191)	(2.187)		(0.909)	(0.996)	(1.089)	(1.149)	(1.427)
Glo Equity**w(EQ)	0.677	0.199	0.131	0.028	-1.119	-2.277***		0.164	-0.068	0.14	-0.15	0.173
s.e.	(0.574)	(0.585)	(0.686)	(0.687)	(0.747)	(0.797)		(0.54)	(0.547)	(0.599)	(0.739)	(0.928)
Glo Corporate*w(CB)	4.29	1.248	-0.268	1.827	11.369*	-3.366		3.619	0.52	1.355	0.031	0.062
s.e.	(5.069)	(5.991)	(6.358)	(5.924)	(6.738)	(13.307)		(5.29)	(6.069)	(6.349)	(7.209)	(7.107)
Adjusted R^2	0.667	0.598	0.66	0.639	0.556	0.354		0.575	0.612	0.651	0.659	0.642

Notes: This table shows the OLS coefficients of a multi-factor regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global excess returns and global excess returns interacted with lagged market capitalization weights. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in CAD. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 – August 2018.

Table 6g. Asset Integration Test: Australian Dollar Portfolios

AUD	AAA	AA	A	BBB		1-to-3	3-to-5	5-to-7	7-to-10	> 10
Integration test: Multi-factor regression with all securities (Feb 98 - Aug 18)										
Intercept	-0.08	-0.063	0.001			-0.091	-0.05	-0.029	-0.003	0.001
s.e.	(0.143)	(0.138)	(0.14)			(0.147)	(0.14)	(0.136)	(0.14)	(0.139)
Glo Sovereign	0.042	-0.077	-0.017			0.068	0.062	0.061	-0.016	0.386
s.e.	(0.213)	(0.215)	(0.226)			(0.221)	(0.214)	(0.224)	(0.229)	(0.318)
Glo Equity	0.522	0.422	0.383			0.487	0.458	0.422	0.268	-0.75**
s.e.	(0.396)	(0.383)	(0.407)			(0.392)	(0.406)	(0.418)	(0.458)	(0.314)
Glo Corporate	0.759	0.876	0.929			0.691	0.969	0.943*	1.469**	1.086**
s.e.	(0.586)	(0.595)	(0.633)			(0.575)	(0.597)	(0.53)	(0.649)	(0.508)
Glo Sovereign*w(SB)	0.992	1.215	0.916			0.657	0.858	1.267	1.685*	1.139
s.e.	(0.912)	(0.928)	(0.969)			(0.964)	(0.934)	(0.914)	(0.877)	(1.218)
Glo Equity**w(EQ)	-0.315	-0.205	-0.156			-0.262	-0.253	-0.213	-0.051	1.239***
s.e.	(0.518)	(0.498)	(0.529)			(0.516)	(0.525)	(0.535)	(0.58)	(0.425)
Glo Corporate*w(CB)	3.33	4.04	3.204			5.101	0.457	1.591	-8.318	-0.579
s.e.	(11.823)	(12.07)	(12.603)			(11.533)	(11.843)	(10.527)	(12.703)	(11.209)
Adjusted R^2	0.623	0.646	0.634			0.61	0.636	0.663	0.663	0.683
Integration test: Multi-factor regression with all securities (Feb 98 - Jul 07)										
Intercept	-0.009	0.008	0.022			0.008	-0.01	-0.031	-0.021	0.29
s.e.	(0.229)	(0.227)	(0.229)			(0.231)	(0.227)	(0.223)	(0.224)	(0.195)
Glo Sovereign	-0.045	-0.028	0.004			0.005	-0.008	-0.079	-0.072	0.638
s.e.	(0.607)	(0.619)	(0.628)			(0.599)	(0.616)	(0.648)	(0.684)	(0.603)
Glo Equity	1.313	1.305	1.287			1.029	1.494	1.876	2.103	-2.771
s.e.	(1.809)	(1.817)	(1.833)			(1.712)	(1.906)	(2.039)	(2.148)	(1.879)
Glo Corporate	0.128	0.22	0.214			0.217	0.281	0.346	0.581	1.876
s.e.	(0.977)	(1.033)	(1.058)			(0.983)	(1.04)	(1.04)	(1.065)	(1.512)
Glo Sovereign*w(SB)	0.992	1.215	0.916			0.657	0.858	1.267	1.685*	1.139
s.e.	(0.912)	(0.928)	(0.969)			(0.964)	(0.934)	(0.914)	(0.877)	(1.218)
Glo Equity**w(EQ)	-0.315	-0.205	-0.156			-0.262	-0.253	-0.213	-0.051	1.239***
s.e.	(0.518)	(0.498)	(0.529)			(0.516)	(0.525)	(0.535)	(0.58)	(0.425)
Glo Corporate*w(CB)	3.33	4.04	3.204			5.101	0.457	1.591	-8.318	-0.579
s.e.	(11.823)	(12.07)	(12.603)			(11.533)	(11.843)	(10.527)	(12.703)	(11.209)
Adjusted R^2	0.501	0.501	0.497			0.473	0.518	0.549	0.574	0.694
Integration test: Multi-factor regression with all securities (Aug 07 - Aug 18)										
Intercept	-0.163	-0.135	-0.037			-0.2	-0.098	-0.035	-0.017	-0.184
s.e.	(0.195)	(0.185)	(0.187)			(0.203)	(0.188)	(0.18)	(0.185)	(0.204)
Glo Sovereign	-0.077	-0.236	-0.154			0.058	-0.119	-0.14	-0.327	0.029
s.e.	(0.355)	(0.344)	(0.393)			(0.372)	(0.344)	(0.337)	(0.31)	(0.43)
Glo Equity	0.443	0.332	0.26			0.44	0.34	0.198	0.006	-0.445
s.e.	(0.454)	(0.406)	(0.451)			(0.477)	(0.434)	(0.383)	(0.352)	(0.406)
Glo Corporate	1.003	1.153	1.33			1.012	1.13	1.038	1.886**	0.219
s.e.	(0.831)	(0.822)	(0.886)			(0.855)	(0.832)	(0.719)	(0.81)	(0.615)
Glo Sovereign*w(SB)	0.992	1.215	0.916			0.657	0.858	1.267	1.685*	1.139
s.e.	(0.912)	(0.928)	(0.969)			(0.964)	(0.934)	(0.914)	(0.877)	(1.218)
Glo Equity**w(EQ)	-0.315	-0.205	-0.156			-0.262	-0.253	-0.213	-0.051	1.239***
s.e.	(0.518)	(0.498)	(0.529)			(0.516)	(0.525)	(0.535)	(0.58)	(0.425)
Glo Corporate*w(CB)	3.33	4.04	3.204			5.101	0.457	1.591	-8.318	-0.579
s.e.	(11.823)	(12.07)	(12.603)			(11.533)	(11.843)	(10.527)	(12.703)	(11.209)
Adjusted R^2	0.68	0.716	0.7			0.67	0.696	0.729	0.729	0.679

Notes: This table shows the OLS coefficients of a multi-factor regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global excess returns and global excess returns interacted with lagged market capitalization weights. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in AUD. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 – August 2018.

Table 7a. Residual Error Correlation Test: World Portfolios

All sample - World	Panel A	Panel B	Panel C	Panel D	Panel E
Correlation AAA / AA	0.885***	0.879***	0.663***	0.239***	-0.124
	(0.021)	(0.022)	(0.064)	(0.09)	(0.095)
Correlation AAA / A	0.848***	0.84***	0.698***	0.216***	-0.141
	(0.026)	(0.027)	(0.05)	(0.079)	(0.097)
Correlation AAA / BBB	0.691***	0.675***	0.541***	-0.38***	-0.269***
	(0.039)	(0.041)	(0.072)	(0.062)	(0.083)
Correlation AAA / BB	0.166	0.131	0.387***	-0.333***	0.219***
	(0.103)	(0.103)	(0.087)	(0.07)	(0.077)
Correlation AAA / B	-0.02	-0.058	0.311***	-0.352***	0.347***
	(0.091)	(0.088)	(0.084)	(0.074)	(0.109)
Correlation AAA / C	-0.082	-0.114	0.251**	-0.387***	0.191*
	(0.103)	(0.1)	(0.098)	(0.068)	(0.115)
Correlation AA / A	0.886***	0.879***	0.811***	0.163**	-0.294***
	(0.027)	(0.029)	(0.034)	(0.075)	(0.075)
Correlation AA / BBB	0.734***	0.717***	0.662***	-0.555***	-0.488***
	(0.045)	(0.049)	(0.058)	(0.079)	(0.108)
Correlation AA / BB	0.163*	0.123	0.466***	-0.527***	-0.071
	(0.097)	(0.096)	(0.076)	(0.058)	(0.095)
Correlation AA / B	-0.028	-0.072	0.392***	-0.508***	0.096
	(0.079)	(0.076)	(0.069)	(0.062)	(0.102)
Correlation AA / C	-0.047	-0.082	0.417***	-0.333***	0.493***
	(0.093)	(0.091)	(0.082)	(0.068)	(0.057)
Correlation A / BBB	0.887***	0.879***	0.849***	-0.303**	-0.161
	(0.024)	(0.025)	(0.04)	(0.142)	(0.155)
Correlation A / BB	0.404***	0.373***	0.624***	-0.596***	-0.249***
	(0.103)	(0.103)	(0.075)	(0.065)	(0.073)
Correlation A / B	0.229**	0.194**	0.558***	-0.526***	0
	(0.1)	(0.098)	(0.066)	(0.075)	(0.104)
Correlation A / C	0.172	0.142	0.512***	-0.514***	-0.009
	(0.105)	(0.104)	(0.079)	(0.073)	(0.079)
Correlation BBB / BB	0.638***	0.62***	0.798***	0.286***	0.065
	(0.069)	(0.07)	(0.037)	(0.096)	(0.09)
Correlation BBB / B	0.458***	0.433***	0.708***	0.154	-0.291***
	(0.087)	(0.087)	(0.053)	(0.097)	(0.098)
Correlation BBB / C	0.393***	0.373***	0.655***	0.098	-0.363***
	(0.092)	(0.092)	(0.058)	(0.108)	(0.084)
Correlation BB / B	0.862***	0.858***	0.859***	0.686***	-0.21*
	(0.033)	(0.034)	(0.034)	(0.064)	(0.122)
Correlation BB / C	0.807***	0.804***	0.802***	0.597***	-0.425***
	(0.039)	(0.039)	(0.037)	(0.068)	(0.069)
Correlation B / C	0.879***	0.877***	0.854***	0.721***	-0.295**
	(0.033)	(0.034)	(0.039)	(0.068)	(0.126)
Wald test (Chi-square)	**23313**	**21095**	**10708**	**3559**	**184162**
Correlation 1to3 3to5	0.951***	0.948***	0.92***	0.882***	0.868***
	(0.007)	(0.008)	(0.013)	(0.018)	(0.021)
Correlation 1to3 5to7	0.808***	0.795***	0.725***	0.208**	0.366***
	(0.029)	(0.031)	(0.046)	(0.09)	(0.091)
Correlation 1to3 7to10	0.672***	0.65***	0.488***	-0.8***	-0.772***
	(0.043)	(0.045)	(0.073)	(0.025)	(0.026)
Correlation 1to3 10p	0.433***	0.401***	0.157	-0.859***	-0.867***
	(0.068)	(0.069)	(0.108)	(0.023)	(0.026)
Correlation 3to5 5to7	0.916***	0.91***	0.895***	0.351***	0.526***
	(0.017)	(0.019)	(0.023)	(0.09)	(0.079)
Correlation 3to5 7to10	0.831***	0.818***	0.73***	-0.661***	-0.612***
	(0.027)	(0.028)	(0.046)	(0.05)	(0.05)
Correlation 3to5 10p	0.602***	0.578***	0.394***	-0.922***	-0.933***
	(0.051)	(0.052)	(0.088)	(0.015)	(0.014)
Correlation 5to7 7to10	0.941***	0.936***	0.923***	0.087	-0.063
	(0.011)	(0.011)	(0.015)	(0.095)	(0.114)
Correlation 5to7 10p	0.734***	0.718***	0.655***	-0.557***	-0.66***
	(0.041)	(0.042)	(0.062)	(0.061)	(0.057)
Correlation 7to10 10p	0.873***	0.867***	0.826***	0.487***	0.47***
	(0.019)	(0.02)	(0.034)	(0.059)	(0.068)
Wald test (Chi-square)	**311057**	**270191**	**134348**	**322916**	**235756**

Note: This table shows the correlation coefficients between the residuals of the factor models with the following specifications. Panel A: CAPM with sovereign and equity securities, global factors. Panel B: CAPM with all securities, global factors. Panel C: Multi-factor regression with sovereign and equity securities, global factors. Panel D: Multi-factor regression with all securities, global factors. Panel E: Multi-factor regression with all securities, global factors, plus the second principle component from the excess returns of all ratings and residual maturity portfolios. The correlations are estimated using GMM methods under sequential weighting matrix and coefficient iteration. The Wald test provides the Chi-Square provides under the null hypothesis that all estimated correlation coefficients are zero. *,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 - August 2018.

Table 7b. Residual Error Correlation Test: US Dollar Portfolios

All sample - USD	Panel A	Panel B	Panel C	Panel D	Panel E	Panel F	Panel G	Panel H
Correlation AAA / AA	0.922***	0.921***	0.919***	0.875***	0.887***	0.626***	0.613***	0.752***
	(0.015)	(0.015)	(0.015)	(0.025)	(0.022)	(0.058)	(0.057)	(0.044)
Correlation AAA / A	0.858***	0.856***	0.853***	0.829***	0.857***	0.588***	0.578***	0.738***
	(0.022)	(0.022)	(0.022)	(0.038)	(0.023)	(0.092)	(0.093)	(0.032)
Correlation AAA / BBB	0.678***	0.672***	0.67***	0.648***	0.606***	-0.287*	-0.297**	0.664***
	(0.057)	(0.058)	(0.059)	(0.049)	(0.08)	(0.149)	(0.14)	(0.056)
Correlation AAA / BB	0.076	0.055	0.063	0.303***	0.079	-0.522***	-0.5***	0.745***
	(0.106)	(0.104)	(0.103)	(0.087)	(0.105)	(0.08)	(0.08)	(0.037)
Correlation AAA / B	-0.096	-0.12	-0.108	0.238***	-0.005	-0.489***	-0.454***	0.797***
	(0.098)	(0.096)	(0.096)	(0.084)	(0.087)	(0.076)	(0.079)	(0.04)
Correlation AAA / C	-0.186**	-0.207**	-0.208**	0.117	-0.176**	-0.457***	-0.442***	0.735***
	(0.088)	(0.086)	(0.085)	(0.074)	(0.086)	(0.078)	(0.08)	(0.039)
Correlation AA / A	0.955***	0.954***	0.953***	0.947***	0.915***	0.702***	0.7***	0.851***
	(0.012)	(0.013)	(0.013)	(0.008)	(0.019)	(0.04)	(0.042)	(0.047)
Correlation AA / BBB	0.82***	0.815***	0.815***	0.81***	0.666***	-0.315***	-0.309***	0.742***
	(0.039)	(0.04)	(0.04)	(0.031)	(0.071)	(0.111)	(0.107)	(0.042)
Correlation AA / BB	0.272***	0.251***	0.262***	0.487***	0.119	-0.641***	-0.65***	0.776***
	(0.098)	(0.097)	(0.094)	(0.067)	(0.098)	(0.057)	(0.056)	(0.031)
Correlation AA / B	0.104	0.078	0.094	0.421***	0.023	-0.644***	-0.651***	0.805***
	(0.095)	(0.094)	(0.093)	(0.067)	(0.085)	(0.051)	(0.048)	(0.029)
Correlation AA / C	0.002	-0.022	-0.02	0.296***	-0.184**	-0.633***	-0.631***	0.673***
	(0.094)	(0.093)	(0.089)	(0.074)	(0.083)	(0.065)	(0.065)	(0.051)
Correlation A / BBB	0.86***	0.855***	0.855***	0.838***	0.666***	-0.482***	-0.472***	0.691***
	(0.034)	(0.035)	(0.036)	(0.042)	(0.11)	(0.179)	(0.173)	(0.111)
Correlation A / BB	0.396***	0.376***	0.387***	0.564***	0.18*	-0.683***	-0.677***	0.726***
	(0.075)	(0.075)	(0.071)	(0.05)	(0.095)	(0.046)	(0.039)	(0.053)
Correlation A / B	0.247***	0.223**	0.239***	0.511***	0.099	-0.673***	-0.662***	0.768***
	(0.088)	(0.087)	(0.085)	(0.052)	(0.081)	(0.036)	(0.033)	(0.034)
Correlation A / C	0.154*	0.132	0.135	0.407***	-0.088	-0.583***	-0.584***	0.672***
	(0.088)	(0.087)	(0.084)	(0.072)	(0.099)	(0.071)	(0.072)	(0.049)
Correlation BBB / BB	0.639***	0.627***	0.633***	0.763***	0.527***	0.056	0.057	0.749***
	(0.065)	(0.066)	(0.064)	(0.041)	(0.061)	(0.184)	(0.17)	(0.045)
Correlation BBB / B	0.493***	0.475***	0.486***	0.701***	0.416***	-0.058	-0.063	0.702***
	(0.088)	(0.089)	(0.088)	(0.056)	(0.075)	(0.174)	(0.157)	(0.047)
Correlation BBB / C	0.399***	0.382***	0.384***	0.602***	0.221**	-0.039	-0.05	0.559***
	(0.094)	(0.094)	(0.094)	(0.069)	(0.087)	(0.175)	(0.172)	(0.069)
Correlation BB / B	0.869***	0.866***	0.866***	0.869***	0.764***	0.578***	0.6***	0.681***
	(0.031)	(0.032)	(0.032)	(0.031)	(0.048)	(0.073)	(0.067)	(0.047)
Correlation BB / C	0.786***	0.782***	0.782***	0.776***	0.6***	0.452***	0.452***	0.424***
	(0.04)	(0.041)	(0.041)	(0.039)	(0.064)	(0.089)	(0.084)	(0.066)
Correlation B / C	0.866***	0.864***	0.866***	0.837***	0.714***	0.594***	0.589***	0.527***
	(0.037)	(0.037)	(0.036)	(0.043)	(0.069)	(0.083)	(0.083)	(0.094)
Wald test (Chi-square)	**124653**	**120485**	**110252**	**61252**	**21463**	**11142**	**9618**	**42559**
Correlation 1to3 3to5	0.933***	0.932***	0.93***	0.935***	0.829***	0.731***	0.725***	0.832***
	(0.008)	(0.008)	(0.009)	(0.011)	(0.033)	(0.046)	(0.041)	(0.037)
Correlation 1to3 5to7	0.882***	0.878***	0.879***	0.875***	0.654***	0.279**	0.291**	0.67***
	(0.018)	(0.019)	(0.018)	(0.019)	(0.07)	(0.134)	(0.132)	(0.044)
Correlation 1to3 7to10	0.799***	0.793***	0.793***	0.789***	0.487***	-0.263***	-0.285***	0.496***
	(0.027)	(0.026)	(0.027)	(0.033)	(0.054)	(0.069)	(0.071)	(0.065)
Correlation 1to3 10p	0.593***	0.582***	0.58***	0.591***	0.201**	-0.681***	-0.682***	0.233***
	(0.067)	(0.067)	(0.068)	(0.068)	(0.083)	(0.056)	(0.052)	(0.071)
Correlation 3to5 5to7	0.929***	0.926***	0.927***	0.937***	0.798***	0.441***	0.461***	0.842***
	(0.015)	(0.015)	(0.015)	(0.012)	(0.047)	(0.11)	(0.102)	(0.029)
Correlation 3to5 7to10	0.906***	0.902***	0.904***	0.891***	0.719***	-0.044	-0.085	0.718***
	(0.014)	(0.014)	(0.014)	(0.019)	(0.035)	(0.077)	(0.078)	(0.038)
Correlation 3to5 10p	0.713***	0.704***	0.703***	0.688***	0.376***	-0.854***	-0.855***	0.383***
	(0.05)	(0.051)	(0.052)	(0.054)	(0.079)	(0.028)	(0.025)	(0.064)
Correlation 5to7 7to10	0.905***	0.901***	0.9***	0.922***	0.805***	0.23***	0.193**	0.882***
	(0.024)	(0.025)	(0.025)	(0.018)	(0.039)	(0.082)	(0.09)	(0.021)
Correlation 5to7 10p	0.69***	0.679***	0.677***	0.733***	0.475***	-0.719***	-0.726***	0.691***
	(0.061)	(0.062)	(0.063)	(0.05)	(0.083)	(0.064)	(0.061)	(0.047)
Correlation 7to10 10p	0.878***	0.874***	0.873***	0.873***	0.778***	-0.302***	-0.264***	0.805***
	(0.022)	(0.022)	(0.022)	(0.024)	(0.036)	(0.064)	(0.066)	(0.027)
Wald test (Chi-square)	**87354**	**81016**	**82768**	**66297**	**12357**	**99446**	**104149**	**11527**

Note: This table shows the correlation coefficients between the residuals of the factor models with the following specifications. Panel A: CAPM with sovereign and equity securities, global factors. Panel B: CAPM with all securities, global factors. Panel C: CAPM with all securities, global and local factors. Panel D: Multi-factor regression with sovereign and equity securities, global factors. Panel E: Multi-factor regression with all securities, global factors. Panel F: Multi-factor regression with all securities, global and local factors. Panel G: Multi-factor regression with all securities, local factors. Panel H: Multi-factor regression with all securities, local factors, plus the second principle component from the excess returns of all ratings and residual maturity portfolios. The correlations are estimated using GMM methods under sequential weighting matrix and coefficient iteration. The Wald test provides the Chi-Square provides under the null hypothesis that all estimated correlation coefficients are zero. *,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 - August 2018.

Table 7c. Residual Error Correlation Test: Euro Portfolios

All sample - EUR	Panel A	Panel B	Panel C	Panel D	Panel E	Panel F	Panel G	Panel H
Correlation AAA / AA	0.986***	0.986***	0.965***	0.979***	0.974***	0.397***	0.501***	0.967***
	(0.003)	(0.003)	(0.008)	(0.005)	(0.007)	(0.08)	(0.082)	(0.008)
Correlation AAA / A	0.965***	0.964***	0.909***	0.958***	0.961***	0.033	-0.069	0.952***
	(0.007)	(0.007)	(0.016)	(0.007)	(0.008)	(0.108)	(0.086)	(0.011)
Correlation AAA / BBB	0.934***	0.932***	0.824***	0.933***	0.927***	-0.273***	-0.339***	0.924***
	(0.011)	(0.011)	(0.027)	(0.01)	(0.015)	(0.075)	(0.061)	(0.014)
Correlation AAA / BB	0.599***	0.579***	0.186**	0.68***	0.544***	-0.081	-0.193***	0.685***
	(0.054)	(0.056)	(0.074)	(0.05)	(0.066)	(0.075)	(0.069)	(0.062)
Correlation AAA / B	0.536***	0.514***	0.107	0.684***	0.547***	-0.012	-0.157*	0.846***
	(0.07)	(0.073)	(0.077)	(0.05)	(0.079)	(0.077)	(0.081)	(0.034)
Correlation AAA / C	0.211**	0.187**	-0.067	0.413***	0.19**	-0.079	-0.199**	0.845***
	(0.091)	(0.091)	(0.084)	(0.064)	(0.074)	(0.09)	(0.08)	(0.024)
Correlation AA / A	0.988***	0.988***	0.968***	0.986***	0.989***	0.326***	0.139	0.987***
	(0.003)	(0.003)	(0.007)	(0.003)	(0.002)	(0.1)	(0.099)	(0.003)
Correlation AA / BBB	0.963***	0.962***	0.896***	0.962***	0.955***	-0.445***	-0.493***	0.956***
	(0.006)	(0.006)	(0.017)	(0.006)	(0.011)	(0.084)	(0.067)	(0.009)
Correlation AA / BB	0.646***	0.628***	0.269***	0.711***	0.558***	-0.184**	-0.314***	0.699***
	(0.053)	(0.055)	(0.077)	(0.05)	(0.067)	(0.086)	(0.083)	(0.064)
Correlation AA / B	0.582***	0.562***	0.185**	0.707***	0.548***	-0.177**	-0.327***	0.846***
	(0.067)	(0.07)	(0.079)	(0.05)	(0.082)	(0.08)	(0.083)	(0.035)
Correlation AA / C	0.263***	0.239**	0.01	0.445***	0.201**	-0.131	-0.267***	0.864***
	(0.095)	(0.095)	(0.087)	(0.069)	(0.082)	(0.083)	(0.061)	(0.022)
Correlation A / BBB	0.981***	0.98***	0.944***	0.975***	0.958***	-0.326**	-0.236	0.958***
	(0.005)	(0.005)	(0.013)	(0.007)	(0.013)	(0.144)	(0.161)	(0.01)
Correlation A / BB	0.7***	0.682***	0.385***	0.744***	0.556***	-0.201*	-0.082	0.697***
	(0.052)	(0.054)	(0.08)	(0.052)	(0.068)	(0.116)	(0.115)	(0.066)
Correlation A / B	0.648***	0.629***	0.319***	0.746***	0.553***	-0.156*	-0.037	0.852***
	(0.063)	(0.066)	(0.082)	(0.05)	(0.084)	(0.092)	(0.103)	(0.034)
Correlation A / C	0.327***	0.305***	0.12	0.482***	0.195**	-0.197*	-0.087	0.852***
	(0.097)	(0.097)	(0.075)	(0.094)	(0.09)	(0.114)	(0.104)	(0.024)
Correlation BBB / BB	0.755***	0.74***	0.506***	0.785***	0.621***	0.28**	0.339***	0.717***
	(0.048)	(0.049)	(0.076)	(0.049)	(0.071)	(0.141)	(0.122)	(0.073)
Correlation BBB / B	0.7***	0.684***	0.429***	0.772***	0.591***	0.149	0.231**	0.823***
	(0.054)	(0.057)	(0.079)	(0.042)	(0.072)	(0.107)	(0.105)	(0.032)
Correlation BBB / C	0.402***	0.382***	0.254***	0.534***	0.267***	0.227**	0.295***	0.822***
	(0.09)	(0.09)	(0.095)	(0.066)	(0.085)	(0.094)	(0.077)	(0.031)
Correlation BB / B	0.794***	0.781***	0.643***	0.773***	0.579***	0.333***	0.408***	0.566***
	(0.058)	(0.06)	(0.092)	(0.061)	(0.087)	(0.114)	(0.114)	(0.086)
Correlation BB / C	0.594***	0.58***	0.523***	0.592***	0.359***	0.26**	0.325***	0.356***
	(0.084)	(0.085)	(0.114)	(0.082)	(0.103)	(0.13)	(0.122)	(0.117)
Correlation B / C	0.771***	0.766***	0.768***	0.77***	0.639***	0.643***	0.689***	0.585***
	(0.038)	(0.038)	(0.049)	(0.036)	(0.056)	(0.075)	(0.063)	(0.077)
Wald test (Chi-square)	**2746231**	**2517424**	**378032**	**1056465**	**766287**	**276**	**391**	**2042813**
Correlation 1to3 3to5	0.989***	0.989***	0.968***	0.985***	0.985***	0.634***	0.763***	0.984***
	(0.002)	(0.002)	(0.005)	(0.003)	(0.002)	(0.046)	(0.034)	(0.003)
Correlation 1to3 5to7	0.962***	0.961***	0.893***	0.947***	0.949***	-0.613***	-0.756***	0.944***
	(0.006)	(0.007)	(0.017)	(0.009)	(0.008)	(0.058)	(0.039)	(0.009)
Correlation 1to3 7to10	0.925***	0.922***	0.792***	0.891***	0.874***	-0.871***	-0.928***	0.86***
	(0.012)	(0.013)	(0.031)	(0.017)	(0.019)	(0.016)	(0.01)	(0.022)
Correlation 1to3 10p	0.852***	0.847***	0.636***	0.787***	0.697***	-0.792***	-0.865***	0.646***
	(0.024)	(0.025)	(0.049)	(0.032)	(0.047)	(0.029)	(0.02)	(0.055)
Correlation 3to5 5to7	0.99***	0.989***	0.97***	0.985***	0.983***	-0.152**	-0.422***	0.981***
	(0.002)	(0.002)	(0.005)	(0.003)	(0.003)	(0.074)	(0.062)	(0.003)
Correlation 3to5 7to10	0.965***	0.963***	0.903***	0.947***	0.928***	-0.688***	-0.797***	0.917***
	(0.006)	(0.006)	(0.015)	(0.008)	(0.012)	(0.046)	(0.033)	(0.015)
Correlation 3to5 10p	0.902***	0.898***	0.762***	0.857***	0.771***	-0.715***	-0.804***	0.723***
	(0.017)	(0.018)	(0.036)	(0.023)	(0.04)	(0.043)	(0.033)	(0.048)
Correlation 5to7 7to10	0.989***	0.988***	0.97***	0.983***	0.971***	0.588***	0.74***	0.965***
	(0.002)	(0.002)	(0.005)	(0.003)	(0.006)	(0.062)	(0.043)	(0.007)
Correlation 5to7 10p	0.934***	0.931***	0.843***	0.91***	0.841***	0.332***	0.55***	0.804***
	(0.012)	(0.013)	(0.026)	(0.015)	(0.03)	(0.079)	(0.062)	(0.037)
Correlation 7to10 10p	0.964***	0.962***	0.916***	0.954***	0.921***	0.758***	0.845***	0.9***
	(0.007)	(0.007)	(0.014)	(0.008)	(0.015)	(0.032)	(0.022)	(0.019)
Wald test (Chi-square)	**23915526**	**21754238**	**3085736**	**10423499**	**4069570**	**4787**	**17186**	**2741360**

Note: This table shows the correlation coefficients between the residuals of the factor models with the following specifications. Panel A: CAPM with sovereign and equity securities, global factors. Panel B: CAPM with all securities, global factors. Panel C: CAPM with all securities, global and local factors. Panel D: Multi-factor regression with sovereign and equity securities, global factors. Panel E: Multi-factor regression with all securities, global factors. Panel F: Multi-factor regression with all securities, global and local factors. Panel G: Multi-factor regression with all securities, local factors. Panel H: Multi-factor regression with all securities, local factors, plus the second principle component from the excess returns of all ratings and residual maturity portfolios. The correlations are estimated using GMM methods under sequential weighting matrix and coefficient iteration. The Wald test provides the Chi-Square provides under the null hypothesis that all estimated correlation coefficients are zero. *,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 - August 2018.

Table 7d. Residual Error Correlation Test: Japanese Yen Portfolios

All sample - JPY	Panel A	Panel B	Panel C	Panel D	Panel E	Panel F	Panel G	Panel H
Correlation AAA / AA								
Correlation AAA / A								
Correlation AAA / BBB								
Correlation AAA / BB								
Correlation AAA / B								
Correlation AAA / C								
Correlation AA / A	0.991***	0.991***	0.963***	0.985***	0.985***	-0.416***	-0.4***	0.987***
	(0.002)	(0.002)	(0.008)	(0.004)	(0.004)	(0.111)	(0.11)	(0.005)
Correlation AA / BBB	0.987***	0.987***	0.948***	0.979***	0.978***	-0.351***	-0.348***	0.981***
	(0.003)	(0.003)	(0.01)	(0.005)	(0.005)	(0.101)	(0.102)	(0.006)
Correlation AA / BB								
Correlation AA / B								
Correlation AA / C								
Correlation A / BBB	0.99***	0.99***	0.959***	0.982***	0.982***	-0.336***	-0.331***	0.977***
	(0.003)	(0.003)	(0.012)	(0.006)	(0.006)	(0.108)	(0.108)	(0.008)
Correlation A / BB								
Correlation A / B								
Correlation A / C								
Correlation BBB / BB								
Correlation BBB / B								
Correlation BBB / C								
Correlation BB / B								
Correlation BB / C								
Correlation B / C								
Wald test (Chi-square)	199033	194668	20608	70615	76154	558	415	252217
Correlation 1to3 3to5	0.997***	0.997***	0.989***	0.996***	0.995***	0.44***	0.432***	0.997***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.113)	(0.114)	(0.001)
Correlation 1to3 5to7	0.985***	0.985***	0.941***	0.976***	0.975***	-0.72***	-0.722***	0.99***
	(0.003)	(0.003)	(0.01)	(0.006)	(0.006)	(0.057)	(0.056)	(0.002)
Correlation 1to3 7to10	0.963***	0.963***	0.858***	0.941***	0.938***	-0.756***	-0.76***	0.984***
	(0.009)	(0.009)	(0.026)	(0.016)	(0.016)	(0.055)	(0.052)	(0.004)
Correlation 1to3 10p	0.909***	0.909***	0.683***	0.843***	0.835***	-0.582***	-0.597***	0.998***
	(0.02)	(0.021)	(0.057)	(0.039)	(0.039)	(0.069)	(0.067)	(0)
Correlation 3to5 5to7	0.994***	0.994***	0.976***	0.99***	0.989***	-0.206	-0.21	0.995***
	(0.001)	(0.001)	(0.004)	(0.003)	(0.003)	(0.151)	(0.151)	(0.001)
Correlation 3to5 7to10	0.978***	0.977***	0.913***	0.963***	0.962***	-0.411***	-0.412***	0.991***
	(0.005)	(0.005)	(0.017)	(0.01)	(0.01)	(0.13)	(0.128)	(0.002)
Correlation 3to5 10p	0.929***	0.929***	0.753***	0.874***	0.867***	-0.606***	-0.6***	0.996***
	(0.016)	(0.016)	(0.046)	(0.031)	(0.031)	(0.069)	(0.069)	(0.001)
Correlation 5to7 7to10	0.993***	0.993***	0.972***	0.988***	0.988***	0.795***	0.796***	0.995***
	(0.002)	(0.002)	(0.005)	(0.003)	(0.003)	(0.046)	(0.046)	(0.001)
Correlation 5to7 10p	0.954***	0.954***	0.845***	0.916***	0.911***	0.255**	0.268**	0.988***
	(0.009)	(0.01)	(0.028)	(0.02)	(0.02)	(0.114)	(0.112)	(0.003)
Correlation 7to10 10p	0.974***	0.974***	0.914***	0.949***	0.946***	0.37***	0.385***	0.979***
	(0.005)	(0.005)	(0.014)	(0.011)	(0.01)	(0.117)	(0.11)	(0.005)
Wald test (Chi-square)	64669660	64400329	4270015	21585188	22615188	1384	1393	18586717

Note: This table shows the correlation coefficients between the residuals of the factor models with the following specifications. Panel A: CAPM with sovereign and equity securities, global factors. Panel B: CAPM with all securities, global factors. Panel C: CAPM with all securities, global and local factors. Panel D: Multi-factor regression with sovereign and equity securities, global factors. Panel E: Multi-factor regression with all securities, global factors. Panel F: Multi-factor regression with all securities, global and local factors. Panel G: Multi-factor regression with all securities, local factors. Panel H: Multi-factor regression with all securities, local factors, plus the second principle component from the excess returns of all ratings and residual maturity portfolios. The correlations are estimated using GMM methods under sequential weighting matrix and coefficient iteration. The Wald test provides the Chi-Square provides under the null hypothesis that all estimated correlation coefficients are zero. *,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 - August 2018.

All sample - GBP	Panel A	Panel B	Panel C	Panel D	Panel E	Panel F	Panel G	Panel H
Correlation AAA / AA	0.951***	0.949***	0.938***	0.949***	0.932***	0.528***	0.532***	0.914***
	(0.007)	(0.007)	(0.009)	(0.007)	(0.012)	(0.078)	(0.078)	(0.015)
Correlation AAA / A	0.912***	0.909***	0.886***	0.921***	0.903***	0.313*	0.318*	0.874***
	(0.012)	(0.012)	(0.018)	(0.013)	(0.024)	(0.162)	(0.17)	(0.035)
Correlation AAA / BBB	0.87***	0.866***	0.827***	0.889***	0.861***	-0.192	-0.236*	0.854***
	(0.016)	(0.016)	(0.023)	(0.015)	(0.022)	(0.123)	(0.138)	(0.022)
Correlation AAA / BB	0.579***	0.564***	0.322***	0.671***	0.526***	-0.319***	-0.336***	0.651***
	(0.054)	(0.055)	(0.075)	(0.048)	(0.07)	(0.063)	(0.062)	(0.063)
Correlation AAA / B	0.449***	0.433***	0.192**	0.574***	0.372***	-0.064	-0.116	0.681***
	(0.07)	(0.069)	(0.078)	(0.059)	(0.075)	(0.13)	(0.142)	(0.05)
Correlation AAA / C	0.33***	0.318***	0.128*	0.397***	0.19**	-0.152*	-0.17**	0.794***
	(0.063)	(0.063)	(0.072)	(0.061)	(0.074)	(0.078)	(0.087)	(0.037)
Correlation AA / A	0.977***	0.976***	0.963***	0.978***	0.971***	0.328**	0.328**	0.964***
	(0.004)	(0.004)	(0.007)	(0.005)	(0.009)	(0.145)	(0.142)	(0.012)
Correlation AA / BBB	0.946***	0.944***	0.913***	0.952***	0.932***	-0.403***	-0.431***	0.931***
	(0.007)	(0.008)	(0.013)	(0.008)	(0.014)	(0.126)	(0.125)	(0.013)
Correlation AA / BB	0.701***	0.69***	0.44***	0.761***	0.623***	-0.403***	-0.404***	0.736***
	(0.054)	(0.055)	(0.077)	(0.047)	(0.067)	(0.063)	(0.056)	(0.052)
Correlation AA / B	0.538***	0.524***	0.252**	0.621***	0.389***	-0.163	-0.23*	0.663***
	(0.082)	(0.082)	(0.099)	(0.069)	(0.095)	(0.124)	(0.128)	(0.062)
Correlation AA / C	0.429***	0.418***	0.215***	0.47***	0.251***	-0.133*	-0.163**	0.813***
	(0.065)	(0.066)	(0.078)	(0.062)	(0.077)	(0.075)	(0.076)	(0.028)
Correlation A / BBB	0.965***	0.964***	0.94***	0.963***	0.936***	-0.448***	-0.462***	0.937***
	(0.011)	(0.011)	(0.018)	(0.012)	(0.02)	(0.12)	(0.134)	(0.016)
Correlation A / BB	0.755***	0.745***	0.517***	0.787***	0.642***	-0.409***	-0.42***	0.772***
	(0.053)	(0.054)	(0.075)	(0.049)	(0.068)	(0.098)	(0.093)	(0.049)
Correlation A / B	0.564***	0.55***	0.269**	0.612***	0.323**	-0.539***	-0.543***	0.599***
	(0.106)	(0.107)	(0.137)	(0.094)	(0.137)	(0.099)	(0.123)	(0.094)
Correlation A / C	0.46***	0.449***	0.248***	0.478***	0.231***	-0.32***	-0.34***	0.818***
	(0.068)	(0.068)	(0.082)	(0.063)	(0.082)	(0.074)	(0.082)	(0.028)
Correlation BBB / BB	0.815***	0.807***	0.612***	0.834***	0.717***	0.287**	0.316***	0.791***
	(0.045)	(0.046)	(0.065)	(0.042)	(0.061)	(0.118)	(0.104)	(0.049)
Correlation BBB / B	0.665***	0.654***	0.423***	0.701***	0.462***	0.23	0.346**	0.663***
	(0.067)	(0.067)	(0.084)	(0.056)	(0.085)	(0.148)	(0.155)	(0.061)
Correlation BBB / C	0.522***	0.513***	0.332***	0.53***	0.3***	0.125	0.178	0.718***
	(0.059)	(0.059)	(0.069)	(0.057)	(0.079)	(0.102)	(0.111)	(0.038)
Correlation BB / B	0.732***	0.723***	0.519***	0.713***	0.511***	0.345***	0.359***	0.51***
	(0.07)	(0.071)	(0.102)	(0.071)	(0.11)	(0.099)	(0.086)	(0.107)
Correlation BB / C	0.593***	0.586***	0.432***	0.568***	0.376***	0.249**	0.265***	0.416***
	(0.057)	(0.057)	(0.077)	(0.056)	(0.081)	(0.099)	(0.094)	(0.082)
Correlation B / C	0.617***	0.61***	0.49***	0.594***	0.409***	0.346***	0.382***	0.206*
	(0.053)	(0.053)	(0.075)	(0.056)	(0.067)	(0.089)	(0.096)	(0.106)
Wald test (Chi-square)	**205436**	**195414**	**84775**	**261342**	**122673**	**379**	**462**	**4759503**
Correlation 1to3 3to5	0.981***	0.981***	0.967***	0.979***	0.975***	0.91***	0.911***	0.975***
	(0.003)	(0.003)	(0.006)	(0.004)	(0.005)	(0.016)	(0.017)	(0.005)
Correlation 1to3 5to7	0.93***	0.928***	0.876***	0.924***	0.906***	0.642***	0.622***	0.908***
	(0.012)	(0.012)	(0.021)	(0.013)	(0.02)	(0.057)	(0.058)	(0.018)
Correlation 1to3 7to10	0.886***	0.883***	0.8***	0.874***	0.829***	0.079	0.005	0.847***
	(0.019)	(0.02)	(0.03)	(0.021)	(0.03)	(0.089)	(0.095)	(0.026)
Correlation 1to3 10p	0.768***	0.762***	0.625***	0.747***	0.628***	-0.9***	-0.887***	0.664***
	(0.037)	(0.037)	(0.053)	(0.04)	(0.058)	(0.015)	(0.016)	(0.052)
Correlation 3to5 5to7	0.962***	0.961***	0.933***	0.959***	0.94***	0.666***	0.66***	0.938***
	(0.006)	(0.006)	(0.013)	(0.007)	(0.014)	(0.061)	(0.063)	(0.014)
Correlation 3to5 7to10	0.932***	0.93***	0.88***	0.924***	0.882***	0.104	0.051	0.891***
	(0.012)	(0.013)	(0.021)	(0.014)	(0.023)	(0.096)	(0.104)	(0.02)
Correlation 3to5 10p	0.828***	0.823***	0.723***	0.811***	0.699***	-0.913***	-0.911***	0.725***
	(0.027)	(0.028)	(0.04)	(0.03)	(0.047)	(0.016)	(0.016)	(0.044)
Correlation 5to7 7to10	0.975***	0.974***	0.955***	0.972***	0.947***	0.482***	0.461***	0.951***
	(0.005)	(0.005)	(0.008)	(0.006)	(0.01)	(0.077)	(0.08)	(0.01)
Correlation 5to7 10p	0.864***	0.86***	0.781***	0.858***	0.759***	-0.824***	-0.824***	0.766***
	(0.019)	(0.019)	(0.03)	(0.021)	(0.039)	(0.03)	(0.03)	(0.038)
Correlation 7to10 10p	0.925***	0.922***	0.881***	0.922***	0.873***	-0.377***	-0.335***	0.861***
	(0.01)	(0.01)	(0.017)	(0.011)	(0.021)	(0.074)	(0.08)	(0.022)
Wald test (Chi-square)	**429599**	**403411**	**134950**	**307953**	**121331**	**66402**	**43447**	**93038**

Note: This table shows the correlation coefficients between the residuals of the factor models with the following specifications. Panel A: CAPM with sovereign and equity securities, global factors. Panel B: CAPM with all securities, global factors. Panel C: CAPM with all securities, global and local factors. Panel D: Multi-factor regression with sovereign and equity securities, global factors. Panel E: Multi-factor regression with all securities, global factors. Panel F: Multi-factor regression with all securities, global and local factors. Panel G: Multi-factor regression with all securities, local factors. Panel H: Multi-factor regression with all securities, local factors, plus the second principle component from the excess returns of all ratings and residual maturity portfolios. The correlations are estimated using GMM methods under sequential weighting matrix and coefficient iteration. The Wald test provides the Chi-Square provides under the null hypothesis that all estimated correlation coefficients are zero. *,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 - August 2018.

Table 7f. Residual Error Correlation Test: Canadian Dollar Portfolios

All sample - CAD	Panel A	Panel B	Panel C	Panel D	Panel E	Panel F	Panel G	Panel H
Correlation AAA / AA	0.967***	0.966***	0.917***	0.969***	0.964***	0.365***	0.323**	0.965***
	(0.007)	(0.007)	(0.017)	(0.007)	(0.008)	(0.093)	(0.131)	(0.007)
Correlation AAA / A	0.961***	0.96***	0.899***	0.96***	0.955***	-0.121	-0.101	0.956***
	(0.007)	(0.007)	(0.015)	(0.006)	(0.007)	(0.154)	(0.188)	(0.007)
Correlation AAA / BBB	0.945***	0.943***	0.859***	0.945***	0.936***	-0.275***	-0.261**	0.938***
	(0.01)	(0.011)	(0.024)	(0.011)	(0.013)	(0.104)	(0.104)	(0.012)
Correlation AAA / BB	0.724***	0.718***	0.462***	0.74***	0.69***	-0.2**	-0.197**	0.74***
	(0.059)	(0.059)	(0.056)	(0.07)	(0.078)	(0.085)	(0.087)	(0.068)
Correlation AAA / B	0.354***	0.35***	-0.029	0.444***	0.408***	-0.199***	-0.205***	0.96***
	(0.073)	(0.073)	(0.081)	(0.075)	(0.082)	(0.072)	(0.078)	(0.008)
Correlation AAA / C								
Correlation AA / A	0.976***	0.976***	0.933***	0.975***	0.974***	-0.508***	-0.554***	0.974***
	(0.004)	(0.004)	(0.011)	(0.004)	(0.003)	(0.07)	(0.081)	(0.003)
Correlation AA / BBB	0.969***	0.968***	0.917***	0.966***	0.962***	-0.447***	-0.458***	0.962***
	(0.005)	(0.005)	(0.013)	(0.006)	(0.006)	(0.088)	(0.107)	(0.006)
Correlation AA / BB	0.787***	0.782***	0.587***	0.788***	0.748***	-0.074	-0.091	0.783***
	(0.061)	(0.062)	(0.055)	(0.07)	(0.081)	(0.098)	(0.096)	(0.073)
Correlation AA / B	0.432***	0.429***	0.081	0.485***	0.454***	-0.169**	-0.126	0.957***
	(0.073)	(0.074)	(0.081)	(0.078)	(0.088)	(0.081)	(0.078)	(0.007)
Correlation AA / C								
Correlation A / BBB	0.983***	0.983***	0.955***	0.982***	0.978***	-0.141	-0.116	0.978***
	(0.004)	(0.004)	(0.009)	(0.005)	(0.004)	(0.114)	(0.141)	(0.004)
Correlation A / BB	0.789***	0.784***	0.592***	0.795***	0.747***	-0.155	-0.147	0.782***
	(0.053)	(0.054)	(0.047)	(0.062)	(0.066)	(0.136)	(0.113)	(0.059)
Correlation A / B	0.426***	0.422***	0.081	0.492***	0.463***	-0.147*	-0.183**	0.972***
	(0.072)	(0.073)	(0.072)	(0.078)	(0.092)	(0.076)	(0.081)	(0.01)
Correlation A / C								
Correlation BBB / BB	0.812***	0.807***	0.643***	0.815***	0.772***	0.17*	0.19**	0.804***
	(0.053)	(0.054)	(0.051)	(0.06)	(0.067)	(0.087)	(0.087)	(0.059)
Correlation BBB / B	0.439***	0.435***	0.115	0.496***	0.467***	-0.039	-0.03	0.952***
	(0.075)	(0.076)	(0.083)	(0.081)	(0.096)	(0.073)	(0.073)	(0.012)
Correlation BBB / C								
Correlation BB / B	0.528***	0.526***	0.327***	0.533***	0.509***	0.238***	0.244***	0.636***
	(0.064)	(0.063)	(0.078)	(0.057)	(0.063)	(0.087)	(0.085)	(0.108)
Correlation BB / C								
Correlation B / C								
Wald test (Chi-square)	**468824**	**436864**	**63620**	**338166**	**395224**	**1364**	**1984**	**134000000**
Correlation 1to3 3to5	0.98***	0.98***	0.942***	0.982***	0.979***	0.767***	0.782***	0.979***
	(0.003)	(0.003)	(0.007)	(0.003)	(0.003)	(0.041)	(0.038)	(0.003)
Correlation 1to3 5to7	0.952***	0.951***	0.861***	0.956***	0.951***	0.28***	0.219***	0.951***
	(0.007)	(0.007)	(0.017)	(0.006)	(0.006)	(0.08)	(0.073)	(0.007)
Correlation 1to3 7to10	0.897***	0.894***	0.714***	0.896***	0.881***	-0.666***	-0.69***	0.881***
	(0.016)	(0.015)	(0.036)	(0.016)	(0.016)	(0.05)	(0.037)	(0.015)
Correlation 1to3 10p	0.773***	0.767***	0.502***	0.776***	0.735***	-0.883***	-0.894***	0.733***
	(0.036)	(0.036)	(0.059)	(0.034)	(0.032)	(0.02)	(0.02)	(0.032)
Correlation 3to5 5to7	0.986***	0.986***	0.96***	0.986***	0.984***	0.516***	0.466***	0.984***
	(0.002)	(0.002)	(0.006)	(0.002)	(0.002)	(0.069)	(0.069)	(0.002)
Correlation 3to5 7to10	0.947***	0.946***	0.855***	0.944***	0.934***	-0.51***	-0.538***	0.934***
	(0.008)	(0.008)	(0.02)	(0.008)	(0.008)	(0.048)	(0.05)	(0.008)
Correlation 3to5 10p	0.845***	0.84***	0.672***	0.84***	0.806***	-0.904***	-0.909***	0.805***
	(0.025)	(0.025)	(0.042)	(0.025)	(0.025)	(0.025)	(0.023)	(0.026)
Correlation 5to7 7to10	0.977***	0.976***	0.937***	0.975***	0.969***	0.033	0.069	0.969***
	(0.004)	(0.004)	(0.011)	(0.004)	(0.004)	(0.097)	(0.095)	(0.004)
Correlation 5to7 10p	0.898***	0.895***	0.796***	0.893***	0.865***	-0.548***	-0.482***	0.865***
	(0.017)	(0.017)	(0.026)	(0.018)	(0.018)	(0.052)	(0.058)	(0.018)
Correlation 7to10 10p	0.94***	0.937***	0.887***	0.938***	0.921***	0.426***	0.465***	0.922***
	(0.011)	(0.011)	(0.015)	(0.01)	(0.011)	(0.057)	(0.061)	(0.011)
Wald test (Chi-square)	**894454**	**827342**	**93785**	**762660**	**479697**	**122315**	**147605**	**523073**

Note: This table shows the correlation coefficients between the residuals of the factor models with the following specifications. Panel A: CAPM with sovereign and equity securities, global factors. Panel B: CAPM with all securities, global factors. Panel C: CAPM with all securities, global and local factors. Panel D: Multi-factor regression with sovereign and equity securities, global factors. Panel E: Multi-factor regression with all securities, global factors. Panel F: Multi-factor regression with all securities, global and local factors. Panel G: Multi-factor regression with all securities, local factors. Panel H: Multi-factor regression with all securities, local factors, plus the second principle component from the excess returns of all ratings and residual maturity portfolios. The correlations are estimated using GMM methods under sequential weighting matrix and coefficient iteration. The Wald test provides the Chi-Square provides under the null hypothesis that all estimated correlation coefficients are zero. *,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 - August 2018.

Table 7g. Residual Error Correlation Test: Australian Dollar Portfolios

All sample - AUD	Panel A	Panel B	Panel C	Panel D	Panel E	Panel F	Panel G	Panel H
Correlation AAA / AA								
Correlation AAA / A								
Correlation AAA / BBB								
Correlation AAA / BB								
Correlation AAA / B								
Correlation AAA / C								
Correlation AA / A	0.991***	0.99***	0.979***	0.989***	0.989***	-0.412***	-0.503***	0.984***
	(0.003)	(0.003)	(0.007)	(0.004)	(0.003)	(0.095)	(0.094)	(0.004)
Correlation AA / BBB	0.985***	0.985***	0.968***	0.983***	0.982***	-0.613***	-0.647***	0.97***
	(0.004)	(0.005)	(0.008)	(0.005)	(0.005)	(0.09)	(0.092)	(0.008)
Correlation AA / BB								
Correlation AA / B								
Correlation AA / C								
Correlation A / BBB	0.991***	0.991***	0.981***	0.99***	0.987***	0.267*	0.339**	0.977***
	(0.003)	(0.003)	(0.006)	(0.003)	(0.004)	(0.149)	(0.136)	(0.007)
Correlation A / BB								
Correlation A / B								
Correlation A / C								
Correlation BBB / BB								
Correlation BBB / B								
Correlation BBB / C								
Correlation BB / B								
Correlation BB / C								
Correlation B / C								
Wald test (Chi-square)	**153922**	**140094**	**35382**	**117766**	**117643**	**71**	**92**	**69948**
Correlation 1to3 3to5	0.985***	0.984***	0.968***	0.986***	0.984***	-0.715***	-0.725***	0.986***
	(0.002)	(0.002)	(0.004)	(0.002)	(0.002)	(0.045)	(0.043)	(0.003)
Correlation 1to3 5to7	0.952***	0.95***	0.906***	0.955***	0.948***	-0.806***	-0.832***	0.968***
	(0.007)	(0.007)	(0.013)	(0.006)	(0.007)	(0.028)	(0.024)	(0.006)
Correlation 1to3 7to10	0.869***	0.863***	0.781***	0.866***	0.842***	-0.654***	-0.7***	0.899***
	(0.026)	(0.028)	(0.03)	(0.03)	(0.034)	(0.043)	(0.033)	(0.028)
Correlation 1to3 10p	0.748***	0.733***	0.773***	0.765***	0.719***	-0.359***	-0.456***	0.984***
	(0.047)	(0.048)	(0.046)	(0.046)	(0.045)	(0.113)	(0.115)	(0.004)
Correlation 3to5 5to7	0.986***	0.985***	0.974***	0.986***	0.984***	0.59***	0.61***	0.988***
	(0.002)	(0.002)	(0.004)	(0.002)	(0.003)	(0.059)	(0.053)	(0.003)
Correlation 3to5 7to10	0.923***	0.919***	0.879***	0.916***	0.899***	0.284**	0.334***	0.918***
	(0.021)	(0.022)	(0.024)	(0.025)	(0.03)	(0.112)	(0.099)	(0.026)
Correlation 3to5 10p	0.802***	0.788***	0.85***	0.802***	0.753***	0.163*	0.23**	0.97***
	(0.046)	(0.047)	(0.04)	(0.045)	(0.046)	(0.097)	(0.104)	(0.007)
Correlation 5to7 7to10	0.96***	0.958***	0.938***	0.951***	0.941***	0.644***	0.687***	0.933***
	(0.015)	(0.015)	(0.016)	(0.018)	(0.022)	(0.059)	(0.052)	(0.024)
Correlation 5to7 10p	0.844***	0.832***	0.898***	0.827***	0.782***	0.38***	0.454***	0.944***
	(0.043)	(0.045)	(0.036)	(0.046)	(0.047)	(0.095)	(0.094)	(0.013)
Correlation 7to10 10p	0.848***	0.837***	0.878***	0.813***	0.762***	0.304**	0.384**	0.825***
	(0.045)	(0.041)	(0.048)	(0.048)	(0.053)	(0.139)	(0.15)	(0.048)
Wald test (Chi-square)	**4551076**	**4193340**	**1041288**	**3316283**	**2468242**	**1931**	**2279**	**2632349**

Note: This table shows the correlation coefficients between the residuals of the factor models with the following specifications. Panel A: CAPM with sovereign and equity securities, global factors. Panel B: CAPM with all securities, global factors. Panel C: CAPM with all securities, global and local factors. Panel D: Multi-factor regression with sovereign and equity securities, global factors. Panel E: Multi-factor regression with all securities, global factors. Panel F: Multi-factor regression with all securities, global and local factors. Panel G: Multi-factor regression with all securities, local factors. Panel H: Multi-factor regression with all securities, local factors, plus the second principle component from the excess returns of all ratings and residual maturity portfolios. The correlations are estimated using GMM methods under sequential weighting matrix and coefficient iteration. The Wald test provides the Chi-Square provides under the null hypothesis that all estimated correlation coefficients are zero. *,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 - August 2018.

Table 8. Summary Statistics: FX-Hedged Excess Returns

	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	above 10
USD												
Mean	2.373	2.670	2.879	3.502	4.307	3.106	4.831	2.219	3.097	3.635	3.208	4.673
Standard deviation	4.146	4.080	5.238	5.559	7.056	8.978	14.892	2.659	3.778	5.745	5.887	8.439
EUR												
Mean	2.351	2.171	2.016	2.638	4.639	3.526	3.821	1.524	2.530	3.222	3.355	4.461
Standard deviation	3.265	2.975	3.575	4.043	10.128	13.219	23.535	1.662	2.924	4.325	5.487	6.367
JPY												
Mean		1.450	0.874	1.052				0.601	1.066	1.571	2.285	3.356
Standard deviation		2.037	1.477	1.784				0.588	1.246	2.209	3.263	5.279
GBP												
Mean	2.362	2.695	2.226	3.716	6.185	5.218	12.579	1.888	2.401	2.718	2.889	3.796
Standard deviation	6.271	5.612	6.796	6.106	9.982	12.872	20.995	1.999	3.474	5.769	6.867	8.379
CAD												
Mean	2.162	2.229	2.939	3.396	4.940	3.949		1.483	2.401	3.275	3.676	4.571
Standard deviation	3.346	2.640	3.896	3.761	5.918	12.978		1.439	2.584	3.434	4.635	6.813
AUD												
Mean		1.130	1.374	2.094				0.826	1.581	2.138	2.576	1.657
Standard deviation		2.203	2.747	2.780				1.562	2.912	4.038	5.754	7.036

Notes: This table shows the annualised mean and standard deviation of corporate portfolio bond excess returns, grouped by rating class and residual maturity. Portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month Treasury bill of the respective economies. Sample period: February 1998 – August 2018.

Table 9a. CAPM and Multi-Factor Regressions with Global Factors: FX-Hedged EUR Portfolios

EUR	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Panel A: CAPM with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept	0.178**	0.163**	0.143*	0.186**	0.295	0.149	0.081	0.121***	0.194***	0.238**	0.234*	0.317**
s.e.	(0.07)	(0.067)	(0.085)	(0.095)	(0.219)	(0.298)	(0.519)	(0.042)	(0.068)	(0.103)	(0.127)	(0.138)
Global	0.056*	0.055*	0.077**	0.103***	0.351***	0.444***	0.729***	0.017	0.053**	0.094**	0.138***	0.169***
s.e.	(0.033)	(0.031)	(0.034)	(0.029)	(0.082)	(0.11)	(0.194)	(0.014)	(0.025)	(0.037)	(0.048)	(0.062)
Adjusted R^2	0.022	0.026	0.037	0.053	0.098	0.095	0.081	0.005	0.025	0.038	0.052	0.058
Panel A: CAPM with sovereign and equity securities (Feb 98 - Jul 07)												
Intercept	0.103	0.118	0.118	0.067	0.13	-0.048	-0.291	0.057	0.103	0.148	0.156	0.246
s.e.	(0.081)	(0.089)	(0.087)	(0.087)	(0.275)	(0.354)	(0.698)	(0.039)	(0.072)	(0.098)	(0.124)	(0.158)
Global	-0.042	-0.033	-0.02	0.04	0.368***	0.421***	0.873***	-0.019	-0.016	-0.01	0.001	-0.017
s.e.	(0.028)	(0.029)	(0.027)	(0.031)	(0.115)	(0.149)	(0.23)	(0.012)	(0.023)	(0.031)	(0.038)	(0.048)
Adjusted R^2	0.021	0.007	-0.003	0.013	0.138	0.144	0.157	0.019	-0.003	-0.008	-0.009	-0.007
Panel A: CAPM with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept	0.177*	0.143*	0.099	0.25	0.435	0.308	0.506	0.155**	0.227**	0.247	0.211	0.254
s.e.	(0.097)	(0.079)	(0.12)	(0.152)	(0.326)	(0.476)	(0.793)	(0.063)	(0.098)	(0.155)	(0.187)	(0.184)
Global	0.214***	0.198***	0.236***	0.2***	0.316***	0.47***	0.471	0.072***	0.161***	0.261***	0.359***	0.472***
s.e.	(0.046)	(0.034)	(0.042)	(0.043)	(0.098)	(0.164)	(0.363)	(0.02)	(0.033)	(0.053)	(0.064)	(0.081)
Adjusted R^2	0.202	0.253	0.198	0.102	0.054	0.059	0.017	0.076	0.138	0.154	0.179	0.249
Panel B: CAPM with all securities (Feb 98 - Aug 18)												
Intercept	0.175**	0.161**	0.141*	0.185**	0.295	0.151	0.082	0.121***	0.192***	0.236**	0.232*	0.313**
s.e.	(0.07)	(0.067)	(0.085)	(0.094)	(0.218)	(0.297)	(0.519)	(0.042)	(0.068)	(0.102)	(0.126)	(0.138)
Global	0.066*	0.063**	0.085**	0.11***	0.358***	0.45***	0.746***	0.02	0.059**	0.102***	0.149***	0.184***
s.e.	(0.035)	(0.032)	(0.035)	(0.03)	(0.085)	(0.114)	(0.204)	(0.014)	(0.026)	(0.039)	(0.05)	(0.065)
Adjusted R^2	0.029	0.033	0.043	0.056	0.094	0.091	0.078	0.008	0.029	0.042	0.056	0.065
Panel B: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	0.102	0.118	0.118	0.067	0.131	-0.045	-0.286	0.056	0.103	0.147	0.156	0.245
s.e.	(0.081)	(0.089)	(0.087)	(0.087)	(0.275)	(0.356)	(0.702)	(0.039)	(0.072)	(0.098)	(0.124)	(0.158)
Global	-0.041	-0.031	-0.017	0.044	0.381***	0.43***	0.904***	-0.018	-0.014	-0.007	0.005	-0.013
s.e.	(0.03)	(0.031)	(0.028)	(0.032)	(0.121)	(0.157)	(0.24)	(0.013)	(0.024)	(0.032)	(0.04)	(0.051)
Adjusted R^2	0.017	0.004	-0.005	0.015	0.134	0.137	0.154	0.016	-0.005	-0.008	-0.009	-0.008
Panel B: CAPM with all securities (Aug 07 - Aug 18)												
Intercept	0.172*	0.139*	0.096	0.248*	0.437	0.312	0.509	0.154**	0.225**	0.245	0.153	0.248
s.e.	(0.096)	(0.078)	(0.118)	(0.15)	(0.322)	(0.471)	(0.788)	(0.063)	(0.097)	(0.153)	(0.184)	(0.182)
Global	0.23***	0.21***	0.246***	0.207***	0.316***	0.47***	0.473	0.076***	0.169***	0.27***	0.371***	0.492***
s.e.	(0.046)	(0.035)	(0.044)	(0.044)	(0.098)	(0.167)	(0.38)	(0.021)	(0.034)	(0.055)	(0.066)	(0.084)
Adjusted R^2	0.222	0.269	0.205	0.104	0.052	0.056	0.016	0.082	0.144	0.157	0.183	0.259
Panel C: CAPM with all securities (Feb 98 - Aug 18)												
Intercept	0.166**	0.139**	0.099	0.128	0.168	-0.049	-0.163	0.104***	0.158***	0.177**	0.153	0.245*
s.e.	(0.073)	(0.065)	(0.078)	(0.08)	(0.184)	(0.244)	(0.453)	(0.037)	(0.06)	(0.088)	(0.109)	(0.13)
Global	0.032	-0.016	-0.068**	-0.099**	-0.146	-0.279*	-0.147	-0.042**	-0.067**	-0.113***	-0.139***	-0.066
s.e.	(0.039)	(0.033)	(0.034)	(0.042)	(0.134)	(0.164)	(0.364)	(0.021)	(0.032)	(0.044)	(0.051)	(0.06)
Local	0.059	0.14***	0.272***	0.37***	0.917***	1.297***	1.588***	0.111***	0.224***	0.383***	0.513***	0.445***
s.e.	(0.041)	(0.036)	(0.059)	(0.076)	(0.21)	(0.268)	(0.433)	(0.031)	(0.051)	(0.077)	(0.096)	(0.085)
Adjusted R^2	0.035	0.092	0.204	0.291	0.316	0.361	0.204	0.130	0.193	0.260	0.301	0.200
Panel C: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	0.077	0.088	0.08	0.022	0.001	-0.284	-0.661	0.044	0.074	0.102	0.091	0.174
s.e.	(0.084)	(0.09)	(0.087)	(0.084)	(0.265)	(0.322)	(0.655)	(0.038)	(0.071)	(0.095)	(0.117)	(0.155)
Global	-0.097**	-0.1**	-0.102**	-0.057	0.064	-0.108	0.058	-0.046**	-0.081**	-0.11**	-0.14**	-0.173**
s.e.	(0.042)	(0.045)	(0.045)	(0.042)	(0.169)	(0.136)	(0.248)	(0.022)	(0.038)	(0.051)	(0.062)	(0.081)
Local	0.097**	0.117**	0.146***	0.173***	0.559**	0.922***	1.451***	0.047**	0.114***	0.176***	0.249***	0.273***
s.e.	(0.048)	(0.05)	(0.05)	(0.063)	(0.254)	(0.234)	(0.416)	(0.023)	(0.043)	(0.059)	(0.077)	(0.099)
Adjusted R^2	0.048	0.046	0.065	0.112	0.210	0.316	0.263	0.054	0.060	0.079	0.107	0.073
Panel C: CAPM with all securities (Aug 07 - Aug 18)												
Intercept	0.168*	0.125*	0.065	0.204**	0.345	0.184	0.377	0.14***	0.198***	0.199**	0.148	0.198
s.e.	(0.099)	(0.07)	(0.085)	(0.1)	(0.221)	(0.321)	(0.644)	(0.046)	(0.066)	(0.096)	(0.117)	(0.151)
Global	0.204***	0.111***	0.022	-0.107*	-0.333*	-0.436	-0.457	-0.023	-0.02	-0.058	-0.059	0.141**
s.e.	(0.037)	(0.033)	(0.038)	(0.064)	(0.188)	(0.31)	(0.767)	(0.036)	(0.051)	(0.063)	(0.058)	(0.058)
Local	0.048	0.185***	0.417***	0.585***	1.213***	1.692***	1.738**	0.185***	0.353***	0.612***	0.804***	0.657***
s.e.	(0.053)	(0.046)	(0.071)	(0.095)	(0.26)	(0.409)	(0.749)	(0.048)	(0.073)	(0.092)	(0.101)	(0.093)
Adjusted R^2	0.220	0.361	0.480	0.505	0.442	0.426	0.155	0.317	0.441	0.537	0.584	0.470
Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept	0.151**	0.143**	0.131	0.184**	0.328*	0.216	0.177	0.119***	0.187***	0.23**	0.223*	0.284**
s.e.	(0.061)	(0.066)	(0.084)	(0.09)	(0.182)	(0.221)	(0.39)	(0.041)	(0.068)	(0.099)	(0.123)	(0.138)
Glo Sovereign	0.208***	0.135***	0.052	-0.025	-0.317***	-0.552***	-0.825***	-0.006	0.016	0.009	0.035	0.226***
s.e.	(0.029)	(0.029)	(0.041)	(0.049)	(0.091)	(0.123)	(0.169)	(0.017)	(0.03)	(0.048)	(0.061)	(0.072)
Glo Equity	-0.016	0.008	0.051*	0.092***	0.359***	0.477***	0.768***	0.021*	0.044**	0.08**	0.104**	0.067
s.e.	(0.016)	(0.02)	(0.028)	(0.027)	(0.05)	(0.076)	(0.123)	(0.012)	(0.021)	(0.033)	(0.041)	(0.043)
Adjusted R^2	0.295	0.143	0.055	0.115	0.350	0.422	0.330	0.029	0.046	0.071	0.077	0.109

Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Jul 07)												
Intercept	0.114	0.131*	0.129	0.072	0.09	-0.092	-0.361	0.061	0.111	0.158*	0.167	0.262*
s.e.	(0.071)	(0.079)	(0.081)	(0.087)	(0.27)	(0.323)	(0.642)	(0.038)	(0.069)	(0.094)	(0.119)	(0.147)
Glo Sovereign	0.19***	0.207***	0.187***	0.132***	-0.141	-0.483***	-0.551**	0.062***	0.142***	0.193***	0.22***	0.312***
s.e.	(0.046)	(0.05)	(0.047)	(0.05)	(0.108)	(0.165)	(0.274)	(0.021)	(0.041)	(0.054)	(0.069)	(0.083)
Glo Equity	-0.064***	-0.061***	-0.049***	0.002	0.284***	0.37***	0.688***	-0.024***	-0.038***	-0.043***	-0.041**	-0.07***
s.e.	(0.013)	(0.014)	(0.014)	(0.021)	(0.066)	(0.096)	(0.163)	(0.006)	(0.013)	(0.016)	(0.02)	(0.022)
Adjusted R^2	0.288	0.267	0.200	0.073	0.171	0.269	0.213	0.162	0.174	0.162	0.126	0.167
Panel D: Multi-factor regression with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept	0.141	0.122	0.097	0.262**	0.514**	0.431	0.679	0.157***	0.229***	0.254**	0.218	0.224
s.e.	(0.087)	(0.081)	(0.105)	(0.129)	(0.222)	(0.274)	(0.471)	(0.056)	(0.087)	(0.129)	(0.162)	(0.188)
Glo Sovereign	0.238***	0.138***	0.044	-0.052	-0.367***	-0.544***	-0.932***	-0.015	-0.001	-0.012	0.026	0.257***
s.e.	(0.033)	(0.029)	(0.035)	(0.049)	(0.097)	(0.131)	(0.196)	(0.018)	(0.028)	(0.044)	(0.055)	(0.076)
Glo Equity	0.048**	0.086***	0.158***	0.181***	0.406***	0.596***	0.815***	0.066***	0.127***	0.206***	0.258***	0.228***
s.e.	(0.024)	(0.023)	(0.032)	(0.032)	(0.059)	(0.096)	(0.187)	(0.014)	(0.024)	(0.038)	(0.049)	(0.055)
Adjusted R^2	0.386	0.278	0.267	0.296	0.508	0.536	0.433	0.226	0.268	0.306	0.280	0.243
Panel E: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	0.152**	0.145**	0.136*	0.19**	0.319**	0.232	0.206	0.122***	0.191***	0.236***	0.23**	0.289**
s.e.	(0.06)	(0.062)	(0.074)	(0.08)	(0.161)	(0.211)	(0.38)	(0.036)	(0.06)	(0.088)	(0.111)	(0.13)
Glo Sovereign	0.168***	0.045	-0.152*	-0.269***	-0.894***	-1.24***	-2.058***	-0.119***	-0.164***	-0.243***	-0.249**	0.028
s.e.	(0.057)	(0.056)	(0.088)	(0.083)	(0.155)	(0.234)	(0.401)	(0.038)	(0.057)	(0.092)	(0.116)	(0.128)
Glo Equity	-0.029*	-0.02	-0.014	0.014	0.172***	0.256***	0.373***	-0.016	-0.014	-0.001	0.012	0.004
s.e.	(0.017)	(0.018)	(0.024)	(0.025)	(0.048)	(0.074)	(0.141)	(0.011)	(0.02)	(0.028)	(0.035)	(0.036)
Glo Corporate	0.064	0.142*	0.326***	0.39***	0.916***	1.096***	1.963***	0.181***	0.287***	0.402***	0.454***	0.314**
s.e.	(0.077)	(0.078)	(0.116)	(0.099)	(0.17)	(0.296)	(0.582)	(0.049)	(0.077)	(0.119)	(0.151)	(0.16)
Adjusted R^2	0.297	0.169	0.158	0.232	0.45	0.509	0.417	0.179	0.167	0.179	0.162	0.137
Panel E: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	0.111	0.128	0.127	0.071	0.06	-0.086	-0.34	0.06	0.11	0.156*	0.164	0.258*
s.e.	(0.07)	(0.078)	(0.081)	(0.087)	(0.26)	(0.334)	(0.66)	(0.038)	(0.069)	(0.093)	(0.118)	(0.145)
Glo Sovereign	0.361***	0.36***	0.283***	0.152**	-0.7**	-0.79***	-1.587**	0.086***	0.221***	0.309***	0.372***	0.548***
s.e.	(0.077)	(0.083)	(0.081)	(0.062)	(0.286)	(0.273)	(0.666)	(0.03)	(0.059)	(0.085)	(0.11)	(0.141)
Glo Equity	-0.036**	-0.036**	-0.033*	0.005	0.201***	0.32***	0.517***	-0.02**	-0.024	-0.024	-0.016	-0.031
s.e.	(0.015)	(0.016)	(0.019)	(0.024)	(0.07)	(0.1)	(0.2)	(0.008)	(0.016)	(0.022)	(0.027)	(0.031)
Glo Corporate	-0.217**	-0.195**	-0.122	-0.026	0.688**	0.391	1.324*	-0.03	-0.102	-0.148	-0.194	-0.301*
s.e.	(0.089)	(0.095)	(0.101)	(0.085)	(0.303)	(0.306)	(0.786)	(0.04)	(0.076)	(0.107)	(0.136)	(0.167)
Adjusted R^2	0.347	0.306	0.211	0.065	0.199	0.273	0.237	0.16	0.185	0.177	0.143	0.195
Panel E: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	0.145*	0.127*	0.106	0.273**	0.539***	0.467**	0.738**	0.162***	0.237***	0.266**	0.231*	0.235
s.e.	(0.084)	(0.072)	(0.086)	(0.106)	(0.178)	(0.214)	(0.371)	(0.046)	(0.072)	(0.106)	(0.136)	(0.171)
Glo Sovereign	0.146**	0.014	-0.202**	-0.341***	-0.982***	-1.447***	-2.431***	-0.153***	-0.222***	-0.312***	-0.32***	-0.005
s.e.	(0.066)	(0.054)	(0.088)	(0.079)	(0.16)	(0.227)	(0.417)	(0.039)	(0.053)	(0.085)	(0.114)	(0.128)
Glo Equity	0.006	0.03	0.047	0.05	0.129**	0.189**	0.139	0.004	0.027	0.071	0.102*	0.11**
s.e.	(0.032)	(0.025)	(0.035)	(0.039)	(0.057)	(0.074)	(0.133)	(0.018)	(0.031)	(0.044)	(0.056)	(0.053)
Glo Corporate	0.153*	0.208**	0.412***	0.483***	1.029***	1.51***	2.508***	0.231***	0.371***	0.503***	0.579***	0.438**
s.e.	(0.085)	(0.09)	(0.145)	(0.116)	(0.185)	(0.278)	(0.648)	(0.054)	(0.081)	(0.142)	(0.194)	(0.2)
Adjusted R^2	0.404	0.333	0.395	0.426	0.644	0.679	0.578	0.405	0.425	0.428	0.378	0.284
Panel F: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	0.001	-0.017	-0.055**	-0.002	0.147	-0.036	-0.062	0.049***	0.045***	0.011	-0.068***	-0.066
s.e.	(0.029)	(0.013)	(0.022)	(0.027)	(0.132)	(0.175)	(0.374)	(0.013)	(0.014)	(0.011)	(0.024)	(0.044)
Glo Sovereign	0.102***	0.055*	-0.026	-0.069	-0.464*	-0.703**	-1.184**	0.04**	0.044*	-0.004	-0.075**	-0.082
s.e.	(0.035)	(0.029)	(0.029)	(0.051)	(0.243)	(0.293)	(0.577)	(0.02)	(0.022)	(0.017)	(0.035)	(0.058)
Glo Equity	-0.013	0.004	0.002	0.014	0.016	0.084	0.32	-0.005	-0.004	0.003	-0.001	-0.003
s.e.	(0.015)	(0.008)	(0.007)	(0.013)	(0.062)	(0.071)	(0.201)	(0.007)	(0.008)	(0.006)	(0.012)	(0.023)
Glo Corporate	-0.023	-0.027	0.035	0.046	0.477**	0.52*	1.007	-0.028*	-0.03	-0.007	0.049*	0.102*
s.e.	(0.038)	(0.021)	(0.029)	(0.04)	(0.204)	(0.273)	(0.653)	(0.016)	(0.02)	(0.018)	(0.028)	(0.055)
Loc Sovereign	0.254***	0.166***	0.049*	-0.04	-0.239	-0.316	-0.811	-0.129***	-0.107***	-0.054**	0.123***	0.561***
s.e.	(0.056)	(0.034)	(0.025)	(0.058)	(0.257)	(0.292)	(0.75)	(0.023)	(0.02)	(0.025)	(0.036)	(0.073)
Loc Equity	-0.008	-0.018**	-0.011	0.003	0.157**	0.171**	0.045	-0.011*	-0.008	0	0.022**	0.023
s.e.	(0.012)	(0.007)	(0.007)	(0.013)	(0.07)	(0.075)	(0.187)	(0.006)	(0.006)	(0.004)	(0.01)	(0.019)
Loc Corporate	0.489***	0.683***	0.99***	1.102***	1.22***	1.743***	2.522***	0.579***	0.954***	1.306***	1.446***	1.168***
s.e.	(0.069)	(0.043)	(0.042)	(0.089)	(0.312)	(0.363)	(0.881)	(0.034)	(0.026)	(0.035)	(0.032)	(0.098)
Adjusted R^2	0.823	0.945	0.958	0.898	0.580	0.654	0.471	0.885	0.965	0.985	0.972	0.912
Chi-Sq. Glo Fac	0.013	0.066	0.298	0.410	0.096	0.076	0.039	0.259	0.233	0.744	0.126	0.228
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	0.009	0.012	0.002	-0.051	-0.08	-0.342	-0.816	0.013	0.01	0.015	-0.013	0.043
s.e.	(0.018)	(0.017)	(0.014)	(0.033)	(0.226)	(0.302)	(0.628)	(0.012)	(0.011)	(0.01)	(0.018)	(0.036)
Glo Sovereign	0.059***	0.049***	-0.002	-0.027	-0.316	-0.746**	-2.188**	0.031***	0.045***	0.028	-0.067***	-0.069
s.e.	(0.02)	(0.019)	(0.015)	(0.044)	(0.361)	(0.429)	(1.114)	(0.011)	(0.013)	(0.017)	(0.015)	(0.044)
Glo Equity	-0.006	-0.011**	-0.016**	0.022	0.031	0.246**	0.566*	-0.014*	-0.009	-0.008	0.013	0.011
s.e.	(0.007)	(0.006)	(0.007)	(0.019)	(0.109)	(0.117)	(0.312)	(0.007)	(0.009)	(0.006)	(0.01)	(0.022)

Glo Corporate	-0.048**	-0.024	0.026	0.029	0.368	0.226	1.466	-0.021*	-0.031**	-0.014	0.043**	0.057
s.e.	(0.022)	(0.02)	(0.017)	(0.037)	(0.312)	(0.358)	(0.968)	(0.012)	(0.012)	(0.016)	(0.018)	(0.036)
Loc Sovereign	0.192***	0.157***	0.054**	-0.258***	-1.4**	-1.379***	-1.228	-0.14***	-0.122***	-0.045*	0.163***	0.435***
s.e.	(0.033)	(0.036)	(0.023)	(0.072)	(0.567)	(0.506)	(1.256)	(0.024)	(0.023)	(0.023)	(0.029)	(0.077)
Loc Equity	-0.01	-0.003	0.004	-0.002	0.179	0.087	0.005	-0.001	-0.002	0.006	0.003	0
s.e.	(0.008)	(0.006)	(0.006)	(0.02)	(0.124)	(0.124)	(0.255)	(0.006)	(0.008)	(0.005)	(0.008)	(0.018)
Loc Corporate	0.581***	0.732***	0.945***	1.414***	3.135***	3.992***	5.803***	0.605***	1.015***	1.22***	1.222***	1.12***
s.e.	(0.062)	(0.059)	(0.04)	(0.137)	(0.92)	(0.902)	(1.615)	(0.049)	(0.04)	(0.043)	(0.053)	(0.145)
Adjusted R^2	0.952	0.966	0.974	0.827	0.356	0.492	0.406	0.856	0.968	0.988	0.977	0.929
Chi-Sq. Glo Fac	0.017	0.001	0.027	0.165	0.645	0.055	0.157	0.026	0.005	0.266	0.000	0.322
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	-0.025	-0.052***	-0.114***	0.039	0.308**	0.233	0.603**	0.076***	0.075***	0.006	-0.118***	-0.187***
s.e.	(0.053)	(0.019)	(0.037)	(0.042)	(0.127)	(0.166)	(0.303)	(0.021)	(0.022)	(0.019)	(0.038)	(0.064)
Glo Sovereign	0.124**	0.081**	-0.015	-0.118*	-0.609*	-0.929**	-0.789	0.053*	0.046	-0.014	-0.093**	-0.104
s.e.	(0.052)	(0.038)	(0.046)	(0.067)	(0.318)	(0.465)	(0.605)	(0.027)	(0.034)	(0.023)	(0.045)	(0.087)
Glo Equity	-0.009	0.032***	0.027**	-0.011	-0.049	-0.12*	0.257	0.005	0.001	0.008	-0.023	-0.018
s.e.	(0.029)	(0.01)	(0.012)	(0.015)	(0.053)	(0.065)	(0.261)	(0.011)	(0.013)	(0.01)	(0.017)	(0.042)
Glo Corporate	-0.012	-0.054**	0.012	0.061	0.545**	0.972**	0.871	-0.045*	-0.029	-0.013	0.058	0.119
s.e.	(0.074)	(0.027)	(0.05)	(0.064)	(0.273)	(0.389)	(0.679)	(0.027)	(0.038)	(0.028)	(0.044)	(0.105)
Loc Sovereign	0.233***	0.128***	0.041	0.032	-0.101	-0.213	-1.881**	-0.148***	-0.123***	-0.027	0.19***	0.67***
s.e.	(0.075)	(0.048)	(0.038)	(0.068)	(0.335)	(0.494)	(0.82)	(0.031)	(0.03)	(0.032)	(0.045)	(0.095)
Loc Equity	-0.021	-0.04***	-0.03***	0.006	0.116**	0.238***	-0.17	-0.022**	-0.013	0.001	0.043***	0.037
s.e.	(0.019)	(0.009)	(0.009)	(0.015)	(0.057)	(0.08)	(0.242)	(0.009)	(0.009)	(0.007)	(0.013)	(0.034)
Loc Corporate	0.54***	0.717***	1.025***	1.1***	1.253***	1.41***	3.006***	0.606***	0.944***	1.303***	1.467***	1.22***
s.e.	(0.094)	(0.064)	(0.051)	(0.134)	(0.437)	(0.499)	(1.043)	(0.051)	(0.049)	(0.044)	(0.061)	(0.158)
Adjusted R^2	0.778	0.937	0.956	0.933	0.798	0.789	0.629	0.898	0.965	0.985	0.978	0.921
Chi-Sq. Glo Fac	0.005	0.000	0.010	0.000	0.244	0.055	0.448	0.246	0.236	0.093	0.007	0.692
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.000	0.000	0.000	0.000	0.000
Panel G: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	0.001	-0.017	-0.054**	-0.001	0.16	-0.028	-0.027	0.049***	0.044***	0.011	-0.068***	-0.065
s.e.	(0.029)	(0.014)	(0.023)	(0.027)	(0.134)	(0.175)	(0.368)	(0.014)	(0.014)	(0.011)	(0.025)	(0.045)
Loc Sovereign	0.367***	0.223***	0.031	-0.104***	-0.628***	-0.96***	-1.81***	-0.093***	-0.066***	-0.061***	0.05**	0.498***
s.e.	(0.043)	(0.014)	(0.022)	(0.024)	(0.132)	(0.18)	(0.522)	(0.016)	(0.013)	(0.015)	(0.02)	(0.056)
Loc Equity	-0.02*	-0.016***	-0.007*	0.017*	0.195***	0.268***	0.356***	-0.017***	-0.013***	0.002	0.024***	0.027***
s.e.	(0.011)	(0.005)	(0.004)	(0.01)	(0.05)	(0.065)	(0.125)	(0.003)	(0.003)	(0.003)	(0.006)	(0.009)
Loc Corporate	0.412***	0.633***	1.019***	1.162***	1.701***	2.383***	3.58***	0.544***	0.914***	1.306***	1.516***	1.26***
s.e.	(0.056)	(0.029)	(0.052)	(0.065)	(0.23)	(0.341)	(0.605)	(0.028)	(0.023)	(0.024)	(0.028)	(0.082)
Adjusted R^2	0.805	0.941	0.957		0.567	0.635	0.446	0.882	0.963	0.985	0.971	0.911
Panel G: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	0.009	0.011	0.003	-0.054*	-0.077	-0.33	-0.821	0.014	0.01	0.015	-0.013	0.043
s.e.	(0.017)	(0.017)	(0.015)	(0.033)	(0.227)	(0.299)	(0.606)	(0.012)	(0.011)	(0.009)	(0.017)	(0.036)
Loc Sovereign	0.24***	0.194***	0.048*	-0.281***	-1.671***	-1.925***	-2.955***	-0.116***	-0.086***	-0.024	0.11***	0.379***
s.e.	(0.039)	(0.043)	(0.028)	(0.079)	(0.517)	(0.421)	(0.754)	(0.027)	(0.025)	(0.022)	(0.035)	(0.075)
Loc Equity	-0.018***	-0.014***	-0.007**	0.018*	0.227***	0.291***	0.546***	-0.014***	-0.011***	-0.001	0.016***	0.013**
s.e.	(0.004)	(0.004)	(0.003)	(0.01)	(0.053)	(0.083)	(0.144)	(0.002)	(0.002)	(0.002)	(0.005)	(0.006)
Loc Corporate	0.536***	0.707***	0.971***	1.431***	3.436***	4.227***	7.118***	0.589***	0.986***	1.207***	1.263***	1.172***
s.e.	(0.073)	(0.07)	(0.054)	(0.144)	(0.929)	(0.898)	(1.305)	(0.053)	(0.043)	(0.044)	(0.062)	(0.143)
Adjusted R^2	0.951	0.965	0.973	0.827	0.367	0.461	0.363	0.852	0.966	0.988	0.976	0.930
Panel G: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	-0.024	-0.043**	-0.108***	0.034	0.29**	0.198	0.664**	0.078***	0.076***	0.007	-0.125***	-0.191***
s.e.	(0.052)	(0.02)	(0.037)	(0.041)	(0.13)	(0.185)	(0.309)	(0.022)	(0.023)	(0.019)	(0.04)	(0.064)
Loc Sovereign	0.383***	0.215***	0.034	-0.095***	-0.656***	-1.012***	-2.455***	-0.099***	-0.077***	-0.049**	0.09***	0.583***
s.e.	(0.07)	(0.018)	(0.022)	(0.027)	(0.129)	(0.187)	(0.611)	(0.017)	(0.016)	(0.02)	(0.028)	(0.067)
Loc Equity	-0.036	-0.023**	-0.01	0.006	0.111	0.193**	0.044	-0.022***	-0.015**	0.008	0.032***	0.028*
s.e.	(0.027)	(0.011)	(0.009)	(0.018)	(0.068)	(0.091)	(0.161)	(0.005)	(0.007)	(0.006)	(0.012)	(0.017)
Loc Corporate	0.483***	0.646***	1.04***	1.19***	1.88***	2.464***	3.937***	0.553***	0.905***	1.299***	1.544***	1.345***
s.e.	(0.097)	(0.043)	(0.061)	(0.107)	(0.267)	(0.374)	(0.695)	(0.03)	(0.024)	(0.029)	(0.033)	(0.099)
Adjusted R^2	0.750	0.925	0.954	0.926	0.773	0.760	0.610	0.894	0.964	0.985	0.975	0.922
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)												
Intercept	0.03	-0.001	-0.054**	-0.003	0.174	0.03	0.008	0.034**	0.033**	0.005	-0.054**	-0.009
s.e.	(0.037)	(0.019)	(0.023)	(0.028)	(0.121)	(0.037)	(0.222)	(0.014)	(0.014)	(0.012)	(0.023)	(0.046)
Glo Corporate	0.846***	0.896***	1.055***	1.026***	0.861***	0.846***	0.839**	0.434***	0.841***	1.237***	1.567***	1.852***
s.e.	(0.063)	(0.028)	(0.031)	(0.051)	(0.117)	(0.063)	(0.333)	(0.024)	(0.023)	(0.02)	(0.029)	(0.084)
Spread B-AAA	-0.132***	-0.085***	-0.017**	0.059***	0.477***	0.868***	1.36***	0.009	0.001	0.018***	0.017*	-0.121***
s.e.	(0.019)	(0.009)	(0.007)	(0.011)	(0.048)	(0.019)	(0.094)	(0.008)	(0.007)	(0.005)	(0.01)	(0.028)
Adjusted R^2	0.72	0.903	0.957	0.903	0.634	0.983	0.697	0.835	0.954	0.983	0.969	0.852
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)												
Intercept	-0.013	-0.006	-0.005	-0.031	0.131	-0.012	-0.259	0.008	0.005	0.015*	-0.004	0.039
s.e.	(0.019)	(0.016)	(0.011)	(0.031)	(0.254)	(0.022)	(0.363)	(0.015)	(0.012)	(0.008)	(0.017)	(0.037)
Glo Corporate	0.938***	1.032***	1.054***	0.961***	0.616**	0.931***	2.009***	0.406***	0.85***	1.168***	1.436***	1.787***

	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	above 10
s.e.	(0.025)	(0.027)	(0.023)	(0.039)	(0.284)	(0.026)	(0.444)	(0.025)	(0.019)	(0.018)	(0.023)	(0.064)
Spread B-AAA	-0.051***	-0.043***	-0.02***	0.051**	0.437***	0.948***	1.571***	-0.007	-0.008**	-0.002	0.02***	-0.036***
s.e.	(0.01)	(0.008)	(0.005)	(0.022)	(0.108)	(0.011)	(0.096)	(0.006)	(0.003)	(0.004)	(0.005)	(0.009)
Adjusted R^2	0.937	0.96	0.976	0.8	0.264	0.996	0.707	0.808	0.961	0.988	0.975	0.915
Panel H: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)												
Intercept	0.066	0.008	-0.096**	0.017	0.159*	0.003	0.181	0.06***	0.06***	-0.004	-0.107***	-0.064
s.e.	(0.054)	(0.029)	(0.04)	(0.046)	(0.086)	(0.062)	(0.233)	(0.022)	(0.023)	(0.016)	(0.036)	(0.067)
Glo Corporate	0.938***	0.893***	1.059***	1.046***	0.919***	0.916***	0.458	0.412***	0.812***	1.239***	1.656***	2.065***
s.e.	(0.091)	(0.032)	(0.041)	(0.086)	(0.162)	(0.094)	(0.52)	(0.035)	(0.037)	(0.026)	(0.048)	(0.124)
Spread B-AAA	-0.203***	-0.113***	-0.016**	0.062***	0.502***	0.836***	1.34***	0.024	0.012	0.032***	0.002	-0.215***
s.e.	(0.026)	(0.009)	(0.008)	(0.017)	(0.057)	(0.054)	(0.171)	(0.015)	(0.013)	(0.009)	(0.02)	(0.055)
Adjusted R^2	0.739	0.908	0.951	0.935	0.912	0.973	0.717	0.862	0.955	0.985	0.971	0.871
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)												
Intercept	0.065	0.021	-0.05**	-0.017	0.055	-0.174	-0.317	0.03***	0.03***	0	-0.056**	0.03***
s.e.	(0.045)	(0.028)	(0.022)	(0.029)	(0.151)	(0.241)	(0.432)	(0.009)	(0.011)	(0.012)	(0.023)	(0.009)
Glo Corporate	0.099	0.474***	0.985***	1.243***	2.707***	3.786***	5.793***	0.644***	0.999***	1.365***	1.432***	0.644***
s.e.	(0.094)	(0.05)	(0.051)	(0.066)	(0.271)	(0.422)	(0.7)	(0.02)	(0.025)	(0.039)	(0.042)	(0.02)
Spread Mat	0.451***	0.243***	0.037*	-0.106***	-0.909***	-1.361***	-2.417***	-0.16***	-0.126***	-0.083***	0.131***	0.84***
s.e.	(0.052)	(0.018)	(0.019)	(0.028)	(0.141)	(0.166)	(0.463)	(0.012)	(0.015)	(0.021)	(0.018)	(0.012)
Adjusted R^2	0.675	0.85	0.954	0.876	0.387	0.41	0.281	0.937	0.976	0.984	0.974	0.996
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)												
Intercept	-0.012	-0.007	-0.004	-0.029	0.141	-0.051	-0.35	0.017	0.012	0.016*	-0.014	0.013
s.e.	(0.027)	(0.022)	(0.015)	(0.034)	(0.256)	(0.363)	(0.78)	(0.011)	(0.009)	(0.008)	(0.015)	(0.01)
Glo Corporate	0.845***	0.876***	1.023***	1.201***	2.531**	2.427***	3.507***	0.71***	1.095***	1.204***	1.094***	0.698***
s.e.	(0.08)	(0.067)	(0.042)	(0.089)	(1.114)	(0.743)	(1.18)	(0.028)	(0.029)	(0.036)	(0.025)	(0.027)
Spread Mat	0.067	0.112***	0.022	-0.173***	-1.332**	-1.081**	-1.087	-0.218***	-0.176***	-0.025	0.245***	0.782***
s.e.	(0.049)	(0.038)	(0.024)	(0.053)	(0.674)	(0.422)	(0.768)	(0.014)	(0.019)	(0.019)	(0.018)	(0.015)
Adjusted R^2	0.883	0.932	0.969	0.768	0.074	0.057	0.042	0.92	0.98	0.988	0.985	0.996
Panel I: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)												
Intercept	0.152**	0.055	-0.09**	-0.006	-0.029	-0.311	-0.347	0.045***	0.05***	-0.018	-0.101***	0.045***
s.e.	(0.066)	(0.039)	(0.039)	(0.045)	(0.153)	(0.274)	(0.421)	(0.015)	(0.018)	(0.017)	(0.034)	(0.012)
Glo Corporate	-0.066	0.37***	0.988***	1.273***	2.885***	4.203***	6.233***	0.631***	0.974***	1.407***	1.524***	0.639***
s.e.	(0.104)	(0.051)	(0.066)	(0.074)	(0.254)	(0.469)	(0.77)	(0.024)	(0.028)	(0.042)	(0.031)	(0.021)
Spread Mat	0.516***	0.258***	0.033	-0.089***	-0.831***	-1.394***	-2.672***	-0.147***	-0.118***	-0.09***	0.117***	0.859***
s.e.	(0.064)	(0.022)	(0.022)	(0.027)	(0.106)	(0.16)	(0.53)	(0.013)	(0.016)	(0.026)	(0.019)	(0.015)
Adjusted R^2	0.659	0.843	0.95	0.918	0.676	0.656	0.487	0.943	0.975	0.985	0.977	0.996

Notes: This table shows the OLS coefficients of CAPM (Panels A-C) and multi-factor (Panels D-I) regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global and/or local excess returns , except in Panels H-I where the spread between excess returns in B and AAA rating categories and between >10 and 1< to <3 residual maturity ("Spread Mat") are employed. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in local currency. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. The risk free rate is is the local one-month interest rate. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. "Chi-Sq. Glo Fac" and "Chi-Sq. Loc Fac" in Panel F are the Chi-Square's P-value of the Wald test testing the joint significance of all global factors and all local factors, respectively. Sample period: February 1998 – August 2018.

Table 9b. CAPM and Multi-Factor Regressions with Global Factors: FX-Hedged Japanese Yen Portfolios

JPY	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Panel A: CAPM with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept		0.123***	0.073**	0.085**				0.049***	0.09***	0.136***	0.194***	0.284***
s.e.		(0.037)	(0.03)	(0.042)				(0.014)	(0.023)	(0.041)	(0.058)	(0.099)
Global		-0.005	0	0.007				0.002	-0.002	-0.012	-0.008	-0.009
s.e.		(0.01)	(0.008)	(0.009)				(0.003)	(0.007)	(0.012)	(0.018)	(0.025)
Adjusted R^2		-0.003	-0.004	-0.002				-0.003	-0.004	0.000	-0.003	-0.004
Panel A: CAPM with sovereign and equity securities (Feb 98 - Jul 07)												
Intercept	0.13**	0.13*	0.088**	0.084				0.06***	0.102**	0.16**	0.203*	0.247
s.e.	(0.065)	(0.077)	(0.038)	(0.052)				(0.02)	(0.041)	(0.072)	(0.11)	(0.175)
Global	0.012	0.018	0.005	0.017				0.002	0.006	0.012	0.031	0.043
s.e.	(0.023)	(0.021)	(0.01)	(0.013)				(0.005)	(0.011)	(0.02)	(0.032)	(0.049)
Adjusted R^2	-0.006	-0.003	-0.007	0.003				-0.008	-0.007	-0.006	-0.001	-0.003
Panel A: CAPM with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept		0.114***	0.059	0.083				0.041**	0.078***	0.112**	0.181***	0.307***
s.e.		(0.025)	(0.047)	(0.065)				(0.019)	(0.025)	(0.048)	(0.057)	(0.108)
Global		-0.022**	-0.004	-0.001				0.002	-0.008	-0.03**	-0.039	-0.049**
s.e.		(0.01)	(0.013)	(0.011)				(0.005)	(0.009)	(0.013)	(0.024)	(0.024)
Adjusted R^2		0.052	-0.007	-0.008				-0.006	0.004	0.035	0.031	0.012
Panel B: CAPM with all securities (Feb 98 - Aug 18)												
Intercept		0.123***	0.073**	0.084**				0.049***	0.09***	0.136***	0.194***	0.284***
s.e.		(0.037)	(0.03)	(0.042)				(0.014)	(0.023)	(0.041)	(0.058)	(0.099)
Global		-0.004	0.001	0.007				0.002	-0.002	-0.011	-0.008	-0.009
s.e.		(0.011)	(0.009)	(0.009)				(0.004)	(0.007)	(0.012)	(0.019)	(0.026)
Adjusted R^2		-0.003	-0.004	-0.002				-0.002	-0.004	-0.001	-0.003	-0.004
Panel B: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	0.129**	0.129*	0.087**	0.084				0.059***	0.102**	0.159**	0.201*	0.245
s.e.	(0.065)	(0.077)	(0.038)	(0.052)				(0.02)	(0.041)	(0.072)	(0.11)	(0.175)
Global	0.014	0.02	0.006	0.018				0.002	0.007	0.014	0.035	0.048
s.e.	(0.024)	(0.023)	(0.011)	(0.014)				(0.005)	(0.011)	(0.021)	(0.033)	(0.052)
Adjusted R^2	-0.006	-0.002	-0.007	0.004				-0.008	-0.007	-0.006	0.000	-0.002
Panel B: CAPM with all securities (Aug 07 - Aug 18)												
Intercept		0.114***	0.059	0.083				0.04**	0.078***	0.112**	0.178***	0.308***
s.e.		(0.025)	(0.047)	(0.065)				(0.019)	(0.025)	(0.048)	(0.057)	(0.108)
Global		-0.023**	-0.004	-0.001				0.002	-0.008	-0.03**	-0.04	-0.052**
s.e.		(0.01)	(0.014)	(0.011)				(0.005)	(0.009)	(0.014)	(0.025)	(0.025)
Adjusted R^2		0.051	-0.007	-0.008				-0.005	0.003	0.036	0.032	0.014
Panel C: CAPM with all securities (Feb 98 - Aug 18)												
Intercept		0.114***	0.066**	0.078*				0.047***	0.084***	0.127***	0.178***	0.255**
s.e.		(0.04)	(0.031)	(0.042)				(0.013)	(0.023)	(0.043)	(0.062)	(0.105)
Global		-0.042**	-0.028**	-0.021				-0.009*	-0.023**	-0.05**	-0.074**	-0.13***
s.e.		(0.02)	(0.012)	(0.014)				(0.005)	(0.011)	(0.019)	(0.03)	(0.047)
Local		0.106**	0.082***	0.078**				0.03**	0.061**	0.11**	0.187**	0.342***
s.e.		(0.052)	(0.027)	(0.035)				(0.013)	(0.03)	(0.051)	(0.075)	(0.118)
Adjusted R^2		0.050	0.057	0.035				0.050	0.044	0.048	0.063	0.082
Panel C: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	0.12*	0.12	0.082**	0.076				0.057***	0.096**	0.151**	0.187	0.22
s.e.	(0.068)	(0.08)	(0.038)	(0.051)				(0.018)	(0.041)	(0.074)	(0.115)	(0.185)
Global	-0.022	-0.015	-0.016	-0.011				-0.009*	-0.014	-0.018	-0.019	-0.048
s.e.	(0.027)	(0.029)	(0.012)	(0.013)				(0.005)	(0.013)	(0.025)	(0.041)	(0.068)
Local	0.107	0.105	0.065**	0.086**				0.033**	0.062	0.095	0.159	0.282*
s.e.	(0.067)	(0.067)	(0.033)	(0.042)				(0.016)	(0.038)	(0.065)	(0.097)	(0.15)
Adjusted R^2	0.037	0.041	0.059	0.081				0.067	0.043	0.031	0.046	0.061
Panel C: CAPM with all securities (Aug 07 - Aug 18)												
Intercept		0.104***	0.047	0.078				0.038**	0.073***	0.098**	0.156***	0.261**
s.e.		(0.027)	(0.049)	(0.064)				(0.019)	(0.026)	(0.049)	(0.06)	(0.106)
Global		-0.065***	-0.055**	-0.021				-0.006	-0.03**	-0.091***	-0.148***	-0.254***
s.e.		(0.017)	(0.021)	(0.03)				(0.006)	(0.015)	(0.026)	(0.037)	(0.05)
Local		0.117***	0.139***	0.055				0.022	0.061**	0.167***	0.294***	0.555***
s.e.		(0.033)	(0.048)	(0.059)				(0.014)	(0.029)	(0.048)	(0.074)	(0.137)
Adjusted R^2		0.144	0.063	-0.007				0.006	0.036	0.115	0.165	0.168
Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept		0.105***	0.068**	0.078*				0.048***	0.083***	0.121***	0.166***	0.246***
s.e.		(0.035)	(0.031)	(0.043)				(0.014)	(0.023)	(0.04)	(0.055)	(0.095)
Glo Sovereign		0.087***	0.022	0.031				0.005	0.033**	0.07***	0.137***	0.186***
s.e.		(0.026)	(0.017)	(0.02)				(0.005)	(0.013)	(0.026)	(0.038)	(0.063)
Glo Equity		-0.026***	-0.004	-0.002				0	-0.009*	-0.025***	-0.041***	-0.054**
s.e.		(0.008)	(0.007)	(0.007)				(0.003)	(0.005)	(0.009)	(0.014)	(0.022)
Adjusted R^2		0.095	0.003	0.008				-0.003	0.029	0.054	0.092	0.061

Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Jul 07)

Intercept	0.106*	0.103	0.076**	0.071	0.056***	0.09**	0.134**	0.162*	0.189
s.e.	(0.06)	(0.068)	(0.038)	(0.053)	(0.021)	(0.041)	(0.066)	(0.097)	(0.152)
Glo Sovereign	0.113***	0.127***	0.056***	0.067***	0.014**	0.056***	0.123***	0.196***	0.283***
s.e.	(0.033)	(0.04)	(0.017)	(0.023)	(0.007)	(0.018)	(0.034)	(0.056)	(0.087)
Glo Equity	-0.023	-0.024	-0.012	-0.007	-0.003	-0.012	-0.026	-0.034	-0.051
s.e.	(0.018)	(0.018)	(0.008)	(0.007)	(0.003)	(0.008)	(0.016)	(0.027)	(0.042)
Adjusted R^2	0.093	0.125	0.088	0.079	0.011	0.071	0.126	0.139	0.117

Panel D: Multi-factor regression with sovereign and equity securities (Aug 07 - Aug 18)

Intercept	0.108***	0.064	0.086		0.042**	0.078***	0.112**	0.17***	0.297***
s.e.	(0.026)	(0.046)	(0.063)		(0.019)	(0.026)	(0.048)	(0.058)	(0.11)
Glo Sovereign	0.027**	-0.032	-0.024		-0.008	-0.003	-0.011	0.05	0.041
s.e.	(0.014)	(0.026)	(0.02)		(0.008)	(0.013)	(0.025)	(0.034)	(0.074)
Glo Equity	-0.02***	0.007	0.007		0.004	-0.003	-0.014	-0.036**	-0.039*
s.e.	(0.007)	(0.01)	(0.01)		(0.004)	(0.007)	(0.011)	(0.014)	(0.023)
Adjusted R^2	0.083	0.001	-0.008		0.002	-0.007	0.021	0.052	0.011

Panel E: Multi-factor regression with all securities (Feb 98 - Aug 18)

Intercept	0.097**	0.068**	0.076*		0.05***	0.083***	0.114***	0.148**	0.216**
s.e.	(0.038)	(0.031)	(0.045)		(0.014)	(0.024)	(0.043)	(0.059)	(0.1)
Glo Sovereign	0.172***	0.016	0.045		-0.017	0.032	0.137**	0.318***	0.488***
s.e.	(0.057)	(0.047)	(0.045)		(0.016)	(0.035)	(0.063)	(0.093)	(0.151)
Glo Equity	-0.002	-0.006	0.002		-0.006*	-0.009	-0.006	0.009	0.031
s.e.	(0.013)	(0.009)	(0.009)		(0.003)	(0.008)	(0.013)	(0.02)	(0.031)
Glo Corporate	-0.1*	0.007	-0.017		0.027	0	-0.079	-0.213**	-0.357***
s.e.	(0.051)	(0.047)	(0.039)		(0.016)	(0.034)	(0.057)	(0.087)	(0.137)
Adjusted R^2	0.125	-0.001	0.005		0.021	0.025	0.068	0.148	0.12

Panel E: Multi-factor regression with all securities (Feb 98 - Jul 07)

Intercept	0.096	0.094	0.072*	0.067	0.056***	0.087**	0.126*	0.147	0.164
s.e.	(0.06)	(0.068)	(0.038)	(0.056)	(0.021)	(0.042)	(0.067)	(0.097)	(0.153)
Glo Sovereign	0.392***	0.383***	0.153***	0.171***	0.025	0.145***	0.341***	0.599***	0.955***
s.e.	(0.083)	(0.082)	(0.043)	(0.051)	(0.02)	(0.042)	(0.077)	(0.124)	(0.194)
Glo Equity	0.021	0.017	0.003	0.01	-0.001	0.003	0.008	0.03	0.055
s.e.	(0.019)	(0.019)	(0.009)	(0.009)	(0.005)	(0.01)	(0.019)	(0.028)	(0.041)
Glo Corporate	-0.309***	-0.284***	-0.108***	-0.115**	-0.012	-0.099**	-0.242***	-0.446***	-0.745***
s.e.	(0.075)	(0.071)	(0.041)	(0.045)	(0.021)	(0.042)	(0.072)	(0.113)	(0.174)
Adjusted R^2	0.206	0.224	0.137	0.112	0.005	0.104	0.201	0.252	0.248

Panel E: Multi-factor regression with all securities (Aug 07 - Aug 18)

Intercept	0.105***	0.069	0.088		0.046***	0.083***	0.11**	0.158**	0.274**
s.e.	(0.028)	(0.048)	(0.066)		(0.018)	(0.025)	(0.05)	(0.062)	(0.115)
Glo Sovereign	0.043	-0.068	-0.037		-0.043***	-0.039	0.005	0.142*	0.213
s.e.	(0.035)	(0.058)	(0.044)		(0.016)	(0.028)	(0.054)	(0.075)	(0.172)
Glo Equity	-0.014	-0.008	0.002		-0.011**	-0.018*	-0.008	0.003	0.033
s.e.	(0.012)	(0.02)	(0.017)		(0.005)	(0.009)	(0.017)	(0.025)	(0.045)
Glo Corporate	-0.021	0.048	0.017		0.047***	0.048	-0.021	-0.125	-0.232
s.e.	(0.041)	(0.067)	(0.049)		(0.018)	(0.034)	(0.057)	(0.089)	(0.165)
Adjusted R^2	0.081	0.007	-0.014		0.119	0.022	0.015	0.082	0.045

Panel F: Multi-factor regression with all securities (Feb 98 - Aug 18)

Intercept	-0.003	-0.007	-0.004		0.02***	0.015*	-0.003	-0.012	-0.021
s.e.	(0.01)	(0.019)	(0.026)		(0.006)	(0.009)	(0.011)	(0.015)	(0.043)
Glo Sovereign	-0.014	-0.014	0.033		-0.018***	-0.007	0.023	0.037*	0.009
s.e.	(0.01)	(0.019)	(0.021)		(0.007)	(0.011)	(0.014)	(0.02)	(0.09)
Glo Equity	0	-0.002	0.011		-0.004***	-0.003	0.005	0.01**	0.011
s.e.	(0.004)	(0.007)	(0.01)		(0.002)	(0.002)	(0.004)	(0.005)	(0.015)
Glo Corporate	0.014	0.01	-0.028		0.02***	0.012	-0.025*	-0.042**	-0.05
s.e.	(0.01)	(0.022)	(0.021)		(0.007)	(0.01)	(0.014)	(0.019)	(0.087)
Loc Sovereign	0.23***	-0.192***	-0.272***		-0.113***	-0.134***	-0.083*	0.314***	0.694***
s.e.	(0.04)	(0.048)	(0.076)		(0.02)	(0.037)	(0.048)	(0.079)	(0.163)
Loc Equity	-0.005*	0.003	-0.001		0.002*	-0.001	-0.007**	-0.003	0.017
s.e.	(0.003)	(0.004)	(0.008)		(0.001)	(0.002)	(0.003)	(0.004)	(0.013)
Loc Corporate	0.757***	1.238***	1.436***		0.557***	1.042***	1.53***	1.312***	1.52***
s.e.	(0.092)	(0.129)	(0.19)		(0.048)	(0.09)	(0.108)	(0.178)	(0.399)
Adjusted R^2	0.951	0.793	0.624		0.821	0.927	0.939	0.958	0.825
Chi-Sq. Glo Fac	0.345	0.812	0.436		0.011	0.192	0.360	0.068	0.177
Chi-Sq. Loc Fac	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000

Panel F: Multi-factor regression with all securities (Feb 98 - Jul 07)

Intercept	0	-0.003	-0.003	-0.029	0.013	-0.002	0.007	0.009	-0.001
s.e.	(0.027)	(0.014)	(0.011)	(0.032)	(0.008)	(0.012)	(0.016)	(0.014)	(0.05)
Glo Sovereign	0.028	-0.014	0.001	0.022	-0.022*	-0.002	0.015	0.017	-0.016
s.e.	(0.034)	(0.026)	(0.014)	(0.023)	(0.012)	(0.015)	(0.019)	(0.023)	(0.079)
Glo Equity	0.009	0.008**	-0.005	-0.004	-0.005**	-0.002	0.001	0.011*	0.012
s.e.	(0.009)	(0.003)	(0.003)	(0.005)	(0.002)	(0.003)	(0.005)	(0.006)	(0.016)

Glo Corporate	-0.043	0.003	0.006	0.001	0.025**	0.009	-0.005	-0.022	-0.031
s.e.	(0.035)	(0.024)	(0.014)	(0.017)	(0.012)	(0.015)	(0.02)	(0.02)	(0.087)
Loc Sovereign	0.158**	0.2***	-0.133***	-0.241***	-0.151***	-0.228***	-0.062	0.333***	0.967***
s.e.	(0.062)	(0.04)	(0.02)	(0.081)	(0.023)	(0.029)	(0.044)	(0.056)	(0.095)
Loc Equity	-0.005	-0.01***	0.003	0.01**	0.004***	-0.001	-0.007*	-0.008**	-0.001
s.e.	(0.006)	(0.003)	(0.002)	(0.005)	(0.001)	(0.002)	(0.004)	(0.004)	(0.01)
Loc Corporate	0.916***	0.9***	0.998***	1.331***	0.651***	1.266***	1.437***	1.215***	0.786***
s.e.	(0.17)	(0.076)	(0.041)	(0.2)	(0.045)	(0.065)	(0.091)	(0.098)	(0.22)
Adjusted R^2	0.833	0.972	0.947	0.819	0.843	0.949	0.953	0.975	0.940
Chi-Sq. Glo Fac	0.379	0.027	0.119	0.561	0.154	0.355	0.338	0.122	0.055
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Aug 07 - Aug 18)									
Intercept		0.012	-0.019	0.01	0.019**	0.015**	-0.018	-0.04**	-0.007
s.e.		(0.01)	(0.03)	(0.037)	(0.008)	(0.007)	(0.015)	(0.019)	(0.066)
Glo Sovereign		-0.015	-0.02	0.049	-0.022***	-0.026**	0.022	0.038	0.065
s.e.		(0.01)	(0.028)	(0.036)	(0.008)	(0.011)	(0.023)	(0.034)	(0.125)
Glo Equity		-0.011***	0.003	0.033	-0.004	-0.005*	0.01	0.008	0.01
s.e.		(0.004)	(0.015)	(0.023)	(0.002)	(0.003)	(0.007)	(0.007)	(0.025)
Glo Corporate		0.022**	0	-0.056	0.028***	0.034***	-0.044*	-0.05	-0.138
s.e.		(0.01)	(0.04)	(0.04)	(0.008)	(0.011)	(0.024)	(0.037)	(0.121)
Loc Sovereign		0.197***	-0.179***	-0.293**	-0.076***	-0.045	-0.067	0.356***	0.47**
s.e.		(0.047)	(0.064)	(0.115)	(0.024)	(0.04)	(0.063)	(0.12)	(0.239)
Loc Equity		0.001	0.008	-0.016	-0.002	-0.005	0	0.007	0.056**
s.e.		(0.003)	(0.008)	(0.019)	(0.002)	(0.003)	(0.005)	(0.007)	(0.028)
Loc Corporate		0.599***	1.467***	1.578***	0.492***	0.875***	1.627***	1.423***	2.19***
s.e.		(0.12)	(0.186)	(0.302)	(0.06)	(0.107)	(0.163)	(0.296)	(0.579)
Adjusted R^2		0.912	0.726	0.477	0.816	0.917	0.922	0.927	0.634
Chi-Sq. Glo Fac		0.010	0.422	0.491	0.002	0.012	0.031	0.446	0.168
Chi-Sq. Loc Fac		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Panel G: Multi-factor regression with all securities (Feb 98 - Aug 18)									
Intercept		-0.003	-0.008	0.001	0.02***	0.015*	-0.002	-0.01	-0.026
s.e.		(0.01)	(0.018)	(0.025)	(0.006)	(0.009)	(0.012)	(0.015)	(0.042)
Loc Sovereign		0.214***	-0.209***	-0.234***	-0.133***	-0.141***	-0.057	0.355***	0.695***
s.e.		(0.037)	(0.045)	(0.065)	(0.018)	(0.03)	(0.041)	(0.065)	(0.127)
Loc Equity		-0.003	0.003	0.004	0.002	-0.001	-0.006***	-0.001	0.013
s.e.		(0.002)	(0.003)	(0.003)	(0.001)	(0.001)	(0.002)	(0.003)	(0.011)
Loc Corporate		0.784***	1.265***	1.374***	0.591***	1.057***	1.485***	1.24***	1.496***
s.e.		(0.084)	(0.127)	(0.172)	(0.048)	(0.081)	(0.103)	(0.16)	(0.33)
Adjusted R^2		0.951	0.794	0.624	0.811	0.926	0.939	0.957	0.823
Panel G: Multi-factor regression with all securities (Feb 98 - Jul 07)									
Intercept	-0.002	-0.003	-0.003	-0.022	0.012*	0	0.011	0.011	-0.014
s.e.	(0.026)	(0.013)	(0.011)	(0.03)	(0.007)	(0.012)	(0.016)	(0.014)	(0.044)
Loc Sovereign	0.166**	0.191***	-0.131***	-0.212***	-0.165***	-0.224***	-0.045	0.348***	0.927***
s.e.	(0.066)	(0.048)	(0.018)	(0.076)	(0.018)	(0.024)	(0.039)	(0.046)	(0.09)
Loc Equity	-0.002	-0.005**	0	0.008**	0.002	-0.001	-0.007***	-0.003	0.005
s.e.	(0.006)	(0.002)	(0.001)	(0.003)	(0.002)	(0.002)	(0.003)	(0.004)	(0.008)
Loc Corporate	0.903***	0.907***	0.997***	1.293***	0.67***	1.26***	1.412***	1.188***	0.839***
s.e.	(0.174)	(0.081)	(0.043)	(0.193)	(0.039)	(0.063)	(0.084)	(0.084)	(0.223)
Adjusted R^2	0.834	0.971	0.947	0.816	0.836	0.949	0.954	0.975	0.939
Panel G: Multi-factor regression with all securities (Aug 07 - Aug 18)									
Intercept		0.011	-0.02	0.016	0.022**	0.018*	-0.021	-0.044**	-0.026
s.e.		(0.011)	(0.029)	(0.037)	(0.009)	(0.01)	(0.016)	(0.022)	(0.075)
Loc Sovereign		0.179***	-0.207***	-0.237***	-0.111***	-0.087**	-0.03	0.416***	0.599***
s.e.		(0.037)	(0.049)	(0.084)	(0.024)	(0.035)	(0.053)	(0.085)	(0.183)
Loc Equity		-0.002	0.007	0.001	0.002	-0.001	-0.004	0.002	0.021
s.e.		(0.003)	(0.004)	(0.005)	(0.002)	(0.001)	(0.004)	(0.003)	(0.02)
Loc Corporate		0.631***	1.507***	1.478***	0.548***	0.943***	1.566***	1.326***	1.985***
s.e.		(0.108)	(0.153)	(0.266)	(0.073)	(0.109)	(0.161)	(0.254)	(0.449)
Adjusted R^2		0.908	0.727	0.468	0.783	0.903	0.915	0.924	0.620
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)									
Intercept		-0.002	-0.008	-0.002	0.019***	0.013	-0.006	-0.008	-0.013
s.e.		(0.009)	(0.02)	(0.009)	(0.007)	(0.01)	(0.013)	(0.015)	(0.048)
Glo Corporate		1.138***	0.84***	1.138***	0.349***	0.782***	1.39***	1.93***	2.741***
s.e.		(0.031)	(0.071)	(0.031)	(0.029)	(0.039)	(0.057)	(0.069)	(0.148)
Spread B-AAA		-0.29***	0.079	0.71***	0.123***	0.073**	0.045	-0.202***	-0.612***
s.e.		(0.034)	(0.067)	(0.034)	(0.029)	(0.032)	(0.047)	(0.069)	(0.119)
Adjusted R^2		0.962	0.733	0.951	0.742	0.894	0.936	0.927	0.802
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)									
Intercept	-0.012	-0.014	0.006	-0.014	0.022**	0.013	0.012	-0.01	-0.064
s.e.	(0.025)	(0.011)	(0.014)	(0.011)	(0.011)	(0.017)	(0.016)	(0.015)	(0.061)
Glo Corporate	1.149***	1.141***	0.738***	1.141***	0.4***	0.851***	1.267***	1.766***	2.415***

s.e.	(0.097)	(0.028)	(0.049)	(0.028)	(0.042)	(0.064)	(0.049)	(0.056)	(0.189)
Spread B-AAA	-0.255***	-0.384***	0.083**	0.616***	0.208***	0.199***	-0.087	-0.418***	-1.021***
s.e.	(0.094)	(0.054)	(0.037)	(0.054)	(0.033)	(0.037)	(0.054)	(0.06)	(0.181)
Adjusted R^2	0.839	0.988	0.928	0.972	0.819	0.918	0.953	0.972	0.923
Panel H: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)									
Intercept		0.021	-0.038	0.021	0.014	0.009	-0.024	-0.006	0.028
s.e.		(0.013)	(0.033)	(0.013)	(0.01)	(0.012)	(0.018)	(0.027)	(0.076)
Glo Corporate		0.965***	1.145***	0.965***	0.346***	0.799***	1.515***	2.036***	3.003***
s.e.		(0.067)	(0.149)	(0.067)	(0.044)	(0.05)	(0.081)	(0.156)	(0.425)
Spread B-AAA		-0.187***	-0.016	0.813***	0.079***	0.002	0.076*	-0.122*	-0.478***
s.e.		(0.023)	(0.095)	(0.023)	(0.029)	(0.022)	(0.045)	(0.073)	(0.132)
Adjusted R^2		0.893	0.655	0.958	0.675	0.877	0.918	0.837	0.596
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)									
Intercept		0	-0.008	-0.004	0.017***	0.01	-0.007	-0.004	0.017***
s.e.		(0.016)	(0.02)	(0.029)	(0.006)	(0.007)	(0.013)	(0.014)	(0.006)
Glo Corporate		1.024***	0.824***	1.27***	0.527***	1.052***	1.439***	1.611***	0.527***
s.e.		(0.059)	(0.099)	(0.131)	(0.036)	(0.037)	(0.058)	(0.092)	(0.036)
Spread Mat		0.085***	-0.005	-0.152***	-0.084***	-0.111***	-0.025*	0.149***	0.916***
s.e.		(0.023)	(0.04)	(0.039)	(0.01)	(0.012)	(0.015)	(0.035)	(0.01)
Adjusted R^2		0.926	0.726	0.619	0.791	0.946	0.936	0.934	0.997
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)									
Intercept	-0.004	-0.002	-0.005	-0.019	0.012*	-0.004	0.004	0.005	0.016**
s.e.	(0.027)	(0.014)	(0.008)	(0.034)	(0.007)	(0.007)	(0.017)	(0.019)	(0.008)
Glo Corporate	0.992***	0.903***	0.994***	1.232***	0.641***	1.232***	1.462***	1.446***	0.626***
s.e.	(0.106)	(0.053)	(0.035)	(0.154)	(0.034)	(0.021)	(0.087)	(0.106)	(0.045)
Spread Mat	0.11***	0.166***	-0.11***	-0.161***	-0.131***	-0.179***	-0.053*	0.203***	0.862***
s.e.	(0.038)	(0.02)	(0.015)	(0.052)	(0.009)	(0.011)	(0.027)	(0.031)	(0.011)
Adjusted R^2	0.835	0.978	0.961	0.818	0.894	0.976	0.954	0.969	0.998
Panel I: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)									
Intercept		0.026	-0.04	0	0.014	0.012	-0.026	-0.007	0.002
s.e.		(0.02)	(0.033)	(0.045)	(0.009)	(0.009)	(0.019)	(0.024)	(0.009)
Glo Corporate		0.868***	0.98***	1.45***	0.496***	0.975***	1.541***	1.735***	0.525***
s.e.		(0.098)	(0.174)	(0.254)	(0.068)	(0.049)	(0.105)	(0.106)	(0.055)
Spread Mat		0.027	0.063	-0.144***	-0.054***	-0.068***	-0.006	0.11**	0.935***
s.e.		(0.019)	(0.049)	(0.05)	(0.008)	(0.007)	(0.019)	(0.048)	(0.011)
Adjusted R^2		0.824	0.67	0.472	0.712	0.925	0.913	0.849	0.996

Notes: This table shows the OLS coefficients of CAPM (Panels A-C) and multi-factor (Panels D-I) regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global and/or local excess returns , except in Panels H-I where the spread between excess returns in B and AAA rating categories and between >10 and 1< to <3 residual maturity ("Spread Mat") are employed. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in local currency. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. The risk free rate is the local one-month interest rate, which is chained to developments in the one-month Bund in 1998. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. "Chi-Sq. Glo Fac" and "Chi-Sq. Loc Fac" in Panel F are the Chi-Square's P-value of the Wald test testing the joint significance of all global factors and all local factors, respectively. Sample period: February 1998 – August 2018.

Table 9c. CAPM and Multi-Factor Regressions with Global Factors: FX-Hedged British Pound Portfolios

GBP	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Panel A: CAPM with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept	0.133	0.167	0.119	0.253*	0.448*	0.312	1.03**	0.147***	0.175**	0.183	0.169	0.23
s.e.	(0.101)	(0.104)	(0.147)	(0.14)	(0.268)	(0.305)	(0.5)	(0.051)	(0.081)	(0.144)	(0.163)	(0.161)
Global	0.174***	0.158***	0.181***	0.154***	0.208*	0.334***	0.051	0.029	0.069**	0.119**	0.195***	0.236***
s.e.	(0.059)	(0.05)	(0.059)	(0.047)	(0.107)	(0.112)	(0.155)	(0.018)	(0.03)	(0.046)	(0.059)	(0.072)
Adjusted R^2	0.070	0.072	0.064	0.057	0.037	0.061	-0.004	0.017	0.034	0.037	0.073	0.072
Panel A: CAPM with sovereign and equity securities (Feb 98 - Jul 07)												
Intercept	0.021	0.049	0.071	0.087	0.219	-0.091	0.822	0.042	0.037	-0.003	0.037	0.124
s.e.	(0.096)	(0.103)	(0.108)	(0.098)	(0.198)	(0.275)	(0.635)	(0.04)	(0.069)	(0.085)	(0.11)	(0.141)
Global	0.017	0.041	0.068	0.078*	0.34***	0.481***	0.074	-0.01	0.01	0.058**	0.114***	0.095
s.e.	(0.033)	(0.038)	(0.043)	(0.041)	(0.128)	(0.131)	(0.239)	(0.011)	(0.022)	(0.026)	(0.042)	(0.063)
Adjusted R^2	-0.006	0.004	0.017	0.028	0.164	0.183	-0.008	-0.002	-0.007	0.027	0.073	0.019
Panel A: CAPM with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept	0.107	0.178	0.07	0.343	0.741*	0.802	1.222*	0.21**	0.253*	0.303	0.225	0.211
s.e.	(0.143)	(0.169)	(0.27)	(0.261)	(0.445)	(0.538)	(0.743)	(0.09)	(0.143)	(0.277)	(0.314)	(0.283)
Global	0.356***	0.291***	0.315***	0.233***	0.049	0.119	0.007	0.068**	0.129**	0.177*	0.281**	0.399***
s.e.	(0.095)	(0.082)	(0.107)	(0.09)	(0.13)	(0.174)	(0.191)	(0.034)	(0.058)	(0.099)	(0.118)	(0.122)
Adjusted R^2	0.155	0.141	0.107	0.075	-0.006	-0.002	-0.008	0.057	0.069	0.041	0.081	0.121
Panel B: CAPM with all securities (Feb 98 - Aug 18)												
Intercept	0.128	0.163	0.116	0.25*	0.449*	0.313	1.031**	0.145***	0.173**	0.18	0.166	0.225
s.e.	(0.1)	(0.103)	(0.147)	(0.139)	(0.267)	(0.304)	(0.499)	(0.051)	(0.081)	(0.143)	(0.163)	(0.16)
Global	0.192***	0.173***	0.195***	0.166***	0.21*	0.341***	0.049	0.033*	0.076**	0.129***	0.209***	0.255***
s.e.	(0.062)	(0.051)	(0.06)	(0.048)	(0.112)	(0.114)	(0.161)	(0.019)	(0.031)	(0.047)	(0.059)	(0.074)
Adjusted R^2	0.080	0.081	0.070	0.062	0.035	0.059	-0.004	0.021	0.039	0.041	0.078	0.078
Panel B: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	0.021	0.049	0.072	0.087	0.222	-0.085	0.823	0.042	0.037	-0.002	0.038	0.125
s.e.	(0.096)	(0.102)	(0.108)	(0.097)	(0.199)	(0.275)	(0.635)	(0.04)	(0.069)	(0.084)	(0.109)	(0.141)
Global	0.024	0.049	0.077*	0.088**	0.353**	0.501***	0.078	-0.008	0.015	0.067**	0.126***	0.107
s.e.	(0.035)	(0.04)	(0.045)	(0.043)	(0.137)	(0.137)	(0.249)	(0.012)	(0.023)	(0.027)	(0.043)	(0.067)
Adjusted R^2	-0.004	0.008	0.022	0.033	0.160	0.180	-0.008	-0.005	-0.005	0.034	0.081	0.023
Panel B: CAPM with all securities (Aug 07 - Aug 18)												
Intercept	0.095	0.17	0.064	0.339	0.744*	0.804	1.228*	0.208**	0.25*	0.3	0.174	0.202
s.e.	(0.141)	(0.167)	(0.268)	(0.258)	(0.441)	(0.533)	(0.737)	(0.09)	(0.142)	(0.275)	(0.312)	(0.28)
Global	0.378***	0.307***	0.328***	0.242***	0.046	0.118	0	0.072**	0.134**	0.185**	0.293**	0.417***
s.e.	(0.096)	(0.082)	(0.106)	(0.088)	(0.132)	(0.171)	(0.197)	(0.033)	(0.056)	(0.097)	(0.117)	(0.121)
Adjusted R^2	0.168	0.151	0.112	0.078	-0.006	-0.002	-0.008	0.061	0.072	0.042	0.084	0.127
Panel C: CAPM with all securities (Feb 98 - Aug 18)												
Intercept	0.129	0.166*	0.122	0.257**	0.471**	0.33	1.04**	0.147***	0.176**	0.187	0.174	0.233*
s.e.	(0.101)	(0.098)	(0.125)	(0.114)	(0.196)	(0.229)	(0.419)	(0.046)	(0.073)	(0.118)	(0.133)	(0.141)
Global	0.16**	0.027	-0.115	-0.148**	-0.466***	-0.447***	-0.729***	-0.04	-0.068	-0.17*	-0.148*	-0.084
s.e.	(0.074)	(0.064)	(0.073)	(0.071)	(0.141)	(0.138)	(0.215)	(0.033)	(0.044)	(0.089)	(0.088)	(0.088)
Local	0.042	0.193***	0.407***	0.412***	0.901***	1.034***	1.04***	0.096***	0.189***	0.392***	0.469***	0.444***
s.e.	(0.068)	(0.06)	(0.085)	(0.086)	(0.148)	(0.16)	(0.211)	(0.034)	(0.05)	(0.098)	(0.096)	(0.091)
Adjusted R^2	0.078	0.130	0.225	0.260	0.387	0.340	0.100	0.120	0.166	0.241	0.281	0.199
Panel C: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	0.028	0.052	0.069	0.085	0.166	-0.147	0.764	0.046	0.042	0.001	0.035	0.117
s.e.	(0.094)	(0.102)	(0.108)	(0.097)	(0.187)	(0.249)	(0.619)	(0.04)	(0.068)	(0.084)	(0.11)	(0.142)
Global	0.093	0.073	0.048	0.064	-0.155	-0.113	-0.366	0.027	0.064	0.102*	0.096	0.03
s.e.	(0.056)	(0.066)	(0.079)	(0.08)	(0.153)	(0.173)	(0.372)	(0.025)	(0.043)	(0.057)	(0.078)	(0.111)
Local	-0.078	-0.026	0.033	0.027	0.573***	0.693***	0.507	-0.04	-0.056	-0.04	0.034	0.086
s.e.	(0.058)	(0.062)	(0.073)	(0.076)	(0.174)	(0.201)	(0.394)	(0.025)	(0.042)	(0.06)	(0.077)	(0.098)
Adjusted R^2	0.002	0.000	0.015	0.026	0.271	0.277	-0.001	0.014	0.003	0.030	0.075	0.020
Panel C: CAPM with all securities (Aug 07 - Aug 18)												
Intercept	0.098	0.176	0.075	0.349**	0.761***	0.823**	1.249**	0.211***	0.256***	0.31*	0.232	0.214
s.e.	(0.136)	(0.125)	(0.163)	(0.149)	(0.284)	(0.339)	(0.558)	(0.061)	(0.087)	(0.167)	(0.182)	(0.179)
Global	0.269***	0.082	-0.082	-0.166*	-0.592***	-0.628***	-0.814***	-0.044	-0.08	-0.22*	-0.168	-0.022
s.e.	(0.104)	(0.089)	(0.1)	(0.086)	(0.165)	(0.146)	(0.238)	(0.044)	(0.054)	(0.116)	(0.12)	(0.119)
Local	0.174*	0.36***	0.655***	0.65***	1.016***	1.19***	1.298***	0.185***	0.342***	0.646***	0.735***	0.7***
s.e.	(0.1)	(0.071)	(0.079)	(0.084)	(0.171)	(0.194)	(0.208)	(0.038)	(0.046)	(0.095)	(0.089)	(0.104)
Adjusted R^2	0.188	0.301	0.445	0.511	0.464	0.406	0.183	0.378	0.436	0.473	0.489	0.391
Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept	0.102	0.146	0.105	0.245*	0.475**	0.347	1.067**	0.142***	0.167**	0.177	0.16	0.21
s.e.	(0.092)	(0.104)	(0.143)	(0.133)	(0.224)	(0.257)	(0.431)	(0.05)	(0.08)	(0.135)	(0.155)	(0.159)
Glo Sovereign	0.3***	0.182***	0.081	0.014	-0.302***	-0.397***	-0.57***	0.008	0.019	-0.024	0.018	0.15**
s.e.	(0.055)	(0.05)	(0.064)	(0.063)	(0.096)	(0.096)	(0.143)	(0.019)	(0.032)	(0.057)	(0.062)	(0.076)
Glo Equity	0.009	0.049	0.114**	0.123***	0.308***	0.42***	0.317***	0.026*	0.056**	0.116***	0.153***	0.125**
s.e.	(0.034)	(0.033)	(0.049)	(0.042)	(0.049)	(0.068)	(0.107)	(0.014)	(0.027)	(0.039)	(0.046)	(0.055)
Adjusted R^2	0.215	0.116	0.073	0.086	0.277	0.308	0.106	0.032	0.055	0.083	0.106	0.077

Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Jul 07)

Intercept	0.062	0.087	0.106	0.112	0.162	-0.17	0.781	0.058*	0.064	0.026	0.062	0.161
s.e.	(0.069)	(0.079)	(0.091)	(0.09)	(0.202)	(0.275)	(0.64)	(0.031)	(0.052)	(0.071)	(0.097)	(0.125)
Glo Sovereign	0.268***	0.262***	0.255***	0.207**	-0.11	-0.217	-0.162	0.092***	0.178***	0.217***	0.222***	0.29**
s.e.	(0.056)	(0.067)	(0.084)	(0.084)	(0.13)	(0.166)	(0.203)	(0.017)	(0.033)	(0.048)	(0.079)	(0.118)
Glo Equity	-0.043**	-0.024	-0.005	0.012	0.259***	0.371***	0.09	-0.025***	-0.029**	-0.004	0.033	0.007
s.e.	(0.02)	(0.023)	(0.026)	(0.024)	(0.079)	(0.089)	(0.181)	(0.006)	(0.012)	(0.017)	(0.027)	(0.038)
Adjusted R^2	0.281	0.210	0.147	0.106	0.206	0.241	-0.014	0.278	0.276	0.206	0.154	0.102

Panel D: Multi-factor regression with sovereign and equity securities (Aug 07 - Aug 18)

Intercept	0.08	0.168	0.07	0.348	0.764**	0.859**	1.284**	0.209***	0.253**	0.31	0.23	0.208
s.e.	(0.155)	(0.175)	(0.241)	(0.224)	(0.357)	(0.419)	(0.611)	(0.078)	(0.121)	(0.228)	(0.266)	(0.268)
Glo Sovereign	0.318***	0.164***	0.043	-0.04	-0.367***	-0.482***	-0.665***	-0.016	-0.027	-0.095	-0.037	0.12
s.e.	(0.07)	(0.06)	(0.073)	(0.07)	(0.113)	(0.11)	(0.154)	(0.026)	(0.036)	(0.07)	(0.077)	(0.088)
Glo Equity	0.071	0.123**	0.233***	0.227***	0.323***	0.438***	0.491***	0.073***	0.133***	0.223***	0.266***	0.244***
s.e.	(0.063)	(0.055)	(0.077)	(0.064)	(0.052)	(0.106)	(0.093)	(0.017)	(0.039)	(0.057)	(0.074)	(0.09)
Adjusted R^2	0.214	0.125	0.142	0.183	0.323	0.367	0.223	0.173	0.194	0.200	0.182	0.119

Panel E: Multi-factor regression with all securities (Feb 98 - Aug 18)

Intercept	0.099	0.141	0.099	0.238**	0.442**	0.335	1***	0.14***	0.163**	0.17	0.153	0.203
s.e.	(0.086)	(0.091)	(0.124)	(0.107)	(0.185)	(0.218)	(0.382)	(0.04)	(0.065)	(0.112)	(0.128)	(0.138)
Glo Sovereign	0.093	-0.115	-0.364**	-0.457***	-0.878***	-1.261***	-1.725***	-0.16***	-0.254***	-0.497***	-0.51***	-0.328**
s.e.	(0.115)	(0.105)	(0.153)	(0.122)	(0.24)	(0.244)	(0.242)	(0.05)	(0.073)	(0.155)	(0.162)	(0.161)
Glo Equity	-0.053*	-0.04	-0.019	-0.018	0.131**	0.161*	-0.036	-0.025*	-0.026	-0.026	-0.005	-0.018
s.e.	(0.03)	(0.028)	(0.044)	(0.033)	(0.056)	(0.082)	(0.108)	(0.013)	(0.024)	(0.042)	(0.045)	(0.046)
Glo Corporate	0.35**	0.501***	0.75***	0.794***	0.962***	1.456***	1.936***	0.284***	0.459***	0.797***	0.889***	0.805***
s.e.	(0.165)	(0.149)	(0.212)	(0.158)	(0.346)	(0.351)	(0.389)	(0.069)	(0.096)	(0.208)	(0.226)	(0.219)
Adjusted R^2	0.245	0.198	0.2	0.263	0.371	0.442	0.192	0.245	0.239	0.285	0.282	0.173

Panel E: Multi-factor regression with all securities (Feb 98 - Jul 07)

Intercept	0.062	0.09	0.114	0.127	0.153	-0.131	0.752	0.059*	0.066	0.035	0.074	0.171
s.e.	(0.07)	(0.079)	(0.09)	(0.09)	(0.193)	(0.273)	(0.625)	(0.031)	(0.052)	(0.069)	(0.094)	(0.126)
Glo Sovereign	0.265***	0.212*	0.132	-0.014	-0.602*	-0.811**	-1.101**	0.079***	0.158***	0.079	0.032	0.132
s.e.	(0.095)	(0.111)	(0.143)	(0.125)	(0.339)	(0.317)	(0.553)	(0.023)	(0.051)	(0.072)	(0.127)	(0.196)
Glo Equity	-0.043**	-0.033	-0.026	-0.026	0.184***	0.27***	-0.055	-0.027***	-0.032**	-0.027	0.001	-0.019
s.e.	(0.021)	(0.024)	(0.031)	(0.03)	(0.053)	(0.092)	(0.163)	(0.007)	(0.013)	(0.02)	(0.029)	(0.044)
Glo Corporate	0.004	0.075	0.182	0.326**	0.676	0.875**	1.299*	0.019	0.029	0.203**	0.28**	0.233
s.e.	(0.096)	(0.112)	(0.151)	(0.132)	(0.439)	(0.424)	(0.748)	(0.028)	(0.057)	(0.083)	(0.142)	(0.201)
Adjusted R^2	0.275	0.206	0.153	0.145	0.242	0.28	0.006	0.273	0.27	0.231	0.182	0.106

Panel E: Multi-factor regression with all securities (Aug 07 - Aug 18)

Intercept	0.061	0.144	0.037	0.315*	0.724***	0.791***	1.211**	0.197***	0.232***	0.275	0.191	0.172
s.e.	(0.139)	(0.146)	(0.201)	(0.163)	(0.28)	(0.267)		(0.057)	(0.09)	(0.183)	(0.209)	(0.218)
Glo Sovereign	0.027	-0.212	-0.48**	-0.557***	-1***	-1.548***	-1.818***	-0.217***	-0.348***	-0.64***	-0.658***	-0.445**
s.e.	(0.151)	(0.131)	(0.2)	(0.145)	(0.308)	(0.287)	(0.283)	(0.065)	(0.091)	(0.219)	(0.224)	(0.198)
Glo Equity	-0.051	-0.034	0.014	0.01	0.058	-0.008	0.009	-0.012	-0.001	-0.006	0.006	0.007
s.e.	(0.067)	(0.058)	(0.093)	(0.062)	(0.099)	(0.111)	(0.118)	(0.024)	(0.047)	(0.092)	(0.097)	(0.093)
Glo Corporate	0.508**	0.657***	0.914***	0.903***	1.106**	1.862***	2.014***	0.351***	0.561***	0.953***	1.084***	0.988***
s.e.	(0.239)	(0.211)	(0.309)	(0.214)	(0.477)	(0.436)	(0.497)	(0.092)	(0.133)	(0.318)	(0.335)	(0.302)
Adjusted R^2	0.254	0.226	0.272	0.351	0.434	0.571	0.315	0.408	0.393	0.39	0.36	0.223

Panel F: Multi-factor regression with all securities (Feb 98 - Aug 18)

Intercept	-0.074	-0.032	-0.104***	0.066*	0.344**	0.273	0.954***	0.104***	0.089**	0.046	-0.026	-0.062
s.e.	(0.054)	(0.026)	(0.033)	(0.036)	(0.142)	(0.218)	(0.358)	(0.023)	(0.037)	(0.044)	(0.034)	(0.038)
Glo Sovereign	0.094	0.037	0.027	-0.198**	-0.192	-1.12**	-0.744	0.017	0.03	0.016	-0.032	-0.056
s.e.	(0.073)	(0.036)	(0.052)	(0.078)	(0.204)	(0.452)	(0.581)	(0.024)	(0.038)	(0.09)	(0.06)	(0.046)
Glo Equity	-0.038	-0.017	0.016	-0.001	0.084	-0.076	-0.017	-0.032**	-0.035	-0.024	0.026	0.027
s.e.	(0.043)	(0.017)	(0.02)	(0.022)	(0.083)	(0.173)	(0.206)	(0.013)	(0.026)	(0.032)	(0.024)	(0.025)
Glo Corporate	0.002	0	-0.054	0.188**	0.056	1.231**	0.835	0.036	0.026	0.031	0.045	-0.004
s.e.	(0.097)	(0.039)	(0.07)	(0.088)	(0.281)	(0.597)	(0.687)	(0.022)	(0.051)	(0.101)	(0.078)	(0.05)
Loc Sovereign	0.425***	0.233***	0.001	0.102	-0.513***	0.149	-1.062	-0.125***	-0.159***	-0.325**	-0.163**	0.299***
s.e.	(0.098)	(0.047)	(0.049)	(0.074)	(0.181)	(0.375)	(0.648)	(0.033)	(0.056)	(0.127)	(0.064)	(0.061)
Loc Equity	0.005	-0.005	-0.016	0.002	0.076	0.294**	-0.009	0.013	0.021	0.014	-0.014	-0.02
s.e.	(0.032)	(0.015)	(0.016)	(0.023)	(0.085)	(0.142)	(0.204)	(0.013)	(0.022)	(0.028)	(0.019)	(0.022)
Loc Corporate	0.583***	0.771***	1.169***	0.896***	1.138***	0.253	1.343*	0.332***	0.591***	1.043***	1.195***	1.235***
s.e.	(0.108)	(0.041)	(0.067)	(0.09)	(0.204)	(0.487)	(0.69)	(0.033)	(0.059)	(0.136)	(0.083)	(0.067)
Adjusted R^2	0.791	0.933	0.978	0.929	0.584	0.488	0.227	0.705	0.792	0.861	0.943	0.954
Chi-Sq. Glo Fac	0.121	0.224	0.720	0.037	0.363	0.010	0.646	0.016	0.008	0.239	0.068	0.008
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.274	0.000	0.000	0.000	0.000	0.000

Panel F: Multi-factor regression with all securities (Feb 98 - Jul 07)

Intercept	-0.014	-0.002	0.001	0.021	0.028	-0.243	0.57	0.039*	0.019	-0.031	-0.024	0.017
s.e.	(0.021)	(0.02)	(0.016)	(0.032)	(0.185)	(0.269)	(0.548)	(0.022)	(0.028)	(0.035)	(0.047)	(0.041)
Glo Sovereign	0.077***	0.056***	-0.01	-0.156***	-0.548	-0.507*	-0.281	0.02	0.055**	-0.082	-0.117**	-0.058
s.e.	(0.026)	(0.02)	(0.024)	(0.039)	(0.353)	(0.278)	(0.609)	(0.023)	(0.027)	(0.055)	(0.048)	(0.043)
Glo Equity	-0.016	-0.01	-0.006	0.019	0.118	0.15	-0.176	-0.029**	-0.022	-0.013	0.027	0.019
s.e.	(0.012)	(0.011)	(0.009)	(0.023)	(0.145)	(0.146)	(0.32)	(0.014)	(0.017)	(0.019)	(0.027)	(0.027)

Glo Corporate	-0.044	-0.042	0	0.156***	0.363	0.349	0.404	0.018	-0.008	0.161**	0.142**	-0.022
s.e.	(0.027)	(0.027)	(0.03)	(0.054)	(0.447)	(0.39)	(0.859)	(0.026)	(0.028)	(0.067)	(0.068)	(0.049)
Loc Sovereign	0.218***	0.092**	-0.003	0.009	-0.794***	-1.041***	-2.477***	0.086*	0.108**	0.187***	0.059	-0.017
s.e.	(0.052)	(0.038)	(0.035)	(0.057)	(0.296)	(0.388)	(0.785)	(0.044)	(0.054)	(0.063)	(0.072)	(0.083)
Loc Equity	-0.009	-0.003	0.003	-0.029	0.081	0.144	0.105	0.009	0.002	0.004	-0.006	-0.011
s.e.	(0.015)	(0.011)	(0.008)	(0.027)	(0.166)	(0.137)	(0.337)	(0.016)	(0.019)	(0.023)	(0.023)	(0.027)
Loc Corporate	0.574***	0.842***	1.126***	1.048***	1.759***	2.015***	3.057***	0.12**	0.371***	0.503***	0.928***	1.554***
s.e.	(0.046)	(0.039)	(0.039)	(0.063)	(0.379)	(0.452)	(0.935)	(0.048)	(0.055)	(0.078)	(0.073)	(0.09)
Adjusted R^2	0.953	0.970	0.986	0.913	0.456	0.408	0.055	0.610	0.816	0.825	0.879	0.948
Chi-Sq. Glo Fac	0.004	0.005	0.478	0.001	0.232	0.026	0.941	0.082	0.020	0.013	0.004	0.041
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	-0.186*	-0.081*	-0.212***	0.12*	0.631***	0.763***	1.146**	0.172***	0.174***	0.163**	-0.012	-0.165***
s.e.	(0.099)	(0.048)	(0.049)	(0.062)	(0.197)	(0.254)	(0.476)	(0.029)	(0.055)	(0.068)	(0.052)	(0.052)
Glo Sovereign	0.03	-0.015	0.042	-0.199*	-0.087	-1.591***	-0.997	0.03	0.051	0.112	0.015	-0.083
s.e.	(0.114)	(0.06)	(0.075)	(0.117)	(0.221)	(0.604)	(0.807)	(0.033)	(0.06)	(0.138)	(0.091)	(0.069)
Glo Equity	-0.051	-0.023	0.046	-0.016	-0.016	-0.345	0.202	-0.038**	-0.05	-0.058	0.009	0.045
s.e.	(0.1)	(0.033)	(0.031)	(0.036)	(0.126)	(0.219)	(0.271)	(0.018)	(0.043)	(0.059)	(0.04)	(0.034)
Glo Corporate	0.089	0.061	-0.082	0.182	-0.049	1.895**	0.98	0.038	0.027	-0.06	0	0.017
s.e.	(0.168)	(0.063)	(0.102)	(0.135)	(0.316)	(0.796)	(0.958)	(0.026)	(0.082)	(0.162)	(0.122)	(0.079)
Loc Sovereign	0.551***	0.299***	0.015	0.103	-0.642***	0.359	-0.814	-0.169***	-0.228***	-0.455***	-0.215***	0.366***
s.e.	(0.133)	(0.069)	(0.063)	(0.099)	(0.211)	(0.472)	(0.763)	(0.037)	(0.067)	(0.147)	(0.07)	(0.069)
Loc Equity	-0.017	-0.024	-0.041*	0.026	0.101	0.383**	-0.206	0.034**	0.062**	0.071*	-0.001	-0.058**
s.e.	(0.065)	(0.027)	(0.023)	(0.032)	(0.109)	(0.184)	(0.281)	(0.017)	(0.027)	(0.04)	(0.028)	(0.028)
Loc Corporate	0.611***	0.774***	1.196***	0.863***	1.201***	-0.112	1.14	0.323***	0.563***	1.082***	1.24***	1.242***
s.e.	(0.139)	(0.047)	(0.08)	(0.119)	(0.194)	(0.571)	(0.781)	(0.032)	(0.064)	(0.154)	(0.096)	(0.078)
Adjusted R^2	0.793	0.930	0.980	0.934	0.677	0.606	0.336	0.792	0.834	0.893	0.957	0.964
Chi-Sq. Glo Fac	0.437	0.320	0.461	0.279	0.409	0.062	0.606	0.021	0.002	0.340	0.661	0.035
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.386	0.000	0.000	0.000	0.000	0.000
Panel G: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	-0.076	-0.033	-0.103***	0.068*	0.351***	0.281	0.975***	0.102***	0.086**	0.045	-0.02	-0.06
s.e.	(0.055)	(0.025)	(0.033)	(0.037)	(0.131)	(0.226)	(0.37)	(0.024)	(0.038)	(0.042)	(0.033)	(0.038)
Loc Sovereign	0.546***	0.278***	0.013	-0.066**	-0.724***	-0.724***	-1.61***	-0.092***	-0.114**	-0.293***	-0.171***	0.228***
s.e.	(0.079)	(0.035)	(0.026)	(0.033)	(0.124)	(0.134)	(0.343)	(0.028)	(0.046)	(0.08)	(0.036)	(0.05)
Loc Equity	-0.027	-0.02**	-0.006	0.015	0.158***	0.32***	0.049	-0.013**	-0.008	-0.005	0.017*	0.002
s.e.	(0.019)	(0.008)	(0.005)	(0.014)	(0.056)	(0.067)	(0.123)	(0.006)	(0.009)	(0.013)	(0.01)	(0.01)
Loc Corporate	0.542***	0.756***	1.145***	1.019***	1.212***	0.978***	1.793***	0.336***	0.588***	1.044***	1.202***	1.257***
s.e.	(0.088)	(0.034)	(0.041)	(0.053)	(0.188)	(0.238)	(0.464)	(0.032)	(0.045)	(0.1)	(0.054)	(0.06)
Adjusted R^2	0.783	0.932	0.978	0.919	0.580	0.424	0.225	0.686	0.786	0.861	0.942	0.952
Panel G: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	-0.019	-0.004	0.003	0.02	0.059	-0.219	0.563	0.033	0.012	-0.045	-0.029	0.03
s.e.	(0.021)	(0.02)	(0.015)	(0.032)	(0.193)	(0.25)	(0.548)	(0.024)	(0.03)	(0.039)	(0.045)	(0.042)
Loc Sovereign	0.284***	0.139***	-0.016	-0.118**	-1.194***	-1.437***	-2.763***	0.095***	0.154***	0.124**	-0.025	-0.074
s.e.	(0.043)	(0.036)	(0.024)	(0.057)	(0.322)	(0.382)	(0.627)	(0.036)	(0.046)	(0.051)	(0.061)	(0.073)
Loc Equity	-0.024***	-0.014**	-0.005	-0.002	0.213***	0.305***	-0.058	-0.018***	-0.018**	0.004	0.031***	0.001
s.e.	(0.008)	(0.006)	(0.005)	(0.013)	(0.074)	(0.086)	(0.177)	(0.006)	(0.008)	(0.01)	(0.011)	(0.013)
Loc Corporate	0.535***	0.809***	1.133***	1.16***	1.927***	2.265***	3.392***	0.136***	0.359***	0.605***	1.013***	1.559***
s.e.	(0.037)	(0.041)	(0.03)	(0.065)	(0.322)	(0.496)	(0.783)	(0.042)	(0.053)	(0.059)	(0.079)	(0.095)
Adjusted R^2	0.948	0.968	0.986	0.902	0.431	0.397	0.081	0.590	0.806	0.809	0.870	0.944
Panel G: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	-0.177*	-0.078*	-0.207***	0.116*	0.596***	0.767**	1.245**	0.174***	0.173***	0.152**	-0.006	-0.162***
s.e.	(0.1)	(0.044)	(0.054)	(0.067)	(0.183)	(0.36)	(0.505)	(0.033)	(0.058)	(0.063)	(0.048)	(0.052)
Loc Sovereign	0.638***	0.311***	0.036	-0.072**	-0.807***	-0.815***	-1.557***	-0.111***	-0.151***	-0.35***	-0.19***	0.27***
s.e.	(0.107)	(0.042)	(0.026)	(0.035)	(0.146)	(0.139)	(0.379)	(0.032)	(0.051)	(0.087)	(0.041)	(0.056)
Loc Equity	-0.052	-0.037***	-0.008	0.032	0.078*	0.295***	0.102	0.005	0.02	0.01	0.008	-0.015
s.e.	(0.033)	(0.013)	(0.008)	(0.025)	(0.043)	(0.103)	(0.136)	(0.007)	(0.015)	(0.021)	(0.014)	(0.015)
Loc Corporate	0.613***	0.789***	1.158***	0.976***	1.255***	0.864***	1.6***	0.32***	0.553***	1.043***	1.228***	1.27***
s.e.	(0.115)	(0.036)	(0.043)	(0.066)	(0.194)	(0.288)	(0.511)	(0.033)	(0.045)	(0.111)	(0.059)	(0.063)
Adjusted R^2	0.790	0.930	0.979	0.927	0.675	0.480	0.326	0.767	0.823	0.890	0.958	0.962
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)												
Intercept	0.034	0.023	-0.094***	0.047	0.179	0.034	0.605*	0.085***	0.063*	-0.011	-0.058*	-0.015
s.e.	(0.064)	(0.034)	(0.031)	(0.03)	(0.117)	(0.064)	(0.333)	(0.023)	(0.037)	(0.05)	(0.035)	(0.04)
Glo Corporate	0.825***	0.896***	1.149***	0.992***	0.964***	0.825***	0.938***	0.273***	0.516***	0.876***	1.12***	1.387***
s.e.	(0.085)	(0.038)	(0.026)	(0.029)	(0.133)	(0.085)	(0.198)	(0.025)	(0.029)	(0.072)	(0.045)	(0.048)
Spread B-AAA	-0.186***	-0.097***	-0.034***	0.057***	0.36***	0.814***	0.738***	0.018*	0.034**	0.077***	0.078***	-0.07***
s.e.	(0.042)	(0.018)	(0.009)	(0.021)	(0.051)	(0.042)	(0.135)	(0.011)	(0.014)	(0.025)	(0.02)	(0.02)
Adjusted R^2	0.743	0.918	0.983	0.932	0.597	0.939	0.307	0.661	0.782	0.834	0.948	0.948
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)												
Intercept	-0.038	-0.015	0.001	0.024	0.18	-0.034	0.811	0.025	0.002	-0.049	-0.013	0.031
s.e.	(0.03)	(0.019)	(0.013)	(0.034)	(0.197)	(0.031)	(0.594)	(0.025)	(0.034)	(0.039)	(0.035)	(0.042)
Glo Corporate	0.827***	0.951***	1.115***	1.035***	0.81***	0.827***	0.513	0.231***	0.515***	0.736***	0.994***	1.482***

s.e.	(0.02)	(0.015)	(0.012)	(0.034)	(0.119)	(0.02)	(0.436)	(0.019)	(0.026)	(0.037)	(0.027)	(0.047)
Spread B-AAA	-0.063***	-0.045***	-0.015***	0.009	0.39***	0.93***	0.331	-0.025***	-0.028***	-0.007	0.101***	-0.011
s.e.	(0.01)	(0.008)	(0.004)	(0.015)	(0.075)	(0.011)	(0.27)	(0.007)	(0.008)	(0.01)	(0.013)	(0.011)
Adjusted R^2	0.926	0.973	0.988	0.898	0.401	0.992	0.025	0.542	0.773	0.803	0.942	0.944
Panel H: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)												
Intercept	0.163*	0.088	-0.171***	0.048	0.148	0.092	0.244	0.116***	0.09	-0.025	-0.103*	-0.021
s.e.	(0.095)	(0.054)	(0.051)	(0.044)	(0.141)	(0.098)	(0.319)	(0.036)	(0.061)	(0.086)	(0.053)	(0.065)
Glo Corporate	0.822***	0.879***	1.165***	0.978***	1.001***	0.823***	1.042***	0.279***	0.511***	0.908***	1.157***	1.367***
s.e.	(0.098)	(0.047)	(0.03)	(0.036)	(0.157)	(0.108)	(0.256)	(0.025)	(0.032)	(0.086)	(0.055)	(0.054)
Spread B-AAA	-0.259***	-0.127***	-0.044***	0.083***	0.36***	0.76***	0.934***	0.041***	0.066***	0.123***	0.069***	-0.104***
s.e.	(0.069)	(0.029)	(0.011)	(0.024)	(0.057)	(0.079)	(0.104)	(0.014)	(0.021)	(0.037)	(0.026)	(0.03)
Adjusted R^2	0.762	0.914	0.985	0.948	0.69	0.91	0.552	0.752	0.82	0.87	0.954	0.958
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)												
Intercept	0.071	0.049	-0.087**	0.053	0.129	0.088	0.606	0.048***	0.019	-0.075**	-0.088***	0.048***
s.e.	(0.074)	(0.036)	(0.034)	(0.039)	(0.136)	(0.246)	(0.423)	(0.01)	(0.024)	(0.037)	(0.034)	(0.01)
Glo Corporate	0.084	0.453***	1.007***	1.062***	2.079***	2.057***	2.557***	0.654***	0.994***	1.633***	1.565***	0.654***
s.e.	(0.144)	(0.071)	(0.055)	(0.081)	(0.353)	(0.341)	(0.688)	(0.019)	(0.076)	(0.112)	(0.057)	(0.019)
Spread Mat	0.657***	0.393***	0.126***	-0.059	-0.991***	-1.057***	-1.429***	-0.342***	-0.429***	-0.679***	-0.396***	0.658***
s.e.	(0.145)	(0.066)	(0.03)	(0.056)	(0.23)	(0.26)	(0.493)	(0.014)	(0.051)	(0.076)	(0.041)	(0.014)
Adjusted R^2	0.682	0.909	0.981	0.915	0.441	0.224	0.115	0.941	0.918	0.94	0.956	0.997
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)												
Intercept	-0.03	-0.01	0.002	0.022	0.15	-0.141	0.818	0.029**	0.007	-0.047	-0.024	0.03**
s.e.	(0.035)	(0.027)	(0.013)	(0.032)	(0.235)	(0.315)	(0.619)	(0.012)	(0.018)	(0.031)	(0.039)	(0.013)
Glo Corporate	1.106***	1.048***	0.956***	0.867***	0.39	0.594	-0.17	0.704***	1.103***	1.279***	1.275***	0.695***
s.e.	(0.047)	(0.047)	(0.019)	(0.078)	(0.458)	(0.495)	(1.449)	(0.027)	(0.029)	(0.053)	(0.078)	(0.029)
Spread Mat	-0.224***	-0.078**	0.127***	0.134*	0.317	0.202	0.536	-0.377***	-0.469***	-0.433***	-0.222***	0.627***
s.e.	(0.041)	(0.037)	(0.015)	(0.071)	(0.378)	(0.467)	(1.06)	(0.024)	(0.024)	(0.038)	(0.079)	(0.026)
Adjusted R^2	0.897	0.955	0.99	0.902	0.123	0.068	-0.008	0.886	0.941	0.886	0.872	0.994
Panel I: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)												
Intercept	0.22*	0.136***	-0.17***	0.067	0.08	0.205	0.379	0.069***	0.035	-0.118*	-0.16***	0.065***
s.e.	(0.123)	(0.048)	(0.058)	(0.072)	(0.154)	(0.396)	(0.562)	(0.016)	(0.045)	(0.061)	(0.046)	(0.012)
Glo Corporate	-0.23	0.266***	1.033***	1.128***	2.406***	2.488***	3.103***	0.64***	0.984***	1.742***	1.65***	0.628***
s.e.	(0.152)	(0.065)	(0.061)	(0.091)	(0.351)	(0.384)	(0.814)	(0.021)	(0.09)	(0.126)	(0.054)	(0.02)
Spread Mat	0.974***	0.569***	0.122***	-0.136**	-1.3***	-1.522***	-1.883***	-0.337***	-0.441***	-0.777***	-0.459***	0.689***
s.e.	(0.163)	(0.063)	(0.033)	(0.056)	(0.207)	(0.217)	(0.566)	(0.016)	(0.063)	(0.087)	(0.041)	(0.015)
Adjusted R^2	0.717	0.927	0.981	0.922	0.626	0.357	0.219	0.949	0.913	0.958	0.978	0.997

Notes: This table shows the OLS coefficients of CAPM (Panels A-C) and multi-factor (Panels D-I) regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global and/or local excess returns , except in Panels H-I where the spread between excess returns in B and AAA rating categories and between >10 and 1< to <3 residual maturity ("Spread Mat") are employed. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in local currency. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. The risk free rate is is the local one-month interest rate. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. "Chi-Sq. Glo Fac" and "Chi-Sq. Loc Fac" in Panel F are the Chi-Square's P-value of the Wald test testing the joint significance of all global factors and all local factors, respectively. Sample period: February 1998 – August 2018.

Table 9d. CAPM and Multi-Factor Regressions with Global Factors: FX-Hedged Canadian Dollar Portfolios

CAD	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Panel A: CAPM with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept	0.139**	0.165***	0.211**	0.247***	0.395***	0.268		0.113***	0.176***	0.239***	0.263***	0.321**
s.e.	(0.058)	(0.053)	(0.083)	(0.077)	(0.135)	(0.255)		(0.033)	(0.052)	(0.069)	(0.098)	(0.131)
Global	0.153***	0.079***	0.128***	0.134***	0.062	0.229*		0.038**	0.091***	0.126***	0.16***	0.223***
s.e.	(0.039)	(0.028)	(0.041)	(0.036)	(0.048)	(0.126)		(0.016)	(0.027)	(0.035)	(0.046)	(0.065)
Adjusted R^2	0.130	0.053	0.066	0.078	0.003	0.016		0.041	0.075	0.082	0.073	0.065
Panel A: CAPM with sovereign and equity securities (Feb 98 - Jul 07)												
Intercept	0.107	0.121	0.162*	0.17**	0.159	0.338		0.075*	0.12	0.167*	0.187*	0.249*
s.e.	(0.074)	(0.075)	(0.096)	(0.087)	(0.148)	(0.38)		(0.044)	(0.073)	(0.087)	(0.113)	(0.148)
Global	0.032	0.041	0.062	0.089**	0.036	0.409***		0.021	0.057*	0.07	0.085*	0.114*
s.e.	(0.038)	(0.037)	(0.047)	(0.04)	(0.061)	(0.132)		(0.02)	(0.034)	(0.042)	(0.049)	(0.068)
Adjusted R^2	0.000	0.006	0.010	0.043	-0.005	0.060		0.004	0.020	0.021	0.019	0.017
Panel A: CAPM with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept	0.104	0.184**	0.219	0.292**	0.593***	0.301		0.139***	0.208**	0.274**	0.292*	0.328
s.e.	(0.088)	(0.082)	(0.142)	(0.133)	(0.224)	(0.3)		(0.052)	(0.082)	(0.114)	(0.167)	(0.227)
Global	0.283***	0.116***	0.197***	0.177***	0.07	0.037		0.053**	0.124***	0.181***	0.237***	0.337***
s.e.	(0.051)	(0.044)	(0.069)	(0.061)	(0.078)	(0.202)		(0.026)	(0.043)	(0.057)	(0.079)	(0.11)
Adjusted R^2	0.319	0.126	0.133	0.099	-0.001	-0.007		0.090	0.152	0.152	0.127	0.110
Panel B: CAPM with all securities (Feb 98 - Aug 18)												
Intercept	0.137**	0.163***	0.208**	0.245***	0.395***	0.274		0.112***	0.174***	0.237***	0.261***	0.318**
s.e.	(0.057)	(0.053)	(0.082)	(0.077)	(0.134)	(0.254)		(0.032)	(0.052)	(0.069)	(0.098)	(0.131)
Global	0.168***	0.088***	0.142***	0.145***	0.065	0.213		0.044***	0.1***	0.138***	0.175***	0.242***
s.e.	(0.039)	(0.029)	(0.042)	(0.037)	(0.049)	(0.134)		(0.016)	(0.028)	(0.036)	(0.047)	(0.067)
Adjusted R^2	0.148	0.063	0.076	0.086	0.003	0.012		0.052	0.087	0.094	0.081	0.072
Panel B: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	0.107	0.121	0.162*	0.171**	0.16	0.341		0.075*	0.12	0.167*	0.188*	0.25*
s.e.	(0.074)	(0.075)	(0.096)	(0.087)	(0.149)	(0.383)		(0.044)	(0.073)	(0.087)	(0.113)	(0.148)
Global	0.042	0.05	0.073	0.099**	0.035	0.402***		0.026	0.066*	0.081*	0.097*	0.129*
s.e.	(0.039)	(0.038)	(0.05)	(0.043)	(0.066)	(0.138)		(0.02)	(0.036)	(0.044)	(0.052)	(0.073)
Adjusted R^2	0.006	0.011	0.016	0.049	-0.006	0.051		0.009	0.026	0.028	0.024	0.021
Panel B: CAPM with all securities (Aug 07 - Aug 18)												
Intercept	0.1	0.182**	0.215	0.29**	0.592***	0.307		0.137***	0.205**	0.271**	0.186**	0.324
s.e.	(0.087)	(0.082)	(0.14)	(0.131)	(0.221)	(0.299)		(0.051)	(0.081)	(0.113)	(0.166)	(0.224)
Global	0.295***	0.123***	0.208***	0.186***	0.074	0.025		0.058**	0.131***	0.191***	0.248***	0.351***
s.e.	(0.051)	(0.044)	(0.068)	(0.061)	(0.074)	(0.212)		(0.026)	(0.043)	(0.057)	(0.079)	(0.109)
Adjusted R^2	0.337	0.138	0.143	0.107	-0.001	-0.007		0.105	0.168	0.164	0.136	0.117
Panel C: CAPM with all securities (Feb 98 - Aug 18)												
Intercept	0.113*	0.131**	0.149**	0.19***	0.345***	0.131		0.101***	0.143***	0.187***	0.186**	0.218*
s.e.	(0.061)	(0.051)	(0.073)	(0.067)	(0.12)	(0.237)		(0.031)	(0.049)	(0.062)	(0.085)	(0.116)
Global	0.136***	0.044	0.061	0.07*	-0.003	0.018		0.028	0.058**	0.071*	0.072	0.105
s.e.	(0.036)	(0.03)	(0.044)	(0.04)	(0.063)	(0.141)		(0.018)	(0.029)	(0.038)	(0.051)	(0.073)
Local	0.084**	0.117***	0.212***	0.199***	0.179**	0.514***		0.041**	0.11***	0.179***	0.27***	0.361***
s.e.	(0.036)	(0.027)	(0.045)	(0.039)	(0.072)	(0.12)		(0.018)	(0.027)	(0.033)	(0.053)	(0.079)
Adjusted R^2	0.176	0.157	0.220	0.222	0.045	0.087		0.089	0.174	0.226	0.248	0.209
Panel C: CAPM with all securities (Feb 98 - Jul 07)												
Intercept	0.057	0.055	0.061	0.083	0.055	0.122		0.049	0.055	0.08	0.066	0.079
s.e.	(0.082)	(0.082)	(0.1)	(0.083)	(0.161)	(0.394)		(0.049)	(0.076)	(0.089)	(0.117)	(0.141)
Global	-0.017	-0.028	-0.047	-0.005	-0.089	0.143		-0.004	-0.012	-0.022	-0.047	-0.073
s.e.	(0.039)	(0.042)	(0.056)	(0.046)	(0.087)	(0.127)		(0.021)	(0.042)	(0.05)	(0.065)	(0.082)
Local	0.111***	0.146***	0.224***	0.195***	0.231**	0.483***		0.056**	0.145***	0.193***	0.269***	0.377***
s.e.	(0.042)	(0.042)	(0.049)	(0.04)	(0.108)	(0.174)		(0.026)	(0.041)	(0.048)	(0.071)	(0.067)
Adjusted R^2	0.069	0.122	0.169	0.201	0.091	0.104		0.060	0.140	0.168	0.195	0.194
Panel C: CAPM with all securities (Aug 07 - Aug 18)												
Intercept	0.078	0.159**	0.168	0.243**	0.558***	0.208		0.129***	0.185***	0.232***	0.226*	0.243
s.e.	(0.08)	(0.069)	(0.106)	(0.104)	(0.188)	(0.253)		(0.045)	(0.069)	(0.088)	(0.12)	(0.177)
Global	0.269***	0.096**	0.151***	0.131**	0.034	-0.093		0.049*	0.107***	0.143***	0.173**	0.255**
s.e.	(0.04)	(0.041)	(0.058)	(0.056)	(0.087)	(0.23)		(0.026)	(0.039)	(0.05)	(0.069)	(0.101)
Local	0.112***	0.115***	0.241***	0.234***	0.171**	0.503***		0.04*	0.104***	0.202***	0.319***	0.413***
s.e.	(0.042)	(0.032)	(0.064)	(0.057)	(0.085)	(0.16)		(0.023)	(0.03)	(0.041)	(0.068)	(0.12)
Adjusted R^2	0.378	0.249	0.325	0.268	0.026	0.064		0.147	0.264	0.334	0.348	0.268
Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept	0.129**	0.158***	0.201**	0.24***	0.392***	0.271		0.109***	0.168***	0.23***	0.252**	0.31**
s.e.	(0.056)	(0.053)	(0.084)	(0.077)	(0.127)	(0.207)		(0.033)	(0.052)	(0.069)	(0.099)	(0.133)
Glo Sovereign	0.177***	0.096***	0.112**	0.092**	-0.042	-0.245**		0.05***	0.092***	0.114***	0.118**	0.165**
s.e.	(0.027)	(0.028)	(0.046)	(0.045)	(0.039)	(0.108)		(0.012)	(0.024)	(0.038)	(0.056)	(0.084)
Glo Equity	0.033	0.019	0.05*	0.061***	0.075**	0.295***		0.008	0.03**	0.048**	0.074**	0.092**
s.e.	(0.026)	(0.016)	(0.028)	(0.024)	(0.03)	(0.065)		(0.009)	(0.015)	(0.021)	(0.03)	(0.046)
Adjusted R^2	0.290	0.131	0.094	0.083	0.027	0.131		0.121	0.135	0.125	0.087	0.072

Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Jul 07)										
Intercept	0.126*	0.137**	0.178*	0.179**	0.147	0.25	0.083**	0.132*	0.183**	0.2*	0.265*
s.e.	(0.065)	(0.069)	(0.094)	(0.088)	(0.152)	(0.31)	(0.041)	(0.07)	(0.083)	(0.118)	(0.15)
Glo Sovereign	0.168***	0.147***	0.162**	0.122**	-0.073	-0.418**	0.079***	0.132***	0.167***	0.153*	0.196*
s.e.	(0.039)	(0.044)	(0.063)	(0.054)	(0.08)	(0.177)	(0.022)	(0.042)	(0.051)	(0.09)	(0.101)
Glo Equity	-0.014	-0.004	0.008	0.037	0.042	0.375***	-0.002	0.012	0.012	0.026	0.038
s.e.	(0.018)	(0.018)	(0.024)	(0.023)	(0.034)	(0.069)	(0.01)	(0.018)	(0.022)	(0.029)	(0.038)
Adjusted R^2	0.248	0.171	0.113	0.092	0.015	0.219	0.165	0.137	0.153	0.073	0.060
Panel D: Multi-factor regression with sovereign and equity securities (Aug 07 - Aug 18)										
Intercept	0.1	0.181**	0.214	0.291**	0.586***	0.281	0.136***	0.203**	0.268**	0.282*	0.328
s.e.	(0.094)	(0.083)	(0.141)	(0.131)	(0.201)	(0.246)	(0.053)	(0.083)	(0.113)	(0.163)	(0.227)
Glo Sovereign	0.189***	0.074**	0.094*	0.078	-0.036	-0.177	0.037**	0.075**	0.093*	0.106	0.157
s.e.	(0.034)	(0.034)	(0.057)	(0.059)	(0.045)	(0.138)	(0.016)	(0.03)	(0.047)	(0.069)	(0.108)
Glo Equity	0.084*	0.041*	0.094*	0.084**	0.1**	0.211**	0.018	0.048**	0.084**	0.123**	0.148*
s.e.	(0.044)	(0.023)	(0.048)	(0.042)	(0.049)	(0.099)	(0.014)	(0.023)	(0.034)	(0.049)	(0.084)
Adjusted R^2	0.348	0.129	0.113	0.076	0.028	0.066	0.106	0.153	0.138	0.115	0.082
Panel E: Multi-factor regression with all securities (Feb 98 - Aug 18)										
Intercept	0.13**	0.159***	0.203***	0.241***	0.395***	0.273	0.11***	0.169***	0.231***	0.254***	0.312**
s.e.	(0.053)	(0.049)	(0.076)	(0.07)	(0.117)	(0.203)	(0.029)	(0.048)	(0.063)	(0.09)	(0.125)
Glo Sovereign	0.124	0.034	-0.042	-0.048	-0.275*	-0.439***	-0.01	0.012	-0.006	-0.052	-0.05
s.e.	(0.09)	(0.061)	(0.11)	(0.091)	(0.156)	(0.153)	(0.035)	(0.056)	(0.084)	(0.111)	(0.179)
Glo Equity	0.02	0.004	0.013	0.027	0.018	0.248***	-0.006	0.011	0.019	0.033	0.04
s.e.	(0.017)	(0.017)	(0.023)	(0.022)	(0.048)	(0.073)	(0.01)	(0.016)	(0.02)	(0.028)	(0.036)
Glo Corporate	0.085	0.098	0.246*	0.222**	0.37	0.309	0.097*	0.128	0.191*	0.271*	0.342
s.e.	(0.126)	(0.079)	(0.139)	(0.11)	(0.225)	(0.245)	(0.05)	(0.08)	(0.108)	(0.139)	(0.209)
Adjusted R^2	0.294	0.143	0.137	0.121	0.069	0.134	0.17	0.161	0.158	0.124	0.098
Panel E: Multi-factor regression with all securities (Feb 98 - Jul 07)										
Intercept	0.121*	0.132*	0.174*	0.178*	0.155	0.276	0.082*	0.129*	0.179**	0.197	0.262*
s.e.	(0.069)	(0.072)	(0.097)	(0.091)	(0.151)	(0.31)	(0.042)	(0.074)	(0.087)	(0.121)	(0.153)
Glo Sovereign	0.296***	0.253***	0.251***	0.149	-0.27	-1.034***	0.102**	0.201**	0.269***	0.218**	0.272*
s.e.	(0.061)	(0.067)	(0.092)	(0.096)	(0.205)	(0.356)	(0.051)	(0.089)	(0.092)	(0.109)	(0.154)
Glo Equity	-0.001	0.007	0.017	0.039	0.022	0.312***	0	0.019	0.022	0.033	0.046
s.e.	(0.021)	(0.02)	(0.026)	(0.024)	(0.04)	(0.071)	(0.012)	(0.02)	(0.024)	(0.033)	(0.041)
Glo Corporate	-0.18	-0.149	-0.125	-0.037	0.277	0.866**	-0.032	-0.097	-0.143	-0.092	-0.106
s.e.	(0.111)	(0.12)	(0.162)	(0.163)	(0.325)	(0.398)	(0.084)	(0.157)	(0.166)	(0.169)	(0.242)
Adjusted R^2	0.274	0.185	0.113	0.085	0.032	0.246	0.161	0.139	0.159	0.068	0.054
Panel E: Multi-factor regression with all securities (Aug 07 - Aug 18)										
Intercept	0.101	0.182**	0.216*	0.293***	0.588***	0.283	0.137***	0.204***	0.27***	0.285**	0.332
s.e.	(0.088)	(0.072)	(0.119)	(0.113)	(0.185)	(0.233)	(0.042)	(0.069)	(0.095)	(0.141)	(0.205)
Glo Sovereign	0.096	-0.029	-0.135	-0.126	-0.304	-0.4*	-0.05	-0.053	-0.089	-0.136	-0.16
s.e.	(0.094)	(0.054)	(0.111)	(0.094)	(0.241)	(0.209)	(0.032)	(0.046)	(0.074)	(0.114)	(0.191)
Glo Equity	0.047**	0	0.003	0.003	-0.005	0.123	-0.016	-0.002	0.012	0.027	0.023
s.e.	(0.022)	(0.018)	(0.033)	(0.036)	(0.111)	(0.144)	(0.011)	(0.019)	(0.024)	(0.039)	(0.064)
Glo Corporate	0.155	0.171***	0.381***	0.341***	0.447	0.37	0.145***	0.212***	0.302***	0.404***	0.528***
s.e.	(0.13)	(0.055)	(0.125)	(0.103)	(0.339)	(0.393)	(0.04)	(0.051)	(0.076)	(0.119)	(0.201)
Adjusted R^2	0.365	0.185	0.22	0.156	0.077	0.069	0.257	0.25	0.228	0.194	0.138
Panel F: Multi-factor regression with all securities (Feb 98 - Aug 18)										
Intercept	-0.014	0.008	-0.03*	0.024	0.239***	0.079	0.039**	0.026	0.033***	-0.022	-0.069*
s.e.	(0.027)	(0.015)	(0.017)	(0.022)	(0.086)	(0.204)	(0.015)	(0.019)	(0.013)	(0.024)	(0.041)
Glo Sovereign	0.002	0.034**	-0.021	-0.023	-0.106	0.051	0.046**	0.053*	-0.005	-0.015	-0.127
s.e.	(0.047)	(0.017)	(0.02)	(0.032)	(0.097)	(0.289)	(0.021)	(0.027)	(0.018)	(0.036)	(0.079)
Glo Equity	-0.008	-0.014	-0.011*	0.026**	0.068	0.196*	-0.017**	-0.007	-0.011	-0.001	0.035*
s.e.	(0.016)	(0.01)	(0.007)	(0.012)	(0.115)	(0.104)	(0.007)	(0.01)	(0.009)	(0.008)	(0.019)
Glo Corporate	0.069	-0.029	0.03	-0.007	0.033	-0.185	-0.002	-0.022	0.032	0.014	0.032
s.e.	(0.078)	(0.019)	(0.027)	(0.03)	(0.197)	(0.402)	(0.021)	(0.028)	(0.022)	(0.039)	(0.065)
Loc Sovereign	0.287***	0.026	-0.007	-0.031	-0.371*	-0.966**	-0.104***	-0.06	0.036	-0.03	0.198*
s.e.	(0.054)	(0.03)	(0.029)	(0.06)	(0.19)	(0.445)	(0.025)	(0.039)	(0.024)	(0.06)	(0.114)
Loc Equity	0.015	0.006	0.006	-0.02*	-0.073	0.067	0.009	0.009	0.017*	0.016*	-0.038*
s.e.	(0.018)	(0.007)	(0.006)	(0.011)	(0.101)	(0.11)	(0.007)	(0.009)	(0.009)	(0.009)	(0.02)
Loc Corporate	0.408***	0.709***	1.149***	1.14***	1.258***	1.767***	0.433***	0.753***	0.915***	1.367***	1.767***
s.e.	(0.073)	(0.037)	(0.042)	(0.061)	(0.244)	(0.683)	(0.038)	(0.051)	(0.041)	(0.076)	(0.115)
Adjusted R^2	0.828	0.920	0.979	0.918	0.235	0.182	0.684	0.862	0.944	0.948	0.895
Chi-Sq. Glo Fac	0.006	0.054	0.326	0.111	0.335	0.173	0.005	0.088	0.104	0.975	0.101
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Feb 98 - Jul 07)										
Intercept	0.008	0.004	-0.006	0.025	0.013	0.111	0.022	0.004	0.019	-0.01	-0.019
s.e.	(0.024)	(0.017)	(0.01)	(0.032)	(0.121)	(0.33)	(0.024)	(0.022)	(0.016)	(0.039)	(0.046)
Glo Sovereign	0.131***	0.058***	-0.003	-0.01	-0.198	-0.835**	0.071*	0.084**	0.044	-0.034	-0.155***
s.e.	(0.032)	(0.016)	(0.011)	(0.027)	(0.174)	(0.354)	(0.038)	(0.041)	(0.035)	(0.05)	(0.051)
Glo Equity	-0.013	-0.005	-0.004	0.015	-0.061	0.255	-0.019	-0.004	-0.009	-0.003	0.029
s.e.	(0.011)	(0.008)	(0.004)	(0.015)	(0.056)	(0.17)	(0.012)	(0.011)	(0.008)	(0.013)	(0.019)

Glo Corporate	-0.1***	-0.051***	-0.004	0.012	0.167	0.553	-0.034	-0.066	-0.017	0.019	0.093
s.e.	(0.033)	(0.019)	(0.01)	(0.031)	(0.23)	(0.378)	(0.04)	(0.04)	(0.039)	(0.055)	(0.057)
Loc Sovereign	0.07	0.104**	0.083***	-0.11	-0.756**	-1.317*	-0.137***	-0.128**	0.092**	-0.026	0.208**
s.e.	(0.076)	(0.042)	(0.023)	(0.083)	(0.299)	(0.738)	(0.048)	(0.06)	(0.045)	(0.077)	(0.102)
Loc Equity	-0.002	-0.003	-0.002	0.001	0.051	0	0.008	0.003	0.014**	0.008	-0.019
s.e.	(0.012)	(0.006)	(0.005)	(0.011)	(0.053)	(0.168)	(0.011)	(0.011)	(0.007)	(0.015)	(0.02)
Loc Corporate	0.614***	0.662***	1.01***	1.093***	1.75***	2.818***	0.535***	0.94***	0.82***	1.3***	1.523***
s.e.	(0.104)	(0.069)	(0.037)	(0.132)	(0.399)	(0.801)	(0.061)	(0.094)	(0.073)	(0.126)	(0.132)
Adjusted R^2	0.900	0.958	0.993	0.914	0.363	0.319	0.718	0.908	0.957	0.945	0.926
Chi-Sq. Glo Fac	0.001	0.002	0.153	0.296	0.180	0.065	0.037	0.076	0.044	0.681	0.001
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Aug 07 - Aug 18)											
Intercept	-0.039	0.026	-0.056**	0.014	0.378***	-0.006	0.064***	0.061**	0.051**	-0.049	-0.141**
s.e.	(0.042)	(0.024)	(0.028)	(0.025)	(0.146)	(0.246)	(0.02)	(0.03)	(0.021)	(0.036)	(0.06)
Glo Sovereign	-0.012	0.03	-0.013	-0.062	-0.111	0.406	0.035	0.037	-0.019	0.021	-0.136
s.e.	(0.042)	(0.022)	(0.025)	(0.038)	(0.135)	(0.396)	(0.022)	(0.031)	(0.019)	(0.066)	(0.098)
Glo Equity	-0.009	-0.013	-0.006	0.019	0.123	0.105	-0.017**	-0.013	-0.008	0.004	0.034
s.e.	(0.022)	(0.015)	(0.011)	(0.012)	(0.2)	(0.164)	(0.008)	(0.017)	(0.015)	(0.014)	(0.03)
Glo Corporate	0.095	-0.02	0.029	-0.009	0.027	-0.332	0.023	0.018	0.042	-0.023	-0.012
s.e.	(0.083)	(0.027)	(0.034)	(0.034)	(0.315)	(0.596)	(0.019)	(0.031)	(0.031)	(0.069)	(0.068)
Loc Sovereign	0.365***	0.012	-0.032	0.038	-0.4**	-1.238***	-0.105***	-0.054	0.043	-0.036	0.241
s.e.	(0.047)	(0.036)	(0.033)	(0.074)	(0.194)	(0.479)	(0.032)	(0.046)	(0.03)	(0.087)	(0.154)
Loc Equity	0.045*	0.013	0.008	-0.041**	-0.169	0.152	0.011	0.017	0.019	0.029**	-0.062**
s.e.	(0.024)	(0.012)	(0.01)	(0.017)	(0.173)	(0.165)	(0.01)	(0.012)	(0.014)	(0.013)	(0.031)
Loc Corporate	0.362***	0.655***	1.188***	1.231***	1.309***	1.763**	0.365***	0.634***	0.904***	1.435***	1.985***
s.e.	(0.093)	(0.04)	(0.047)	(0.052)	(0.401)	(0.847)	(0.052)	(0.046)	(0.053)	(0.099)	(0.128)
Adjusted R^2	0.824	0.894	0.972	0.943	0.198	0.135	0.664	0.829	0.937	0.955	0.893
Chi-Sq. Glo Fac	0.240	0.301	0.683	0.254	0.079	0.726	0.030	0.073	0.508	0.990	0.145
Chi-Sq. Loc Fac	0.000	0.000	0.000	0.000	0.000	0.009	0.000	0.000	0.000	0.000	0.000
Panel G: Multi-factor regression with all securities (Feb 98 - Aug 18)											
Intercept	-0.011	0.01	-0.032*	0.023	0.231***	0.09	0.044**	0.031	0.034**	-0.023	-0.081*
s.e.	(0.03)	(0.015)	(0.018)	(0.021)	(0.086)	(0.206)	(0.017)	(0.021)	(0.013)	(0.023)	(0.047)
Loc Sovereign	0.314***	0.064***	-0.028	-0.065**	-0.508***	-0.94***	-0.038	0.009	0.04*	-0.047	0.027
s.e.	(0.036)	(0.022)	(0.026)	(0.029)	(0.179)	(0.331)	(0.025)	(0.028)	(0.022)	(0.031)	(0.059)
Loc Equity	-0.001	-0.006	0	0.003	-0.008	0.208***	-0.013**	-0.005	0.006	0.016**	0.01
s.e.	(0.01)	(0.006)	(0.005)	(0.009)	(0.03)	(0.066)	(0.006)	(0.007)	(0.004)	(0.007)	(0.017)
Loc Corporate	0.443***	0.673***	1.183***	1.149***	1.339***	1.598***	0.402***	0.704***	0.936***	1.385***	1.869***
s.e.	(0.07)	(0.035)	(0.049)	(0.046)	(0.275)	(0.522)	(0.041)	(0.046)	(0.037)	(0.043)	(0.089)
Adjusted R^2	0.816	0.916	0.979	0.916	0.231	0.180	0.651	0.856	0.943	0.949	0.888
Panel G: Multi-factor regression with all securities (Feb 98 - Jul 07)											
Intercept	0.006	0.004	-0.004	0.021	0.036	0.08	0.023	0.002	0.018	-0.008	-0.019
s.e.	(0.024)	(0.017)	(0.01)	(0.033)	(0.123)	(0.339)	(0.023)	(0.021)	(0.015)	(0.038)	(0.045)
Loc Sovereign	0.237***	0.176***	0.083***	-0.137	-0.924***	-2.58***	-0.032	-0.025	0.155**	-0.064	-0.008
s.e.	(0.074)	(0.042)	(0.024)	(0.092)	(0.232)	(0.648)	(0.068)	(0.09)	(0.068)	(0.118)	(0.114)
Loc Equity	-0.02**	-0.009	-0.003	0.011	0.025	0.236***	-0.012	-0.005	0.003	0.01	0.015
s.e.	(0.009)	(0.006)	(0.003)	(0.011)	(0.034)	(0.073)	(0.007)	(0.006)	(0.004)	(0.01)	(0.014)
Loc Corporate	0.448***	0.586***	1.007***	1.124***	1.921***	4.032***	0.442***	0.837***	0.768***	1.333***	1.722***
s.e.	(0.107)	(0.073)	(0.042)	(0.145)	(0.333)	(0.88)	(0.092)	(0.13)	(0.102)	(0.174)	(0.153)
Adjusted R^2	0.883	0.956	0.993	0.915	0.350	0.286	0.694	0.902	0.955	0.945	0.919
Panel G: Multi-factor regression with all securities (Aug 07 - Aug 18)											
Intercept	-0.034	0.027	-0.058**	0.003	0.392***	0.096	0.07***	0.068**	0.048**	-0.045	-0.167**
s.e.	(0.047)	(0.023)	(0.028)	(0.024)	(0.106)	(0.257)	(0.022)	(0.03)	(0.021)	(0.027)	(0.069)
Loc Sovereign	0.39***	0.041*	-0.039	-0.05*	-0.5***	-0.769**	-0.049*	0.004	0.033	-0.015	0.049
s.e.	(0.043)	(0.024)	(0.026)	(0.03)	(0.177)	(0.391)	(0.026)	(0.026)	(0.022)	(0.029)	(0.064)
Loc Equity	0.03**	-0.002	0.004	-0.008	-0.057	0.14	-0.015*	-0.005	0.014*	0.028***	0.004
s.e.	(0.013)	(0.009)	(0.009)	(0.01)	(0.04)	(0.101)	(0.008)	(0.011)	(0.008)	(0.01)	(0.03)
Loc Corporate	0.428***	0.634***	1.214***	1.247***	1.332***	1.343**	0.369***	0.633***	0.941***	1.41***	2.027***
s.e.	(0.086)	(0.036)	(0.049)	(0.045)	(0.302)	(0.55)	(0.049)	(0.038)	(0.041)	(0.037)	(0.087)
Adjusted R^2	0.811	0.892	0.972	0.934	0.188	0.141	0.608	0.816	0.937	0.956	0.881
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)											
Intercept	-0.008	0.009	-0.03*	0.024	0.215**	-0.008	0.043**	0.03	0.035***	-0.021	-0.079*
s.e.	(0.023)	(0.016)	(0.018)	(0.021)	(0.084)	(0.023)	(0.017)	(0.02)	(0.013)	(0.024)	(0.045)
Glo Corporate	0.823***	0.744***	1.145***	1.071***	0.728***	0.823***	0.34***	0.71***	0.991***	1.346***	1.912***
s.e.	(0.053)	(0.025)	(0.024)	(0.031)	(0.135)	(0.053)	(0.024)	(0.029)	(0.017)	(0.029)	(0.061)
Spread B-AAA	-0.063***	-0.017***	-0.006*	0.007	0.143***	0.937***	-0.01*	-0.006	-0.005	0.023**	0.002
s.e.	(0.016)	(0.007)	(0.004)	(0.008)	(0.027)	(0.016)	(0.006)	(0.007)	(0.006)	(0.011)	(0.015)
Adjusted R^2	0.772	0.914	0.979	0.912	0.256	0.985	0.647	0.856	0.942	0.949	0.888
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)											
Intercept	0.004	0.005	-0.004	0.027	0.034	0.026	0.021	0.004	0.021	-0.007	-0.018
s.e.	(0.019)	(0.014)	(0.01)	(0.033)	(0.125)	(0.038)	(0.022)	(0.02)	(0.015)	(0.035)	(0.041)
Glo Corporate	0.755***	0.82***	1.119***	0.941***	0.668***	0.777***	0.385***	0.795***	0.985***	1.256***	1.728***

s.e.	(0.025)	(0.021)	(0.012)	(0.033)	(0.154)	(0.031)	(0.02)	(0.031)	(0.023)	(0.033)	(0.05)
Spread B-AAA	-0.054***	-0.035***	-0.012***	0.01	0.121***	0.952***	-0.022***	-0.019	-0.014	0.027	0.032*
s.e.	(0.011)	(0.007)	(0.004)	(0.014)	(0.027)	(0.011)	(0.008)	(0.011)	(0.012)	(0.018)	(0.017)
Adjusted R^2	0.903	0.963	0.993	0.906	0.304	0.991	0.723	0.911	0.95	0.95	0.924
Panel H: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)											
Intercept	-0.03	0.026	-0.056*	0.003	0.372***	-0.051	0.07***	0.067**	0.048**	-0.047	-0.164**
s.e.	(0.039)	(0.026)	(0.033)	(0.024)	(0.099)	(0.041)	(0.023)	(0.032)	(0.019)	(0.031)	(0.068)
Glo Corporate	0.882***	0.678***	1.173***	1.183***	0.755***	0.881***	0.299***	0.634***	0.994***	1.427***	2.08***
s.e.	(0.094)	(0.032)	(0.042)	(0.031)	(0.197)	(0.094)	(0.037)	(0.033)	(0.024)	(0.029)	(0.081)
Spread B-AAA	-0.071**	-0.002	-0.001	0.004	0.165***	0.93***	0.001	0.005	0.003	0.021	-0.024
s.e.	(0.031)	(0.006)	(0.005)	(0.009)	(0.04)	(0.033)	(0.005)	(0.005)	(0.003)	(0.014)	(0.017)
Adjusted R^2	0.71	0.886	0.969	0.933	0.226	0.975	0.589	0.817	0.935	0.953	0.883
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)											
Intercept	-0.03	-0.014	-0.023	0.042**	0.252***	0.207	0.01	-0.004	0.016*	-0.017	0.01
s.e.	(0.029)	(0.013)	(0.015)	(0.021)	(0.096)	(0.245)	(0.007)	(0.008)	(0.009)	(0.025)	(0.007)
Glo Corporate	0.952***	1.011***	1.046***	0.851***	0.604*	0.331	0.745***	1.139***	1.231***	1.345***	0.745***
s.e.	(0.125)	(0.034)	(0.025)	(0.074)	(0.321)	(0.675)	(0.02)	(0.038)	(0.054)	(0.063)	(0.02)
Spread Mat	-0.073	-0.168***	0.065***	0.139***	0.056	0.166	-0.257***	-0.272***	-0.152***	-0.003	0.743***
s.e.	(0.057)	(0.019)	(0.013)	(0.048)	(0.153)	(0.372)	(0.013)	(0.021)	(0.036)	(0.031)	(0.013)
Adjusted R^2	0.71	0.943	0.981	0.924	0.148	0.017	0.929	0.957	0.96	0.944	0.997
Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)											
Intercept	-0.015	-0.007	-0.006	0.03	0.065	0.279	0.009	-0.006	0.015	0	0.004
s.e.	(0.022)	(0.017)	(0.01)	(0.031)	(0.137)	(0.367)	(0.009)	(0.012)	(0.014)	(0.034)	(0.009)
Glo Corporate	1.186***	1.017***	1.071***	0.899***	0.476	-1.082	0.827***	1.129***	1.202***	1.178***	0.824***
s.e.	(0.076)	(0.066)	(0.033)	(0.104)	(0.371)	(1.177)	(0.023)	(0.08)	(0.063)	(0.063)	(0.022)
Spread Mat	-0.313***	-0.142***	0.037	0.03	0.124	1.243	-0.327***	-0.247***	-0.16***	0.054	0.67***
s.e.	(0.055)	(0.049)	(0.023)	(0.076)	(0.204)	(0.777)	(0.017)	(0.062)	(0.041)	(0.042)	(0.016)
Adjusted R^2	0.912	0.951	0.991	0.904	0.188	0.06	0.96	0.951	0.961	0.944	0.997
Panel I: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)											
Intercept	-0.04	-0.013	-0.04	0.038	0.411***	0.022	0.02**	0.004	0.007	-0.062*	0.01
s.e.	(0.052)	(0.021)	(0.032)	(0.031)	(0.108)	(0.326)	(0.009)	(0.014)	(0.015)	(0.035)	(0.011)
Glo Corporate	0.873***	0.985***	1.042***	0.911***	0.648	1.44**	0.702***	1.143***	1.321***	1.57***	0.663***
s.e.	(0.246)	(0.048)	(0.055)	(0.107)	(0.526)	(0.711)	(0.039)	(0.043)	(0.073)	(0.075)	(0.04)
Spread Mat	0.017	-0.176***	0.076***	0.156**	0.034	-0.479	-0.232***	-0.294***	-0.189***	-0.086**	0.82***
s.e.	(0.097)	(0.023)	(0.016)	(0.061)	(0.241)	(0.354)	(0.02)	(0.017)	(0.044)	(0.039)	(0.029)
Adjusted R^2	0.645	0.936	0.973	0.946	0.113	0.024	0.892	0.966	0.963	0.952	0.996

Notes: This table shows the OLS coefficients of CAPM (Panels A-C) and multi-factor (Panels D-I) regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global and/or local excess returns , except in Panels H-I where the spread between excess returns in B and AAA rating categories and between >10 and 1< to <3 residual maturity ("Spread Mat") are employed. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in local currency. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. The risk free rate is is the local one-month interest rate. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. "Chi-Sq. Glo Fac" and "Chi-Sq. Loc Fac" in Panel F are the Chi-Square's P-value of the Wald test testing the joint significance of all global factors and all local factors, respectively. Sample period: February 1998 – August 2018.

Table 9e. CAPM and Multi-Factor Regressions with Global Factors: FX-Hedged Australian Dollar Portfolios

AUD	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Panel A: CAPM with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept		0.087**	0.106**	0.169***				0.064**	0.123**	0.166**	0.195*	0.138
s.e.		(0.041)	(0.052)	(0.055)				(0.029)	(0.054)	(0.077)	(0.116)	(0.129)
Global		0.059***	0.067***	0.047**				0.037**	0.072***	0.1***	0.167***	0.146**
s.e.		(0.021)	(0.024)	(0.021)				(0.015)	(0.024)	(0.033)	(0.054)	(0.067)
Adjusted R^2		0.055	0.044	0.019				0.042	0.045	0.046	0.065	0.028
Panel A: CAPM with sovereign and equity securities (Feb 98 - Jul 07)												
Intercept		0.001	0.017	0.034				-0.006	0.013	0.025	0.063	0.046
s.e.		(0.056)	(0.058)	(0.058)				(0.039)	(0.076)	(0.101)	(0.122)	(0.178)
Global		-0.006	-0.01	-0.022				-0.012	-0.01	-0.006	0.006	-0.056
s.e.		(0.024)	(0.026)	(0.027)				(0.017)	(0.034)	(0.045)	(0.056)	(0.112)
Adjusted R^2		-0.008	-0.008	-0.003				-0.005	-0.008	-0.009	-0.009	-0.009
Panel A: CAPM with sovereign and equity securities (Aug 07 - Aug 18)												
Intercept		0.148***	0.167**	0.27***				0.115***	0.201***	0.266***	0.274	0.101
s.e.		(0.051)	(0.077)	(0.08)				(0.036)	(0.065)	(0.102)	(0.179)	(0.177)
Global		0.104***	0.12***	0.092***				0.07***	0.127***	0.172***	0.279***	0.224***
s.e.		(0.023)	(0.027)	(0.025)				(0.016)	(0.021)	(0.034)	(0.068)	(0.075)
Adjusted R^2		0.211	0.134	0.079				0.178	0.182	0.168	0.176	0.079
Panel B: CAPM with all securities (Feb 98 - Aug 18)												
Intercept		0.087**	0.106**	0.169***				0.064**	0.123**	0.166**	0.194*	0.138
s.e.		(0.041)	(0.051)	(0.055)				(0.029)	(0.053)	(0.076)	(0.115)	(0.129)
Global		0.065***	0.074***	0.053**				0.042***	0.079***	0.109***	0.181***	0.165**
s.e.		(0.022)	(0.025)	(0.022)				(0.016)	(0.024)	(0.033)	(0.055)	(0.067)
Adjusted R^2		0.065	0.053	0.025				0.053	0.055	0.054	0.074	0.036
Panel B: CAPM with all securities (Feb 98 - Jul 07)												
Intercept		0.001	0.017	0.034				-0.006	0.013	0.025	0.063	0.065
s.e.		(0.056)	(0.058)	(0.058)				(0.039)	(0.076)	(0.101)	(0.121)	(0.177)
Global		-0.002	-0.005	-0.018				-0.009	-0.003	0.004	0.017	-0.019
s.e.		(0.025)	(0.028)	(0.029)				(0.018)	(0.035)	(0.047)	(0.058)	(0.117)
Adjusted R^2		-0.009	-0.009	-0.005				-0.007	-0.009	-0.009	-0.008	-0.012
Panel B: CAPM with all securities (Aug 07 - Aug 18)												
Intercept		0.147***	0.167**	0.27***				0.114***	0.201***	0.266***	0.193*	0.099
s.e.		(0.051)	(0.077)	(0.08)				(0.035)	(0.064)	(0.101)	(0.179)	(0.177)
Global		0.108***	0.125***	0.098***				0.074***	0.132***	0.177***	0.289***	0.233***
s.e.		(0.023)	(0.028)	(0.026)				(0.016)	(0.022)	(0.035)	(0.069)	(0.077)
Adjusted R^2		0.228	0.146	0.088				0.197	0.196	0.177	0.187	0.085
Panel C: CAPM with all securities (Feb 98 - Aug 18)												
Intercept		0.091**	0.103**	0.167***				0.07**	0.124**	0.16**	0.193*	0.167
s.e.		(0.044)	(0.052)	(0.055)				(0.031)	(0.056)	(0.079)	(0.113)	(0.13)
Global		0.066***	0.073***	0.053**				0.043***	0.08***	0.108***	0.18***	0.173**
s.e.		(0.022)	(0.026)	(0.023)				(0.016)	(0.025)	(0.034)	(0.057)	(0.07)
Local		-0.013	0.009	0.005				-0.018	-0.004	0.019	0.006	-0.104
s.e.		(0.026)	(0.026)	(0.025)				(0.019)	(0.027)	(0.035)	(0.055)	(0.07)
Adjusted R^2		0.065	0.051	0.021				0.061	0.051	0.052	0.071	0.051
Panel C: CAPM with all securities (Feb 98 - Jul 07)												
Intercept		-0.015	0.002	0.021				-0.016	-0.004	-0.003	0.025	0.165
s.e.		(0.062)	(0.062)	(0.063)				(0.044)	(0.083)	(0.109)	(0.128)	(0.181)
Global		-0.01	-0.012	-0.024				-0.014	-0.012	-0.011	-0.003	0.043
s.e.		(0.029)	(0.032)	(0.032)				(0.021)	(0.039)	(0.051)	(0.063)	(0.147)
Local		0.03	0.028	0.025				0.02	0.033	0.054	0.072	-0.132
s.e.		(0.039)	(0.039)	(0.038)				(0.028)	(0.049)	(0.063)	(0.072)	(0.095)
Adjusted R^2		-0.006	-0.008	-0.007				-0.004	-0.010	-0.006	-0.003	-0.005
Panel C: CAPM with all securities (Aug 07 - Aug 18)												
Intercept		0.151***	0.164**	0.268***				0.119***	0.202***	0.262***	0.274	0.109
s.e.		(0.053)	(0.075)	(0.078)				(0.037)	(0.066)	(0.101)	(0.175)	(0.178)
Global		0.107***	0.126***	0.098***				0.072***	0.132***	0.178***	0.289***	0.23***
s.e.		(0.021)	(0.028)	(0.026)				(0.015)	(0.021)	(0.035)	(0.068)	(0.076)
Local		-0.024	0.016	0.012				-0.03*	-0.007	0.023	0.001	-0.075
s.e.		(0.023)	(0.029)	(0.028)				(0.016)	(0.022)	(0.032)	(0.065)	(0.083)
Adjusted R^2		0.235	0.142	0.083				0.229	0.191	0.174	0.181	0.089
Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Aug 18)												
Intercept		0.09**	0.108**	0.171***				0.067**	0.127**	0.17**	0.201*	0.119
s.e.		(0.037)	(0.052)	(0.054)				(0.026)	(0.05)	(0.074)	(0.114)	(0.116)
Glo Sovereign		0.083***	0.079***	0.065***				0.056***	0.098***	0.131***	0.202***	0.249***
s.e.		(0.014)	(0.014)	(0.017)				(0.01)	(0.015)	(0.022)	(0.031)	(0.068)
Glo Equity		-0.012	-0.001	-0.01				-0.011*	-0.013	-0.013	-0.01	-0.099***
s.e.		(0.009)	(0.014)	(0.012)				(0.007)	(0.013)	(0.02)	(0.03)	(0.037)
Adjusted R^2		0.216	0.119	0.078				0.198	0.168	0.155	0.181	0.222

Panel D: Multi-factor regression with sovereign and equity securities (Feb 98 - Jul 07)								
Intercept	0.014	0.031	0.047		0.003	0.031	0.049	0.092	0.154
s.e.	(0.046)	(0.049)	(0.052)		(0.033)	(0.062)	(0.083)	(0.103)	(0.163)
Glo Sovereign	0.075**	0.079**	0.065**		0.047**	0.104***	0.143***	0.176**	0.35***
s.e.	(0.03)	(0.031)	(0.031)		(0.02)	(0.04)	(0.054)	(0.068)	(0.094)
Glo Equity	-0.035***	-0.039***	-0.042***		-0.027***	-0.049***	-0.061***	-0.065**	-0.143***
s.e.	(0.011)	(0.012)	(0.015)		(0.008)	(0.017)	(0.021)	(0.027)	(0.052)
Adjusted R^2	0.135	0.140	0.106		0.131	0.149	0.141	0.128	0.308
Panel D: Multi-factor regression with sovereign and equity securities (Aug 07 - Aug 18)								
Intercept	0.149***	0.166**	0.271***		0.116***	0.202***	0.266**	0.275	0.11
s.e.	(0.051)	(0.082)	(0.083)		(0.035)	(0.067)	(0.107)	(0.189)	(0.176)
Glo Sovereign	0.085***	0.077***	0.062***		0.058***	0.093***	0.123***	0.211***	0.219***
s.e.	(0.014)	(0.017)	(0.02)		(0.011)	(0.014)	(0.022)	(0.034)	(0.078)
Glo Equity	0.008	0.034*	0.019		0.003	0.021	0.031	0.04	-0.064
s.e.	(0.01)	(0.02)	(0.015)		(0.008)	(0.015)	(0.029)	(0.048)	(0.053)
Adjusted R^2	0.315	0.135	0.077		0.272	0.218	0.194	0.224	0.183
Panel E: Multi-factor regression with all securities (Feb 98 - Aug 18)								
Intercept	0.09**	0.113**	0.176***		0.068***	0.128***	0.17**	0.2*	0.119
s.e.	(0.038)	(0.05)	(0.053)		(0.026)	(0.049)	(0.074)	(0.112)	(0.115)
Glo Sovereign	0.09*	0.012	-0.004		0.037	0.073	0.14*	0.203*	0.247
s.e.	(0.046)	(0.065)	(0.06)		(0.037)	(0.059)	(0.076)	(0.112)	(0.17)
Glo Equity	-0.011	-0.019	-0.029*		-0.016	-0.019	-0.011	-0.01	-0.1**
s.e.	(0.014)	(0.016)	(0.017)		(0.011)	(0.019)	(0.026)	(0.034)	(0.044)
Glo Corporate	-0.009	0.096	0.099		0.027	0.036	-0.013	0	0.003
s.e.	(0.069)	(0.097)	(0.091)		(0.055)	(0.091)	(0.113)	(0.175)	(0.185)
Adjusted R^2	0.213	0.132	0.091		0.198	0.167	0.152	0.178	0.219
Panel E: Multi-factor regression with all securities (Feb 98 - Jul 07)								
Intercept	0.009	0.026	0.042		0	0.024	0.04	0.081	0.179
s.e.	(0.052)	(0.054)	(0.057)		(0.037)	(0.07)	(0.091)	(0.111)	(0.156)
Glo Sovereign	0.271***	0.276***	0.25***		0.17***	0.36***	0.482***	0.58***	0.893***
s.e.	(0.065)	(0.068)	(0.057)		(0.047)	(0.075)	(0.106)	(0.142)	(0.269)
Glo Equity	-0.008	-0.012	-0.017		-0.011	-0.014	-0.014	-0.01	-0.049
s.e.	(0.017)	(0.017)	(0.018)		(0.011)	(0.022)	(0.031)	(0.039)	(0.069)
Glo Corporate	-0.238**	-0.24**	-0.225**		-0.15**	-0.311***	-0.412***	-0.491**	-0.637**
s.e.	(0.097)	(0.104)	(0.089)		(0.07)	(0.117)	(0.158)	(0.193)	(0.311)
Adjusted R^2	0.235	0.232	0.18		0.216	0.245	0.231	0.208	0.359
Panel E: Multi-factor regression with all securities (Aug 07 - Aug 18)								
Intercept	0.155***	0.183**	0.289***		0.125***	0.215***	0.275***	0.291	0.112
s.e.	(0.048)	(0.074)	(0.077)		(0.032)	(0.062)	(0.105)	(0.185)	(0.176)
Glo Sovereign	0.016	-0.101*	-0.119**		-0.027	-0.036	0.03	0.047	0.181
s.e.	(0.035)	(0.06)	(0.051)		(0.031)	(0.038)	(0.06)	(0.116)	(0.166)
Glo Equity	-0.021*	-0.041*	-0.057***		-0.033***	-0.033*	-0.008	-0.028	-0.08
s.e.	(0.012)	(0.024)	(0.021)		(0.013)	(0.018)	(0.034)	(0.052)	(0.061)
Glo Corporate	0.108**	0.279***	0.284***		0.134***	0.202***	0.145*	0.257	0.061
s.e.	(0.044)	(0.09)	(0.083)		(0.042)	(0.06)	(0.083)	(0.192)	(0.191)
Adjusted R^2	0.345	0.243	0.191		0.367	0.283	0.206	0.241	0.178
Panel F: Multi-factor regression with all securities (Feb 98 - Aug 18)								
Intercept	-0.005	-0.011	0.058**		0	-0.002	-0.001	-0.006	-0.12
s.e.	(0.011)	(0.019)	(0.023)		(0.009)	(0.007)	(0.025)	(0.07)	(0.085)
Glo Sovereign	0.036**	-0.038**	-0.07***		0.024**	-0.011	-0.044	-0.1**	-0.181
s.e.	(0.018)	(0.018)	(0.023)		(0.012)	(0.014)	(0.028)	(0.046)	(0.138)
Glo Equity	0.004	-0.001	-0.003		0	0.001	0.004	0.012	-0.027
s.e.	(0.004)	(0.009)	(0.009)		(0.003)	(0.003)	(0.011)	(0.027)	(0.04)
Glo Corporate	-0.037**	0.043*	0.053**		-0.024*	0.006	0.031	0.119**	0.128
s.e.	(0.016)	(0.022)	(0.023)		(0.012)	(0.015)	(0.029)	(0.06)	(0.131)
Loc Sovereign	-0.015	-0.057***	-0.036		-0.07***	-0.004	0.159***	0.336***	0.744***
s.e.	(0.016)	(0.02)	(0.032)		(0.009)	(0.01)	(0.03)	(0.062)	(0.173)
Loc Equity	0.002	0.006	-0.009		-0.005*	0.001	0.013	0.003	-0.038
s.e.	(0.004)	(0.007)	(0.009)		(0.003)	(0.005)	(0.009)	(0.028)	(0.04)
Loc Corporate	0.927***	1.253***	1.212***		0.764***	1.249***	1.376***	1.503***	1.018***
s.e.	(0.034)	(0.072)	(0.089)		(0.026)	(0.029)	(0.073)	(0.209)	(0.307)
Adjusted R^2	0.961	0.922	0.840		0.948	0.981	0.942	0.818	0.724
Chi-Sq. Glo Fac	0.084	0.081	0.025		0.166	0.563	0.167	0.079	0.385
Chi-Sq. Loc Fac	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Feb 98 - Jul 07)								
Intercept	-0.006	0.012*	0.036*		-0.008	0.006	0.003	0.022	-0.03
s.e.	(0.007)	(0.007)	(0.02)		(0.006)	(0.007)	(0.017)	(0.029)	(0.047)
Glo Sovereign	0.01	0.008	-0.027		0.016	0.009	-0.057***	-0.153***	-0.057
s.e.	(0.01)	(0.011)	(0.022)		(0.011)	(0.011)	(0.019)	(0.032)	(0.06)
Glo Equity	0.003	0.002	0.005		-0.002	0.003	-0.001	-0.003	-0.015
s.e.	(0.003)	(0.002)	(0.008)		(0.002)	(0.004)	(0.006)	(0.015)	(0.046)

Glo Corporate	-0.012	-0.008	0.005		-0.014	-0.01	0.052***	0.139***	0.024
s.e.	(0.01)	(0.013)	(0.025)		(0.012)	(0.011)	(0.018)	(0.034)	(0.092)
Loc Sovereign	-0.009	-0.039***	-0.035		-0.09***	-0.005	0.25***	0.638***	0.887***
s.e.	(0.013)	(0.01)	(0.032)		(0.014)	(0.011)	(0.037)	(0.061)	(0.088)
Loc Equity	0.002	0.001	-0.014*		0.005*	-0.002	0.001	0	0.018
s.e.	(0.003)	(0.003)	(0.008)		(0.003)	(0.005)	(0.009)	(0.014)	(0.041)
Loc Corporate	0.952***	1.069***	1.082***		0.824***	1.254***	1.137***	0.631***	0.774***
s.e.	(0.03)	(0.021)	(0.071)		(0.033)	(0.029)	(0.069)	(0.149)	(0.23)
Adjusted R^2	0.987	0.990	0.897		0.976	0.994	0.979	0.954	0.917
Chi-Sq. Glo Fac	0.624	0.569	0.046		0.214	0.662	0.021	0.000	0.475
Chi-Sq. Loc Fac	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000
Panel F: Multi-factor regression with all securities (Aug 07 - Aug 18)								
Intercept	-0.002	-0.054	0.062		0.01	-0.005	-0.021	-0.093	-0.178
s.e.	(0.023)	(0.037)	(0.044)		(0.014)	(0.012)	(0.046)	(0.147)	(0.14)
Glo Sovereign	0.046**	-0.053	-0.091***		0.014	-0.011	-0.001	-0.062	-0.201
s.e.	(0.021)	(0.032)	(0.027)		(0.016)	(0.021)	(0.046)	(0.073)	(0.17)
Glo Equity	0.005	-0.007	-0.018		-0.003	0.003	0.022	0.013	-0.022
s.e.	(0.006)	(0.022)	(0.016)		(0.007)	(0.007)	(0.027)	(0.063)	(0.061)
Glo Corporate	-0.045**	0.05	0.075**		-0.008	0.003	-0.045	0.071	0.148
s.e.	(0.018)	(0.046)	(0.032)		(0.018)	(0.025)	(0.059)	(0.111)	(0.176)
Loc Sovereign	-0.025	-0.039*	-0.011		-0.063***	-0.006	0.123***	0.277***	0.711***
s.e.	(0.021)	(0.023)	(0.035)		(0.012)	(0.013)	(0.036)	(0.062)	(0.224)
Loc Equity	0.002	0.01	0		-0.011***	0.001	0.018	0.012	-0.064
s.e.	(0.006)	(0.012)	(0.012)		(0.004)	(0.007)	(0.012)	(0.047)	(0.05)
Loc Corporate	0.913***	1.378***	1.292***		0.727***	1.246***	1.519***	1.844***	1.013***
s.e.	(0.043)	(0.089)	(0.118)		(0.035)	(0.034)	(0.088)	(0.257)	(0.382)
Adjusted R^2	0.934	0.903	0.813		0.928	0.968	0.910	0.750	0.612
Chi-Sq. Glo Fac	0.084	0.088	0.007		0.526	0.556	0.094	0.695	0.581
Chi-Sq. Loc Fac	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000
Panel G: Multi-factor regression with all securities (Feb 98 - Aug 18)								
Intercept	-0.002	-0.014	0.052**		0.002	-0.003	-0.005	-0.015	-0.124
s.e.	(0.012)	(0.02)	(0.023)		(0.009)	(0.007)	(0.024)	(0.071)	(0.087)
Loc Sovereign	0.01	-0.085***	-0.087***		-0.052***	-0.012	0.125***	0.259***	0.62***
s.e.	(0.009)	(0.025)	(0.028)		(0.007)	(0.013)	(0.026)	(0.071)	(0.115)
Loc Equity	-0.002	0.011**	0.006		-0.01**	0.005	0.026***	0.023	-0.005
s.e.	(0.006)	(0.005)	(0.009)		(0.004)	(0.004)	(0.009)	(0.018)	(0.045)
Loc Corporate	0.892***	1.297***	1.257***		0.741***	1.254***	1.403***	1.635***	1.081***
s.e.	(0.034)	(0.085)	(0.101)		(0.021)	(0.034)	(0.068)	(0.252)	(0.246)
Adjusted R^2	0.958	0.920	0.831		0.945	0.981	0.941	0.814	0.712
Panel G: Multi-factor regression with all securities (Feb 98 - Jul 07)								
Intercept	-0.007	0.012*	0.033		-0.007	0.005	0.001	0.017	-0.006
s.e.	(0.007)	(0.007)	(0.021)		(0.006)	(0.007)	(0.016)	(0.03)	(0.053)
Loc Sovereign	-0.004	-0.035***	-0.056**		-0.083***	0.001	0.222***	0.562***	0.874***
s.e.	(0.013)	(0.009)	(0.027)		(0.012)	(0.013)	(0.03)	(0.059)	(0.089)
Loc Equity	0.004**	0.001	-0.002		0.001	0	0.007	0.017*	0.018
s.e.	(0.002)	(0.002)	(0.004)		(0.002)	(0.002)	(0.006)	(0.01)	(0.015)
Loc Corporate	0.944***	1.063***	1.096***		0.823***	1.245***	1.158***	0.691***	0.738***
s.e.	(0.033)	(0.02)	(0.07)		(0.032)	(0.029)	(0.068)	(0.155)	(0.233)
Adjusted R^2	0.987	0.990	0.896		0.976	0.994	0.978	0.948	0.919
Panel G: Multi-factor regression with all securities (Aug 07 - Aug 18)								
Intercept	0.004	-0.06*	0.054		0.01	-0.005	-0.01	-0.102	-0.198
s.e.	(0.023)	(0.035)	(0.043)		(0.013)	(0.012)	(0.04)	(0.14)	(0.139)
Loc Sovereign	0.009	-0.078***	-0.076**		-0.051***	-0.016	0.115***	0.226***	0.558***
s.e.	(0.011)	(0.026)	(0.032)		(0.007)	(0.015)	(0.033)	(0.069)	(0.139)
Loc Equity	-0.007	0.02**	0.015		-0.016***	0.006	0.037***	0.031	-0.019
s.e.	(0.009)	(0.008)	(0.013)		(0.004)	(0.005)	(0.012)	(0.025)	(0.058)
Loc Corporate	0.873***	1.418***	1.326***		0.723***	1.244***	1.448***	1.953***	1.078***
s.e.	(0.053)	(0.094)	(0.15)		(0.026)	(0.042)	(0.079)	(0.315)	(0.302)
Adjusted R^2	0.928	0.900	0.795		0.927	0.968	0.908	0.753	0.601
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)								
Intercept	0.011	-0.018	0.01		0.004	0	-0.011	-0.049	-0.178**
s.e.	(0.008)	(0.019)	(0.009)		(0.008)	(0.008)	(0.02)	(0.076)	(0.081)
Glo Corporate	0.955***	1.074***	0.941***		0.647***	1.225***	1.619***	2.088***	2.291***
s.e.	(0.012)	(0.043)	(0.012)		(0.024)	(0.015)	(0.046)	(0.072)	(0.2)
Spread B-AAA	-0.234***	0.208***	0.769***		-0.049	0.005	0.183**	0.478	0.33
s.e.	(0.033)	(0.05)	(0.038)		(0.03)	(0.043)	(0.089)	(0.342)	(0.362)
Adjusted R^2	0.983	0.914	0.989		0.928	0.98	0.927	0.8	0.588
Panel H: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)								
Intercept	0.001	0.008	0		-0.009	0.007	0.015	0.053	0.004
s.e.	(0.006)	(0.007)	(0.006)		(0.007)	(0.006)	(0.02)	(0.042)	(0.08)
Glo Corporate	0.939***	0.977***	0.937***		0.627***	1.248***	1.684***	2.024***	2.678***

s.e.	(0.018)	(0.016)	(0.019)		(0.021)	(0.011)	(0.034)	(0.102)	(0.178)
Spread B-AAA	-0.171***	0.087*	0.825***		-0.017	-0.039	-0.01	-0.075	0.613
s.e.	(0.039)	(0.045)	(0.044)		(0.031)	(0.026)	(0.145)	(0.176)	(0.438)
Adjusted R^2	0.991	0.99	0.992		0.96	0.994	0.963	0.884	0.845

Panel H: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)

Intercept	0.017	-0.057	0.018		0.011	-0.002	-0.021	-0.148	-0.269**
s.e.	(0.012)	(0.037)	(0.015)		(0.013)	(0.014)	(0.031)	(0.124)	(0.122)
Glo Corporate	0.972***	1.188***	0.943***		0.666***	1.199***	1.545***	2.173***	2.05***
s.e.	(0.018)	(0.07)	(0.018)		(0.042)	(0.026)	(0.071)	(0.089)	(0.274)
Spread B-AAA	-0.254***	0.198***	0.754***		-0.065*	0.024	0.253**	0.58	0.375
s.e.	(0.035)	(0.052)	(0.04)		(0.037)	(0.051)	(0.102)	(0.372)	(0.397)
Adjusted R^2	0.975	0.885	0.988		0.898	0.966	0.894	0.755	0.459

Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Aug 18)

Intercept	-0.005	-0.003	0.062***		-0.001	0	0.005	-0.001	-0.145*
s.e.	(0.009)	(0.021)	(0.022)		(0.006)	(0.007)	(0.013)	(0.006)	(0.079)
Glo Corporate	0.985***	0.996***	0.935***		0.782***	1.265***	1.307***	0.782***	1.525***
s.e.	(0.032)	(0.046)	(0.067)		(0.019)	(0.018)	(0.043)	(0.019)	(0.239)
Spread Mat	-0.045	0.074**	0.087*		-0.094***	-0.026**	0.224***	0.906***	0.528***
s.e.	(0.028)	(0.032)	(0.052)		(0.016)	(0.01)	(0.028)	(0.016)	(0.144)
Adjusted R^2	0.961	0.907	0.823		0.956	0.981	0.949	0.997	0.634

Panel I: Multi-factor regression with corporate bond securities and spread (Feb 98 - Jul 07)

Intercept	-0.005	0.014**	0.03		-0.002	0.005	-0.004	-0.004	-0.045
s.e.	(0.007)	(0.007)	(0.021)		(0.004)	(0.006)	(0.012)	(0.005)	(0.057)
Glo Corporate	0.936***	1.043***	0.976***		0.802***	1.243***	1.274***	0.803***	1.327***
s.e.	(0.03)	(0.022)	(0.041)		(0.018)	(0.023)	(0.035)	(0.024)	(0.215)
Spread Mat	-0.001	-0.045***	-0.01		-0.125***	0.002	0.291***	0.865***	0.956***
s.e.	(0.02)	(0.013)	(0.028)		(0.013)	(0.016)	(0.026)	(0.019)	(0.104)
Adjusted R^2	0.987	0.99	0.894		0.987	0.994	0.983	0.998	0.912

Panel I: Multi-factor regression with corporate bond securities and spread (Aug 07 - Aug 18)

Intercept	-0.008	-0.032	0.085***		-0.004	-0.005	0.023	0.008	-0.187
s.e.	(0.015)	(0.04)	(0.033)		(0.01)	(0.012)	(0.024)	(0.01)	(0.117)
Glo Corporate	1.005***	1.091***	0.955***		0.789***	1.26***	1.272***	0.841***	1.383***
s.e.	(0.033)	(0.069)	(0.101)		(0.031)	(0.027)	(0.075)	(0.046)	(0.33)
Spread Mat	-0.063**	0.091***	0.122***		-0.084***	-0.032***	0.205***	0.885***	0.457***
s.e.	(0.028)	(0.027)	(0.047)		(0.018)	(0.011)	(0.035)	(0.01)	(0.146)
Adjusted R^2	0.937	0.882	0.793		0.93	0.967	0.916	0.994	0.504

Notes: This table shows the OLS coefficients of CAPM (Panels A-C) and multi-factor (Panels D-I) regressions where the dependent variables are corporate bond excess returns computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global and/or local excess returns , except in Panels H-I where the spread between excess returns in B and AAA rating categories and between >10 and 1< to <3 residual maturity ("Spread Mat") are employed. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in local currency. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies converted in local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies converted in local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies converted in local currency. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. The risk free rate is is the local one-month interest rate. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. "Chi-Sq. Glo Fac" and "Chi-Sq. Loc Fac" in Panel F are the Chi-Square's P-value of the Wald test testing the joint significance of all global factors and all local factors, respectively. Sample period: February 1998 – August 2018.

Table 10a. Asset Integration Test: FX-Hedged Euro Portfolios

EUR	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Integration test: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	0.114*	0.098*	0.076	0.13*	0.29*	0.211	0.21	0.087***	0.134**	0.156**	0.147	0.201
s.e.	(0.059)	(0.057)	(0.065)	(0.072)	(0.16)	(0.202)	(0.393)	(0.031)	(0.054)	(0.077)	(0.101)	(0.122)
Glo Sovereign	0.551**	0.632**	0.649*	0.977**	0.227	-1.308	-0.696	0.425**	0.717***	0.982**	0.77	0.919
s.e.	(0.276)	(0.253)	(0.349)	(0.417)	(0.98)	(1.396)	(1.95)	(0.17)	(0.264)	(0.412)	(0.569)	(0.609)
Glo Equity	0.068	0.171	0.223*	0.204	0.113	-0.027	0.062	0.141**	0.224*	0.32*	0.333	0.288
s.e.	(0.109)	(0.113)	(0.133)	(0.15)	(0.203)	(0.287)	(0.555)	(0.064)	(0.127)	(0.176)	(0.22)	(0.225)
Glo Corporate	-0.261*	-0.13	-0.034	-0.053	0.441	0.27	1.464	0.004	-0.031	-0.068	-0.073	-0.343
s.e.	(0.135)	(0.131)	(0.146)	(0.151)	(0.328)	(0.519)	(1.091)	(0.077)	(0.125)	(0.165)	(0.202)	(0.225)
Glo Sovereign*w(SB)	-0.762	-1.135**	-1.556**	-2.455***	-2.26	-0.013	-2.816	-1.053***	-1.71***	-2.384***	-1.981*	-1.749*
s.e.	(0.497)	(0.47)	(0.632)	(0.813)	(1.937)	(2.678)	(4.046)	(0.356)	(0.521)	(0.779)	(1.049)	(1.051)
Glo Equity**w(EQ)	-0.209	-0.426*	-0.526*	-0.421	0.135	0.668	0.707	-0.35**	-0.53*	-0.715*	-0.71	-0.622
s.e.	(0.223)	(0.24)	(0.284)	(0.323)	(0.455)	(0.671)	(1.344)	(0.137)	(0.27)	(0.375)	(0.469)	(0.482)
Glo Corporate*w(CB)	3.449**	2.693**	3.58**	4.494***	5.002	9.693*	5.771	1.685*	3.093**	4.633***	5.303**	6.848***
s.e.	(1.347)	(1.334)	(1.545)	(1.673)	(3.543)	(5.186)	(10.634)	(0.871)	(1.336)	(1.77)	(2.156)	(2.17)
Adjusted R^2	0.341	0.234	0.234	0.307	0.45	0.524	0.412	0.31	0.277	0.277	0.223	0.192
Integration test: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	0.111	0.132	0.139	0.086	0.011	-0.001	-0.271	0.06	0.116	0.166*	0.181	0.267*
s.e.	(0.074)	(0.082)	(0.085)	(0.09)	(0.255)	(0.341)	(0.656)	(0.041)	(0.073)	(0.099)	(0.123)	(0.147)
Glo Sovereign	-0.096	-0.1	-0.13	-0.138	2.696	-3.425*	-5.85	-0.119	-0.246	-0.141	-0.148	0.613
s.e.	(0.326)	(0.352)	(0.384)	(0.538)	(2.092)	(1.829)	(4.103)	(0.173)	(0.333)	(0.416)	(0.568)	(0.681)
Glo Equity	0.024	0.009	-0.071	-0.065	0.33	-0.49	-0.696	0.02	-0.024	-0.012	-0.068	0.068
s.e.	(0.162)	(0.179)	(0.198)	(0.204)	(0.698)	(0.667)	(1.363)	(0.093)	(0.169)	(0.233)	(0.27)	(0.328)
Glo Corporate	-0.19	-0.21	-0.177	-0.12	0.171	0.337	2.05*	-0.026	-0.108	-0.214	-0.282	-0.512**
s.e.	(0.137)	(0.144)	(0.135)	(0.112)	(0.419)	(0.616)	(1.158)	(0.065)	(0.109)	(0.142)	(0.187)	(0.232)
Glo Sovereign*w(SB)	-0.762	-1.135**	-1.556**	-2.455***	-2.26	-0.013	-2.816	-1.053***	-1.71***	-2.384***	-1.981*	-1.749*
s.e.	(0.497)	(0.47)	(0.632)	(0.813)	(1.937)	(2.678)	(4.046)	(0.356)	(0.521)	(0.779)	(1.049)	(1.051)
Glo Equity**w(EQ)	-0.209	-0.426*	-0.526*	-0.421	0.135	0.668	0.707	-0.35**	-0.53*	-0.715*	-0.71	-0.622
s.e.	(0.223)	(0.24)	(0.284)	(0.323)	(0.455)	(0.671)	(1.344)	(0.137)	(0.27)	(0.375)	(0.469)	(0.482)
Glo Corporate*w(CB)	3.449**	2.693**	3.58**	4.494***	5.002	9.693*	5.771	1.685*	3.093**	4.633***	5.303**	6.848***
s.e.	(1.347)	(1.334)	(1.545)	(1.673)	(3.543)	(5.186)	(10.634)	(0.871)	(1.336)	(1.77)	(2.156)	(2.17)
Adjusted R^2	0.341	0.301	0.203	0.054	0.196	0.279	0.232	0.153	0.179	0.17	0.133	0.187
Integration test: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	0.171*	0.155**	0.112	0.236**	0.475***	0.435*	0.587	0.148***	0.222***	0.254**	0.251*	0.274
s.e.	(0.092)	(0.07)	(0.083)	(0.103)	(0.174)	(0.223)	(0.384)	(0.045)	(0.072)	(0.105)	(0.142)	(0.179)
Glo Sovereign	0.551	0.312	0.083	0.561	-0.635	-1.986	-1.078	0.151	0.235	0.317	-0.122	0.268
s.e.	(0.5)	(0.418)	(0.472)	(0.516)	(1.127)	(1.847)	(2.653)	(0.203)	(0.325)	(0.541)	(0.737)	(0.983)
Glo Equity	-0.078	0.084	0.179	0.202	0.155	0.14	1.114	0.188*	0.251	0.267	0.224	0.006
s.e.	(0.162)	(0.199)	(0.235)	(0.263)	(0.352)	(0.474)	(0.884)	(0.098)	(0.202)	(0.305)	(0.4)	(0.454)
Glo Corporate	0.439	0.817*	0.9	0.608	0.31	0.795	3.145	0.567***	0.825**	0.992	1.208	0.817
s.e.	(0.397)	(0.471)	(0.592)	(0.531)	(0.788)	(1.158)	(3.408)	(0.185)	(0.356)	(0.642)	(0.894)	(1.08)
Glo Sovereign*w(SB)	-0.762	-1.135**	-1.556**	-2.455***	-2.26	-0.013	-2.816	-1.053***	-1.71***	-2.384***	-1.981*	-1.749*
s.e.	(0.497)	(0.47)	(0.632)	(0.813)	(1.937)	(2.678)	(4.046)	(0.356)	(0.521)	(0.779)	(1.049)	(1.051)
Glo Equity**w(EQ)	-0.209	-0.426*	-0.526*	-0.421	0.135	0.668	0.707	-0.35**	-0.53*	-0.715*	-0.71	-0.622
s.e.	(0.223)	(0.24)	(0.284)	(0.323)	(0.455)	(0.671)	(1.344)	(0.137)	(0.27)	(0.375)	(0.469)	(0.482)
Glo Corporate*w(CB)	3.449**	2.693**	3.58**	4.494***	5.002	9.693*	5.771	1.685*	3.093**	4.633***	5.303**	6.848***
s.e.	(1.347)	(1.334)	(1.545)	(1.673)	(3.543)	(5.186)	(10.634)	(0.871)	(1.336)	(1.77)	(2.156)	(2.17)
Adjusted R^2	0.408	0.358	0.401	0.449	0.638	0.675	0.581	0.486	0.469	0.445	0.372	0.272

Notes: This table shows the OLS coefficients of CAPM (Panels A-C) and multi-factor (Panels D-I) regressions where the dependent variables are corporate bond excess returns at CUSIP level computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global and/or local excess returns , except in Panels H-I where the spread between excess returns in B and AAA rating categories and between >10 and 1< to <3 residual maturity ("Spread Mat") are employed. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in local currency. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies converted in local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies converted in local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies converted in local currency. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. The risk free rate is the local one-month interest rate. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. "Chi-Sq. Glo Fac" and "Chi-Sq. Loc Fac" in Panel F are the Chi-Square's P-value of the Wald test testing the joint significance of all global factors and all local factors, respectively. Sample period: February 1998 – August 2018.

Table 10b. Asset Integration Test: FX-hedged Japanese Yen Portfolios

JPY	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Integration test: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept		0.095**	0.069**	0.075*				0.05***	0.082***	0.113***	0.146**	0.212**
s.e.		(0.039)	(0.032)	(0.045)				(0.014)	(0.025)	(0.043)	(0.06)	(0.101)
Glo Sovereign		0.456**	0.394**	0.45**				0.071	0.305**	0.787***	0.951**	1.366**
s.e.		(0.232)	(0.176)	(0.179)				(0.062)	(0.128)	(0.24)	(0.377)	(0.619)
Glo Equity		0.099***	0.062**	0.107***				0.014	0.056**	0.14***	0.191***	0.295***
s.e.		(0.035)	(0.031)	(0.036)				(0.011)	(0.022)	(0.041)	(0.062)	(0.088)
Glo Corporate		-0.14**	-0.004	-0.043				0.018	-0.015	-0.109*	-0.276***	-0.442***
s.e.		(0.061)	(0.048)	(0.044)				(0.015)	(0.035)	(0.064)	(0.1)	(0.151)
Glo Sovereign*w(SB)		-0.43	-0.581**	-0.615**				-0.136	-0.416**	-0.992***	-0.965*	-1.333
s.e.		(0.351)	(0.264)	(0.259)				(0.086)	(0.186)	(0.362)	(0.556)	(0.929)
Glo Equity**w(EQ)		-0.288***	-0.189**	-0.298***				-0.055	-0.184***	-0.412***	-0.515***	-0.751***
s.e.		(0.096)	(0.081)	(0.098)				(0.034)	(0.065)	(0.11)	(0.163)	(0.256)
Glo Corporate*w(CB)		0.419	-0.302	-0.046				0.097	-0.078	-0.342	0.433	0.5
s.e.		(1.243)	(0.741)	(0.672)				(0.297)	(0.626)	(1.039)	(1.75)	(2.962)
Adjusted R^2		0.145	0.031	0.043				0.032	0.055	0.128	0.181	0.143
Integration test: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	0.089	0.082	0.066*	0.062				0.055**	0.083*	0.116	0.129	0.143
s.e.	(0.064)	(0.07)	(0.04)	(0.057)				(0.023)	(0.044)	(0.071)	(0.099)	(0.158)
Glo Sovereign	0.473	0.044	0.155	0.11				0.081	0.205	0.331	0.239	0.351
s.e.	(0.372)	(0.386)	(0.174)	(0.19)				(0.084)	(0.187)	(0.347)	(0.536)	(0.837)
Glo Equity	0.193*	0.179	0.101**	0.107**				0.038	0.115**	0.227**	0.33*	0.288
s.e.	(0.102)	(0.121)	(0.051)	(0.053)				(0.024)	(0.055)	(0.108)	(0.17)	(0.253)
Glo Corporate	-0.146	-0.055	0.05	-0.015				0.027	0.016	0.008	-0.06	-0.302
s.e.	(0.139)	(0.138)	(0.082)	(0.088)				(0.04)	(0.09)	(0.137)	(0.194)	(0.311)
Glo Sovereign*w(SB)	-1.067**	-0.43	-0.581**	-0.615**				-0.136	-0.416**	-0.992***	-0.965*	-1.333
s.e.	(0.525)	(0.351)	(0.264)	(0.259)				(0.086)	(0.186)	(0.362)	(0.556)	(0.929)
Glo Equity**w(EQ)	-0.108	-0.288***	-0.189**	-0.298***				-0.055	-0.184***	-0.412***	-0.515***	-0.751***
s.e.	(0.201)	(0.096)	(0.081)	(0.098)				(0.034)	(0.065)	(0.11)	(0.163)	(0.256)
Glo Corporate*w(CB)	-5.299*	0.419	-0.302	-0.046				0.097	-0.078	-0.342	0.433	0.5
s.e.	(2.972)	(1.243)	(0.741)	(0.672)				(0.297)	(0.626)	(1.039)	(1.75)	(2.962)
Adjusted R^2	0.205	0.242	0.154	0.109				-0.003	0.111	0.224	0.279	0.248
Integration test: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept		0.103***	0.073	0.083				0.048***	0.081***	0.107**	0.165***	0.272**
s.e.		(0.028)	(0.048)	(0.066)				(0.017)	(0.025)	(0.05)	(0.061)	(0.114)
Glo Sovereign		0.538***	0.622***	0.864***				0.153**	0.434***	1.168***	1.873***	1.822**
s.e.		(0.183)	(0.214)	(0.3)				(0.074)	(0.157)	(0.294)	(0.368)	(0.782)
Glo Equity		0.077**	0.051	0.135***				0.013	0.054*	0.142***	0.182**	0.277***
s.e.		(0.034)	(0.044)	(0.052)				(0.014)	(0.028)	(0.049)	(0.071)	(0.103)
Glo Corporate		-0.061*	0.016	0.009				0.02	0.024	-0.033	-0.224***	-0.35**
s.e.		(0.036)	(0.053)	(0.053)				(0.014)	(0.027)	(0.054)	(0.081)	(0.158)
Glo Sovereign*w(SB)		-0.43	-0.581**	-0.615**				-0.136	-0.416**	-0.992***	-0.965*	-1.333
s.e.		(0.351)	(0.264)	(0.259)				(0.086)	(0.186)	(0.362)	(0.556)	(0.929)
Glo Equity**w(EQ)		-0.288***	-0.189**	-0.298***				-0.055	-0.184***	-0.412***	-0.515***	-0.751***
s.e.		(0.096)	(0.081)	(0.098)				(0.034)	(0.065)	(0.11)	(0.163)	(0.256)
Glo Corporate*w(CB)		0.419	-0.302	-0.046				0.097	-0.078	-0.342	0.433	0.5
s.e.		(1.243)	(0.741)	(0.672)				(0.297)	(0.626)	(1.039)	(1.75)	(2.962)
Adjusted R^2		0.144	0.019	0.029				0.16	0.078	0.093	0.166	0.07

Notes: This table shows the OLS coefficients of CAPM (Panels A-C) and multi-factor (Panels D-I) regressions where the dependent variables are corporate bond excess returns at CUSIP level computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global and/or local excess returns , except in Panels H-I where the spread between excess returns in B and AAA rating categories and between >10 and 1< to <3 residual maturity ("Spread Mat") are employed. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in local currency. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies converted in local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies converted in local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies converted in local currency. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. The risk free rate is is the local one-month interest rate. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. "Chi-Sq. Glo Fac" and "Chi-Sq. Loc Fac" in Panel F are the Chi-Square's P-value of the Wald test testing the joint significance of all global factors and all local factors, respectively. Sample period: February 1998 – August 2018.

Table 10c. Asset Integration Test: FX-Hedged British Pound Portfolios

GBP	AAA	AA	A	BBB	BB	B	C	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Integration test: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	0.076	0.119	0.056	0.197*	0.455**	0.401*	0.941**	0.114***	0.121*	0.128	0.119	0.162
s.e.	(0.079)	(0.09)	(0.125)	(0.107)	(0.183)	(0.216)	(0.398)	(0.038)	(0.063)	(0.117)	(0.133)	(0.138)
Glo Sovereign	-0.255	-0.254	-0.336	-0.336*	-0.785***	-1.258***	-1.68***	0.042	0.057	-0.157	-0.313*	-0.448
s.e.	(0.218)	(0.186)	(0.224)	(0.19)	(0.243)	(0.34)	(0.329)	(0.044)	(0.088)	(0.145)	(0.185)	(0.28)
Glo Equity	0.028	0.079	0.28	0.304*	0.146	-0.461	0.458	0.173***	0.332**	0.336	0.236	0.233
s.e.	(0.233)	(0.188)	(0.248)	(0.182)	(0.288)	(0.377)	(0.527)	(0.061)	(0.157)	(0.211)	(0.24)	(0.295)
Glo Corporate	0.298	0.402*	0.58**	0.685***	1.379**	1.058**	2.145***	0.065	0.25*	0.601***	0.612**	0.638*
s.e.	(0.235)	(0.219)	(0.275)	(0.257)	(0.553)	(0.496)	(0.713)	(0.075)	(0.144)	(0.199)	(0.257)	(0.346)
Glo Sovereign*w(SB)	1.174**	0.491	-0.005	-0.305	-0.268	-0.23	0.019	-0.619***	-0.928***	-1.023**	-0.589	0.468
s.e.	(0.596)	(0.524)	(0.582)	(0.516)	(0.698)	(0.747)	(0.906)	(0.132)	(0.238)	(0.427)	(0.502)	(0.778)
Glo Equity**w(EQ)	-0.113	-0.17	-0.431	-0.466*	-0.023	0.901*	-0.721	-0.286***	-0.519**	-0.525**	-0.348	-0.361
s.e.	(0.314)	(0.259)	(0.33)	(0.251)	(0.409)	(0.533)	(0.805)	(0.08)	(0.207)	(0.267)	(0.312)	(0.407)
Glo Corporate*w(CB)	0.418	0.973	1.533	0.752	-5.099	6.123	-3.456	2.376***	1.963	1.805	2.997	1.555
s.e.	(2.179)	(2.287)	(2.955)	(2.674)	(7.423)	(5.753)	(10.177)	(0.86)	(1.42)	(2.275)	(2.895)	(3.574)
Adjusted R^2	0.264	0.198	0.201	0.269	0.368	0.448	0.184	0.363	0.325	0.314	0.287	0.172
Integration test: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	0.086	0.112	0.154	0.173*	0.144	-0.041	0.606	0.057*	0.07	0.055	0.128	0.226*
s.e.	(0.076)	(0.084)	(0.096)	(0.097)	(0.201)	(0.292)	(0.59)	(0.033)	(0.058)	(0.077)	(0.105)	(0.137)
Glo Sovereign	0.38	0.437	0.577	0.506	-0.344	-0.943	-1.436	-0.154	-0.036	-0.123	0.258	1.123
s.e.	(0.626)	(0.718)	(0.891)	(0.912)	(2.071)	(1.014)	(2.63)	(0.156)	(0.363)	(0.519)	(0.751)	(1.308)
Glo Equity	-0.392	-0.255	-0.488	-0.623	0.101	-1.533	1.609	-0.032	-0.151	-0.498	-0.855	-0.518
s.e.	(0.486)	(0.547)	(0.666)	(0.642)	(1.388)	(1.75)	(4.276)	(0.153)	(0.32)	(0.484)	(0.625)	(0.937)
Glo Corporate	-0.15	-0.136	-0.142	0.048	0.995	0.771	2.624***	0.008	0.008	0.211	0.039	-0.245
s.e.	(0.157)	(0.172)	(0.233)	(0.245)	(1.001)	(0.554)	(0.996)	(0.061)	(0.107)	(0.148)	(0.202)	(0.342)
Glo Sovereign*w(SB)	1.174**	0.491	-0.005	-0.305	-0.268	-0.23	0.019	-0.619***	-0.928***	-1.023**	-0.589	0.468
s.e.	(0.596)	(0.524)	(0.582)	(0.516)	(0.698)	(0.747)	(0.906)	(0.132)	(0.238)	(0.427)	(0.502)	(0.778)
Glo Equity**w(EQ)	-0.113	-0.17	-0.431	-0.466*	-0.023	0.901*	-0.721	-0.286***	-0.519**	-0.525**	-0.348	-0.361
s.e.	(0.314)	(0.259)	(0.33)	(0.251)	(0.409)	(0.533)	(0.805)	(0.08)	(0.207)	(0.267)	(0.312)	(0.407)
Glo Corporate*w(CB)	0.418	0.973	1.533	0.752	-5.099	6.123	-3.456	2.376***	1.963	1.805	2.997	1.555
s.e.	(2.179)	(2.287)	(2.955)	(2.674)	(7.423)	(5.753)	(10.177)	(0.86)	(1.42)	(2.275)	(2.895)	(3.574)
Adjusted R^2	0.264	0.193	0.15	0.144	0.226	0.27	-0.012	0.281	0.257	0.22	0.185	0.108
Integration test: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	0.145	0.225	0.088	0.32*	0.662**	0.868***	1.244**	0.161***	0.173*	0.246	0.202	0.253
s.e.	(0.131)	(0.137)	(0.187)	(0.165)	(0.266)	(0.286)	(0.546)	(0.058)	(0.1)	(0.182)	(0.202)	(0.204)
Glo Sovereign	-0.566*	-0.745**	-0.856**	-0.985***	-0.949	-3.065***	-4.219***	-0.06	-0.08	-0.554	-0.783**	-1.287***
s.e.	(0.308)	(0.324)	(0.38)	(0.346)	(0.732)	(0.927)	(1.175)	(0.119)	(0.173)	(0.359)	(0.398)	(0.442)
Glo Equity	-0.256	-0.272	-0.115	0.253	0.512	0.312	1.229	0.133*	0.251	0.143	-0.01	-0.032
s.e.	(0.406)	(0.351)	(0.452)	(0.364)	(0.342)	(0.581)	(0.882)	(0.081)	(0.194)	(0.284)	(0.395)	(0.568)
Glo Corporate	0.341	0.233	0.596	0.222	1.646	-2.297*	-3.581	0.158	0.627	0.695	0.632	-0.008
s.e.	(1.067)	(0.93)	(1.093)	(0.906)	(1.654)	(1.36)	(2.839)	(0.29)	(0.509)	(0.953)	(1.086)	(1.248)
Glo Sovereign*w(SB)	1.174**	0.491	-0.005	-0.305	-0.268	-0.23	0.019	-0.619***	-0.928***	-1.023**	-0.589	0.468
s.e.	(0.596)	(0.524)	(0.582)	(0.516)	(0.698)	(0.747)	(0.906)	(0.132)	(0.238)	(0.427)	(0.502)	(0.778)
Glo Equity**w(EQ)	-0.113	-0.17	-0.431	-0.466*	-0.023	0.901*	-0.721	-0.286***	-0.519**	-0.525**	-0.348	-0.361
s.e.	(0.314)	(0.259)	(0.33)	(0.251)	(0.409)	(0.533)	(0.805)	(0.08)	(0.207)	(0.267)	(0.312)	(0.407)
Glo Corporate*w(CB)	0.418	0.973	1.533	0.752	-5.099	6.123	-3.456	2.376***	1.963	1.805	2.997	1.555
s.e.	(2.179)	(2.287)	(2.955)	(2.674)	(7.423)	(5.753)	(10.177)	(0.86)	(1.42)	(2.275)	(2.895)	(3.574)
Adjusted R^2	0.269	0.237	0.263	0.344	0.428	0.601	0.328	0.456	0.412	0.38	0.347	0.227

Notes: This table shows the OLS coefficients of CAPM (Panels A-C) and multi-factor (Panels D-I) regressions where the dependent variables are corporate bond excess returns at CUSIP level computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global and/or local excess returns , except in Panels H-I where the spread between excess returns in B and AAA rating categories and between >10 and 1< to <3 residual maturity ("Spread Mat") are employed. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in local currency. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies converted in local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies converted in local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies converted in local currency. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. The risk free rate is is the local one-month interest rate. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. "Chi-Sq. Glo Fac" and "Chi-Sq. Loc Fac" in Panel F are the Chi-Square's P-value of the Wald test testing the joint significance of all global factors and all local factors, respectively. Sample period: February 1998 – August 2018.

Table 10d. Asset Integration Test: FX-Hedged Canadian Dollar Portfolios

CAD	AAA	AA	A	BBB	BB	B		1-to-3	3-to-5	5-to-7	7-to-10	> 10
Integration test: Multi-factor regression with all securities (Feb 98 - Aug 18)												
Intercept	0.117**	0.151***	0.192**	0.221***	0.349***	0.195		0.106***	0.159***	0.218***	0.231**	0.282**
s.e.	(0.055)	(0.053)	(0.078)	(0.075)	(0.119)	(0.202)		(0.031)	(0.051)	(0.067)	(0.094)	(0.13)
Glo Sovereign	-0.17	-0.124	-0.197	-0.34	-0.461**	0.016		-0.056	-0.107	-0.257	-0.173	-0.471
s.e.	(0.167)	(0.143)	(0.244)	(0.28)	(0.217)	(0.88)		(0.067)	(0.116)	(0.183)	(0.299)	(0.565)
Glo Equity	-0.362*	-0.16	-0.329	-0.083	0.392	1.851***		-0.037	-0.057	-0.202	-0.18	-0.432
s.e.	(0.216)	(0.15)	(0.23)	(0.217)	(0.293)	(0.569)		(0.096)	(0.159)	(0.19)	(0.247)	(0.356)
Glo Corporate	-0.52***	-0.209	-0.263	-0.334	-0.277	0.193		-0.015	-0.153	-0.285	-0.352	-0.696
s.e.	(0.183)	(0.243)	(0.322)	(0.267)	(0.493)	(0.674)		(0.156)	(0.269)	(0.309)	(0.369)	(0.423)
Glo Sovereign*w(SB)	0.818**	0.434	0.447	0.766	0.391	-1.513		0.12	0.313	0.681	0.326	1.151
s.e.	(0.348)	(0.372)	(0.592)	(0.675)	(0.711)	(2.24)		(0.226)	(0.34)	(0.465)	(0.747)	(1.295)
Glo Equity**w(EQ)	0.753*	0.323	0.672	0.21	-0.765	-3.228***		0.06	0.13	0.434	0.409	0.922
s.e.	(0.429)	(0.296)	(0.461)	(0.433)	(0.566)	(1.116)		(0.191)	(0.314)	(0.382)	(0.493)	(0.717)
Glo Corporate*w(CB)	6.638***	3.397	5.603*	6.431**	8.27*	3.889		1.281	3.25	5.324*	7.183**	11.686***
s.e.	(1.891)	(2.322)	(2.988)	(2.538)	(4.281)	(9.211)		(1.381)	(2.472)	(2.908)	(3.617)	(4.327)
Adjusted R^2	0.375	0.167	0.174	0.158	0.097	0.164		0.174	0.177	0.195	0.158	0.143
Integration test: Multi-factor regression with all securities (Feb 98 - Jul 07)												
Intercept	0.128**	0.148**	0.199**	0.197**	0.179	0.331		0.083*	0.138*	0.194**	0.233**	0.306**
s.e.	(0.065)	(0.068)	(0.09)	(0.084)	(0.149)	(0.314)		(0.043)	(0.071)	(0.083)	(0.102)	(0.143)
Glo Sovereign	-0.003	0.168	0.263	0.212	-0.431	0.466		-0.172	-0.045	0.082	0.393	0.636
s.e.	(0.197)	(0.242)	(0.369)	(0.385)	(0.446)	(1.164)		(0.107)	(0.268)	(0.264)	(0.462)	(0.672)
Glo Equity	-0.022	-0.018	-0.03	0.128	0.299	1.011*		0.042	0.119	-0.02	0.114	0.064
s.e.	(0.148)	(0.169)	(0.242)	(0.253)	(0.283)	(0.601)		(0.086)	(0.191)	(0.206)	(0.277)	(0.386)
Glo Corporate	-0.957***	-0.87***	-1.016***	-0.727**	-1.062	0.806		-0.553***	-0.91***	-1.032***	-1.206***	-1.21**
s.e.	(0.231)	(0.259)	(0.353)	(0.329)	(0.715)	(0.893)		(0.152)	(0.325)	(0.381)	(0.429)	(0.522)
Glo Sovereign*w(SB)	0.818**	0.434	0.447	0.766	0.391	-1.513		0.12	0.313	0.681	0.326	1.151
s.e.	(0.348)	(0.372)	(0.592)	(0.675)	(0.711)	(2.24)		(0.226)	(0.34)	(0.465)	(0.747)	(1.295)
Glo Equity**w(EQ)	0.753*	0.323	0.672	0.21	-0.765	-3.228***		0.06	0.13	0.434	0.409	0.922
s.e.	(0.429)	(0.296)	(0.461)	(0.433)	(0.566)	(1.116)		(0.191)	(0.314)	(0.382)	(0.493)	(0.717)
Glo Corporate*w(CB)	6.638***	3.397	5.603*	6.431**	8.27*	3.889		1.281	3.25	5.324*	7.183**	11.686***
s.e.	(1.891)	(2.322)	(2.988)	(2.538)	(4.281)	(9.211)		(1.381)	(2.472)	(2.908)	(3.617)	(4.327)
Adjusted R^2	0.369	0.277	0.203	0.152	0.141	0.25		0.292	0.243	0.252	0.195	0.121
Integration test: Multi-factor regression with all securities (Aug 07 - Aug 18)												
Intercept	0.137*	0.156**	0.196*	0.278**	0.584***	0.224		0.122***	0.181***	0.247***	0.236*	0.324
s.e.	(0.081)	(0.066)	(0.104)	(0.112)	(0.161)	(0.353)		(0.031)	(0.064)	(0.092)	(0.127)	(0.202)
Glo Sovereign	-0.194	0.148	0.207	-0.219	-1.331	-2.081		0.176	0.203	0.026	0.244	-0.234
s.e.	(0.518)	(0.299)	(0.674)	(0.634)	(0.889)	(2.614)		(0.16)	(0.251)	(0.453)	(0.73)	(1.326)
Glo Equity	-0.582	-0.123	-0.58	-0.452	1.066	2.91*		0.001	-0.097	-0.198	-0.299	-1.29*
s.e.	(0.413)	(0.303)	(0.438)	(0.4)	(0.728)	(1.736)		(0.183)	(0.262)	(0.363)	(0.549)	(0.746)
Glo Corporate	-0.303	-0.573	-0.864	-1.04*	1.019	1.696		0.003	-0.341	-0.606	-1.154	-2.168*
s.e.	(0.829)	(0.362)	(0.76)	(0.601)	(0.819)	(2.512)		(0.249)	(0.358)	(0.518)	(0.79)	(1.302)
Glo Sovereign*w(SB)	0.818**	0.434	0.447	0.766	0.391	-1.513		0.12	0.313	0.681	0.326	1.151
s.e.	(0.348)	(0.372)	(0.592)	(0.675)	(0.711)	(2.24)		(0.226)	(0.34)	(0.465)	(0.747)	(1.295)
Glo Equity**w(EQ)	0.753*	0.323	0.672	0.21	-0.765	-3.228***		0.06	0.13	0.434	0.409	0.922
s.e.	(0.429)	(0.296)	(0.461)	(0.433)	(0.566)	(1.116)		(0.191)	(0.314)	(0.382)	(0.493)	(0.717)
Glo Corporate*w(CB)	6.638***	3.397	5.603*	6.431**	8.27*	3.889		1.281	3.25	5.324*	7.183**	11.686***
s.e.	(1.891)	(2.322)	(2.988)	(2.538)	(4.281)	(9.211)		(1.381)	(2.472)	(2.908)	(3.617)	(4.327)
Adjusted R^2	0.4	0.193	0.237	0.2	0.09	0.092		0.268	0.247	0.235	0.204	0.198

Notes: This table shows the OLS coefficients of CAPM (Panels A-C) and multi-factor (Panels D-I) regressions where the dependent variables are corporate bond excess returns at CUSIP level computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global and/or local excess returns , except in Panels H-I where the spread between excess returns in B and AAA rating categories and between >10 and 1< to <3 residual maturity ("Spread Mat") are employed. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in local currency. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies converted in local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies converted in local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies converted in local currency. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. The risk free rate is is the local one-month interest rate. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. "Chi-Sq. Glo Fac" and "Chi-Sq. Loc Fac" in Panel F are the Chi-Square's P-value of the Wald test testing the joint significance of all global factors and all local factors, respectively. Sample period: February 1998 – August 2018.

Table 10e. Asset Integration Test: FX-Hedged Australian Dollar Portfolios

AUD	AAA	AA	A	BBB	1-to-3	3-to-5	5-to-7	7-to-10	> 10
Integration test: Multi-factor regression with all securities (Feb 98 - Aug 18)									
Intercept		0.094**	0.128**	0.18***	0.072***	0.134***	0.181**	0.22*	0.157
s.e.		(0.039)	(0.051)	(0.055)	(0.028)	(0.051)	(0.076)	(0.117)	(0.107)
Glo Sovereign		0.056	-0.074	-0.139**	0.017	0.001	0.021	-0.039	-0.106
s.e.		(0.041)	(0.07)	(0.07)	(0.03)	(0.073)	(0.103)	(0.142)	(0.244)
Glo Equity		0.093	0.011	0.163	0.067	0.112	0.077	0.147	-0.38
s.e.		(0.099)	(0.134)	(0.121)	(0.066)	(0.137)	(0.214)	(0.272)	(0.45)
Glo Corporate		-0.232*	-0.246*	-0.297**	-0.167**	-0.279*	-0.384*	-0.689***	-0.652*
s.e.		(0.123)	(0.128)	(0.122)	(0.08)	(0.148)	(0.209)	(0.254)	(0.383)
Glo Sovereign*w(SB)		0.083	0.288	0.534**	0.021	0.236	0.454	0.945**	1.652**
s.e.		(0.151)	(0.188)	(0.227)	(0.098)	(0.215)	(0.329)	(0.394)	(0.733)
Glo Equity**w(EQ)		-0.143	-0.046	-0.264	-0.117	-0.182	-0.123	-0.22	0.379
s.e.		(0.131)	(0.175)	(0.163)	(0.087)	(0.184)	(0.284)	(0.357)	(0.587)
Glo Corporate*w(CB)		5.816***	8.905***	10.029***	5.103***	8.141***	9.496***	17.539***	14.718**
s.e.		(2.106)	(2.263)	(2.571)	(1.343)	(2.608)	(3.682)	(5.985)	(6.566)
Adjusted R^2		0.279	0.228	0.208	0.31	0.235	0.196	0.26	0.266
Integration test: Multi-factor regression with all securities (Feb 98 - Jul 07)									
Intercept		0.046	0.067	0.083	0.027	0.071	0.098	0.144	0.189
s.e.		(0.049)	(0.05)	(0.054)	(0.034)	(0.065)	(0.089)	(0.111)	(0.164)
Glo Sovereign		0.4***	0.398***	0.372***	0.265***	0.547***	0.731***	0.872**	0.51
s.e.		(0.149)	(0.149)	(0.139)	(0.102)	(0.195)	(0.263)	(0.35)	(0.537)
Glo Equity		-0.007	-0.029	0.043	-0.057	0.004	0.077	0.168	-3.379***
s.e.		(0.217)	(0.232)	(0.229)	(0.161)	(0.288)	(0.384)	(0.484)	(1.236)
Glo Corporate		-0.386***	-0.415***	-0.419***	-0.245**	-0.478***	-0.62***	-0.72***	-1.525**
s.e.		(0.143)	(0.153)	(0.133)	(0.11)	(0.175)	(0.239)	(0.269)	(0.659)
Glo Sovereign*w(SB)		0.083	0.288	0.534**	0.021	0.236	0.454	0.945**	1.652**
s.e.		(0.151)	(0.188)	(0.227)	(0.098)	(0.215)	(0.329)	(0.394)	(0.733)
Glo Equity**w(EQ)		-0.143	-0.046	-0.264	-0.117	-0.182	-0.123	-0.22	0.379
s.e.		(0.131)	(0.175)	(0.163)	(0.087)	(0.184)	(0.284)	(0.357)	(0.587)
Glo Corporate*w(CB)		5.816***	8.905***	10.029***	5.103***	8.141***	9.496***	17.539***	14.718**
s.e.		(2.106)	(2.263)	(2.571)	(1.343)	(2.608)	(3.682)	(5.985)	(6.566)
Adjusted R^2		0.337	0.342	0.297	0.32	0.337	0.308	0.268	0.408
Integration test: Multi-factor regression with all securities (Aug 07 - Aug 18)									
Intercept		0.168***	0.219***	0.311***	0.13***	0.24***	0.329***	0.364**	0.25
s.e.		(0.05)	(0.074)	(0.079)	(0.034)	(0.065)	(0.105)	(0.184)	(0.16)
Glo Sovereign		-0.01	-0.176***	-0.26***	-0.035	-0.113***	-0.125**	-0.234*	-0.271
s.e.		(0.045)	(0.063)	(0.048)	(0.029)	(0.044)	(0.063)	(0.136)	(0.186)
Glo Equity		-0.074	-0.2	0.019	-0.014	-0.109	-0.271	-0.146	-0.588
s.e.		(0.113)	(0.159)	(0.153)	(0.082)	(0.136)	(0.218)	(0.311)	(0.423)
Glo Corporate		-0.077	-0.213	-0.367*	-0.097	-0.206	-0.39	-1.116**	-1.244**
s.e.		(0.133)	(0.202)	(0.222)	(0.087)	(0.158)	(0.312)	(0.475)	(0.515)
Glo Sovereign*w(SB)		0.083	0.288	0.534**	0.021	0.236	0.454	0.945**	1.652**
s.e.		(0.151)	(0.188)	(0.227)	(0.098)	(0.215)	(0.329)	(0.394)	(0.733)
Glo Equity**w(EQ)		-0.143	-0.046	-0.264	-0.117	-0.182	-0.123	-0.22	0.379
s.e.		(0.131)	(0.175)	(0.163)	(0.087)	(0.184)	(0.284)	(0.357)	(0.587)
Glo Corporate*w(CB)		5.816***	8.905***	10.029***	5.103***	8.141***	9.496***	17.539***	14.718**
s.e.		(2.106)	(2.263)	(2.571)	(1.343)	(2.608)	(3.682)	(5.985)	(6.566)
Adjusted R^2		0.35	0.299	0.282	0.414	0.32	0.261	0.343	0.314

Notes: This table shows the OLS coefficients of CAPM (Panels A-C) and multi-factor (Panels D-I) regressions where the dependent variables are corporate bond excess returns at CUSIP level computed on portfolios based on rating classes (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, above 10 years) and the regressors are global and/or local excess returns , except in Panels H-I where the spread between excess returns in B and AAA rating categories and between >10 and 1< to <3 residual maturity ("Spread Mat") are employed. The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in local currency. Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies converted in local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies converted in local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies converted in local currency. Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. The risk free rate is is the local one-month interest rate. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. "Chi-Sq. Glo Fac" and "Chi-Sq. Loc Fac" in Panel F are the Chi-Square's P-value of the Wald test testing the joint significance of all global factors and all local factors, respectively. Sample period: February 1998 – August 2018.

Table 11a. Residual Error Correlation Test: FX-Hedged Euro Portfolios

All sample - EUR	Panel A	Panel B	Panel C	Panel D	Panel E	Panel F	Panel G	Panel H
Correlation AAA / AA	0.882***	0.882***	0.89***	0.881***	0.884***	0.403***	0.455***	0.833***
	(0.019)	(0.019)	(0.017)	(0.021)	(0.021)	(0.078)	(0.086)	(0.032)
Correlation AAA / A	0.689***	0.687***	0.714***	0.801***	0.823***	-0.001	0.011	0.782***
	(0.054)	(0.055)	(0.042)	(0.028)	(0.027)	(0.123)	(0.134)	(0.04)
Correlation AAA / BBB	0.472***	0.468***	0.486***	0.696***	0.718***	-0.3***	-0.315***	0.755***
	(0.074)	(0.075)	(0.06)	(0.027)	(0.033)	(0.083)	(0.091)	(0.035)
Correlation AAA / BB	-0.04	-0.046	-0.109*	0.314***	0.301***	-0.164**	-0.169	0.67***
	(0.066)	(0.066)	(0.066)	(0.055)	(0.067)	(0.082)	(0.106)	(0.054)
Correlation AAA / B	-0.044	-0.05	-0.124*	0.387***	0.387***	-0.074	-0.123	0.837***
	(0.072)	(0.072)	(0.071)	(0.054)	(0.058)	(0.09)	(0.116)	(0.024)
Correlation AAA / C	-0.122*	-0.128*	-0.178**	0.195***	0.177***	-0.104	-0.117	0.759***
	(0.069)	(0.069)	(0.075)	(0.058)	(0.065)	(0.099)	(0.122)	(0.043)
Correlation AA / A	0.895***	0.894***	0.896***	0.943***	0.952***	0.279**	0.27*	0.946***
	(0.027)	(0.027)	(0.022)	(0.01)	(0.009)	(0.129)	(0.147)	(0.011)
Correlation AA / BBB	0.704***	0.701***	0.685***	0.834***	0.838***	-0.496***	-0.498***	0.88***
	(0.047)	(0.047)	(0.044)	(0.021)	(0.03)	(0.086)	(0.089)	(0.018)
Correlation AA / BB	0.172***	0.167***	0.041	0.407***	0.361***	-0.311***	-0.313***	0.698***
	(0.062)	(0.063)	(0.067)	(0.062)	(0.071)	(0.097)	(0.116)	(0.053)
Correlation AA / B	0.159**	0.155**	0.019	0.457***	0.425***	-0.274***	-0.305**	0.838***
	(0.069)	(0.069)	(0.072)	(0.061)	(0.064)	(0.102)	(0.128)	(0.023)
Correlation AA / C	0.063	0.059	-0.041	0.274***	0.225***	-0.183**	-0.187**	0.772***
	(0.066)	(0.067)	(0.068)	(0.071)	(0.079)	(0.081)	(0.093)	(0.042)
Correlation A / BBB	0.877***	0.876***	0.849***	0.897***	0.883***	-0.288*	-0.267*	0.896***
	(0.023)	(0.024)	(0.029)	(0.026)	(0.033)	(0.15)	(0.161)	(0.028)
Correlation A / BB	0.453***	0.45***	0.291***	0.509***	0.423***	-0.142	-0.106	0.69***
	(0.078)	(0.079)	(0.075)	(0.077)	(0.083)	(0.116)	(0.121)	(0.061)
Correlation A / B	0.448***	0.445***	0.286***	0.553***	0.486***	-0.117	-0.089	0.828***
	(0.076)	(0.077)	(0.074)	(0.07)	(0.071)	(0.105)	(0.109)	(0.023)
Correlation A / C	0.3***	0.297***	0.168**	0.341***	0.249***	-0.188	-0.148	0.703***
	(0.086)	(0.087)	(0.077)	(0.084)	(0.094)	(0.117)	(0.114)	(0.05)
Correlation BBB / BB	0.652***	0.651***	0.507***	0.617***	0.541***	0.32**	0.339***	0.676***
	(0.076)	(0.077)	(0.078)	(0.07)	(0.072)	(0.13)	(0.13)	(0.072)
Correlation BBB / B	0.621***	0.621***	0.478***	0.62***	0.557***	0.204**	0.235**	0.754***
	(0.071)	(0.071)	(0.075)	(0.059)	(0.06)	(0.104)	(0.113)	(0.032)
Correlation BBB / C	0.501***	0.5***	0.39***	0.455***	0.371***	0.254***	0.278***	0.658***
	(0.079)	(0.08)	(0.081)	(0.068)	(0.073)	(0.088)	(0.082)	(0.05)
Correlation BB / B	0.761***	0.762***	0.663***	0.653***	0.589***	0.415***	0.427***	0.504***
	(0.088)	(0.088)	(0.098)	(0.089)	(0.094)	(0.115)	(0.122)	(0.098)
Correlation BB / C	0.638***	0.639***	0.56***	0.498***	0.425***	0.316**	0.326***	0.272**
	(0.095)	(0.094)	(0.112)	(0.106)	(0.108)	(0.126)	(0.122)	(0.121)
Correlation B / C	0.819***	0.819***	0.792***	0.74***	0.697***	0.666***	0.678***	0.627***
	(0.034)	(0.034)	(0.045)	(0.054)	(0.061)	(0.071)	(0.063)	(0.067)
Wald test (Chi-square)	**52063**	**51339**	**42676**	**42126**	**56119**	**314**	**363**	**470966**
Correlation 1to3 3to5	0.955***	0.955***	0.949***	0.955***	0.948***	0.61***	0.627***	0.948***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.009)	(0.065)	(0.066)	(0.008)
Correlation 1to3 5to7	0.919***	0.918***	0.912***	0.915***	0.903***	0.017	0.007	0.899***
	(0.016)	(0.016)	(0.013)	(0.016)	(0.017)	(0.098)	(0.103)	(0.016)
Correlation 1to3 7to10	0.856***	0.855***	0.838***	0.85***	0.833***	-0.606***	-0.619***	0.824***
	(0.026)	(0.027)	(0.024)	(0.027)	(0.027)	(0.051)	(0.053)	(0.029)
Correlation 1to3 10p	0.684***	0.683***	0.633***	0.718***	0.713***	-0.598***	-0.599***	0.705***
	(0.044)	(0.045)	(0.047)	(0.04)	(0.038)	(0.048)	(0.047)	(0.038)
Correlation 3to5 5to7	0.976***	0.976***	0.973***	0.976***	0.973***	0.198**	0.179*	0.968***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.092)	(0.102)	(0.006)
Correlation 3to5 7to10	0.935***	0.935***	0.924***	0.933***	0.926***	-0.625***	-0.643***	0.915***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.054)	(0.061)	(0.015)
Correlation 3to5 10p	0.804***	0.803***	0.766***	0.831***	0.833***	-0.617***	-0.614***	0.814***
	(0.029)	(0.029)	(0.033)	(0.024)	(0.023)	(0.052)	(0.049)	(0.025)
Correlation 5to7 7to10	0.976***	0.976***	0.969***	0.975***	0.973***	0.145	0.156	0.97***
	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)	(0.1)	(0.11)	(0.005)
Correlation 5to7 10p	0.845***	0.844***	0.814***	0.889***	0.894***	-0.215***	-0.219***	0.887***
	(0.025)	(0.025)	(0.029)	(0.016)	(0.016)	(0.081)	(0.083)	(0.016)
Correlation 7to10 10p	0.903***	0.902***	0.889***	0.941***	0.946***	0.504***	0.497***	0.943***
	(0.015)	(0.015)	(0.018)	(0.01)	(0.009)	(0.046)	(0.049)	(0.009)
Wald test (Chi-square)	**640915**	**634088**	**387722**	**559004**	**460054**	**402**	**436**	**325214**

Note: This table shows the correlation coefficients between the residuals of the factor models with the following specifications. Panel A: CAPM with sovereign and equity securities, global factors. Panel B: CAPM with all securities, global factors. Panel C: CAPM with all securities, global and local factors. Panel D: Multi-factor regression with sovereign and equity securities, global factors. Panel E: Multi-factor regression with all securities, global factors. Panel F: Multi-factor regression with all securities, global and local factors. Panel G: Multi-factor regression with all securities, local factors. Panel H: Multi-factor regression with all securities, local factors, plus the second principle component from the excess returns of all ratings and residual maturity portfolios. The correlations are estimated using GMM methods under sequential weighting matrix and coefficient iteration. The Wald test provides the Chi-Square provides under the null hypothesis that all estimated correlation coefficients are zero. *,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 - August 2018.

Table 11b. Residual Error Correlation Test: FX-Hedged Japanese Yen Portfolios

All sample - JPY	Panel A	Panel B	Panel C	Panel D	Panel E	Panel F	Panel G	Panel H
Correlation AAA / AA								
Correlation AAA / A								
Correlation AAA / BBB								
Correlation AAA / BB								
Correlation AAA / B								
Correlation AAA / C								
Correlation AA / A	0.991***	0.991***	0.963***	0.985***	0.985***	-0.416***	-0.4***	0.987***
	(0.002)	(0.002)	(0.008)	(0.004)	(0.004)	(0.111)	(0.11)	(0.005)
Correlation AA / BBB	0.987***	0.987***	0.948***	0.979***	0.978***	-0.351***	-0.348***	0.985***
	(0.003)	(0.003)	(0.01)	(0.005)	(0.005)	(0.101)	(0.102)	(0.004)
Correlation AA / BB								
Correlation AA / B								
Correlation AA / C								
Correlation A / BBB	0.99***	0.99***	0.959***	0.982***	0.982***	-0.336***	-0.331***	0.979***
	(0.003)	(0.003)	(0.012)	(0.006)	(0.006)	(0.108)	(0.108)	(0.007)
Correlation A / BB								
Correlation A / B								
Correlation A / C								
Correlation BBB / BB								
Correlation BBB / B								
Correlation BBB / C								
Correlation BB / B								
Correlation BB / C								
Correlation B / C								
Wald test (Chi-square)	**199033**	**194668**	**20608**	**70615**	**76154**	**558**	**415**	**328802**
Correlation 1to3 3to5	0.997***	0.997***	0.989***	0.996***	0.995***	0.44***	0.432***	0.997***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.113)	(0.114)	(0.001)
Correlation 1to3 5to7	0.985***	0.985***	0.941***	0.976***	0.975***	-0.72***	-0.722***	0.988***
	(0.003)	(0.003)	(0.01)	(0.006)	(0.006)	(0.057)	(0.056)	(0.003)
Correlation 1to3 7to10	0.963***	0.963***	0.858***	0.941***	0.938***	-0.756***	-0.76***	0.981***
	(0.009)	(0.009)	(0.026)	(0.016)	(0.016)	(0.055)	(0.052)	(0.005)
Correlation 1to3 10p	0.909***	0.909***	0.683***	0.843***	0.835***	-0.582***	-0.597***	0.989***
	(0.02)	(0.021)	(0.057)	(0.039)	(0.039)	(0.069)	(0.067)	(0.003)
Correlation 3to5 5to7	0.994***	0.994***	0.976***	0.99***	0.989***	-0.206	-0.21	0.995***
	(0.001)	(0.001)	(0.004)	(0.003)	(0.003)	(0.151)	(0.151)	(0.001)
Correlation 3to5 7to10	0.978***	0.977***	0.913***	0.963***	0.962***	-0.411***	-0.412***	0.988***
	(0.005)	(0.005)	(0.017)	(0.01)	(0.01)	(0.13)	(0.128)	(0.003)
Correlation 3to5 10p	0.929***	0.929***	0.753***	0.874***	0.867***	-0.606***	-0.6***	0.989***
	(0.016)	(0.016)	(0.046)	(0.031)	(0.031)	(0.069)	(0.069)	(0.003)
Correlation 5to7 7to10	0.993***	0.993***	0.972***	0.988***	0.988***	0.795***	0.796***	0.995***
	(0.002)	(0.002)	(0.005)	(0.003)	(0.003)	(0.046)	(0.046)	(0.001)
Correlation 5to7 10p	0.954***	0.954***	0.845***	0.916***	0.911***	0.255**	0.268**	0.986***
	(0.009)	(0.01)	(0.028)	(0.02)	(0.02)	(0.114)	(0.112)	(0.003)
Correlation 7to10 10p	0.974***	0.974***	0.914***	0.949***	0.946***	0.37***	0.385***	0.978***
	(0.005)	(0.005)	(0.014)	(0.011)	(0.01)	(0.117)	(0.11)	(0.005)
Wald test (Chi-square)	**64669660**	**64400329**	**4270015**	**21585188**	**22615188**	**1384**	**1393**	**12254781**

Note: This table shows the correlation coefficients between the residuals of the factor models with the following specifications. Panel A: CAPM with sovereign and equity securities, global factors. Panel B: CAPM with all securities, global factors. Panel C: CAPM with all securities, global and local factors. Panel D: Multi-factor regression with sovereign and equity securities, global factors. Panel E: Multi-factor regression with all securities, global factors. Panel F: Multi-factor regression with all securities, global and local factors. Panel G: Multi-factor regression with all securities, local factors. Panel H: Multi-factor regression with all securities, local factors, plus the second principle component from the excess returns of all ratings and residual maturity portfolios. The correlations are estimated using GMM methods under sequential weighting matrix and coefficient iteration. The Wald test provides the Chi-Square provides under the null hypothesis that all estimated correlation coefficients are zero. *,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 - August 2018.

Table 11c. Residual Error Correlation Test: FX-Hedged British Pound Portfolios

All sample - GBP	Panel A	Panel B	Panel C	Panel D	Panel E	Panel F	Panel G	Panel H
Correlation AAA / AA	0.951***	0.949***	0.938***	0.949***	0.932***	0.528***	0.532***	0.914***
	(0.007)	(0.007)	(0.009)	(0.007)	(0.012)	(0.078)	(0.078)	(0.015)
Correlation AAA / A	0.912***	0.909***	0.886***	0.921***	0.903***	0.313*	0.318*	0.874***
	(0.012)	(0.012)	(0.018)	(0.013)	(0.024)	(0.162)	(0.17)	(0.035)
Correlation AAA / BBB	0.87***	0.866***	0.827***	0.889***	0.861***	-0.192	-0.236*	0.854***
	(0.016)	(0.016)	(0.023)	(0.015)	(0.022)	(0.123)	(0.138)	(0.022)
Correlation AAA / BB	0.579***	0.564***	0.322***	0.671***	0.526***	-0.319***	-0.336***	0.651***
	(0.054)	(0.055)	(0.075)	(0.048)	(0.07)	(0.063)	(0.062)	(0.063)
Correlation AAA / B	0.449***	0.433***	0.192**	0.574***	0.372***	-0.064	-0.116	0.681***
	(0.07)	(0.069)	(0.078)	(0.059)	(0.075)	(0.13)	(0.142)	(0.05)
Correlation AAA / C	0.33***	0.318***	0.128*	0.397***	0.19**	-0.152*	-0.17**	0.794***
	(0.063)	(0.063)	(0.072)	(0.061)	(0.074)	(0.078)	(0.087)	(0.037)
Correlation AA / A	0.977***	0.976***	0.963***	0.978***	0.971***	0.328**	0.328**	0.964***
	(0.004)	(0.004)	(0.007)	(0.005)	(0.009)	(0.145)	(0.142)	(0.012)
Correlation AA / BBB	0.946***	0.944***	0.913***	0.952***	0.932***	-0.403***	-0.431***	0.931***
	(0.007)	(0.008)	(0.013)	(0.008)	(0.014)	(0.126)	(0.125)	(0.013)
Correlation AA / BB	0.701***	0.69***	0.44***	0.761***	0.623***	-0.403***	-0.404***	0.736***
	(0.054)	(0.055)	(0.077)	(0.047)	(0.067)	(0.063)	(0.056)	(0.052)
Correlation AA / B	0.538***	0.524***	0.252**	0.621***	0.389***	-0.163	-0.23*	0.663***
	(0.082)	(0.082)	(0.099)	(0.069)	(0.095)	(0.124)	(0.128)	(0.062)
Correlation AA / C	0.429***	0.418***	0.215***	0.47***	0.251***	-0.133*	-0.163**	0.813***
	(0.065)	(0.066)	(0.078)	(0.062)	(0.077)	(0.075)	(0.076)	(0.028)
Correlation A / BBB	0.965***	0.964***	0.94***	0.963***	0.936***	-0.448***	-0.462***	0.937***
	(0.011)	(0.011)	(0.018)	(0.012)	(0.02)	(0.12)	(0.134)	(0.016)
Correlation A / BB	0.755***	0.745***	0.517***	0.787***	0.642***	-0.409***	-0.42***	0.772***
	(0.053)	(0.054)	(0.075)	(0.049)	(0.068)	(0.098)	(0.093)	(0.049)
Correlation A / B	0.564***	0.55***	0.269**	0.612***	0.323**	-0.539***	-0.543***	0.599***
	(0.106)	(0.107)	(0.137)	(0.094)	(0.137)	(0.099)	(0.123)	(0.094)
Correlation A / C	0.46***	0.449***	0.248***	0.478***	0.231***	-0.32***	-0.34***	0.818***
	(0.068)	(0.068)	(0.082)	(0.063)	(0.082)	(0.074)	(0.082)	(0.028)
Correlation BBB / BB	0.815***	0.807***	0.612***	0.834***	0.717***	0.287**	0.316***	0.791***
	(0.045)	(0.046)	(0.065)	(0.042)	(0.061)	(0.118)	(0.104)	(0.049)
Correlation BBB / B	0.665***	0.654***	0.423***	0.701***	0.462***	0.23	0.346**	0.663***
	(0.067)	(0.067)	(0.084)	(0.056)	(0.085)	(0.148)	(0.155)	(0.061)
Correlation BBB / C	0.522***	0.513***	0.332***	0.53***	0.3***	0.125	0.178	0.718***
	(0.059)	(0.059)	(0.069)	(0.057)	(0.079)	(0.102)	(0.111)	(0.038)
Correlation BB / B	0.732***	0.723***	0.519***	0.713***	0.511***	0.345***	0.359***	0.51***
	(0.07)	(0.071)	(0.102)	(0.071)	(0.11)	(0.099)	(0.086)	(0.107)
Correlation BB / C	0.593***	0.586***	0.432***	0.568***	0.376***	0.249**	0.265***	0.416***
	(0.057)	(0.057)	(0.077)	(0.056)	(0.081)	(0.099)	(0.094)	(0.082)
Correlation B / C	0.617***	0.61***	0.49***	0.594***	0.409***	0.346***	0.382***	0.206*
	(0.053)	(0.053)	(0.075)	(0.056)	(0.067)	(0.089)	(0.096)	(0.106)
Wald test (Chi-square)	**205436**	**195414**	**84775**	**261342**	**122673**	**379**	**462**	**4759503**
Correlation 1to3 3to5	0.981***	0.981***	0.967***	0.979***	0.975***	0.91***	0.911***	0.975***
	(0.003)	(0.003)	(0.006)	(0.004)	(0.005)	(0.016)	(0.017)	(0.005)
Correlation 1to3 5to7	0.93***	0.928***	0.876***	0.924***	0.906***	0.642***	0.622***	0.908***
	(0.012)	(0.012)	(0.021)	(0.013)	(0.02)	(0.057)	(0.058)	(0.018)
Correlation 1to3 7to10	0.886***	0.883***	0.8***	0.874***	0.829***	0.079	0.005	0.847***
	(0.019)	(0.02)	(0.03)	(0.021)	(0.03)	(0.089)	(0.095)	(0.026)
Correlation 1to3 10p	0.768***	0.762***	0.625***	0.747***	0.628***	-0.9***	-0.887***	0.664***
	(0.037)	(0.037)	(0.053)	(0.04)	(0.058)	(0.015)	(0.016)	(0.052)
Correlation 3to5 5to7	0.962***	0.961***	0.933***	0.959***	0.94***	0.666***	0.66***	0.938***
	(0.006)	(0.006)	(0.013)	(0.007)	(0.014)	(0.061)	(0.063)	(0.014)
Correlation 3to5 7to10	0.932***	0.93***	0.88***	0.924***	0.882***	0.104	0.051	0.891***
	(0.012)	(0.013)	(0.021)	(0.014)	(0.023)	(0.096)	(0.104)	(0.02)
Correlation 3to5 10p	0.828***	0.823***	0.723***	0.811***	0.699***	-0.913***	-0.911***	0.725***
	(0.027)	(0.028)	(0.04)	(0.03)	(0.047)	(0.016)	(0.016)	(0.044)
Correlation 5to7 7to10	0.975***	0.974***	0.955***	0.972***	0.947***	0.482***	0.461***	0.951***
	(0.005)	(0.005)	(0.008)	(0.006)	(0.01)	(0.077)	(0.08)	(0.01)
Correlation 5to7 10p	0.864***	0.86***	0.781***	0.858***	0.759***	-0.824***	-0.824***	0.766***
	(0.019)	(0.019)	(0.021)	(0.021)	(0.039)	(0.03)	(0.03)	(0.038)
Correlation 7to10 10p	0.925***	0.922***	0.881***	0.922***	0.873***	-0.377***	-0.335***	0.861***
	(0.01)	(0.01)	(0.017)	(0.011)	(0.021)	(0.074)	(0.08)	(0.022)
Wald test (Chi-square)	**429599**	**403411**	**134950**	**307953**	**121331**	**66402**	**43447**	**93038**

Note: This table shows the correlation coefficients between the residuals of the factor models with the following specifications. Panel A: CAPM with sovereign and equity securities, global factors. Panel B: CAPM with all securities, global factors. Panel C: CAPM with all securities, global and local factors. Panel D: Multi-factor regression with sovereign and equity securities, global factors. Panel E: Multi-factor regression with all securities, global factors. Panel F: Multi-factor regression with all securities, global and local factors. Panel G: Multi-factor regression with all securities, local factors. Panel H: Multi-factor regression with all securities, local factors, plus the second principle component from the excess returns of all ratings and residual maturity portfolios. The correlations are estimated using GMM methods under sequential weighting matrix and coefficient iteration. The Wald test provides the Chi-Square provides under the null hypothesis that all estimated correlation coefficients are zero. *,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 - August 2018.

Table 11d. Residual Error Correlation Test: FX-Hedged Canadian Dollar Portfolios

All sample - CAD	Panel A	Panel B	Panel C	Panel D	Panel E	Panel F	Panel G	Panel H
Correlation AAA / AA	0.839***	0.837***	0.835***	0.826***	0.824***	0.109	0.091	0.792***
	(0.025)	(0.026)	(0.029)	(0.029)	(0.031)	(0.089)	(0.098)	(0.035)
Correlation AAA / A	0.822***	0.82***	0.826***	0.841***	0.844***	0.162	0.163	0.827***
	(0.03)	(0.03)	(0.028)	(0.028)	(0.026)	(0.135)	(0.16)	(0.025)
Correlation AAA / BBB	0.728***	0.726***	0.72***	0.764***	0.763***	-0.223*	-0.229*	0.789***
	(0.04)	(0.04)	(0.046)	(0.046)	(0.052)	(0.118)	(0.129)	(0.036)
Correlation AAA / BB	0.102	0.101	0.062	0.191**	0.173*	-0.297***	-0.291***	0.227**
	(0.073)	(0.074)	(0.065)	(0.094)	(0.098)	(0.072)	(0.075)	(0.102)
Correlation AAA / B	-0.124**	-0.123**	-0.188***	0.036	0.027	-0.201***	-0.193**	0.325***
	(0.061)	(0.061)	(0.062)	(0.06)	(0.065)	(0.067)	(0.078)	(0.059)
Correlation AAA / C								
Correlation AA / A	0.925***	0.924***	0.917***	0.928***	0.929***	-0.246**	-0.237**	0.915***
	(0.013)	(0.013)	(0.015)	(0.01)	(0.012)	(0.106)	(0.112)	(0.014)
Correlation AA / BBB	0.851***	0.849***	0.83***	0.861***	0.859***	-0.495***	-0.51***	0.843***
	(0.025)	(0.026)	(0.029)	(0.019)	(0.021)	(0.079)	(0.087)	(0.027)
Correlation AA / BB	0.263**	0.262**	0.209**	0.324**	0.304**	-0.266**	-0.283**	0.215
	(0.112)	(0.113)	(0.102)	(0.128)	(0.129)	(0.135)	(0.141)	(0.15)
Correlation AA / B	0.031	0.031	-0.065	0.143**	0.133*	-0.145*	-0.158*	0.309***
	(0.065)	(0.066)	(0.06)	(0.069)	(0.073)	(0.088)	(0.089)	(0.096)
Correlation AA / C								
Correlation A / BBB	0.932***	0.931***	0.919***	0.933***	0.93***	-0.218	-0.225	0.923***
	(0.015)	(0.015)	(0.018)	(0.015)	(0.015)	(0.139)	(0.16)	(0.018)
Correlation A / BB	0.379***	0.38***	0.329***	0.416***	0.386***	-0.069	-0.073	0.263**
	(0.082)	(0.083)	(0.071)	(0.087)	(0.079)	(0.181)	(0.16)	(0.122)
Correlation A / B	0.095	0.097	-0.018	0.167**	0.152**	-0.234***	-0.245***	0.225**
	(0.061)	(0.061)	(0.06)	(0.07)	(0.074)	(0.074)	(0.077)	(0.098)
Correlation A / C								
Correlation BBB / BB	0.449***	0.45***	0.407***	0.472***	0.446***	0.213**	0.233**	0.308**
	(0.087)	(0.087)	(0.08)	(0.091)	(0.084)	(0.09)	(0.092)	(0.125)
Correlation BBB / B	0.124**	0.127**	0.019	0.173**	0.159**	-0.071	-0.048	0.135
	(0.062)	(0.062)	(0.066)	(0.075)	(0.079)	(0.078)	(0.082)	(0.096)
Correlation BBB / C								
Correlation BB / B	0.344***	0.344***	0.303***	0.31***	0.299***	0.235**	0.243***	-0.793***
	(0.09)	(0.09)	(0.086)	(0.09)	(0.088)	(0.095)	(0.089)	(0.068)
Correlation BB / C								
Correlation B / C								
Wald test (Chi-square)	**45565**	**43605**	**27227**	**42316**	**47423**	**957**	**1194**	**56773**
Correlation 1to3 3to5	0.889***	0.887***	0.886***	0.88***	0.876***	0.66***	0.681***	0.84***
	(0.022)	(0.022)	(0.02)	(0.023)	(0.025)	(0.071)	(0.073)	(0.038)
Correlation 1to3 5to7	0.819***	0.816***	0.816***	0.808***	0.799***	0.371***	0.388***	0.779***
	(0.036)	(0.036)	(0.028)	(0.031)	(0.037)	(0.074)	(0.073)	(0.034)
Correlation 1to3 7to10	0.738***	0.735***	0.731***	0.737***	0.724***	-0.176**	-0.176**	0.719***
	(0.043)	(0.044)	(0.034)	(0.037)	(0.04)	(0.09)	(0.077)	(0.045)
Correlation 1to3 10p	0.57***	0.565***	0.538***	0.56***	0.541***	-0.799***	-0.816***	0.522***
	(0.066)	(0.067)	(0.062)	(0.054)	(0.059)	(0.039)	(0.04)	(0.07)
Correlation 3to5 5to7	0.941***	0.941***	0.935***	0.938***	0.936***	0.531***	0.532***	0.922***
	(0.014)	(0.014)	(0.014)	(0.013)	(0.014)	(0.088)	(0.092)	(0.019)
Correlation 3to5 7to10	0.871***	0.87***	0.857***	0.875***	0.87***	-0.177**	-0.181**	0.862***
	(0.019)	(0.019)	(0.022)	(0.018)	(0.018)	(0.088)	(0.085)	(0.02)
Correlation 3to5 10p	0.746***	0.743***	0.71***	0.744***	0.735***	-0.849***	-0.857***	0.71***
	(0.036)	(0.036)	(0.043)	(0.029)	(0.031)	(0.036)	(0.038)	(0.035)
Correlation 5to7 7to10	0.946***	0.946***	0.936***	0.949***	0.947***	0.153	0.151	0.949***
	(0.01)	(0.011)	(0.014)	(0.01)	(0.01)	(0.108)	(0.105)	(0.007)
Correlation 5to7 10p	0.856***	0.855***	0.829***	0.856***	0.851***	-0.621***	-0.62***	0.808***
	(0.019)	(0.019)	(0.023)	(0.022)	(0.021)	(0.067)	(0.076)	(0.029)
Correlation 7to10 10p	0.903***	0.902***	0.884***	0.902***	0.898***	-0.106	-0.092	0.866***
	(0.017)	(0.017)	(0.021)	(0.017)	(0.017)	(0.089)	(0.09)	(0.03)
Wald test (Chi-square)	**34278**	**33680**	**21889**	**41674**	**41839**	**17782**	**19393**	**37448**

Note: This table shows the correlation coefficients between the residuals of the factor models with the following specifications. Panel A: CAPM with sovereign and equity securities, global factors. Panel B: CAPM with all securities, global factors. Panel C: CAPM with all securities, global and local factors. Panel D: Multi-factor regression with sovereign and equity securities, global factors. Panel E: Multi-factor regression with all securities, global factors. Panel F: Multi-factor regression with all securities, global and local factors. Panel G: Multi-factor regression with all securities, local factors. Panel H: Multi-factor regression with all securities, local factors, plus the second principle component from the excess returns of all ratings and residual maturity portfolios. The correlations are estimated using GMM methods under sequential weighting matrix and coefficient iteration. The Wald test provides the Chi-Square provides under the null hypothesis that all estimated correlation coefficients are zero. *,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 - August 2018.

Table 11e. Residual Error Correlation Test: FX-Hedged Australian Dollar Portfolios

All sample - AUD	Panel A	Panel B	Panel C	Panel D	Panel E	Panel F	Panel G	Panel H
Correlation AAA / AA								
Correlation AAA / A								
Correlation AAA / BBB								
Correlation AAA / BB								
Correlation AAA / B								
Correlation AAA / C								
Correlation AA / A	0.901***	0.9***	0.904***	0.898***	0.909***	-0.314***	-0.346***	0.891***
	(0.026)	(0.026)	(0.025)	(0.023)	(0.02)	(0.108)	(0.107)	(0.026)
Correlation AA / BBB	0.827***	0.825***	0.828***	0.82***	0.831***	-0.596***	-0.618***	0.903***
	(0.04)	(0.04)	(0.038)	(0.039)	(0.035)	(0.088)	(0.094)	(0.034)
Correlation AA / BB								
Correlation AA / B								
Correlation AA / C								
Correlation A / BBB	0.897***	0.897***	0.897***	0.89***	0.888***	0.173	0.198	0.911***
	(0.026)	(0.026)	(0.026)	(0.027)	(0.029)	(0.157)	(0.141)	(0.024)
Correlation A / BB								
Correlation A / B								
Correlation A / C								
Correlation BBB / BB								
Correlation BBB / B								
Correlation BBB / C								
Correlation BB / B								
Correlation BB / C								
Correlation B / C								
Wald test (Chi-square)	**1481**	**1437**	**1609**	**1685**	**2253**	**88**	**121**	**1737**
Correlation 1to3 3to5	0.944***	0.943***	0.948***	0.936***	0.936***	-0.197*	-0.214**	0.918***
	(0.011)	(0.012)	(0.009)	(0.013)	(0.014)	(0.102)	(0.098)	(0.019)
Correlation 1to3 5to7	0.867***	0.866***	0.878***	0.848***	0.851***	-0.554***	-0.57***	0.812***
	(0.027)	(0.028)	(0.023)	(0.031)	(0.03)	(0.073)	(0.068)	(0.041)
Correlation 1to3 7to10	0.772***	0.77***	0.776***	0.735***	0.736***	-0.438***	-0.455***	0.68***
	(0.035)	(0.035)	(0.033)	(0.042)	(0.04)	(0.095)	(0.088)	(0.054)
Correlation 1to3 10p	0.586***	0.579***	0.554***	0.479***	0.479***	-0.302***	-0.338***	0.567***
	(0.081)	(0.082)	(0.085)	(0.088)	(0.088)	(0.1)	(0.114)	(0.086)
Correlation 3to5 5to7	0.952***	0.952***	0.954***	0.946***	0.948***	0.094	0.114	0.933***
	(0.01)	(0.01)	(0.01)	(0.011)	(0.01)	(0.11)	(0.106)	(0.014)
Correlation 3to5 7to10	0.855***	0.854***	0.854***	0.833***	0.834***	-0.229	-0.213	0.786***
	(0.025)	(0.026)	(0.026)	(0.03)	(0.031)	(0.151)	(0.146)	(0.048)
Correlation 3to5 10p	0.694***	0.689***	0.679***	0.628***	0.628***	-0.039	-0.003	0.71***
	(0.067)	(0.067)	(0.069)	(0.072)	(0.071)	(0.122)	(0.139)	(0.053)
Correlation 5to7 7to10	0.916***	0.915***	0.916***	0.904***	0.904***	0.442***	0.446***	0.876***
	(0.02)	(0.02)	(0.019)	(0.024)	(0.024)	(0.118)	(0.113)	(0.036)
Correlation 5to7 10p	0.773***	0.769***	0.772***	0.73***	0.73***	0.327***	0.357***	0.818***
	(0.053)	(0.053)	(0.054)	(0.058)	(0.058)	(0.079)	(0.09)	(0.031)
Correlation 7to10 10p	0.752***	0.747***	0.745***	0.7***	0.699***	0.174	0.176	0.766***
	(0.063)	(0.063)	(0.066)	(0.071)	(0.071)	(0.131)	(0.132)	(0.061)
Wald test (Chi-square)	**84887**	**82692**	**83415**	**65232**	**61681**	**190**	**235**	**52402**

Note: This table shows the correlation coefficients between the residuals of the factor models with the following specifications. Panel A: CAPM with sovereign and equity securities, global factors. Panel B: CAPM with all securities, global factors. Panel C: CAPM with all securities, global and local factors. Panel D: Multi-factor regression with sovereign and equity securities, global factors. Panel E: Multi-factor regression with all securities, global factors. Panel F: Multi-factor regression with all securities, global and local factors. Panel G: Multi-factor regression with all securities, local factors. Panel H: Multi-factor regression with all securities, local factors, plus the second principle component from the excess returns of all ratings and residual maturity portfolios. The correlations are estimated using GMM methods under sequential weighting matrix and coefficient iteration. The Wald test provides the Chi-Square provides under the null hypothesis that all estimated correlation coefficients are zero..*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 - August 2018.

Table 12. Double Sorted Portoflios by Ratings and Residual Maturity: Global Portfolio

|	AAA/AA	A	BBB	HY
Sovereign				
1-to-3	0.248***	0.114***	0.027	-0.752***
s.e.	(0.038)	(0.043)	(0.046)	(0.114)
3-to-5	0.338***	0.112***	-0.047	-0.807***
s.e.	(0.038)	(0.036)	(0.043)	(0.101)
5-to-7	0.379***	0.003	-0.187***	-0.886***
s.e.	(0.036)	(0.043)	(0.041)	(0.11)
7-to-10	0.461***	-0.017	-0.166***	-0.765***
s.e.	(0.031)	(0.048)	(0.052)	(0.127)
> 10	0.441***	0.028	-0.194***	-0.911***
s.e.	(0.075)	(0.086)	(0.075)	(0.111)
Equity				
1-to-3	0.039***	0.029**	0.030**	0.011
s.e.	(0.013)	(0.015)	(0.014)	(0.041)
3-to-5	0.015	-0.001	-0.008	0.078***
s.e.	(0.013)	(0.012)	(0.012)	(0.029)
5-to-7	0.000	-0.045***	-0.041***	0.103***
s.e.	(0.012)	(0.014)	(0.013)	(0.030)
7-to-10	-0.008	-0.066***	-0.060***	0.162***
s.e.	(0.009)	(0.014)	(0.017)	(0.040)
> 10	-0.030	-0.095***	-0.085***	0.057
s.e.	(0.018)	(0.021)	(0.029)	(0.04)
Corporate				
1-to-3	0.485***	0.644***	0.703***	1.527***
s.e.	(0.054)	(0.059)	(0.060)	(0.142)
3-to-5	0.566***	0.825***	0.941***	1.514***
s.e.	(0.061)	(0.048)	(0.058)	(0.11)
5-to-7	0.728***	1.177***	1.279***	1.689***
s.e.	(0.052)	(0.062)	(0.061)	(0.12)
7-to-10	0.709***	1.228***	1.254***	1.529***
s.e.	(0.040)	(0.076)	(0.061)	(0.142)
> 10	0.863***	1.330***	1.499***	1.948***
s.e.	(0.088)	(0.106)	(0.093)	(0.128)

Notes: This table shows the OLS coefficients of multi-factor regressions where the dependent variables are corporate bond excess returns computed on portfolios double sorted by rating classes (investment grade: AA (AAA, AA), A, BBB, HY (BB, B, C) and residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, > 10 years) and the regressors are global excess returns of three factors comprising aggregate corporate bonds, sovereign bonds and stocks. The twenty portfolios are formed every month from January 1998 to August 2018 by double sorting corporate bonds by their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in six economies (USD, EUR, JPY, GBP, CAD, AUD). Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. The risk free rate is the lozl one-month interest rate. Heteroskedastic and autocorrelation consistent (HAC) standard errors (2 Newey-West lags) are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 – August 2018.

Table 13. Composite Ratings

Numeric	Composite	Moody's	S&P	Fitch
1	AAA	Aaa	AAA	AAA
2	AA1	Aa1	AA+	AA+
3	AA2	Aa2	AA	AA
4	AA3	Aa3	AA-	AA-
5	A1	A1	A+	A+
6	A2	A2	A	A
7	A3	A3	A-	A-
8	BBB1	Baa1	BBB+	BBB+
9	BBB2	Baa2	BBB	BBB
10	BBB3	Baa3	BBB-	BBB-
11	BB1	Ba1	BB+	BB+
12	BB2	Ba2	BB	BB
13	BB3	Ba3	BB-	BB-
14	B1	B1	B+	B+
15	B2	B2	B	B
16	B3	B3	B-	B-
17	CCC1	Caa1	CCC+	CCC+
18	CCC2	Caa2	CCC	CCC
19	CCC3	Caa3	CCC-	CCC-
20	CC	Ca	CC	CC
21	C	C	C	C
22	D		D	DDD-D

Source: ICE Bank of America Merrill Lynch.

Table 14. Global CAPM and Bond Risk Characteristics: Panel Regression

VARIABLES	World	USD	EUR	JPY	GBP	CAD	AUD
				Intercept and bond characteristics			
Constant	0.046***	0.024*	0.141***	0.279***	-0.601***	0.318***	0.574***
	(0.011)	(0.014)	(0.024)	(0.026)	(0.146)	(0.028)	(0.035)
Rating	0.007***	0.014***	-0.025***	-0.061***	0.078***	-0.040***	-0.087***
	(0.001)	(0.002)	(0.004)	(0.004)	(0.017)	(0.005)	(0.005)
Maturity	0.004***	0.005***	-0.002	0.013***	0.013***	0.001	-0.047***
	(0.000)	(0.000)	(0.002)	(0.003)	(0.004)	(0.001)	(0.007)
Secured	-0.011	0.021*	0.062	-0.040**	-0.293***	-0.132***	0.033
	(0.009)	(0.013)	(0.042)	(0.019)	(0.055)	(0.023)	(0.050)
Junior	0.142***	0.138**	-0.068	0.239***	-0.038	0.095***	0.586***
	(0.048)	(0.066)	(0.047)	(0.053)	(0.096)	(0.027)	(0.118)
				Slope and bond characteristics			
Global CAPM*Rating	0.049***	0.039***	0.096***	0.039***	0.074***	0.084***	0.115***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.001)	(0.002)
Global CAPM*Maturity	0.009***	0.005***	0.040***	0.016***	0.020***	0.016***	0.124***
	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.001)	(0.004)
Global CAPM*Secured	-0.038***	-0.080***	-0.083***	-0.031**	0.077**	0.119***	-0.041
	(0.006)	(0.008)	(0.029)	(0.015)	(0.033)	(0.015)	(0.038)
Global CAPM*Junior	0.033	-0.209***	0.853***	-0.149***	0.777***	0.154***	0.151**
	(0.055)	(0.079)	(0.034)	(0.033)	(0.065)	(0.017)	(0.060)
Observations	2,461,249	1,493,469	385,295	200,927	158,098	169,586	53,873
R-squared	0.044	0.022	0.261	0.059	0.094	0.314	0.442

Notes: This table shows the coefficients of CAPM Panel regressions where the dependent variables are corporate bond excess returns at CUSIP level and the regressors are the global CAPM interacted with the following bond characteristics: ratings, residual maturity, secured bonds and junior bonds. Unsecured senior bonds are omitted due to collinearity. Corporate bond excess returns are constructed using all bonds issued in USA, euro area, Japan, UK, Canada and Australia converted in US dollars in six currencies (USD, EUR, JPY, GBP, CAD, AUD). Global factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the above six economies; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the above six economies; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the six currencies. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Robust standard errors are given in parenthesis.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 – August 2018.

## Table 15. Local Factors and International Bonds: Panel Regression

VARIABLES	USD	EUR	JPY	GBP	CAD	AUD
			Intercept and bond characteristics			
Constant	0.048***	0.091***	0.044***	-0.563***	0.177***	0.320***
	(0.014)	(0.024)	(0.016)	(0.155)	(0.027)	(0.028)
Rating	0.005***	-0.007**	-0.007***	0.074***	-0.022***	-0.034***
	(0.002)	(0.003)	(0.002)	(0.018)	(0.004)	(0.004)
Maturity	-0.004***	-0.005	0.001	0.012**	0.004***	-0.022***
	(0.001)	(0.003)	(0.001)	(0.006)	(0.001)	(0.004)
Secured	0.037***	0.212***	0.036***	-0.196**	-0.002	0.087***
	(0.012)	(0.039)	(0.006)	(0.088)	(0.016)	(0.033)
Junior	0.196**	0.289***	0.117***	0.261*	-0.064***	0.073
	(0.097)	(0.049)	(0.015)	(0.138)	(0.017)	(0.100)
Rating*Int. bond	-0.012***	0.022***	0.008	-0.000	-0.005	-0.004
	(0.003)	(0.006)	(0.010)	(0.011)	(0.006)	(0.005)
Maturity*Int. bond	0.002	-0.021***	0.009	-0.000	-0.009**	-0.011
	(0.002)	(0.005)	(0.014)	(0.004)	(0.004)	(0.007)
Secured*Int. bond	0.147**	-0.120	-0.272**	0.362**	-0.052	-0.177***
	(0.060)	(0.112)	(0.123)	(0.157)	(0.054)	(0.064)
Junior*Int. bond	-0.083	0.031	0.052	-0.008	0.099	-0.024
	(0.110)	(0.142)	(0.129)	(0.194)	(0.128)	(0.257)
			Slope and bond characteristics			
Local Sov. * Rating	-0.049***	-0.045***	-0.075***	-0.011	-0.032***	-0.038***
	(0.001)	(0.003)	(0.001)	(0.010)	(0.002)	(0.002)
Local Eq. * Rating	0.002***	0.006***	-0.001***	0.003	0.001	0.002**
	(0.000)	(0.001)	(0.000)	(0.004)	(0.001)	(0.001)
Local Corp. * Rating	0.104***	0.117***	0.197***	0.085***	0.135***	0.144***
	(0.002)	(0.003)	(0.001)	(0.012)	(0.003)	(0.003)
Local Sov. * Maturity	0.025***	0.064***	0.097***	0.022***	0.025***	0.079***
	(0.000)	(0.003)	(0.001)	(0.004)	(0.001)	(0.004)
Local Eq. * Maturity	-0.001***	-0.003***	0.001***	-0.003***	-0.002***	-0.001
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.002)
Local Corp. * Maturity	0.021***	0.007*	-0.059***	0.013***	-0.002**	0.013**
	(0.001)	(0.003)	(0.001)	(0.004)	(0.001)	(0.006)
Local Sov. * Secured	0.138***	-0.073	-0.034***	-0.125	0.063***	0.064*
	(0.015)	(0.050)	(0.011)	(0.087)	(0.023)	(0.035)
Local Eq. * Secured	-0.027***	0.030**	-0.014***	0.029	0.008	-0.018
	(0.006)	(0.012)	(0.001)	(0.027)	(0.006)	(0.016)
Local Corp. * Secured	-0.190***	-0.141***	0.267***	-0.081	0.022	-0.176***
	(0.023)	(0.052)	(0.014)	(0.099)	(0.029)	(0.049)
Local Sov. * Junior	-0.114**	-1.089***	0.087***	-0.918***	-0.239***	-0.171*
	(0.051)	(0.070)	(0.032)	(0.164)	(0.026)	(0.091)
Local Eq. * Junior	-0.070***	0.130***	0.004	-0.008	0.010*	0.071**
	(0.019)	(0.019)	(0.005)	(0.062)	(0.006)	(0.033)
Local Corp. * Junior	-0.267	1.147***	-0.064*	1.101***	0.434***	0.168
	(0.221)	(0.077)	(0.037)	(0.195)	(0.030)	(0.118)
Local Sov. * Rating * Int. bond	-0.003	-0.053***	0.037*	-0.019	-0.006	-0.013***
	(0.004)	(0.011)	(0.020)	(0.016)	(0.008)	(0.005)
Local Eq. * Rating * Int. bond	0.000	0.001	-0.001	0.000	0.004	-0.005*
	(0.002)	(0.002)	(0.003)	(0.007)	(0.003)	(0.003)
Local Corp. * Rating * Int. bond	-0.001	0.040***	-0.011	0.025	0.015	0.029***
	(0.007)	(0.011)	(0.024)	(0.022)	(0.010)	(0.007)
Local Sov. * Mat. * Int. bond	0.004**	0.021**	-0.143***	-0.007	0.011**	-0.015**
	(0.002)	(0.009)	(0.031)	(0.005)	(0.005)	(0.007)
Local Eq. * Maturity * Int. bond	-0.000	0.002	0.009**	-0.001	0.001	0.008**
	(0.001)	(0.002)	(0.004)	(0.002)	(0.002)	(0.003)
Local Corp. * Mat. * Int. bond	0.005*	-0.013	0.159***	0.010	0.010	0.046***
	(0.003)	(0.009)	(0.036)	(0.006)	(0.006)	(0.010)
Local Sov. * Secured * Int. bond	-0.158**	0.200	-0.046	0.561***	-0.044	-0.131**
	(0.074)	(0.205)	(0.155)	(0.114)	(0.098)	(0.062)
Local Eq. * Secured * Int. bond	0.029	-0.082**	-0.096***	0.051	-0.035	0.003
	(0.027)	(0.040)	(0.033)	(0.036)	(0.022)	(0.025)
Local Corp. * Sec. * Int. bond	0.035	0.146	0.151	-0.090	0.227**	0.474***
	(0.114)	(0.248)	(0.205)	(0.131)	(0.109)	(0.081)
Local Sov. * Junior * Int. bond	-0.131	0.044	-0.318	-0.602***	-0.259*	-0.134
	(0.090)	(0.256)	(0.241)	(0.229)	(0.147)	(0.158)
Local Eq. * Junior * Int. bond	0.158***	-0.072	-0.011	-0.075	-0.012	-0.083
	(0.033)	(0.058)	(0.035)	(0.089)	(0.043)	(0.068)
Local Corp. * Junior * Int. bond	0.863***	0.219	0.215	0.772**	0.089	-0.192
	(0.247)	(0.322)	(0.286)	(0.312)	(0.165)	(0.198)
Number of observations	1,493,469	385,295	200,927	158,098	169,586	53,873
R-squared	0.069	0.480	0.848	0.232	0.645	0.811

Notes: This table shows the coefficients of multi factor Panel regressions where the dependent variables are corporate bond-specific excess returns at CUSIP level and the regressors are local sovereign (SOV.), equity (Eq.) and corporate bond (Corp.) excess returns interacted with the following bond characteristics: ratings, residual maturity, unsecured senior bonds, junior bonds and a dummy equal to on if the bond is an international bond. Unsecured senior bonds and the interaction between the local factors and the unsecured senior bonds are omitted due to collinearity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Robust standard errors are given in parenthesis.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 – August 2018.

Figure 1. Market Size and Shares

Market Size (USD billion)   Market Share

United States, Euro Area, Japan, United Kingdom, Canada and Australia

Sovereign bonds and Equities: US – Corporate bonds: US dollars

Sovereign bonds and Equities: Euro area – Corporate bonds: euro and pre-euro currencies

Sovereign bonds and Equities: Japan – Corporate bonds: Japanese JPY
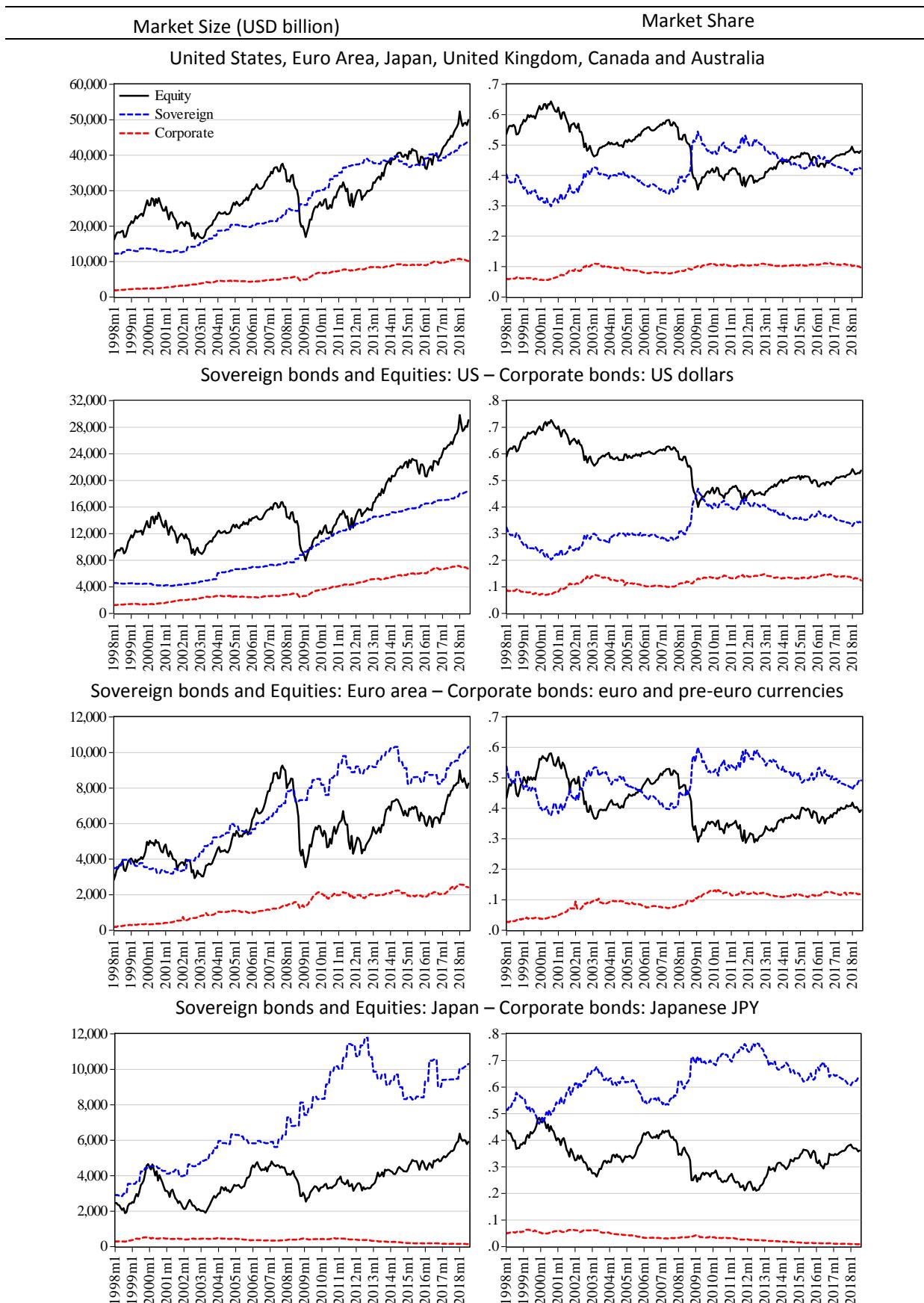
Sovereign bonds and Equities: United Kingdom – Corporate bonds: British pounds
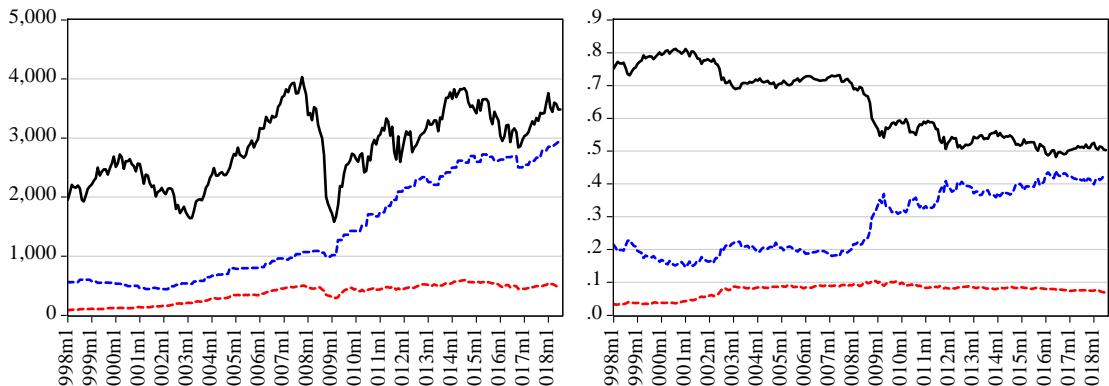
Sovereign bonds and Equities: Canada – Corporate bonds: Canadian dollars
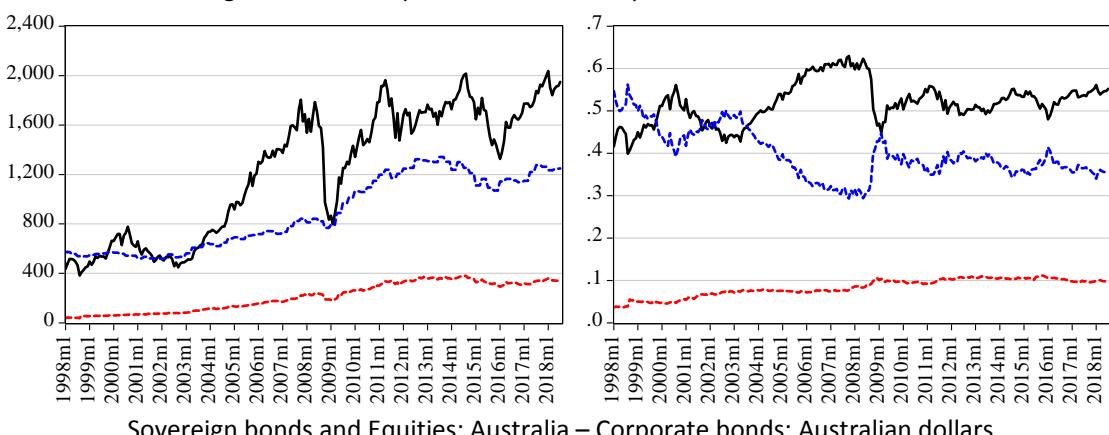
Sovereign bonds and Equities: Australia – Corporate bonds: Australian dollars
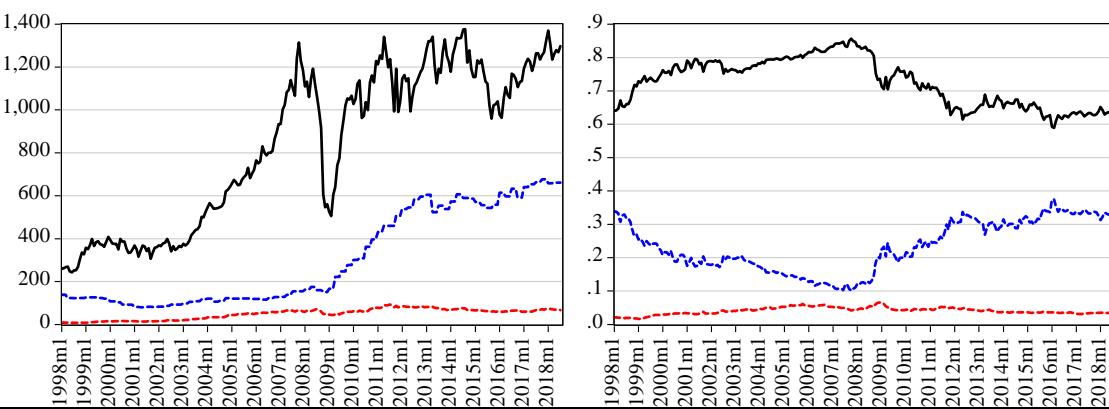
Source: BIS, Thomson DataStream, BofAML and authors' calculations.
Notes: This figure show the market size on the left panel and the respective market shares on the right panel. The market value of corporate bonds is constructed multiplying the corporate bond price by the face value of the bond, and the aggregation covers all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). The market value of stocks is the total dollar value of all outstanding shares in Thomson DataStream stock market index. The book value of sovereign bonds is the total dollar value of sovereign debt. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. Sample period: January 1998 – August 2018.

Figure 2. Currency Corporate Portfolio Excess Returns

Credit ratings	Residual maturity

World

US dollars

Euro
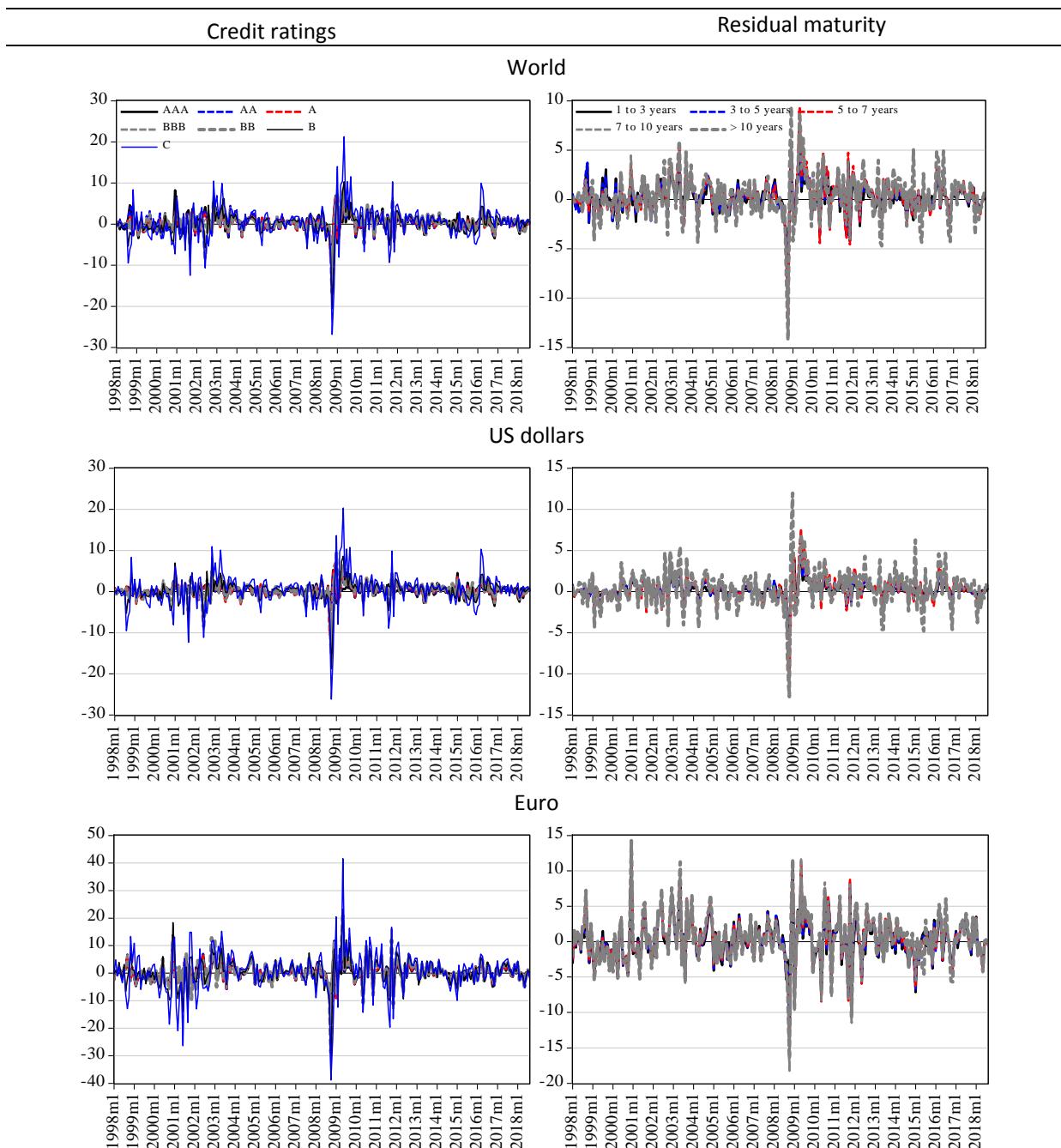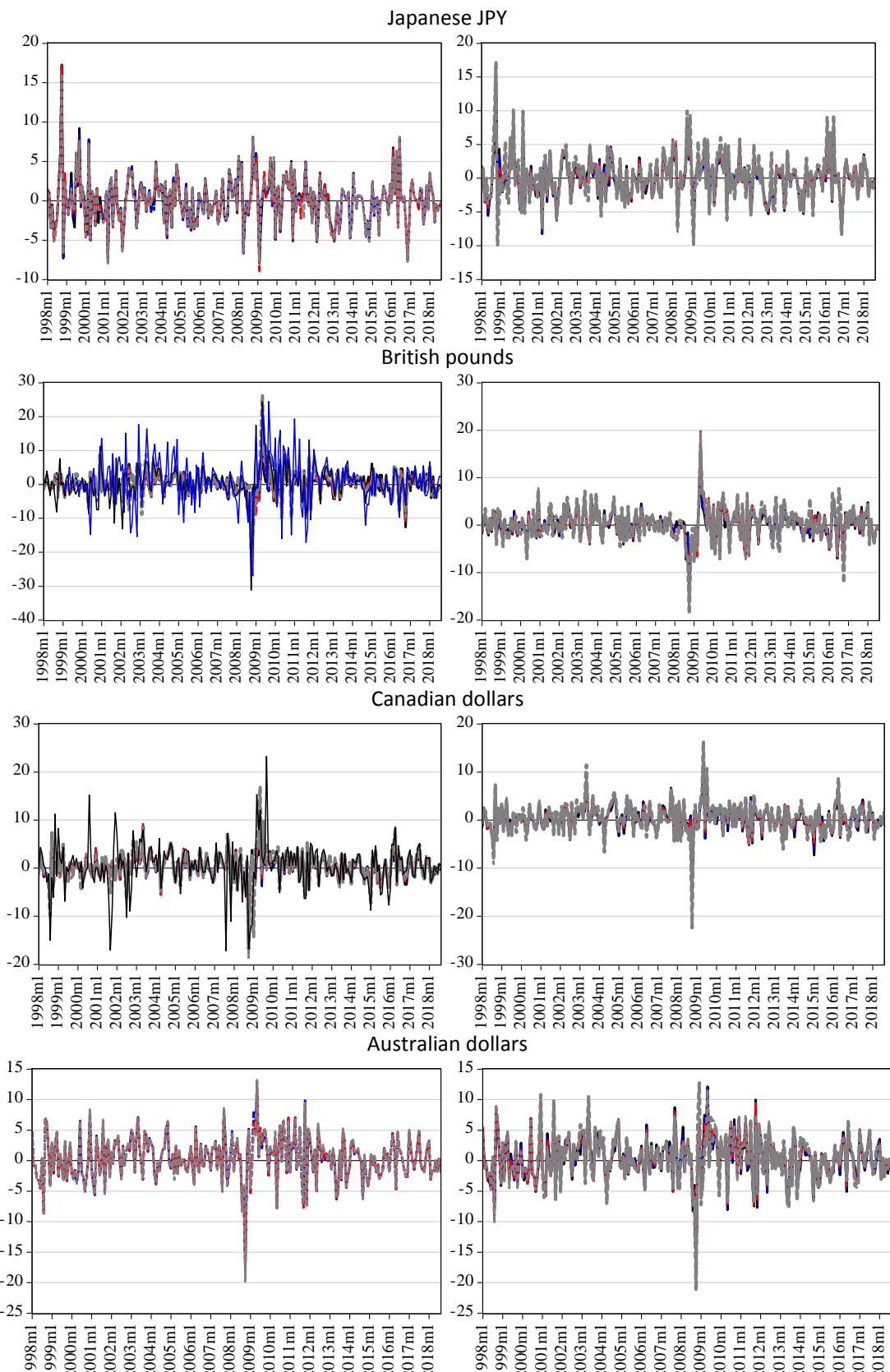
Notes: This figure show the percent annualised excess returns of rating portfolios (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) and residual maturity portfolios (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, > 10 years) for global as well as each currency-denominated portfolios. Portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Sample period: January 1998 – August 2018.

Figure 3. Excess Returns and Volatility among all FX-Hedged Currency Portfolios
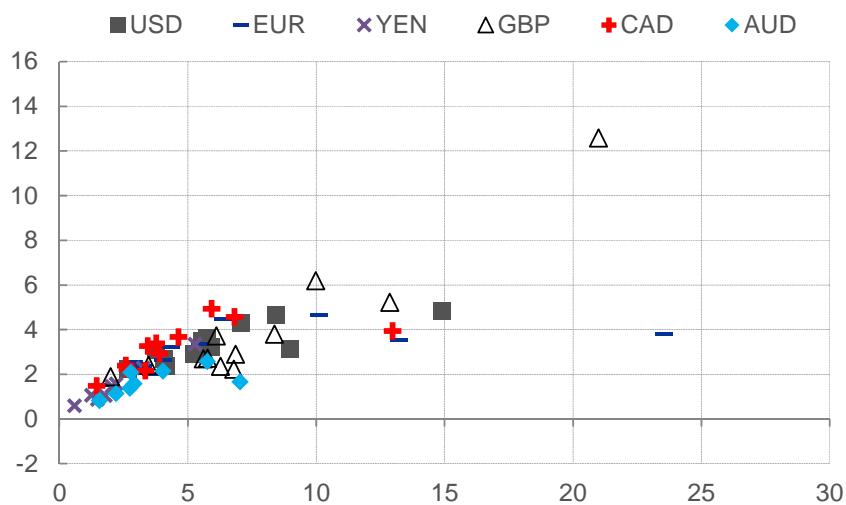
	USD	EUR	JPY	GBP	CAD	AUD	FE	POOL
Intercept	2.058***	2.385***	0.168	-0.425	2.277***	1.001**	1.48***	1.317***
s.e.	(0.246)	(0.326)	(0.115)	(0.428)	(0.525)	(0.35)	(0.245)	(0.24)
Volatility	0.207***	0.094***	0.61***	0.565***	0.21**	0.185*	0.265***	0.294***
s.e.	(0.04)	(0.028)	(0.025)	(0.039)	(0.09)	(0.095)	(0.036)	(0.034)
Adjusted R^2	0.588	0.290	0.974	0.886	0.342	0.257	0.588	0.550
Portfolios	12	12	8	12	10	8	62	62

Notes: This figure shows the average percent annualised excess returns of rating portfolios (investment grade: AAA, AA, A, BBB; high yield: BB, B, C) and residual maturity portfolios (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, > 10 years) for each currency (USD, EUR, JPY, GBP, CAD, AUD) on the y-axis and their respective percent annualised standard deviations on the x-axis. "Intercept" and "Slope" are the regression coefficients of the excess returns vis-à-vis the standard deviations. The last two columns show the panel results with country fixed effects (FE) as well as the pooled estimation (POOL). The twelve portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings and residual maturity. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. The risk free rate is the one-month US Treasury bill. Heteroskedastic consistent (HC) White standard errors are given in parentheses.*,**, and*** indicate the significance at the 10%, 5% and 1% levels, respectively. Sample period: February 1998 – August 2018.

Figure 4. Residual Maturity's Beta Exposure for the Local Three-Factor Model
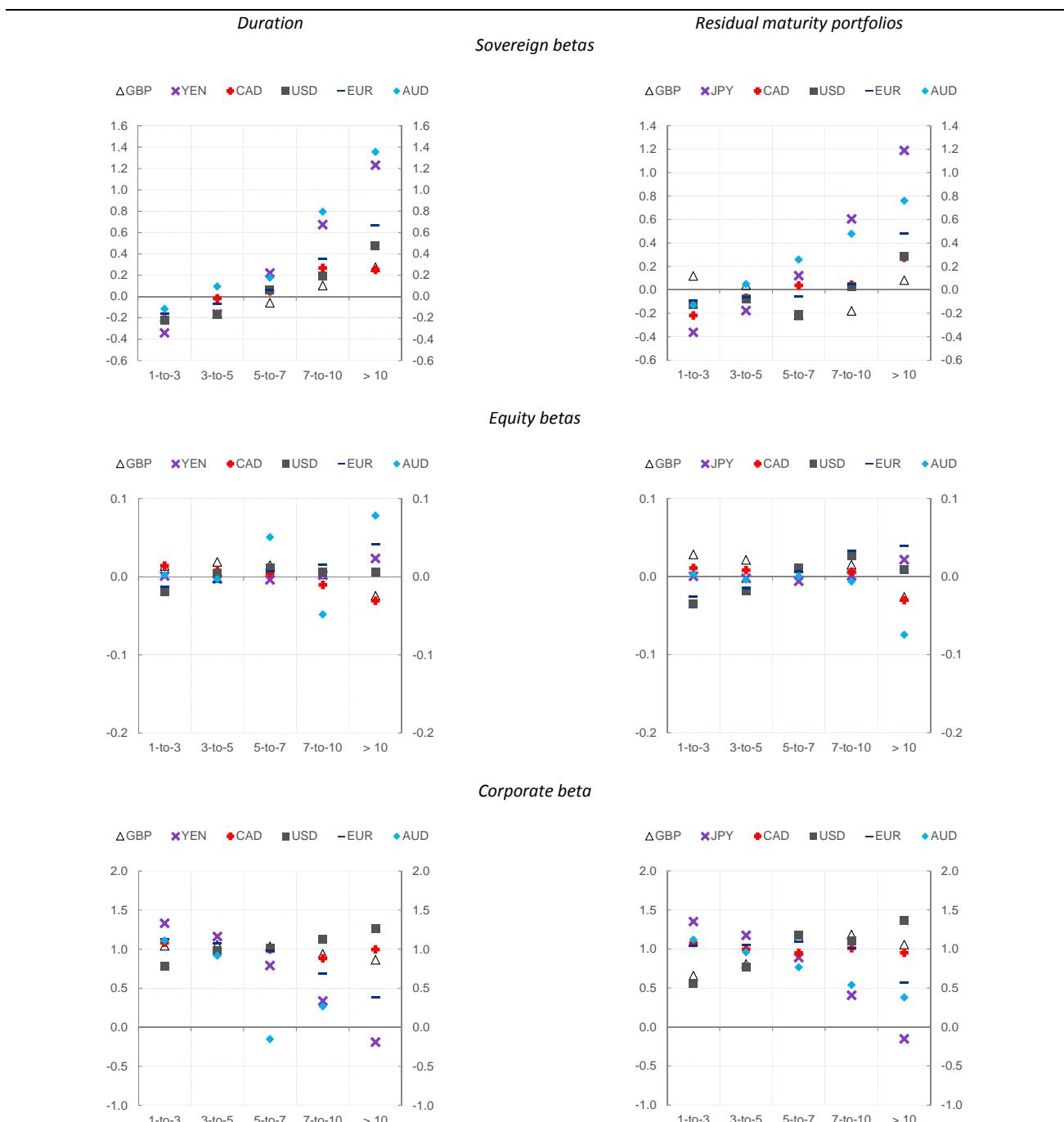
Notes: This figure shows the beta coefficients of multi-factor OLS regressions where the dependent variables are corporate bond excess returns computed on portfolios based on duration or residual maturity (1-to-3 years, 3-to-5 years, 5-to-7 years, 7-to-10 years, > 10 years) and the regressors are global excess returns of local three factors comprising local aggregate corporate bonds, sovereign bonds and stocks. The portfolios are formed every month from January 1998 to August 2018 by sorting corporate bonds based on their credit ratings. Corporate bond excess returns are constructed using all bonds issued in US, euro area, Japan, UK, Canada and Australia in the six currencies (USD, EUR, JPY, GBP, CAD, AUD). Local factors: (i) book-value-weighted sovereign bond excess returns are constructed using the 7-10 year Thomson DataStream benchmark bond total price index in the country's local currency; (ii) market-value-weighted equity excess returns are constructed using the Thomson DataStream equity total price index in the country's local currency; (iii) market-value-weighted corporate bond excess returns are constructed using all corporate bonds issued in the above six economies in the local currency. The EUR includes also the pre-euro currencies: Deutsche Mark, French Frank, Italian Lira, Spanish Peseta, Dutch Guilders and ECU. Currencies are converted in US dollars. The risk free rate is the one-month US Treasury bill. Sample period: February 1998 – August 2018.

Figure 5. Duration and Residual Maturity
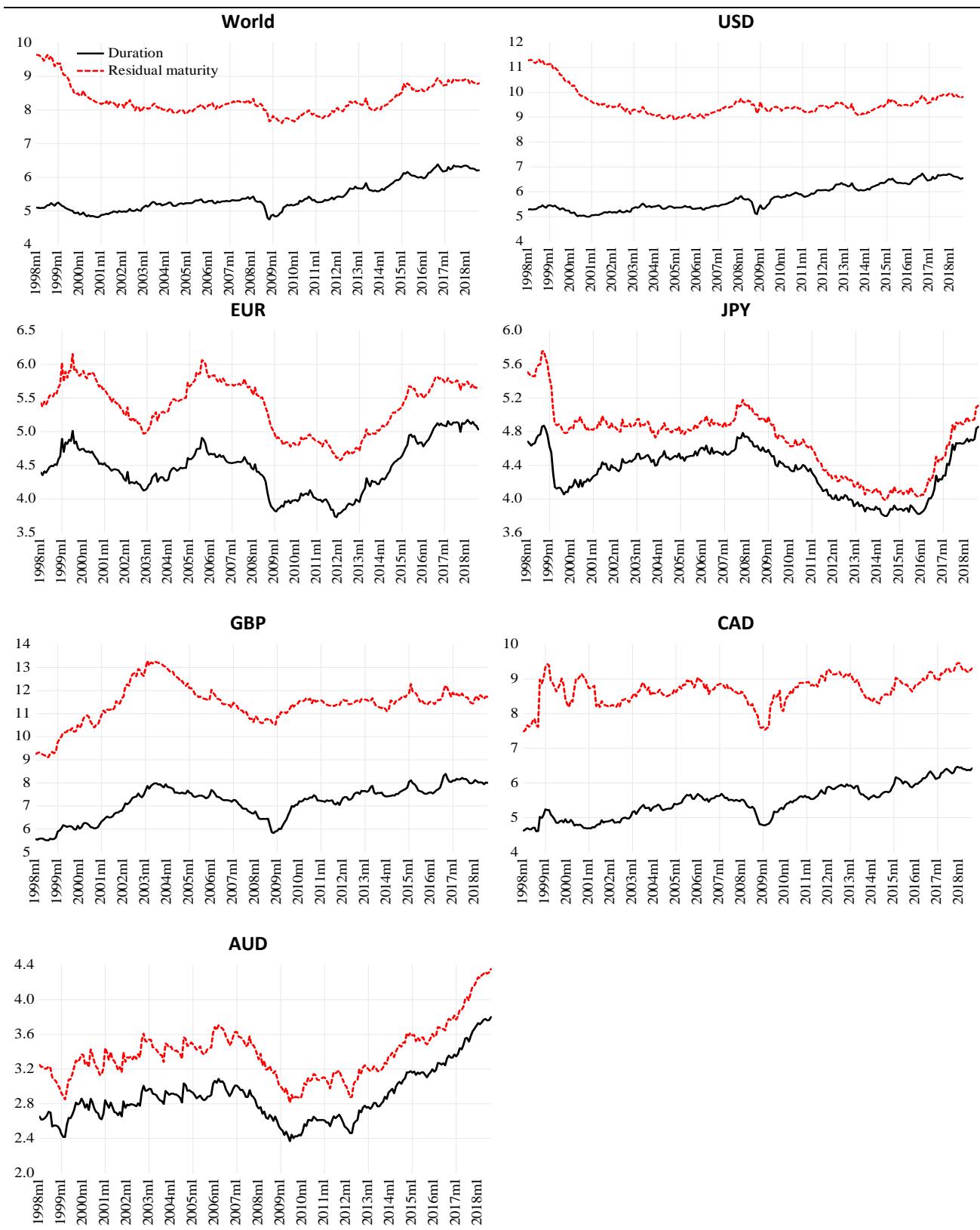
Notes: This table shows the market capitalization weighted average of duration and residual maturity for each currency portfolio. Sample period: January 1998 – August 2018.

Geert Bekaert
Columbia Business School, New York, United States; email: gb241@columbia.edu

Roberto A. De Santis
European Central Bank, Frankfurt am Main, Germany; email: roberto.de_santis@ecb.europa.eu