Ownership and purchase intention of crypto-assets – survey results

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July 2019

Abstract

The paper employs a survey among Austrian households to study ownership and purchase intentions of crypto-assets. About 1.5% of Austrians own crypto-assets and about 5% can be viewed as potential adopters. Owners, on average, have higher financial knowledge and are more risk-tolerant than non-owners. Distrust in banks or in conventional currencies is not found to be an important driver of ownership. Intentions to adopt are strongly affected by profit expectations and by beliefs that crypto-assets offer advantages for payments – most adopters or potential adopters hold both beliefs. Perceptions of high volatility or the risk of fraud and online theft dampen the demand for crypto-assets.

JEL classification: D12; D14; G11; E41

Keywords: crypto-currencies, crypto-assets, Bitcoin, payment, trust, financial literacy, risk, consumer survey

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The views expressed in this paper are those of the author. No responsibility for them should be attributed to the Oesterreichische Nationalbank or the Eurosystem.

1. Introduction

Crypto-assets, like Bitcoin or Ethereum, have attracted enormous attention by the media, the financial industry, academics, policy makers and consumers.[1] For consumers, crypto-assets could be attractive for various reasons: as a medium of exchange or to transfer funds pseudo-anonymously; as a store of wealth if agents distrust conventional money, central banks or banks; as an asset for speculation with the potential of capital gains. Moreover, crypto-assets could be appealing to consumers with an interest in technology or new applications, with or without an economic rationale.

As relatively little is known about the characteristics of consumers who own crypto-assets and about their motives, this paper's aim is to shed light on some pertinent issues. Specifically, we focus on four aspects. First, what share of the population has bought crypto-assets? Second, what financial capabilities do persons who are invested in crypto-assets have and are they aware of the involved risks? Third, does trust in institutions or in conventional money play a role for the demand for crypto-assets and if so, which institutions matter? Fourth, which motives drive non-owners to consider adopting crypto-assets? The paper provides evidence on these four aspects by utilizing data from two nationally representative surveys that were conducted in Austria in 2018.

We think that answers to these questions are important for several reasons. First, the increased media attention could have induced persons to adopt who would otherwise not invest in very risky assets. This is one reason why policy makers are debating whether and how to regulate crypto-assets (Auer and Claessens, 2018; Chapman and Wilkins, 2019). While crypto-assets currently do not pose risks to aggregate financial stability (e.g. Nelson, 2018), due to their low dissemination, questions might arise as to whether investors are aware of the involved risks and how vulnerable they are to sharp drops in the prices of these assets. The regulatory response would be different if (most) investors comprehend the risks and could sustain potential losses than if a sizeable share of investors should normally not be invested in such risky assets. Second, the salient feature of crypto-assets is that they can solve the double-spending problem without the involvement of a central intermediary institution, e.g. for clearing and settlement (e.g. Nakamoto, 2008; Grym, 2018; Weber, 2018). Moreover, in Bitcoin, inflation is ruled out

[1] We use the term crypto-asset instead of crypto-currency or virtual-currency because crypto-assets lack the characteristics of conventional currencies (i.e. with respect to their usability for daily transactions or to provide a stable unit of account).

by a limit on total supply. Accordingly, some have declared crypto-assets as the new gold or a safe haven asset[2], implying that the demand for crypto-assets could have been fueled by distrust in banks, in central banks or in conventional fiat currencies (e.g. due to inflation expectations). However, demand for crypto-assets could also just be driven by "normal" speculation, as for conventional financial assets without any role for trust in institutions. Answers on the underlying motives are important to assess the longer-run evolution of crypto-assets. If "normal" speculation dominates, then demand will fluctuate with the risk-return profile of crypto-assets (Bolt and van Oordt, 2016). If demand is trust-driven, then prospective demand will also depend on consumers' assessment of specific institutions or on expected inflation. Finally, the question emerges about the medium of exchange function of crypto-assets. So far, available evidence suggests that the transaction motive is of modest importance for demand, relative to the speculation motive (Brauneis et al. 2018; Baur et al. 2017; Henry, Huynh and Nicholls 2018a and 2018b; Schuh and Shy, 2016).

The two surveys that are utilized, conducted in spring and fall 2018 among residents of Austria, provide information on ownership and awareness of crypto-assets.[3] Additionally, the surveys provide rich supplementary socio-economic information, allowing to study the financial capabilities of adopters of crypto-assets and whether they are aware of the risks. Also, we analyze whether adopters differ from non-adopters in their trust towards monetary institutions or their inflation expectations.

Overall, we find that about 1.5% of Austrians (aged 14 or more) possessed crypto-assets and another 1% stated that they had owned crypto-assets in the past but sold them already. Results from conditional analyses reveal several differences in the socio-economic profile of owners and non-owners: owners are more likely to hold (other) risky financial assets than non-owners, they are more willing to accept financial risks, they have more genuine interest in new technologies. Also, we find that concerns about medium-term monetary stability and distrust in banks are associated with a higher ownership rate of crypto-assets. Utilizing survey information on various aspects of trust in banks, our results suggest that it is not distrust in the safety of

[2] See for example "Bitcoin Is the New Gold - Invest in it, perhaps. But don't try to shop with it", Bloomberg Opinion by Noah Smith (31. January 2018, accessed from https://www.bloomberg.com/opinion/articles/2018-01-31/bitcoin-is-the-new-gold on 19. December 2018) or "Bitcoin is the New Gold, a Better Safe Haven Asset: Goldman Sachs" (13. January 2018, accessed from https://www.ccn.com/bitcoin-new-gold-better-safe-haven-asset-goldman-sachs/ on 19. December 2018). For empirical analyses that qualify such claims, see e.g. Klein, Pham and Walther (2018) and Baur, Dimpfl and Kuck (2018).

[3] Henceforth the terms "resident of Austria" and "Austrians" will be used synonymously. This is somewhat imprecise, as the sample comprises of persons who have an address in Austria, regardless of their citizenship.

savings deposits but rather a lack of trust in the financial advice of banks that is separating owners from non-owners of crypto-assets.

While this analysis is informative with respect to the question of the financial knowledge of adopters and their financial condition, it is plagued by potential endogeneity problems which makes it difficult to assess the role of trust or of inflation expectations, e.g. persons could have developed distrust in certain institutions after adoption. To circumvent this problem, we also analyze adoption intentions – among persons who do not possess crypto-assets we compare those who express a general intention to purchase crypto-assets with persons who do not express such an intention. For this comparison, we analyze how profit expectations and perceptions of the risk of investment affect purchase intentions and we can assess the relative importance of the speculation motive and the transaction motive.

We find that about 5% of the Austrian population express an intention to purchase crypto-assets. Non-owners who intend to adopt differ from non-owners who do not intend to adopt by only a few socio-economic characteristics: potential adopters are younger and are more willing to accept financial risks than non-owners who do not intend to adopt. Importantly, distrust in the euro or in banks is not found to affect intended adoption. The separating line between these two groups can be found in how attributes of crypto-assets are assessed. Specifically, non-owners who intend to adopt are much more likely (i) to believe that an investment is profitable, (ii) to think that crypto-assets offer advantages for payments (in comparison to existing payment methods), (iii) to more favorably assess the volatility of crypto-assets and (iv) to consider a lower risk of fraud and online theft. Conditional analyses show that these perceived attributes affect demand in the expected way. For example, perceived volatility and beliefs about the risk of fraud and online theft lower potential demand for crypto-assets while expectations of profits and beliefs about the advantageousness of crypto-assets for payments increase potential demand.

On the one hand, our results thus suggest that demand for crypto-assets can to a considerable extent be attributed to a profit motive, comparable to the demand for conventional risky financial assets. This observation suggests that elevated volatilities and price decreases, as experienced in late 2018, will significantly dampen the demand for crypto-assets (and vice versa). On the other hand, our findings also indicate that beliefs about the usefulness of crypto-assets for payments are an important driver of adoption. As regards the relative importance of the speculation and the transaction motive, we show that both beliefs are prevalent among adopters and potential adopters. In fact, most individuals who own or who intend to purchase

crypto-assets believe both in positive investment returns and in the usefulness of crypto-assets for payments. It is interesting that individuals' beliefs about the usefulness of crypto-assets for payments stand in contrast to the low actual use – about one half of current owners have not used crypto-assets for payments yet. One interpretation of these results is that demand for crypto-assets is fueled by beliefs in the future importance of crypto-assets for payments.

Our paper builds upon various previous articles. The papers closest to ours are Henry, Huynh and Nicholls (2018a and 2018b) and Schuh and Shy (2016), who were the first to study adoption of crypto-assets using representative Canadian and US survey data, respectively. These studies provide valuable information on the motives of adoption by focusing mainly on socio-economic factors. We extend these analyses by providing information on the role of factors like trust and risk preferences and we show that these factors are important, especially if crypto-assets are purchased for investment purposes. Moreover, we utilize information on perceived attributes and expectations of respondents, e.g. about expected risks and returns, to study whether the demand for crypto-assets is driven by transactional motives or by speculation motives. This can inform theoretical model as, for example, Bolt and van Oordt (2016) who develop a theoretical framework for the exchange rate of virtual currencies and show that the volatility of virtual currencies is mainly determined by speculation. The results of our paper can also be broadly compared to results of studies which analyze transaction data of Bitcoin accounts or other network data (Brauneis et al. 2018; Baur et al. 2017; Glaser et al. 2014; Baek and Elbeck 2014). These papers find that Bitcoins are mainly used as an asset and not as an alternative currency or medium of exchange. This result corresponds well with the low *actual* use of crypto-assets for transactions that is found in our survey as well as in Henry, Huynh and Nicholls (2018a, 2018b) and Schuh and Shy (2016). Despite this low actual use for payments, our results nevertheless suggest that the transaction motive is important – in as far as *beliefs* about the future importance of crypto-assets for transactions seem to be an important driver of adoption and potential adoption. Finally, Yelowitz and Wilson (2015) use Google Trends data to infer that search terms related to computer programming and illegal activities are positively correlated with Bitcoin interest, while no correlation is found for Libertarian and investment-related search terms. We complement this literature by providing direct survey evidence from individuals.[4] Our finding that trust is of no importance for potential adopters can be interpreted

[4] Parino, Beiró and Gauvin (2018) use a somewhat different approach. This paper employs country level proxies for Bitcoin adoption, derived from various internet sources such as the number of Bitcoin client software downloads per country, to infer the role of country-level economic and institutional characteristics.

as being in line with the finding that interest for Bitcoin is not correlated with internet searches for Libertarian terms.

The remainder of the paper proceeds as follows. Section 2 describes the data and discusses descriptive evidence on ownership and awareness. Section 3 studies whether owners, persons who state that they are interested and persons who are just aware of crypto-assets differ in their socio-economic characteristics. Results from a conditional analysis of the socio-economic determinants of the ownership of crypto-assets are presented in Section 4. In Section 5, we provide evidence on how consumers assess the attributes of crypto-assets. In Section 7, we analyze how persons who intend to adopt crypto-assets differ from persons who do not have such intentions. Section 7 offers conclusions.

2. Data and descriptive evidence on awareness and ownership

The study is based on two surveys commissioned by the Oesterreichische Nationalbank and conducted by an Austrian polling company via computer-assisted face-to-face interviews. The target population comprises of Austrian residents aged 14 or older and in each survey, the sample consists of roughly 1,400 Austrian residents that were selected randomly via a multi-stage clustered random sampling procedure. The first survey was conducted in April/May 2018 and the second survey in October/November 2018. In both surveys, questions on crypto-assets were added to a regular survey questionnaire which mainly focuses on consumer economic sentiment, inflation expectations, trust, etc. as well as the use of digital banking and payment products (cf. Ritzberger-Grünwald and Stix, 2018). The additional questions on ownership and awareness of crypto-assets were adapted and revised from the BTCOS survey of the Bank of Canada (Henry, Huynh and Nicholls, 2018a). Moreover, new questions on attitudes were devised.

Unless otherwise indicated, results from both surveys were analyzed jointly. In regressions, we include a dummy variable for the survey wave. For descriptive statistics, like ownership the joint analysis could be problematic. Figure 1 shows the Bitcoin price and the two interviewing periods. The average Bitcoin price is somewhat higher in the first survey period than in the latter. However, importantly, the second survey period ended before the erosion of the Bitcoin price in December 2018.

Figure 1. Bitcoin price and interviewing periods

Note: The table shows the Bitcoin price in Euro and the interviewing periods of the two survey waves (11 Apr – 22 May, 25 Sep – 14 Nov 2018). Source: www.coingecko.com.

All descriptive statistics (e.g. ownership of crypto-assets) are weighted to render them representative of the Austrian population aged 14 or over with respect to region, age, gender and size of respondents' home town. As these sociodemographic aspects are not necessarily the only important variables driving financial and payment innovations, we verified that the sample is not biased with respect to other important background variables by conducting a series of comparisons with external information. Specifically, we find that the surveys closely match external information on internet use, ownership of electronic devices (PC, mobile phones) and the use of online banking. Moreover, the data match closely with external information on the ownership of debit and credit cards. As regards asset holdings, comparisons are more difficult as external data often refer to households while the OeNB Barometer refers to individuals. According to the Household Finance and Consumption Survey (European Central Bank, 2017), 5.4% of Austrian households owned shares, which compares with 7.3% of respondents in our sample.

Table 1 summarizes ownership and awareness of crypto-assets (variable definitions and descriptive statistics are presented in the Appendix). 1.5% of Austrians owned crypto-assets at the time of the surveys (with 95% probability the mean is in a range from 1% to 2.1%). About 1.2% owned Bitcoin and 0.06% owned other crypto-assets. 1.0% had owned crypto-assets in the past but sold them before the interview. These numbers refer to both survey waves. If we analyze the individual surveys separately, ownership was 2.0% in the first wave and 1.0% in the second wave. Given the very low number of observations, it is difficult to say whether this decline between wave 1 and wave 2 reflects a fading interest in crypto-assets after a fall in

prices or just a random fluctuation in survey responses (the difference between the two waves is significant at the 10% level).[5]

Table 1. Table Ownership and awareness of crypto-assets

	Mean in % of the population	95% confidence interval	Number of obs
1. Owns crypto-assets	1.5	(1.0-2.1)	38
2. Owned crypto-assets	1.0	(0.7-1.5)	25
3. Never owned, but I am interested in crypto-assets	8.6	(6.7-11.0)	208
4. Know of only by name	25.8	(23.4-28.4)	688
5. Know of only by name, but have absolutely no interest	37.3	(34.4-40.3)	1051
6. Never heard of crypto-assets	25.8	(22.2-29.7)	752

Note: The table summarizes ownership and awareness of crypto-assets (population mean and 95% confidence interval). Results are weighted. Variables are defined in the Appendix.

The survey contained one direct question on respondents' motives to hold crypto-assets. As an ownership rate of 1.5% implies that only 38 persons in the sample owned crypto-assets, we stress that the ownership rate should be seen only as rough indicator.[6] The most commonly cited reasons are "I see [crypto-assets] as an investment with prospects of capital gains" (72% of owners stated this reason) and "interest in technology" (51%).[7] About one in every four owner cites: "To conduct payments anonymously" and roughly one in every fifth owner "to economize on costs of transfers and payments". The remaining motive that was provided in the questionnaire "a lack of trust in the euro or in banks" was cited by just 9% of owners. Although the respective survey question differs from the one used in Henry, Huynh and Nicholls (2018), results are qualitatively similar with respect to the importance of interest in technology, the investment motive and the low importance of the trust argument.

Among persons who own or owned Bitcoin, the survey also elicited the frequency of use for payments. About 73% of current or former owners (n=55), state that they have never used Bitcoin for transfers to other persons and 50% have never used them for payments for goods and services. Despite these high non-use rates, we also find that about every fourth

[5] The fact that we do not find a significant increase in past ownership in the second survey wave points towards a pure statistical effect.

[6] To overcome the low number of observations, Henry, Huynh and Nicholls (2018a) propose that future surveys could be based on sampling methods which generate a higher number of observations on owners (e.g. respondent-driven sampling).

[7] Respondents were provided with a list of five potential reasons and were asked to choose one or several reasons that apply.

Bitcoin (former) owner states that he/she has paid for goods and services at least once per month.

How does our finding regarding ownership compare to other studies? The ownership rate of crypto-assets of 1.5% together with 1% of former owners compares well with results from a survey that has been conducted in the United Kingdom in December 2018 which finds that about 3% of survey respondents had ever bought crypto-assets (Financial Conduct Authority, 2019). Ownership is somewhat higher in Austria than in the US – the Federal Reserve Bank of Boston's nationally representative survey on payment behavior indicates that 0.7% of the U.S. population held "virtual currencies" in 2017 (Greene and Stavins, 2018, see also Schuh and Shy, 2016) – but considerably lower than in Canada. The Bank of Canada's specialized internet surveys indicate a Bitcoin ownership of 3% for 2016 and 5% for 2017 (Henry, Huynh and Nicholls, 2018a and 2018b). For Germany, a survey conducted in 2018 by the industry association Bitkom finds an ownership rate of 4%[8]

For policymakers, the short-term "market potential" of crypto-assets is important, e.g. the overall share of the population that has already invested or could potentially envisage such an investment in the near future. Table 1 shows that 8.6% of Austrians do not own crypto-assets but declare some interest. Thus, currently the "market potential" could be about 10% which seems quite remarkable. In section 5, we will use further survey information to show that among the 8.6% non-owners who state their interest only about one half considers it likely that they will purchase Bitcoin. Applying this more realistic definition, the group of interested persons—current adopters plus potential adopters—comprises of roughly 6% of the population.

In addition to the persons who state some interest, 63% of Austrians are aware of crypto-assets (26% of Austrians know of crypto-assets, and 37% are aware but have absolutely no interest) and 26% have never heard of crypto assets.

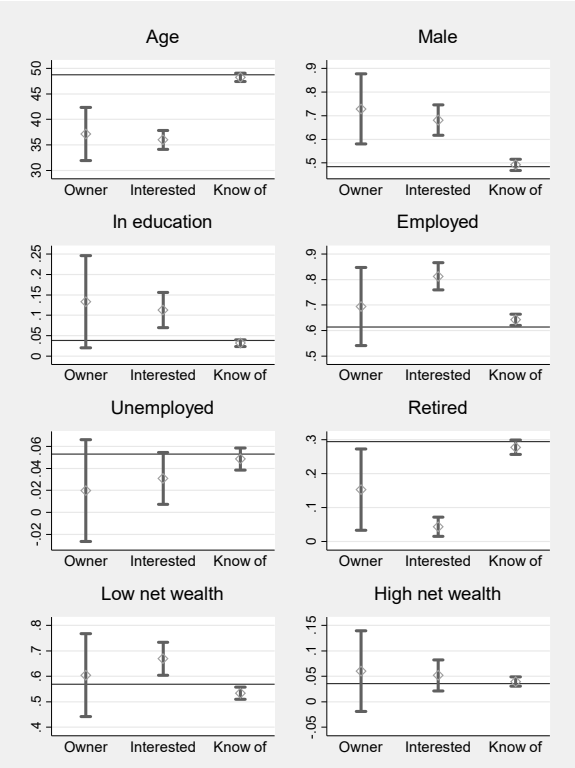
3. Socio-economic characteristics of owners and non-owners of crypto-assets

Do these groups differ in their sociodemographic characteristics? Figure 2 shows mean values and the respective 95% confidence intervals of selected sociodemographic variables for the group of owners (line 1 of Table 1), the group of persons interested (line 3) and the group of persons with awareness of crypto-assets (lines 4 and 5). First, owners and persons interested

[8] Sample of about 1,000 persons aged 14 or older (https://www.bitkom.org/Presse/Presseinformation/Inzwischen-kennen-zwei-Drittel-der-Bundesbuerger-Bitcoin.html). Further details on the sampling are not available.

are considerably younger than persons with only awareness. Second, owners and persons interested are more likely to be male. As regards the labor force status, we do not find strong and significant differences, apart from a higher share of owner and interested persons being in education and being not retired in comparison to persons with awareness.[9]

Figure 2. Socio-demographic characteristics of owners, interested persons and persons with awareness



Note: The figure shows mean values and the respective 95% confidence intervals of sociodemographic characteristics for owners (left), persons interested (middle) and persons with awareness of crypto-assets (right). All y-axis denote percent, except for age where the y-axis denotes years. The horizontal line shows the overall population average. Variables are defined in the Appendix.

As stated in the introduction, we are mainly interested in the financial capabilities of persons invested in crypto-assets as well as in their knowledge and risk attitudes. The last row of Figure 2 provides evidence on the financial capabilities. Specifically, we have constructed three dummy variables which indicate whether a person is likely to belong to the group of persons with low net wealth, middle net wealth and high net wealth (see the Appendix for a

[9] For the interested reader, Table A2 summarizes ownership by socio-economic characteristics.

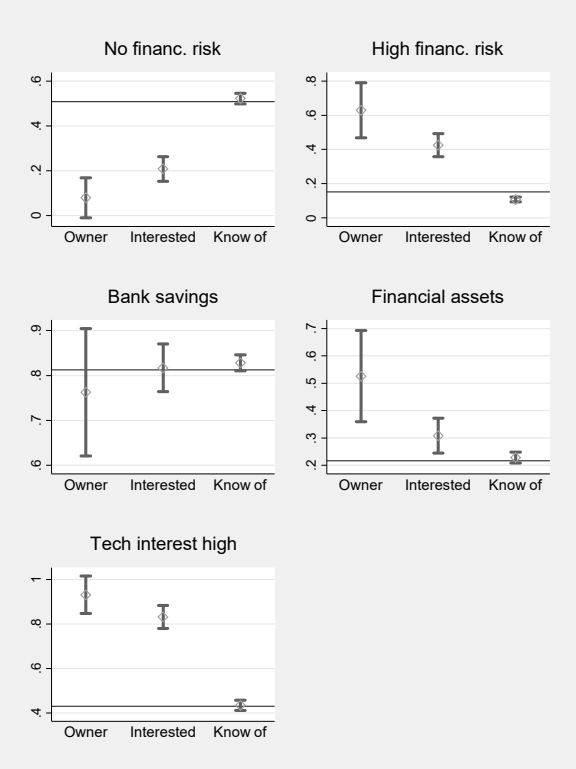
definition). The figures reveal no significant differences in wealth across the three analyzed groups. A rather similar result is obtained if we use household income terciles (not shown).[10]

Figure 3 focuses on risk attitudes, ownership of assets and interest in technology. The figure reveals marked differences with regard to risk attitudes. Specifically, a much higher share of owners and of persons interested is willing to accept losses from an investment if above-average profits can be expected. In turn, the share who state that they do not accept any financial risks is much lower for these two groups. These self-assessed risk preferences are also reflected in actual holdings of (risky) financial assets which are significantly higher for owners and for persons interested than for persons with only awareness.[11] With respect to conventional bank deposits, we find no significant differences. Finally, Figure 3 also presents information on how survey respondents classify themselves with respect to their genuine interest "in technological developments, e.g. new devices or applications". Both owners and interested persons differ by a far margin from persons with awareness: within the group of owners (interested persons) about 93% (83%) state that they have a high interest.

[10] We prefer to use the dummy variables for net wealth – although these variables are based on a rough proxy measure of wealth. If we used household income, we would lose a sizeable share of observations due to item non-response. Given the already low number of observations for owners of crypto-assets this is critical.

[11] Financial assets comprise investment funds, single company stocks, government bonds, government bills or other assets as antiques, paintings, etc.

Figure 3. Risk attitudes, ownership of assets and interest in technology of owners, interested persons and persons with awareness



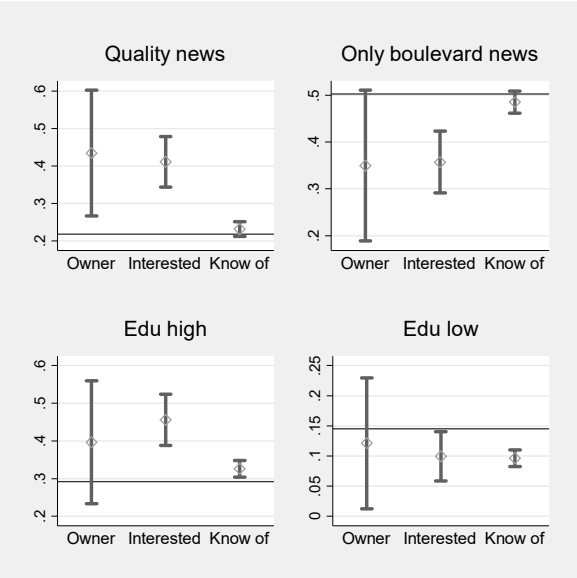
Note: The figure shows mean values (in %) and the respective 95% confidence intervals for owners (left), persons interested (middle) and persons with awareness of crypto-assets (right). The horizontal line shows the overall population average. Variables are defined in the Appendix.

Although the surveys do not contain direct questions on financial literacy we can study financial knowledge by using proxy variables. In particular, the survey contains information on consumption of newspapers/magazines from which we construct three dummy variables. *Only boulevard news* denotes respondents who either read no newspapers or who read only boulevard newspapers. *Intermediate news* denotes respondents who read newspapers of intermediate level (solely or in addition to boulevard news) and *Quality news* denotes respondents who read quality newspapers (solely or in addition to other newspapers/magazines). These three dummy variables are correlated with the financial literacy scores that are typically constructed in the respective literature (Lusardi and Mitchell, 2014).[12] Figure 4 reveals that a higher share of owners and interested persons reads quality news than persons with awareness indicating that

[12] Specifically, this can be shown by employing a different survey wave which contains both information on financial literacy and on newspaper/magazine reading habits. Results are available upon request.

these persons have higher financial knowledge. Information on the educational level of persons points into the same direction, although respective results are less informative.

Figure 4. Financial literacy of owners, interested persons and persons with awareness



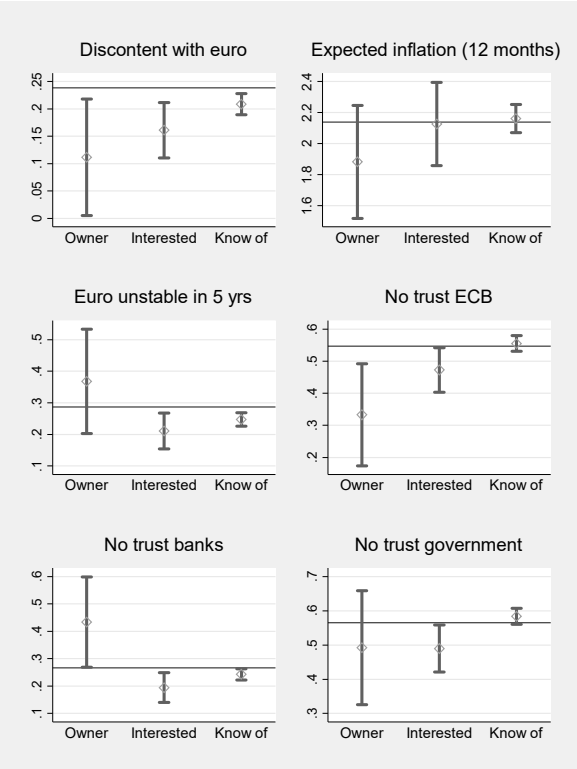
Note: The figure shows mean values (in %) and the respective 95% confidence intervals for owners (left), persons interested (middle) and persons with awareness of crypto-assets (right). The horizontal line shows the overall population average. Variables are defined in the Appendix.

Lastly, Figure 5 depicts differences of several trust measures. The first set of trust variables deals with distrust in the euro: *Discontent with the euro* refers to agents' overall contentment with the euro as a currency. It is one if respondents state that they are not content with the euro as a currency, and 0 if they are content. *Expected inflation (12 months)* measures the expected inflation rate in percent over the next year (see the Appendix for a description of how this variable is constructed). Qualitative expectations about the medium-term price stability of the euro (over 5 years) are measured by *Euro unstable in 5 yrs*. (=1 if respondents are very uncertain or rather uncertain when assessing whether Austria will have a stable currency (in terms of price stability) in 5 years, =0 if they answer very certain or rather certain). The second set of variables refers to distrust in the European Central Bank (ECB), in domestic banks or the government or (*No trust ECB*, *No trust banks*, *No trust government* are dummy variables).

As regards agents' overall contentment with the euro and expected inflation rates over the next year, we find no statistically significant differences between the three analyzed groups. Disregarding this lack of statistical significance, it is interesting that the group differences point

into one direction: owners are more content with the euro as a currency and expect lower inflation, on average, than non-owners. This is also reflected in trust in the ECB which is significantly higher among owners than among persons with only awareness. This is reversed for *Euro unstable in 5 yrs* with a higher share of owners having concerns about medium-term price stability (group differences are not significant statistically, however). A significant difference is obtained for distrust in banks with owners being more likely to distrust banks.

Figure 5. Trust of owners, interested persons and persons with awareness



Note: For all variables except *Expected inflation (12 months)*, the figure shows mean values (in % of the respective group). For *Expected inflation (12 months*), the figure shows the average expected inflation rates in %. All figures show the mean and the respective 95% confidence intervals of owners (left), persons interested (middle) and persons with awareness of crypto-assets (right). The horizontal line shows the overall population average. Variables are defined in the Appendix.

4. Regression framework: adoption of crypto-assets

Estimation framework and dependent variable

As many of the variables analyzed in the descriptive account are correlated, this section presents a conditional analysis of ownership of crypto-assets using logistic regressions. We

control for a range of variables that could potentially be important for the decision to adopt crypto-assets: demographic variables (age, gender, education, net wealth) as well as attitudes towards financial risk, interest in technology, financial literacy and trust in institutions. The results of these logistic regressions will be presented in terms of odds ratios along with their standard errors. The baseline group is defined as: females, aged 14 to 35, mandatory schooling, not in education, low net wealth and survey wave 1. A rare events or Firth logit is used to estimate the probability of ownership (Firth, 1993). As ownership can be very low or nil for some groups, a standard logit would result in extreme or undefined parameters. The Firth logit imposes a penalization term which avoids this problem (see Henry, Huynh and Nicholls 2018a for a discussion).

Sample

An important question concerns the estimation sample. As we would like to analyze the drivers of adoption we focus on those respondents who can potentially adopt, e.g. those who use the internet and who are aware of the existence of crypto-assets. Specifically, the sample is restricted to persons with a transaction account (98% of the Austrian population) and who use the internet at least once per week (81% of the population). Moreover, we disregard all persons who haven't heard of crypto-assets (26% of respondents). Additionally, we disregard respondents who had owned crypto-assets in the past as their motivations and driving factors might be different from the rest of the population. Altogether this reduced sample comprises of 61% of the overall population.

Dependent variable

Owns crypto-assets is a dummy variable which takes a value of 1 if a person owns crypto-assets and 0 otherwise (cf. column 1 of Table 2). The point estimates in the respective regressions thus reflect the difference between owners and all others. Figure 2 to Figure 5 have revealed that owners and interested persons are in many socio-economic dimensions more similar than persons who are at most aware of crypto-assets. Thus, another plausible definition of the dependent variable could focus on the difference between owners and persons aware of crypto-assets omitting those persons who are interested (*Owns crypto-assets narrow*, column 2 of Table 2). We will focus on the first definition but have also conducted all regressions using the second definition.

Table 2. Definition of dependent variables

	Owns crypto-assets	*Owns crypto-assets narrow*
	(1)	(2)
1. Owns crypto assets	1	1
2. Owned crypto assets	-	-
3. Never owned, but I am interested in crypto assets	0	-
4. Know of only by name	0	0
5. Know of only by name, but have absolutely no interest	0	0
6. Never heard of crypto assets	-	-

Results

Table 3 summarizes regression results. A point estimate less than 1 indicates that the group is less likely to own crypto-assets relative to the base category, whereas a point estimate greater than 1 indicates that the group is more likely to own. As a point estimate of one means that the probability of ownership is similar to the baseline group, the significance stars in Table 3 refer to the difference from 1.

The results of Table 3 reveal no significant effects of socio-demographic variables whereas the willingness to accept financial risks and the degree of interest in new technologies exert a substantial effect on the odds of ownership of crypto-assets.[13] For example, the odds of owning crypto-assets are 7.4 times higher for persons who are risk-tolerant (*High financ. risk)* than for persons who are not risk-tolerant; the odds are 6.3 times higher for persons with high interest in new technologies (*Tech interest high*) than for persons with less than high interest in new technologies.

To check whether the self-reported risk attitudes are consistent with actual asset holdings, column 2 includes indicators for respondents' deposit holdings (*Bank savings*) and their ownership of risky assets (*Financial assets*) and omits the variable measuring risk attitudes. Consistent with the self-stated risk preferences, we find that person who possess risky financial assets are much more likely to own crypto-assets than non-owners of risky financial assets. In columns 3 to 5, we further split-up the asset and deposit holdings of respondents. Specifically, four dummy variables express the four possible combinations of the dummy variables *Bank savings* and *Financial assets*. In the respective regressions, the omitted category

[13] The strong effects of age and gender that Figure 2 uncovered disappears once one controls for risk attitudes and interest in technology, as both of these variables are correlated with age and gender.

is *Bank savings, no assets*, the most prevalent combination in Austria (applying to 63% of the population). The results yield an odds ratio of 3 for persons with *Bank savings, assets* and an odds ratio of 10 for persons with *No bank savings, assets*, again indicating that asset holdings are strongly associated with ownership. Moreover, F-tests reveal that persons who have no bank deposits but risky financial asset holdings (*No bank savings, assets*) are significantly more likely to possess crypto-assets than persons who have both bank deposits and risky financial assets (*Bank savings, assets).*[14] Finally, column 4 contains controls for financial literacy (*Only boulevard news*, *Intermediate news* and, omitted, *Quality news*). If at all, the estimates point in the direction that owners have higher financial literacy than non-owners, but these differences are not significant statistically. The column 5 specification jointly includes all variables which does not change our findings, qualitatively.

It is interesting that the small group of respondents who have no bank deposits but hold risky financial assets (which applies only to 3% of the Austrian population) is also the group which has the highest likelihood of owning crypto-assets. This result could either indicate that this group has some specificities regarding portfolio choice that are not captured by the control variables (i.e. risk attitudes) or it could point towards the role of trust in banks. To study this further, Table 4 summarizes estimations which contain various measures of distrust in institutions, similar to the ones used in Figure 5. To rule out that these trust variables reflect person-specific trusting behavior rather than trust in institutions, all specifications include a measure of trust in public TV as this institution is largely unrelated to financial matters (*No trust public TV*).

[14] The unconditional means of *Owns crypto-assets* are as follows. *Bank savings, no assets*: 1.3%, *Bank savings, assets:* 3.2%, *No bank savings, assets*: 9.6%.

Table 3. Regression results: Ownership of crypto-assets

	Dependent variable: *Owns crypto-assets*				
	(1)	(2)	(3)	(4)	(5)
Male	1.261	1.599	1.562	1.574	1.315
	(0.492)	(0.618)	(0.604)	(0.607)	(0.525)
Age 36-50	0.761	0.628	0.619	0.604	0.606
	(0.330)	(0.276)	(0.274)	(0.268)	(0.276)
Age 51+	0.794	0.452	0.452	0.422*	0.573
	(0.401)	(0.223)	(0.225)	(0.214)	(0.302)
Edu med	1.393	1.552	1.553	1.621	1.471
	(1.275)	(1.377)	(1.388)	(1.454)	(1.370)
Edu high	1.687	1.570	1.585	1.494	1.469
	(1.512)	(1.381)	(1.399)	(1.328)	(1.345)
In education	2.533	1.928	1.971	1.837	2.642
	(1.723)	(1.304)	(1.344)	(1.260)	(1.847)
Medium net wealth	0.612	0.500	0.523	0.544	0.718
	(0.276)	(0.224)	(0.235)	(0.244)	(0.331)
High net wealth	1.671	1.089	1.172	1.255	1.986
	(1.237)	(0.776)	(0.839)	(0.900)	(1.485)
Survey wave 2	0.495*	0.605	0.638	0.646	0.566
	(0.182)	(0.218)	(0.231)	(0.234)	(0.211)
High financ. risk	7.378***				6.816***
	(2.792)				(2.696)
Tech interest high	6.327***	8.161***	8.009***	7.996***	6.081***
	(4.244)	(5.478)	(5.380)	(5.368)	(4.102)
Bank savings		0.484*			
		(0.186)			
Financial assets		4.251***			
		(1.574)			
No bank savings, no assets			1.160	1.131	1.290
			(0.717)	(0.702)	(0.812)
Bank savings, assets			3.038**	2.919**	2.206*
			(1.332)	(1.282)	(0.986)
No bank savings, assets			10.166***	9.919***	8.739***
			(5.019)	(4.881)	(4.482)
Only boulevard news				0.777	1.204
				(0.333)	(0.537)
Intermediate news				0.653	0.633
				(0.322)	(0.319)
Constant	0.003***	0.005***	0.003***	0.004***	0.002***
	(0.003)	(0.005)	(0.003)	(0.004)	(0.002)
H0: Bank savings, assets = No bank savings, assets			0.015	0.014	0.009
Observations	1691	1682	1682	1678	1678
Mean dependent variable	0.020	0.020	0.020	0.020	0.020
Log Likelihood	-123.116	-127.127	-125.855	-123.576	-110.336

Note: The table shows odds ratios from Firth logit regressions and associated standard errors in parentheses. The dependent variable is "*Owns crypto-assets*". *** (**) [*] indicates whether the respective point estimate is statistically different from 1 at the 1% (5%) [10%] level. "H0: Bank savings, assets = 0, No bank savings, assets = 0" reports the p-value of the F-test whether the two point estimates are jointly zero. "H0: Bank savings, assets = No bank savings, assets" reports the p-value of the F-test whether the two point estimates are equal. Variable definitions and descriptive statistics are provided in the Appendix.

No effect is found for contentment with the euro, trust in the ECB and the expected inflation rate in 12 months. However, concerns about the medium-term price stability of the euro and lack of trust in banks are positively correlated with ownership of crypto-assets (specifications 3 and 5).[15] Distrust in banks could comprise various dimensions. It could reflect a lack of trust in bankers or a bad reputation of banks after the global financial crisis of 2008. Moreover, it could reflect a lack of trust in the safety of deposits (which, however, are guaranteed by the deposit insurance for deposits up to 100,000 euro) or a lack of trust in the financial advice provided by banks. Our data do not allow to test for all these dimensions but, fortunately, the first survey wave contained questions which allow us to touch upon the last two aspects. Specifically, respondents were asked how much trust they have in the safety of bank savings. Another question asked about the level of trust "in the financial advice provided by your main bank". Columns 4 and 5 of Table 4 show that distrust in the safety of bank savings is insignificant while distrust in the financial advice provided by respondents' banks is positively associated with the likelihood of ownership (significant at a 10% level). Thus, it seems that the significant effect of distrust in banks has more to do with concerns about investment returns rather than with beliefs about the instability of banks.

What about the significant effect of distrust in the price stability of the euro? This variable is derived from a qualitative question on inflation uncertainty ("…how certain are you that Austria will still have a stable currency (in terms of price stability)"). To check whether survey answers are internally consistent, we have compared answers to this question with answers on several other trust or perception variables. We find that inflation expectations over the next 12 months are higher for persons who are uncertain about medium-term price stability than for persons who are certain.[16] Strong difference between these two groups can also be observed for the perceived stability of the euro on international financial markets, the overall contentment with the euro, the perceived stability of banks and trust in the European Central Bank.[17]

[15] In specification 3, the point estimate of *Tech interest high* more than doubles compared to specification 1 which raises concerns about multicollinearity. To check for this possibility, we have excluded *Tech interest high* and find that the point estimate of *Euro unstable in 5 yrs* remains significant and has roughly the same size (2.48).

[16] On average, people without distrust in the stability of the euro expect an inflation rate (over the next year) of 1.9% and persons with distrust in the euro expect an inflation rate 2.8%. This difference is significant statistically.

[17] The respective results are available upon request. Two examples: Among persons who are not concerned about the medium-term stability of the euro 6% perceived the euro unstable on international financial markets. The respective share is 62% for those with distrust in the medium-term price stability of the euro. Among persons who are not concerned about the medium-term stability of the euro 8% think that domestic banks and the Austrian financial market are unstable. The respective share is 62% for those with distrust in the medium-term price stability of the euro.

Given this evidence, we think that *Euro unstable in 5 yrs* is a proxy measure for various dimensions that are related to what can probably best be described as "concerns about monetary stability". However, we stress that this is a conjecture which could only be tested if additional survey information was available. At least, we think that the fact that *Expected inflation (12 months)* and *No trust in ECB* are insignificant can be seen as an indication that it is not the level of expected inflation or doubts about the monetary policy per se which matters.[18]

In general, while it is interesting to observe that owners of crypto-assets seem to be more concerned about monetary stability or extend less trust towards banks than non-owners, the regression results cannot identify causal effects. Specifically, all questions on trust and sentiments could be plagued by a self-serving bias and/or could be correlated with omitted variables, like profit expectations. To alleviate this concern, the next sections focus on intended behavior, which should reduce the self-service bias problem, and we will employ information on perceived attributes of crypto-assets (e.g. profit expectations), which should reduce the omitted variable problem. Finally, we have checked for the robustness of results by repeating the estimations using the narrow definition of ownership (*Owns crypto-assets narrow*) as the dependent variable. The respective results are very similar, qualitatively.[19]

[18] See Christelis et al (2016) for a discussion of how trust in the ECB affects inflation expectations.
[19] Results are available in a supplement (Table S1 and S2).

Table 4. Regression results: Ownership of crypto-assets and trust

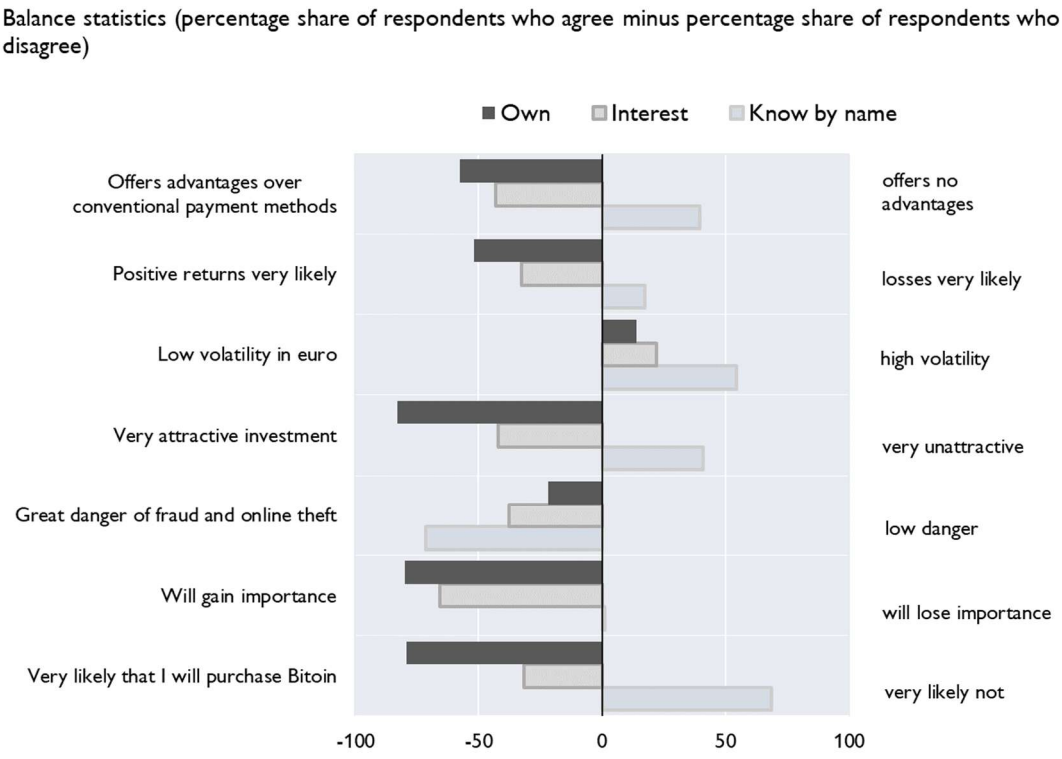
	Dependent variable: *Owns crypto-assets*						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Male	1.278	1.414	1.180	1.249	1.37	1.549	1.805
	(0.502)	(0.579)	(0.479)	(0.495)	(0.546)	(0.770)	(0.914)
Age 36-50	0.739	0.759	0.549	0.784	0.671	1.368	1.409
	(0.323)	(0.347)	(0.255)	(0.349)	(0.294)	(0.782)	(0.814)
Age 51+	0.734	0.729	0.634	0.760	0.649	1.204	1.108
	(0.376)	(0.377)	(0.321)	(0.390)	(0.329)	(0.732)	(0.681)
Edu med	1.488	1.428	1.510	1.317	1.357	0.807	0.518
	(1.357)	(1.300)	(1.384)	(1.205)	(1.228)	(0.763)	(0.488)
Edu high	1.606	1.653	1.800	1.550	1.596	0.916	0.661
	(1.450)	(1.490)	(1.651)	(1.402)	(1.440)	(0.870)	(0.620)
In education	1.995	2.007	2.168	2.248	1.44	2.091	2.169
	(1.388)	(1.414)	(1.531)	(1.569)	(1.074)	(2.132)	(2.263)
Medium net wealth	0.643	0.673	0.767	0.697	0.642	0.796	0.835
	(0.291)	(0.308)	(0.349)	(0.318)	(0.291)	(0.416)	(0.441)
High net wealth	1.814	1.922	1.860	2.131	1.739	3.055	3.239
	(1.368)	(1.443)	(1.463)	(1.622)	(1.334)	(2.573)	(2.747)
Survey wave 2	0.499*	0.413**	0.580	0.447**	0.516*		
	(0.184)	(0.162)	(0.221)	(0.169)	(0.191)		
High financ. risk	8.048***	7.178***	6.980***	8.350***	7.366***	7.983***	6.796***
	(3.110)	(2.812)	(2.763)	(3.301)	(2.828)	(3.795)	(3.297)
Tech interest high	6.233***	6.216***	13.005***	6.060***	7.546***	6.723**	7.351**
	(4.195)	(4.180)	(11.092)	(4.073)	(5.109)	(5.800)	(6.405)
Only boulevard news	1.148	1.150	1.226	1.120	1.233	1.127	1.149
	(0.503)	(0.515)	(0.563)	(0.502)	(0.550)	(0.660)	(0.680)
Intermediate news	0.627	0.660	0.698	0.670	0.636	1.272	1.312
	(0.305)	(0.327)	(0.354)	(0.325)	(0.312)	(0.729)	(0.755)
No trust public TV	0.525*	0.438**	0.457**	0.608	0.406**	0.453*	0.446*
	(0.196)	(0.172)	(0.177)	(0.242)	(0.157)	(0.217)	(0.213)
Discontent with euro	0.637						
	(0.378)						
Expected inflation (12 months)		0.970					
		(0.124)					
Euro unstable in 5 yrs			3.195***				
			(1.272)				
No trust ECB				0.754			
				(0.305)			
No trust banks					2.925***		
					(1.132)		
Bank savings unsafe						1.563	
						(0.748)	
No trust bank's fin. advice							2.533*
							(1.235)
Constant	0.004***	0.005***	0.002***	0.005***	0.003***	0.003***	0.004***
	(0.005)	(0.006)	(0.002)	(0.005)	(0.003)	(0.004)	(0.005)
Observations	1632	1548	1531	1553	1633	821	775
Mean dependent variable	0.021	0.021	0.021	0.021	0.021	0.026	0.027
Log Likelihood	-114.927	-106.444	-103.820	-110.272	-111.757	-65.621	-63.698

Note: The table shows odds ratios from Firth logit regressions and associated standard errors in parentheses. The dependent variable is "*Owns crypto-assets*". *** (**) [*] indicates whether the respective point estimate is statistically different from 1 at the 1% (5%) [10%] level. Variable definitions and descriptive statistics are provided in the Appendix.

5. How consumers assess attributes of crypto-assets

While the previous regressions results are informative, i.e. to describe the socio-economic profile of owners, they allow us to only indirectly deduce the motives behind the adoption of crypto-assets. More direct evidence can be derived from survey responses on how respondents assess various attributes of crypto-assets. Specifically, respondents were confronted with a list of statements and opposing statements and they could indicate whether they (strongly) agree with the statement, whether they (strongly) agree with the opposing statement or whether they agree with neither. Note, that these questions were only posed to respondents who are at least aware of crypto-assets, corresponding to lines 1 to 4 of Table 1.

Figure 6. Attitudes toward crypto-assets



Note: The figure shows respondents' agreement with statements about crypto-assets by (i) owners, (ii) by persons interested in crypto-assets and (iii) by persons who know crypto-assets by name. Each statement (on the left axis) was presented with an opposing statement (on the right axis) and respondents could indicate whether they agree with the statement or with the opposing statement or whether they agree with neither. The bars represent the share of respondents who disagrees minus the share who agrees. Basis: respondents who are aware of crypto-assets and who have a little interest in such assets (and who provided an answer to the respective statement).

Figure 6 summarizes the results as balance statistics, which can be viewed as voting results for a statement or the associated opposing statement. For example, a value of -40 means that the group that agrees with a statement is 40 percentage points larger than the group that agrees with the opposing statement. Again, we refer separately to (i) owners, (ii) persons with interest and (iii) persons with awareness only.[20] Again, the group of owners is very small, which calls for caution.

- With very few exceptions, attitudes of owners and of interested persons are similar, statistically. In contrast, attitudes of owners and of interested persons differ from attitudes of persons with awareness.
- Both owners and interested persons view crypto-assets as an attractive investment with a high likelihood of positive investment returns. Moreover, a high share believes that crypto-assets offer advantages over conventional payment methods and will become more important in the future. At the same time, a relative majority of owners and of interested persons is aware of the volatility of crypto-assets.
- Persons with only awareness consider crypto-assets as volatile, they expect losses, consider them an unattractive investment and do not think that crypto-assets offer advantages for payments, on average. With regard to the future importance, this group is undecided (the share of respondents who expect more importance is about the same size as the share who expect less importance).
- The relative majority in all three groups agrees to the statement that there is a great danger of fraud and online theft.

6. A closer look at purchase intentions

Respondents were also asked whether they intend to adopt Bitcoin. A majority of both owners and interested persons agrees to the statement "It is very likely that I will purchase Bitcoin" and a large majority of persons with awareness disagrees.

[20] The question on attitudes was not asked for persons who are unaware (line 6 of Table 2) or who are aware but say that they are not interested (line 5 of Table 2). Therefore, the balance statistics are based on a smaller sample size. Moreover, item nonresponse was considerable for some statements. To inquire into the statistical significance of the balance statistics of Figure 6, Table A2 presents all values along with their confidence intervals and with pairwise tests of equal coefficients. The general finding from these tests is that most differences are statistically significant.

We use answers to this question to construct a proxy variable for respondents' purchase intentions, i.e. the dummy variable *Purchase intention* is defined as 1 if a respondent strongly agrees or agrees to the statement "It is very likely that I will purchase Bitcoin" and zero otherwise. This variable is defined for only a subset of the overall sample (about 34%), because the question was not posed to all respondents and because we exclude current owners and former owners.[21] Table 5 summarizes the definition of *Purchase intention* as well as some summary statistics. Overall, about 18.3% (of this reduced sample) state that they intend to adopt. Among interested persons, 51% express a purchase intention (7% among persons with awareness).

Table 5. Definition of *Purchase intention*

	Mean in % of the population	Definition of *Purchase intention*: It is likely that I will purchase Bitcoin		Purchase intention in % of the respective group	Number of obs
		no	yes		
1. Owns crypto-assets	1.5	--	--	--	--
2. Owned crypto-assets	1.0	--	--	--	--
3. Never owned, but I am interested in crypto-assets	8.6	0	1	51.1	201
4. Know of only by name	25.8	0	1	6.9	624
5. Know of only by name, but have absolutely no interest	37.3	--	--	--	--
6. Never heard of crypto-assets	25.8	--	--	--	--
Total	34.4			18.3	825

Note: The table summarizes how *Purchase intention* is defined along with the mean value per group. The variable is defined for 34.5% of all respondents. Among this group 18.3% have a purchase intention. Variables are defined in the Appendix.

We take a closer look at the variable *Purchase intention* for two reasons. First, it is a proxy measure of potential adoption, i.e. it allows to differentiate between persons who consider adoption from persons who state that they are interested, for whatever reason, but do not intend to adopt.[22] Second, the focus on a future decision alleviates the above mentioned concerns about endogeneity and biases in the previous regressions. Thus, regressions with *Purchase intention* as the dependent variable provide us with more reliable estimates of the drivers of intended market entry. The downside of this approach is that *Purchase intention* is, by design of the questionnaire, only observed for a subset of the overall sample.

[21] The questions on attitudes were only asked to respondents corresponding to lines 1 to 4 of Table 1 and we exclude lines 1 and 2 from the definition. This is also the reason why perceived attributes are not included in the regressions of Table 3 and Table 4.

[22] Note that the underlying question does not ask about a time frame, e.g. adoption within the next year. As the time frame is left to the respondent *Purchase intention* can be seen as an upper limit of potential adoption.

Table 6 summarizes regressions with *Purchase intention* as the dependent variable and various measures of trust as independent variables, similar to the specifications in the previous tables. In contrast to the previous findings, results do not suggest that a lack of trust in the euro or in banks plays any role for current non-owners. However, similar to the results for ownership, we find that the willingness to accept financial risks is much higher for persons with a purchase intention than for persons without such an intention.

Table 6. Regression results: Purchase intention and trust

	Dependent variable: *Purchase intention*						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Male	1.404	1.277	1.402	1.395	1.384	1.403	1.249
	(0.325)	(0.299)	(0.325)	(0.326)	(0.321)	(0.473)	(0.448)
Age 36-50	0.507**	0.511**	0.509**	0.514**	0.516**	0.397**	0.331**
	(0.134)	(0.138)	(0.137)	(0.138)	(0.136)	(0.168)	(0.145)
Age 51+	0.431**	0.426**	0.415**	0.456**	0.441**	0.375**	0.434
	(0.147)	(0.145)	(0.144)	(0.157)	(0.151)	(0.181)	(0.228)
Edu med	1.831	1.939	1.908	1.828	1.819	1.929	1.891
	(1.098)	(1.163)	(1.145)	(1.084)	(1.088)	(1.910)	(1.921)
Edu high	2.341	2.439	2.311	2.219	2.315	4.115	3.448
	(1.414)	(1.475)	(1.401)	(1.324)	(1.392)	(4.031)	(3.486)
In education	2.101	2.320	2.110	1.848	2.141	1.28	1.113
	(1.087)	(1.302)	(1.084)	(0.971)	(1.097)	(0.810)	(0.843)
Medium net wealth	0.594*	0.587*	0.595*	0.600*	0.596*	0.583	0.632
	(0.168)	(0.165)	(0.167)	(0.174)	(0.168)	(0.244)	(0.289)
High net wealth	0.995	0.955	1.081	1.061	0.982	3.727	4.034*
	(0.600)	(0.549)	(0.655)	(0.640)	(0.596)	(3.110)	(3.314)
Survey wave 2	0.774	0.790	0.814	0.764	0.769		
	(0.170)	(0.176)	(0.180)	(0.170)	(0.169)		
High financ. risk	5.258***	5.072***	5.232***	5.360***	5.272***	6.540***	8.141***
	(1.283)	(1.231)	(1.271)	(1.301)	(1.272)	(2.544)	(3.298)
Tech interest high	1.184	1.121	1.134	1.134	1.163	0.735	0.619
	(0.295)	(0.280)	(0.282)	(0.278)	(0.282)	(0.262)	(0.233)
Bank savings	0.773	0.707	0.783	0.720	0.751	1.269	1.000
	(0.240)	(0.216)	(0.243)	(0.221)	(0.232)	(0.595)	(0.462)
Financial assets	0.976	1.152	1.015	0.931	0.977	0.416*	0.425*
	(0.252)	(0.302)	(0.264)	(0.245)	(0.251)	(0.200)	(0.214)
Only boulevard news	0.944	0.970	0.949	0.958	0.925	1.640	1.550
	(0.263)	(0.276)	(0.268)	(0.272)	(0.257)	(0.613)	(0.647)
Intermediate news	0.604*	0.629	0.594*	0.642	0.602*	0.578	0.614
	(0.184)	(0.190)	(0.182)	(0.198)	(0.183)	(0.309)	(0.353)
No trust public TV	0.977	0.926	0.998	0.975	1.008	1.376	1.522
	(0.210)	(0.203)	(0.218)	(0.232)	(0.221)	(0.497)	(0.521)
Discontent with euro	1.041						
	(0.322)						
Expected inflation (12 months)		1.068					
		(0.058)					
Euro unstable in 5 yrs			1.013				
			(0.282)				
No trust ECB				0.868			
				(0.219)			
No trust banks					0.880		
					(0.241)		
Bank savings unsafe						0.925	
						(0.356)	
No trust bank's fin. advice							0.979
							(0.425)
Constant	0.133***	0.131***	0.134***	0.157**	0.143***	0.075**	0.097**
	(0.099)	(0.097)	(0.101)	(0.115)	(0.105)	(0.077)	(0.105)
Observations	741	705	707	717	743	334	317
Mean dependent variable	0.179	0.182	0.187	0.180	0.179	0.192	0.180
Log Likelihood	-292.31	-281.85	-285.98	-284.83	-293.13	-132.87	-121.22

Note: The table shows odds ratios from logit regressions and associated standard errors in parentheses. The dependent variable is "*Purchase intention*". *** (**) [*] indicates whether the respective point estimate is statistically different from 1 at the 1% (5%) [10%] level. Variable definitions and descriptive statistics are provided in the Appendix.

As distrust in institutions does not seem to drive potential adoption, what factors do play a role? To progress on this question, we analyze how the assessments of crypto-assets—e.g., profit expectations—differ for persons with and without purchase intentions. Figure 7 reveals strong and significant differences in the respective assessments. A very high share of potential adopters thinks that crypto-assets offer advantages for payments and that positive returns are very likely. Also, a share considerably smaller than 50% of those with a purchase intention agrees to the statement that crypto-assets are associated with high volatility. These perceptions differ sharply (and significantly) from persons who do not intend to adopt.

Figure 7. Purchase intention by perceived attributes

Note: The figure shows mean values (in %) and the respective 95% confidence intervals for persons without a purchase intention (left) and for persons with a purchase intention (right). The horizontal line shows the overall sample average. Variables are defined in the Appendix.

Table 7 summarizes results from conditional analyses employing the perceived attributes as independent variables. The results are in line with the descriptive analysis: respondents who belief that crypto-assets offer advantages for payments (column 1) or who expect a profitable investment (column 2) have a substantially higher likelihood of purchase intentions, with odds ratios of 7.3 and 6.2 respectively. The perceived danger of fraud and online theft (column 3) and beliefs about high volatility (column 4) significantly lower the likelihood of purchase intentions. Specifically, the purchase intention odds of a person who thinks that volatility is high are about one third of the respective odds of a person who thinks that volatility is not high. Column 5 jointly includes all four variables. Due to the correlation

among the perceived attributes, the point estimates change somewhat. Nevertheless, the qualitative implications of the results are unaffected and show that all four attitudes are important drivers of intended adoption.

These regressions suggest that both beliefs about the usefulness of crypto-assets for transactions as well as profit expectations are drivers of potential adoption. However, are these two motives also prevalent among the population and which motive is more important? Table 8 summarizes the frequencies with which these two motives occur in the sample (as a reminder, the sample excludes current owners). As regards the prevalence in the sample, Panel A shows that for 86.5% of respondents who have a purchase intention either one of the two motives is important. This demonstrates that agents care about these two attributes. As regards the relative importance of the two motives, Panel B shows that about 21% of current non-owners think that crypto-assets satisfy both motives. For about 13% the investment motive is satisfied but not to the transaction motive and for about 11% the opposite is true. On balance, these results suggest, first, that the transaction motive and the investment motive are of relatively similar importance, quantitatively and, second, that for a sizeable share both motives apply concurrently. Finally, one could object that potential adopters could hold different beliefs than current owners. The results of Panel C show that this is not the case. Although with caution due to the low number of observations (n=34), it seems that the prevalence and the relative importance among owners is rather similar than among potential adopters.

Table 7. Regression results: Purchase intention and attitudes

	Dependent variable: *Purchase intention*				
	(1)	(2)	(3)	(4)	(5)
Male	1.458	1.358	1.462	1.494*	1.443
	(0.364)	(0.327)	(0.341)	(0.362)	(0.410)
Age 36-50	0.509**	0.530**	0.551**	0.555**	0.433**
	(0.153)	(0.144)	(0.148)	(0.149)	(0.142)
Age 51+	0.535*	0.556	0.518*	0.558*	0.827
	(0.191)	(0.199)	(0.175)	(0.190)	(0.310)
Edu med	2.086	2.428	2.082	1.990	2.356
	(1.582)	(1.659)	(1.256)	(1.166)	(2.048)
Edu high	2.595	2.981	2.421	2.137	2.901
	(1.990)	(2.036)	(1.453)	(1.267)	(2.540)
In education	1.823	2.085	2.357*	1.366	1.491
	(0.870)	(0.992)	(1.206)	(0.711)	(0.889)
Medium net wealth	0.591*	0.570**	0.626	0.592*	0.530**
	(0.165)	(0.161)	(0.181)	(0.174)	(0.155)
High net wealth	1.137	0.707	0.958	1.105	0.474
	(0.700)	(0.454)	(0.533)	(0.704)	(0.379)
Survey wave 2	0.805	0.747	0.782	0.895	0.735
	(0.195)	(0.172)	(0.172)	(0.199)	(0.196)
High financ. risk	3.790***	3.908***	4.381***	4.142***	3.038***
	(1.036)	(0.969)	(1.070)	(1.013)	(0.907)
Tech interest high	1.033	1.187	1.188	1.188	1.020
	(0.270)	(0.303)	(0.299)	(0.292)	(0.288)
Bank savings	0.845	0.723	0.781	0.991	0.951
	(0.294)	(0.219)	(0.243)	(0.313)	(0.355)
Financial assets	0.912	1.160	0.975	0.906	0.997
	(0.249)	(0.319)	(0.260)	(0.236)	(0.305)
Only boulevard news	0.872	0.946	0.873	0.927	0.902
	(0.264)	(0.276)	(0.243)	(0.266)	(0.312)
Intermediate news	0.728	0.596	0.542**	0.606	0.660
	(0.237)	(0.196)	(0.160)	(0.186)	(0.241)
Offers advantages for payments	7.252***				5.067***
	(1.745)				(1.343)
Positive returns very likely		6.165***			3.298***
		(1.410)			(0.895)
Danger of fraud and online theft			0.478***		0.533**
			(0.110)		(0.151)
High volatility in euro				0.326***	0.587**
				(0.074)	(0.156)
Constant	0.053***	0.051***	0.205**	0.201**	0.068***
	(0.047)	(0.042)	(0.152)	(0.146)	(0.069)
Observations	703	697	720	670	630
Mean dependent variable	0.191	0.195	0.188	0.201	0.198
Log Likelihood	-248.482	-255.951	-287.863	-273.082	-205.681

Note: The table shows odds ratios from logit regressions and associated standard errors in parentheses. The dependent variable is "*Purchase intention*". *** (**) [*] indicates whether the respective point estimate is statistically different from 1 at the 1% (5%) [10%] level. Variable definitions and descriptive statistics are provided in the Appendix.

Table 8. Relative frequencies of attitudes in percent

Panel A. For purchase intention=1 (n=134)			
		Positive returns very likely	
Offers advantages for payments	*in %*	no	yes
	no	13.5	11.3
	yes	14.9	60.3
Panel B. For purchase intention=0 or 1 (n=675)			
		Positive returns very likely	
Offers advantages for payments	*in %*	no	yes
	no	55.0	13.4
	yes	10.8	20.8
Panel C. For owners of crypto-assets (n=34)			
		Positive returns very likely	
Offers advantages for payments	*in %*	no	yes
	no	12.8	18.1
	yes	19.9	49.2

Note: The figure shows relative frequencies in percent (weighted) for three different samples. In Panel A, the sample comprises only of persons with a purchase intention (*Purchase intention* is one, current owners are excluded). In Panel B, the sample is similar to the one used in the estimations of Table 7 (*Purchase intention* is either zero or one, current owners are excluded). In Panel C, the sample comprises only of owners of crypto-assets. The sum of cells adds to 100. Variables are defined in the Appendix.

7. Conclusions

Employing a survey among Austrian consumers on actual and potential ownership of crypto-assets, the paper's aim is to provide evidence on four questions. As regards the prevalence of crypto-assets in Austria, the first question, we find that only 1.5% of the population owns crypto-assets. The second question referred to the financial capabilities of adopters or of potential adopters. Findings from direct survey questions about the motives of holding crypto-assets and from regression analyses reveal that ownership and purchase intentions are strongly associated with expectations of investment returns. As regards risk

attitudes we find that owners are more risk-tolerant, are more likely to be invested in other risky financial assets and have higher financial knowledge than non-owners of crypto-assets, on average. For example, among owners 53% possess other risky financial assets compared to 21% among non-owners. Also, 63% of owners are willing to take above-average risks if they can expect an above-average profit compared to 14% of non-owners. From a financial stability or consumer protection perspective, these results imply that a majority of owners seems to have experience with volatile financial investments and/or is accepting the risk of losses. This assessment does not hold for non-owners with a purchase intention. While these individuals are also more likely to be risk-tolerant than individuals who do not consider purchasing crypto-assets, they do not differ with respect to their ownership of risky financial assets.

The third question referred to whether distrust in banks, in the monetary system or in conventional currencies is an important driver of adoption. This question is important for assessing the "money" and the "store-of-wealth" role that has been assigned to crypto-assets and, as a consequence, how demand might evolve in periods of lower trust (Bouoiyour et al, 2019). Our results suggest that concerns about medium-term monetary stability and distrust in banks are associated with a higher ownership rate of crypto-assets.[23] However, this finding suffers from the shortcoming that it cannot be interpreted causally, e.g. as trust might have changed after adoption. If we analyze adoption intentions rather than actual adoption, which alleviates the endogeneity problem, then we do not find any effect of trust. This result together with direct survey evidence from owners about their reasons for adopting leads us to tentatively conclude that the role of trust is limited.

The fourth question referred to the relative importance of the speculation motive and the transaction motive. To approach this issue, the surveys elicited beliefs (i) about whether investments in crypto-assets are profitable and (ii) about whether crypto-assets offer advantages for payments in comparison to conventional payment methods.[24] We find that both beliefs are prevalent among owners and potential adopters and are strongly affecting purchase intentions. Moreover, both beliefs are closely connected – most individual who own or who intend to purchase crypto-assets believe in (i) positive investment returns as well as (ii) in the usefulness of crypto-assets for payments. With regard to payments, it is interesting that beliefs (about the future) are rather disconnected from the current use – given that about 50% of owners have not

[23] At the same time, the descriptive evidence shows that trust in the European Central Bank is higher among owners than among non-owners of crypto-assets.

[24] Kahn (2018) discusses the important role of privacy for (internet) transactions. We conjecture that privacy is an important reason why survey respondents believe that crypto-assets offer advantages for payments.

yet conducted any payments with crypto-assets yet. One interpretation of these findings is that adoption, and hence demand, is to a considerable extent driven by beliefs in the future importance of crypto-assets for payments.

This study represents a starting point which can be improved in many directions. An important caveat is that we can only use information on the extensive margin. Information on invested amounts would improve the assessment of the financial vulnerabilities of adopters and would allow to refine the result regarding the motives behind adoption. We suspect that invested amounts differ between respondents whose sole aim is speculation and respondents who purchase crypto-assets for conducting payments. Another important issue concerns the issue of causality. While the current paper progresses in understanding the socio-economic characteristics of owners and non-owners, it cannot cleanly identify the causal effect of important potential drivers of ownership. We have circumvented this problem by analyzing potential ownership instead of ownership per se, but to assess future demand, it would be interesting to identify the causal drivers of ownership, e.g. how a specific drop in profit expectations causally reduces ownership.

Acknowledgments

We thank Elisabeth Beckmann, an anonymous referee of the working paper and conference participants at the Bank of Canada for valuable comments. The paper extends a descriptive article about Fintechs in Austria that was coauthored with Doris-Ritzberger-Grünwald. We are grateful to her for valuable discussions which also affected this paper. We thank Christopher S. Henry, Gradon Nicholls and Kim Huynh at the Bank of Canada for sharing their survey questionnaire and for comments. We thank Elisabeth Ulbrich for her collaboration in the design of the questionnaire and the implementation of the survey. We acknowledge helpful comments on the questionnaire by Gabriella Chefalo, Christiane Dorfmeister, Pirmin Fessler, Ronald Neumann, Paul Pichler, Maria Silgoner, Martin Taborsky, Andreas Timel and Beat Weber (all Oesterreichische Nationalbank). The views expressed in this paper are those of the author. No responsibility for them should be attributed to the Oesterreichische Nationalbank or the Eurosystem. All remaining errors are the responsibility of the author.

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Appendix

Definition of variables

Dependent variables

Owns crypto-assets	Ownership of crypto-assets is derived from two survey questions. The first question asks whether respondents have heard of "Bitcoin or of other so-called crypto-currencies". For those respondents that have heard of crypto-assets, another question elicits whether respondents (i) currently own Bitcoin, (ii) currently own other "crypto-currencies", (ii) owned them in the past, (iii) never owned but have interest, (iv) know of and (v) know of but have absolutely no interest. Dummy variable = 1 for answers (i) and (ii), = 0 for answers (iii), (iv) and (v).
Interest crypto-assets broad	See above for a description of survey instruments. Dummy variable = 1 for answers (i), (ii) and (iv), = 0 for answers (iv) and (v).
Purchase intention	Derived from the following statement: "If you think about Bitcoin or other crypto-currencies. Which of the following two statements best applies?" "It is very likely that I will acquire Bitcoin some time" strongly agree . agree . neutral . agree "It is very likely that I will not acquire Bitcoin" strongly agree Dummy variable = 1 if respondents agree or strongly agree to the first statement, = 0 if respondents answered neutrally or agreed or strongly agreed to the second statement.

Socio-economic variables

Level of education	*Edu low* = 1 if the highest level of education of the respondent is the completion of mandatory schooling ("Pflichschule mit/ohne Abschluss"), 0 otherwise. *Edu medium* = 1 if the respondent has completed some form of medium secondary education, e.g. an apprenticeship ("Pflichschule mit Lehre") or a three-year technical school ("Fachschule, Handelschule"), 0 otherwise. *Edu high* = 1 if the respondent has completed higher secondary or tertiary education ("Matura", university degree), 0 otherwise.
In education, Employed, Unemployed, Retired	Dummy variables = 1 if respondent's current labor force status corresponds to the respective characteristics (e.g. if a person is in education), 0 otherwise.
Financial wealth	*High net wealth* = 1 if respondents own their main residence and own a business, 0 otherwise. *Medium net wealth*=1 if respondents own their main residence but do not own a business, 0 otherwise. *Low net wealth* = 1 if respondents rent their main residence (regardless of whether they own a business), 0 otherwise. This classification should provide for a rough proxy of financial wealth and builds upon a classification developed in Fessler and Schürz (2018) who demonstrate that information on tenure status, ownership of real estate that is rented out and ownership of business wealth provide a good classification for net wealth. Their definition was adapted due to data availability (no information is available on whether real estate is rented out).
Asset holdings, holdings of bank savings	Respondents were asked whether they (i) own bank savings (dummy variable *Bank savings*) or (ii) investment funds, single company stocks, government bonds, government bills or other assets as antiques, paintings, etc. (summarized in the dummy variable *Financial assets*). We define four dummy variables. *No bank savings, no assets* = 1 if respondents do not have bank savings or financial assets, 0 otherwise. *Bank savings, asset*s = 1 if

	respondents have both bank savings and financial assets, 0 otherwise. *No bank savings, assets* = 1 if respondents have no bank savings but own financial assets, 0 otherwise. *Bank savings, no assets* = 1 if respondents have bank savings but do not own financial assets, 0 otherwise.
Homeowner	Dummy variables = 1 if respondents are owners of an apartment or a house, 0 otherwise.
High financial risk	Based on the question: "If there are financial decisions in your household: which of the following statement best describes your attitude toward risk: a) if I can expect a substantial profit, I am willing to take substantial financial risks; b) if I can expect an above-average profit, I am willing to take above-average risks; c) if I can expect average profits, I am willing to take average financial risks; d) I do not want to take any risk. *High financial risk* = 1 if respondents choose a) or b), 0 otherwise. *No financial risk* = 1 if respondents choose d), 0 otherwise.
Tech interest high	Based on the following question: "How would you assess yourself in relation to technological developments, e.g. new devices or applications? Which of the following statement best applies to you?" Answers comprise "A) Highly interested, I would like to try new devices or applications immediately", "B) I am interested, but would not want to buy or try new devices or applications immediately", "C) I buy new devices or applications only if I see a benefit", "D) I am not interested in technological developments and only buy new devices when I need them". *Tech interest high* = 1 if respondents choose A) or B), 0 otherwise.
Media consumption	Respondents were provided with a list of Austrian newspapers and magazines and asked whether they read them on a regular basis (the full list is provided upon request). Answers to this question were used to separate respondents into three media types: *Quality news* = 1 if respondents read at least one quality newspaper or magazine. *Only boulevard news* = 1 if respondents either only read boulevard news or no newspapers at all, 0 otherwise. *Intermediate news* = 1 if respondents read any intermediate newspaper (e.g. regional newspapers) but no quality newspaper. Additionally, *Number news sources* refers to the number of newspapers/magazines that are read by respondents.

Trust variables

Discontent with the euro	Based on "Overall, how content are you with the euro as a currency?". Dummy variable = 1 if respondents answer very discontent and rather discontent, 0 if answer is rather content, very content.
Expected inflation (12 months)	Derived from a sequence of questions on respondent's expectations regarding the general level of prices in 12 months. First a question was asked about whether the change in prices will increase, decrease or stay the same. Then, respondents were asked by what percent prices will increase, decrease or stay the same (in categories). From these questions, a percentage value of expected inflation is computed.
Euro unstable in 5 yrs	Based on "And if you think about the coming 5 years – how certain are you that Austria will still have a stable currency (in terms of price stability)?". Dummy variable = 1 if respondents answer very uncertain and rather uncertain, 0 if answer is rather certain, very certain.
No trust ECB	Based on "How much trust do you have in the European Central Bank?". Dummy variable = 1 if answer is very high, rather high, 0 if is answer is rather low, very low.
No trust domestic banks	Based on "How much trust do you have in domestic banks?". Dummy variable = 1 if answer is very high, rather high, 0 if is answer is rather low, very low.
Bank savings unsafe	Based on "How much trust do you have in the safety of bank savings?". Dummy variable = 1 if answer is very high, rather high, 0 if is answer is rather low, very low.

No trust bank's financial advice	Based on "How much trust do you have in the financial advice provided by your main bank?". Dummy variable = 1 if answer is very high, rather high, 0 if is answer is rather low, very low.
No trust public TV	Based on "How much trust do you have in the public TV/radio?". Dummy variable = 1 if answer is very high, rather high, 0 if is answer is rather low, very low.

Attitudes

All variables concerning attitudes are defined similarly. After the introductory statement "If you think about Bitcoin or other crypto-currencies. Which of the following two statements best applies?", respondents very confronted with a list of statements and counterstatements and they were asked to indicate their consents with either a statement or the counterstatement, allowing for a neutral answer (no clear choice). In the following, only the statement and the corresponding opposing statement are shown and all variables are defined similarly as follows: Dummy variable = 1 if respondents agree or strongly agree to the first statement, = 0 if respondents answered neutrally or agreed or strongly agreed to the second statement.	
Offers advantages for payments	"Offers advantages over conventional payment methods" versus "Offers no advantages"
Positive returns very likely	"Positive returns are very likely" versus "Losses are very likely".
Great danger of fraud and online thefts	"Great danger of fraud and online theft" versus "No danger"
High volatility in euro	"High volatility" versus "Low volatility".

Table A1. Descriptive statistics

Panel A. Dependent variables					
	mean	sd	min	max	N
Owns crypto assets	0.02	0.14	0.00	1.00	1691
Owns crypto assets narrow	0.02	0.15	0.00	1.00	1484
Purchase intention	0.18	0.39	0.00	1.00	770
Panel B. Socio-economic variables					
	mean	sd	min	max	N
Male	0.52	0.50	0.00	1.00	1691
Age 14-35	0.30	0.46	0.00	1.00	1691
Age 36-50	0.33	0.47	0.00	1.00	1691
Age 51+	0.37	0.48	0.00	1.00	1691
Edu low	0.06	0.23	0.00	1.00	1691
Edu med	0.55	0.50	0.00	1.00	1691
Edu high	0.39	0.49	0.00	1.00	1691
In education	0.03	0.17	0.00	1.00	1691
Employed	0.73	0.44	0.00	1.00	1691
Unemployed	0.04	0.20	0.00	1.00	1691
Retired	0.20	0.40	0.00	1.00	1691
Survey wave 2	0.49	0.50	0.00	1.00	1691
Low net wealth	0.55	0.50	0.00	1.00	1691
Medium net wealth	0.37	0.48	0.00	1.00	1691
High net wealth	0.05	0.21	0.00	1.00	1691
Bank savings, no assets	0.59	0.49	0.00	1.00	1682
No bank savings, no assets	0.14	0.35	0.00	1.00	1682
Bank savings, assets	0.23	0.42	0.00	1.00	1682
No bank savings, assets	0.04	0.20	0.00	1.00	1682
High financ. risk	0.16	0.37	0.00	1.00	1691
Tech interest high	0.55	0.50	0.00	1.00	1691
Only boulevard news	0.44	0.50	0.00	1.00	1686
Intermediate news	0.28	0.45	0.00	1.00	1686
Quality news	0.28	0.45	0.00	1.00	1686
Number news sources	1.47	1.11	0.00	9.00	1686
Panel C. Trust					
	mean	sd	min	max	N
Discontent with euro	0.19	0.39	0.00	1.00	1684
Expected inflation (12 months)	2.17	1.90	-10.00	10.00	1584
Euro unstable in 5 yrs	0.23	0.42	0.00	1.00	1576
No trust ECB	0.52	0.50	0.00	1.00	1590
No trust banks	0.24	0.43	0.00	1.00	1686
Bank savings unsafe	0.33	0.47	0.00	1.00	846
No trust bank's fin. advice	0.22	0.41	0.00	1.00	799
No trust public TV	0.52	0.50	0.00	1.00	1643
Panel D. Attitudes					
	mean	sd	min	max	N
Offers advantages for payments	0.31	0.46	0.00	1.00	785
Positive returns very likely	0.36	0.48	0.00	1.00	780
Danger of fraud and online theft	0.71	0.45	0.00	1.00	800
High volatility in euro	0.62	0.48	0.00	1.00	746

Note: The same sample restrictions are applied than in the estimations. Unweighted.

Table A2. Ownership of crypto-assets by socio-economic characteristics

		in % of the population
Total		1.5
Gender	Female	0.8
	Male	2.2
Age	14-35	3.1
	36-50	1.1
	51-65	1.2
	66+	0.2
Education	Low	1.2
	Med	1.3
	High	2.0
HH income tercils	Low income	1.2
	Middle income	1.4
	High income	1.9
Net wealth	Low net wealth	1.6
	Medium net wealth	1.0
	High net wealth	2.5
Risk preference	Medium or no risk	0.8
	High risk	7.2
Bank savings	No bank savings	1.9
	Bank savings	1.4
Financial assets	No financial assets	0.9
	Financial assets	3.6
Media consumption	Only boulevard news	1.0
	Intermediate news	1.1
	Quality news	2.8

Note: The table shows the ownership of crypto-assets by socio-economic characteristics in % of the population.

Table A3. Attitudes towards crypto-assets: Statistical significance

	Balance Statistics			P-value coefficients are equal			Observations		
	Own	Interest	Know by name	Own=Interest	Own=Know by name	Interest=Know by name	Own	Interest	Know by name
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Offers advantages over conventional payment methods - offers no advantages	-57.74 ***	-43.04 ***	39.48 ***	0.37	0.00 ***	0.00 ***	37	199	582
Low volatility in euro - high volatility	13.89	21.98 ***	54.46 ***	0.64	0.01 **	0.00 ***	36	195	539
Positive returns very likely - losses very likely	-52.01 ***	-32.45 ***	17.49 ***	0.19	0.00 ***	0.00 ***	37	198	572
Very attractive investment - very unattractive	-82.81 ***	-41.93 ***	40.87 ***	0.00 ***	0.00 ***	0.00 ***	37	202	609
Problem, illegal internet deals - no problem	-8.80	-26.12 ***	-64.13 ***	0.31	0.00 ***	0.00 ***	35	199	567
Great danger of fraud and online theft - low danger	-21.89	-37.52 ***	-71.25 ***	0.36	0.00 ***	0.00 ***	37	199	599
Will gain importance - will lose importance	-79.90 ***	-65.84 ***	1.30	0.10 *	0.00 ***	0.00 ***	36	206	581
Very likely that I will purchase Bitoin - very likely not	-79.21 ***	-31.55 ***	68.66 ***	0.00 ***	0.00 ***	0.00 ***	35	201	624

Note: Column (1) to (3) show the balance statistics depicted in Figure 6 along with the p-value of a test whether the respective coefficient is zero. Column (4) shows the p-values of a test whether the point estimate is equal for Owners and for persons interested in crypto-assets. Column (5) shows the p-values of a test whether the point estimate is equal for Owners and for persons who know of crypto-assets. Column (6) shows the p-value of a test whether the point estimate is equal for persons who are interested and for persons who know of crypto-assets. Columns (7)-(9) show the number of observations per group. *** (**) [*] indicates significance at the 1% (5%) [10%] level. Variable definitions and descriptive statistics are provided in the Appendix.

Supplement (not for publication)

Table S1. Regression results: Ownership of crypto-assets narrow

	Dependent variable: *Owns crypto-assets* narrow				
	(1)	(2)	(3)	(4)	(5)
Male	1.380	1.835	1.799	1.844	1.512
	(0.552)	(0.713)	(0.699)	(0.713)	(0.622)
Age 36-50	0.584	0.605	0.605	0.568	0.531
	(0.262)	(0.267)	(0.270)	(0.255)	(0.250)
Age 51+	0.587	0.390*	0.391*	0.333**	0.444
	(0.294)	(0.193)	(0.194)	(0.172)	(0.241)
Edu med	1.628	1.663	1.644	1.798	1.836
	(1.534)	(1.480)	(1.475)	(1.640)	(1.762)
Edu high	2.119	1.719	1.744	1.595	1.904
	(1.966)	(1.524)	(1.553)	(1.444)	(1.803)
In education	2.391	2.040	2.082	1.770	2.142
	(1.706)	(1.433)	(1.478)	(1.276)	(1.616)
Medium net wealth	0.544	0.449*	0.459*	0.488	0.647
	(0.246)	(0.202)	(0.206)	(0.220)	(0.301)
High net wealth	1.781	1.059	1.124	1.293	2.182
	(1.335)	(0.764)	(0.815)	(0.944)	(1.643)
Survey wave 2	0.542	0.647	0.682	0.694	0.596
	(0.205)	(0.235)	(0.249)	(0.253)	(0.229)
High financ. risk	10.003***				9.528***
	(3.808)				(3.885)
Tech interest high	7.413***	9.531***	9.327***	9.366***	7.241***
	(4.962)	(6.391)	(6.259)	(6.278)	(4.903)
Bank savings		0.517*			
		(0.203)			
Financial assets		4.342***			
		(1.613)			
No bank savings, no assets			1.069	1.060	1.185
			(0.669)	(0.666)	(0.766)
Bank savings, assets			3.086**	2.968**	1.877
			(1.356)	(1.306)	(0.859)
No bank savings, assets			9.834***	9.866***	8.332***
			(4.925)	(4.930)	(4.395)
Only boulevard news				0.607	0.998
				(0.266)	(0.462)
Intermediate news				0.526	0.459
				(0.270)	(0.245)
Constant	0.003***	0.004***	0.003***	0.004***	0.002***
	(0.003)	(0.005)	(0.003)	(0.005)	(0.003)
H0: Bank savings, assets = No bank savings, assets			0.023	0.018	0.007
Observations	1484	1476	1476	1473	1473
Mean dependent variable	0.023	0.023	0.023	0.023	0.023
Log Likelihood	-110.204	-118.632	-117.343	-114.591	-97.554

Note: The table shows odds ratios from Firth logit regressions and associated standard errors in parentheses. The dependent variable is "*Owns crypto-assets*". *** (**) [*] indicates whether the respective point estimate is statistically different from 1 at the 1% (5%) [10%] level. "H0: Bank savings, assets = 0, No bank savings, assets = 0" reports the p-value of the F-test whether the two point estimates are jointly zero. "H0: Bank savings, assets = No bank savings, assets" reports the p-value of the F-test whether the two point estimates are equal. Variable definitions and descriptive statistics are provided in the Appendix.

Table S2. Regression results: Ownership of crypto-assets and trust

	Dependent variable: *Owns crypto-assets narrow*						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Male	1.393	1.506	1.234	1.399	1.449	1.689	1.934
	(0.558)	(0.627)	(0.507)	(0.567)	(0.584)	(0.844)	(0.978)
Age 36-50	0.589	0.620	0.420*	0.602	0.529	1.123	1.295
	(0.269)	(0.296)	(0.204)	(0.280)	(0.243)	(0.667)	(0.782)
Age 51+	0.559	0.577	0.494	0.556	0.502	1.047	1.036
	(0.287)	(0.301)	(0.251)	(0.286)	(0.255)	(0.636)	(0.639)
Edu med	1.867	1.770	1.820	1.678	1.734	0.938	0.524
	(1.764)	(1.656)	(1.716)	(1.584)	(1.624)	(0.919)	(0.507)
Edu high	2.094	2.062	2.215	1.980	2.127	1.173	0.736
	(1.962)	(1.914)	(2.099)	(1.858)	(1.988)	(1.146)	(0.701)
In education	1.759	1.867	2.089	1.904	1.211	1.588	1.85
	(1.327)	(1.413)	(1.618)	(1.434)	(0.992)	(1.734)	(2.045)
Medium net wealth	0.584	0.614	0.673	0.624	0.57	0.697	0.714
	(0.269)	(0.285)	(0.313)	(0.288)	(0.263)	(0.370)	(0.385)
High net wealth	1.965	2.057	2.511	2.483	2.08	3.732	4.210*
	(1.484)	(1.538)	(1.912)	(1.896)	(1.547)	(3.065)	(3.473)
Survey wave 2	0.544	0.474*	0.621	0.484*	0.559		
	(0.207)	(0.190)	(0.246)	(0.190)	(0.214)		
High financ. risk	11.396***	9.966***	10.189***	11.986***	11.124***	11.436***	10.186***
	(4.549)	(4.035)	(4.222)	(4.889)	(4.483)	(5.854)	(5.222)
Tech interest high	7.566***	7.402***	14.535***	7.272***	9.453***	7.902**	8.958**
	(5.075)	(4.972)	(12.386)	(4.885)	(6.468)	(6.796)	(7.890)
Only boulevard news	1.049	1.082	1.202	1.034	1.147	1.056	1.156
	(0.473)	(0.499)	(0.570)	(0.476)	(0.531)	(0.636)	(0.695)
Intermediate news	0.506	0.538	0.591	0.537	0.467	0.824	0.868
	(0.255)	(0.277)	(0.312)	(0.271)	(0.240)	(0.494)	(0.524)
No trust public TV	0.491*	0.432**	0.465*	0.613	0.387**	0.436*	0.420*
	(0.187)	(0.172)	(0.183)	(0.252)	(0.152)	(0.213)	(0.207)
Discontent with euro	0.639						
	(0.384)						
Expected inflation (12 months)		0.969					
		(0.120)					
Euro unstable in 5 yrs			2.848***				
			(1.149)				
No trust ECB				0.640			
				(0.270)			
No trust banks					3.059***		
					(1.235)		
Bank savings unsafe						1.896	
						(0.943)	
No trust bank's fin. advice							3.213**
							(1.601)
Constant	0.004***	0.004***	0.002***	0.005***	0.003***	0.003***	0.004***
	(0.005)	(0.005)	(0.002)	(0.005)	(0.003)	(0.004)	(0.005)
Observations	1436	1359	1336	1360	1437	735	696
Mean dependent variable	0.024	0.024	0.024	0.024	0.024	0.029	0.030
Log Likelihood	-101.73	-94.82	-91.93	-97.18	-98.52	-59.70	-57.41

Note: The table shows odds ratios from Firth logit regressions and associated standard errors in parentheses. The dependent variable is "*Owns crypto-assets*". *** (**) [*] indicates whether the respective point estimate is statistically different from 1 at the 1% (5%) [10%] level. Variable definitions and descriptive statistics are provided in the Appendix.