

Cryptoassets and the digital euro

Research in 2023

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Introduction

One of the fruits of recent technological development is a new type of asset – cryptoassets – which can be transferred and stored in a decentralised way thanks to distributed ledger technology (DLT). Cryptoassets have been in use for 15 years and in that time a completely new sector of the financial market has grown up around them.

Technological development is gradually transforming other, more traditional areas of the financial market. Central banks are considering the possibility of issuing currency in digital form. Like most other global central banks, the European Central Bank (ECB) is working on the creation of its own digital currency – the digital euro.

Despite extensive discussion of both topics for several years, the real extent of public awareness and the character of public opinion about them remained unclear. Národná banka Slovenska (NBS) therefore decided, at the end of 2021, to conduct a survey of consumers' knowledge, attitudes and experience regarding cryptoassets and the digital euro. The results of this research have been published on the [web site of NBS](#).

Since 2021 there have been significant shifts in both areas and we were therefore interested what effect these developments had had on Slovak consumers in terms of changes in their attitudes, knowledge and experience. At the end of 2023, NBS therefore carried out a second wave of its consumer research on cryptoassets and the digital euro. This document summarises and sets out NBS's commentary on the 2023 survey and its comparison with previous research.

1 Summary

NBS launched a second wave of its consumer research on cryptoassets and the digital euro at the end of 2023. A survey investigated the knowledge, attitudes and experience of Slovak consumers in relation to both topics and the changes that had taken place in the two years since the previous survey.

The survey was conducted for NBS by the Focus agency using a combined data collection method (online panel and personal inquiry) on a representative sample of 1,535 respondents. All the respondents were asked whether they were aware of the terms “digital euro”, “cryptoassets”, “cryptocurrencies” and “Bitcoin”. Follow-up questions were asked only to respondents who were aware of the terms. A difference from the previous survey was that an additional 257 respondents with direct experience of cryptoassets were deliberately recruited as a boost sample to obtain more representative results in follow-up.

Attitudes and knowledge regarding the digital euro

More than half of respondents (55.5%) said that they were aware of the “digital euro”, which is a significant increase compared to the situation two years ago, when just under a third of respondents were aware of it (32%). However, more than a third of the respondents who were aware of the term digital euro did not have even basic knowledge of the issue and therefore they were asked no further questions on this topic.

Whereas the largest group of respondents in the previous survey had no concerns about the digital euro, the most frequent response is now concern about a digital euro leading to the end of cash. Other concerns that respondents mentioned were a lack of privacy protection, cyberattacks and the potential decline of the digital euro’s value.

Even so, respondents are still more likely to prefer payments using a digital euro over private stablecoins, which shows that Slovaks are still relatively open to this possibility. On the other hand, compared to the previous survey, there was an increase in the proportion of respondents with no interest in payments using a digital euro or a stablecoin.

Opinions and knowledge of cryptoassets

The expressions “cryptoassets/cryptocurrencies” and/or “Bitcoin” had been heard by a significant majority of respondents (87.9%), which is slightly more than in the previous survey (84.1%). Nevertheless, many of the respondents had no knowledge of the topic beyond being aware of it, so they were excluded from the remainder of the questions.

Of the top 10 cryptoassets, most of the respondents were aware only of Bitcoin¹, followed at a distance by Ethereum² and Dogecoin. The situation was similar two years ago. There had been no significant changes in recognition of cryptoassets since the last survey.

¹ The native crypto asset is called bitcoin. However, in the text below we use a single term to refer to both the blockchain and the cryptoasset – Bitcoin.

² The native crypto asset is called Ether. However, in the text below we use a single term to refer to both the blockchain and the cryptoasset – Ethereum.

Only just over a quarter of respondents know that NBS will start supervising the cryptoasset market in 2024. However, most respondents are aware that if their cryptoasset service provider goes out of business, they are not entitled to any compensation from the state.

Respondents' opinions on cryptoassets are divided. On the one hand, most respondents consider cryptoassets to be a high risk speculative investment (70.9%) and many see them as an asset with no real value (40.3%) and a trend that will go out of fashion in due course (38.3%). On the other hand there are respondents who see cryptoassets as the future of online payments (33.8%), a good long-term investment (31.2%) or even an eventual replacement for traditional currencies (24.1%).

As in the survey two years ago, respondents name anonymity, fast transaction speed and lower fees as the main advantages of cryptoassets. At the same time, there has been a sharp increase in the number of respondents who see no advantage in cryptoassets compared to the traditional financial system.

The respondents also diverge in their opinions about the negative impacts of cryptoassets on the environment. The largest group of respondents think that no cryptoassets have a negative impact on the environment. Two years ago, the most common response was that at least some cryptoassets had negative impacts.

Cryptoassets are often criticised for facilitating illegal activities due to the greater anonymity that they offer. In the present research, most respondents were convinced that cryptoassets were used for illegal activity only to a limited extent. On the other hand, there has been a significant increase in the number of respondents who think that most cryptoassets (not just a limited part of them) are used for illegal activities.

Ownership and interest in the purchase of cryptoassets

One of the main goals of this survey was to find what percentage of the adult Slovak population has real experience with cryptoassets. Since the last survey, there has been a small increase in the percentage of respondents currently owning cryptoassets, which rose from 5.8% of all respondents to 6.5%, and a larger increase in the percentage of respondents who had owned cryptoassets in the past, which went up from 3.1% to 5.9% of all respondents. Based on these survey results, it can be estimated that over a tenth of the adult Slovak population has practical experience of cryptoassets and the number of cryptoasset users continues to grow. Growth is likely to slow down though because the number of respondents considering purchasing cryptoassets in the future has decreased since the previous survey.

Based on the survey respondents, the typical person with practical experience of cryptoassets is a man aged 25 to 34 with a university education and a net monthly income of €1,000 to €2,000. The reasons that respondents without experience of cryptoassets gave for not purchasing cryptoassets were similar to those mentioned two years ago – lack of funds, insufficient information and concerns about cryptoassets declining in value.

Practical experience with cryptoassets

Most respondents purchased cryptoassets during the bull market between 2020 and 2021. The proportion of respondents who purchased cryptoassets in the last two years is significantly lower, which is probably due to the more negative trend in prices. Compared to the previous survey, there were significantly fewer respondents who owned just one cryptoasset and more

respondents owning six or more cryptoassets, which indicates that cryptoasset owners are gradually diversifying their investments. The most frequently reported cryptoasset types were the same as two years ago – Bitcoin, Ethereum and Cardano.

The main reasons mentioned for purchasing cryptoassets were speculative investment and getting to know cryptoassets better, which was also the same as two years ago. This would explain why most respondents have less than 5% of their investment portfolio in this asset class and own cryptoassets with a value of no more than €1,000. On the other hand, the last two years have seen an increase in the number of respondents with larger holdings of cryptoassets.

Whereas in 2021 most respondents who had invested in cryptoassets reported a profit, in 2023 they tended to report a loss, which is in line with the development of prices over the last 2 years. Another area that has seen a relatively large shift since 2021 is how investors finance the purchase of cryptoassets. Whereas in 2021 owners primarily financed their purchase of cryptoassets from their own disposable income and were much less likely to draw on savings, in 2023 the two methods were relatively balanced.

As was observed two years ago, respondents were most likely to buy cryptoassets through foreign companies. However, alternative ways of acquiring cryptoassets such as “staking” and “airdrops” have grown in significance since the last survey. As in the survey two years ago, most respondents leave their cryptoassets in the custody of the company where they bought them. The collapse of several large crypto companies in the last two years has highlighted the risk of this approach. These risks should be mitigated by the EU’s Regulation on the Markets in Crypto-Assets (MiCA), under which NBS will become the supervisory authority in the Slovak Republic. As was the case two years ago, most users had never heard of this regulatory regime.

Comparison with foreign surveys

Detailed research on cryptoassets has also been conducted in other countries. Their results show relatively close levels of cryptoasset ownership, which was reported by 9% of respondents in the UK, 9.4% of respondents in France and 10% of respondents in Canada. Our research points to lower levels of cryptoasset ownership in Slovakia, specifically 6.5%.

2 Report of findings

2.1 Research context and design

NBS followed up on its previous survey in cooperation with the Focus agency and mapped Slovaks' attitudes to two key areas of innovation – cryptoassets and a digital euro. There have been significant changes in both areas in the last two years.

The [digital euro](#) project has moved closer to implementation. The research phase was completed in 2023 and the ECB decided to launch the preparation phase in 2023. In the area of cryptoassets, there was a significant reduction in market capitalisation between 2021 and 2023, several large crypto companies collapsed and an [EU regulation](#) was adopted under which NBS will become a supervisory authority for the market in cryptoassets in 2024.

Motivation

The main reason for conducting consumer research in these areas was to obtain information on consumers' knowledge, attitudes and experiences relating to the digital euro and cryptoassets and to compare them with the findings of the previous survey two years ago. NBS will take account of the findings in subsequent public communications concerning these matters.

Detailed information on research design

The survey was carried out for NBS by the Focus agency between 7 and 24 November 2023. The national representative survey was carried out using a combined data-collection method – online administration with an online panel (for the online part of the sample) and in-person administration (for the offline part of the sample). In-person administration was included so as not to exclude from the survey people who do not use the internet or use it only to a limited extent and were thus unable to participate in online panels. In-person administration was used with around 20% of the overall representative sample, which is the same as the percentage of the adult population of the Slovak Republic who do not use the internet or use it only to a limited extent. The sample of respondents was selected using stratified sampling. The stratification criteria were: sex, age, education, settlement size and the region in which the respondent lived. The sample of 1,535 persons selected to represent the adult population of Slovakia was weighted to copy the basic distributions of these characteristics in the Slovak population. The maximum sampling error was 2.5% for a confidence interval of 95%.

As the 190 declared users (persons with practical experience of cryptoassets) made up a relatively small part of the representative sample, they were supplemented by 257 users deliberately selected for the survey (boost sample) to ensure more representative responses for this group. Respondents from the boost sample used the online form of the survey. Quotas were also applied to the boost sample (for sex, age, education, place of residence and region of residence) but with a smaller number of categories (for example, the national representative sample included 6 age categories – 18-24, 25-34, 35-44, 45-54, 55-64, 65+ – but the boost sample worked with just 3 age categories – 18-34, 35-54, 55+). The quotas for the boost sample were calculated based on information about cryptoasset owners in the national representative sample. The findings on practical experience with cryptoassets are thus based on an enlarged sample of 447 respondents. In the survey two years ago, questions on practical experience with cryptoassets were answered only by users in the representative sample without the recruitment of a boost sample of users. The new arrangement should better reflect the

overall experiences of Slovak cryptoasset users. When comparing the two surveys, it must be borne in mind that differences from the previous survey may be affected not only by developments over the last two years but also by changes in sample size and composition.

Opinion of NBS regarding the research findings

The survey captured the knowledge, opinions and attitudes of the respondents. The research results do not represent the opinions of NBS, which may be completely different from the opinions of the consumers recorded by the present research.

2.2 Knowledge and attitudes regarding the digital euro

Most of the world's central banks are currently working on creating a central bank digital currency (CBDC). In the euro area, the Eurosystem has been working on its own CBDC for several years under the name [digital euro](#). This project operated in a “research phase” from October 2021 to October 2023 during which it developed the basic concept for how a digital euro could work. In November 2023 the project moved into the “preparation phase” whose aim is to lay the foundations for the potential issuance of a digital euro. Activities at this stage include finalising the digital euro scheme rulebook and selecting providers that could potentially develop the necessary infrastructure. This phase will also include practical tests and experiments to develop a digital euro that meets the Eurosystem's requirements. At the end of the preparation phase, the Governing Council of the European Central Bank (ECB) will decide whether the digital euro project should proceed to the next stage.

The launch of the preparation phase does not automatically mean that any digital euro will be created. The Governing Council of the ECB can only take this decision after the adoption of legislation on the digital euro whose [first draft](#) was published by the European Commission in summer 2023.

Although the digital euro project is only in the preparation phase and no definitive decision has been taken on whether it will be created, there are already many opinions on this topic in public debate. European institutions are trying to give these views due consideration in the legislative process on the digital euro and the ECB is taking account of them in the development of the digital euro. Nevertheless, criticism of the digital euro project often owes more to false information and unfounded fears than the real plans of the ECB. We were therefore interested how the Slovak public currently views this issue and how opinions have changed since the last survey was conducted two years ago.

Awareness of the digital euro

The expression “digital euro” had been heard by more than half of the respondents (55.5%), which is a significant increase compared to the situation two years ago, when just under a third of respondents were aware of the term (32%). Respondents were most likely to have first heard about the digital euro from traditional media such as television or radio (37.6%) followed by social media (21.1%) or other websites, blogs or forums (19.2%). Of respondents who were aware of the digital euro, most (54.1%) thought that they had basic knowledge of the issue, while just over a third of the respondents (35.8%) claimed to have no knowledge and a tenth (10.1%) considered their knowledge of the digital euro to be advanced.

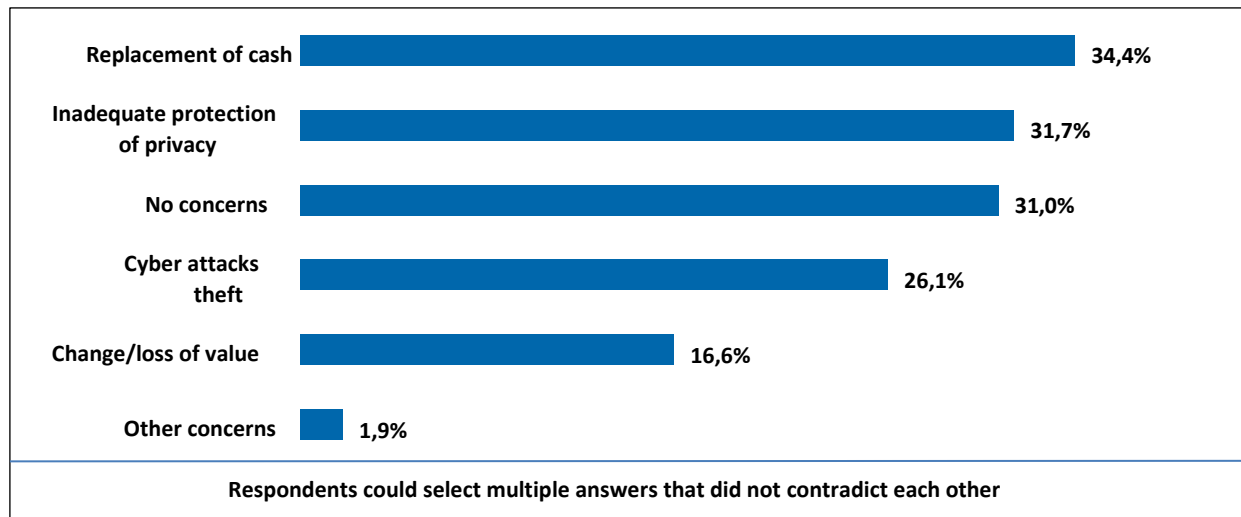
Additional questions about the digital euro were given only to those respondents who believed they had basic or advanced knowledge. These respondents are referred to in the text as “being acquainted

with the digital euro”. Just over a half (54%) of the respondents in this group were able to identify the correct definition of the digital euro in a list of offered definitions. It is interesting that the survey two years ago obtained almost exactly the same result, when 54.2% of respondents answered correctly.

Opinions about the digital euro

Respondents acquainted with the digital euro were asked about any concerns they had regarding the digital euro.

Chart 1 Concerns about the digital euro



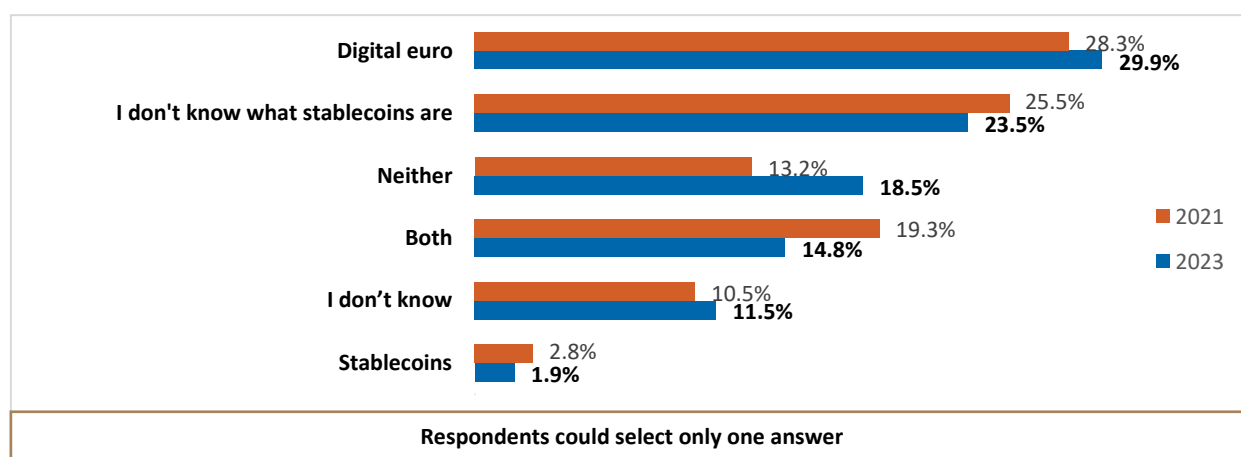
Whereas, in the survey two years ago, the largest group of respondents (46.7 %) had no concerns about the digital euro, the most frequent response in the present survey is concern about a digital euro leading to the end of cash. This development is the result of increasingly polarised public controversy about CBDCs, which affects not just Slovakia or the EU but also other countries that are considering creating CBDCs, such as the USA. To address these concerns, in summer 2023 the European Commission presented draft legislation on the digital euro and [draft legislation](#) on the legal tender status of banknotes and coins. The aim of this legislative initiative is to reinforce the right of euro area citizens to make cash payments. The European institutions are clearly communicating that the digital euro is not intended to replace cash but to complement it.

The second most important concern for respondents relating to the digital euro was inadequate protection of privacy. Similar concerns have been raised since the beginning of the digital euro project and the ECB is trying to take them into account in the development of the digital euro. Considering the planned limits on the use of the digital euro and the need to combat money laundering, it is out of the question for digital euro payments to be entirely anonymous. However, the digital euro should provide comparable and in some respects stronger privacy protection compared to other digital payment solutions. Unlike commercial entities, the Eurosystem has no interest in monitoring users’ payment transactions and should therefore not have access to users’ private data. The digital euro should enable citizens to make payments without their data being shared with third parties except those who need access to payment information to prevent illegal activities. There should be an even higher level of privacy protection for offline payments. In such cases, information on the payment would be known only to the sender and recipient.

Some respondents expressed concerns about cyberattacks or the theft of digital euros. Such risks exist in current electronic banking and usually involve errors on the part of users who reveal their data to fraudsters, for example in “phishing attacks”. The digital euro will probably have the same risks. The last risk that respondents mentioned was the possibility that the value of a digital euro could decrease. While existing stablecoins³ are at risk of losing their value, the digital euro will be official legal tender. Therefore, it will always have the same value as a cash euro and will be redeemable for cash at any time.

This is a key reason why respondents may prefer the digital euro as a means of payment over stablecoins.

Chart 2 Digital euro vs private stablecoin payments



The findings of the 2023 survey are comparable to those from 2021 with the largest change being a decrease in the number of respondents who are willing to use either means of payment, which may be linked to the concern about loss of value discussed above.

Most respondents would still prefer payments using a digital euro over private stablecoins, which shows that Slovaks are still relatively open to this possibility. However, all these considerations are still on the level of theory and it can be expected that citizens will ultimately decide whether or not to use the digital euro based on real experience and the practical benefits that the digital euro offers them.

2.3 Knowledge and attitudes regarding cryptoassets

Cryptoassets have come a long way in their 15 years of existence. From a marginal interest for a small group of technically savvy users, they have gradually grown into a complex market with a diverse ecosystem of cryptoassets and crypto companies. This market continues to change and evolve in a hugely dynamic way. Since our last survey two years ago, the (rising) bull market turned into a (falling) bear market (before returning to gradual growth), many large crypto companies collapsed (for example, FTX), cryptoassets increasingly found uses for purposes other than payments and they gradually found a place in several investment portfolios. A significant change in the EU was the

³ It is a type of crypto asset that is specific in that its value is stabilised in some way (there are different ways of stabilisation) so that it is not as volatile as other crypto assets. The value of stablecoins is usually pegged to official currencies such as the dollar or the euro.

adoption of the Regulation on the Markets in Crypto-Assets (MiCA),⁴ which will bring at least part of this market under financial market regulation.

Awareness of cryptoassets

All these events can be expected to have had an impact on Slovaks' knowledge and attitudes concerning cryptoassets and we were therefore curious how the attitudes of Slovak consumers have changed since the last survey.

Table 1 Awareness of cryptoassets

		2021	2023
1.	Aware of cryptoassets (cryptocurrencies)	74.1%	78.6%
2.	Aware of Bitcoin	80%	83.5%
	crypto-aware - having heard about cryptoassets (cryptocurrencies) and/or Bitcoin	84.1%	87.9%

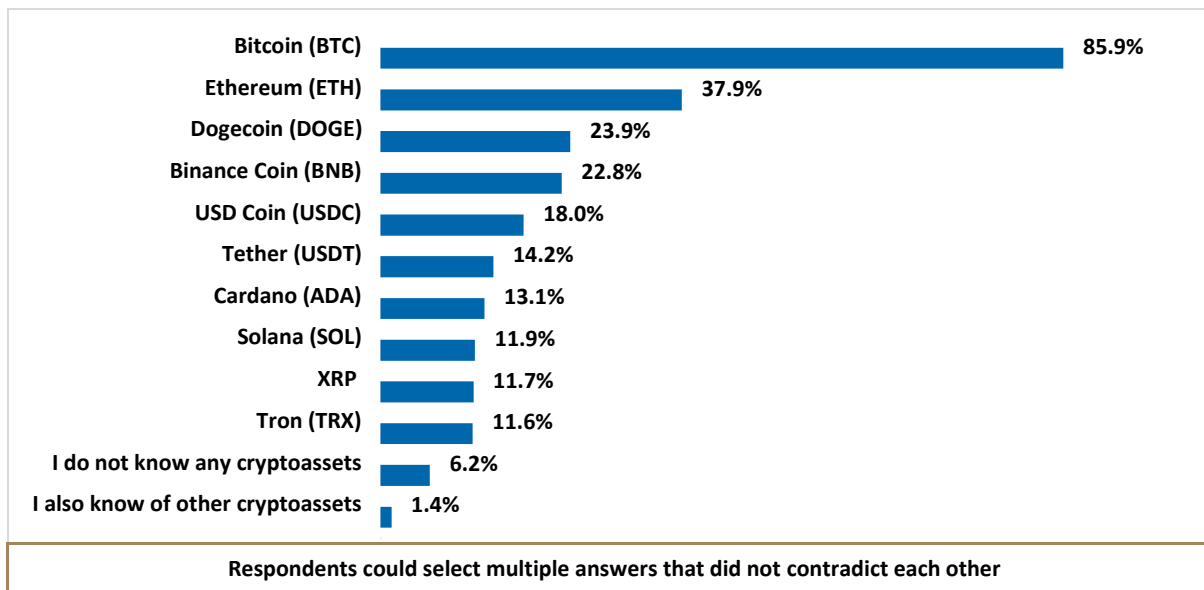
Since a strong majority of respondents were already aware of the words “cryptoasset” and “bitcoin” two years ago, the present survey showed only a slight increase. Respondents reported first hearing about cryptoassets mainly from traditional media such as radio and television (24.6%) but also on social media (23%) and various websites, blogs and discussion forums (19.6%).

Crypto-aware respondents who had heard at least one of the above expressions were then asked to evaluate their personal knowledge of the issue. A few respondents considered themselves to have advanced knowledge of crypto (6.4%), around half thought of themselves as having basic knowledge (49.6%) and the remainder said that although they were aware of crypto, they had no knowledge of the issue (44%). This last group of respondents was naturally excluded from further questions and all subsequent questions were given only to those respondents who had at least basic knowledge. The sample of respondents was thus reduced to 755 respondents, who are referred to in the following text as “crypto-knowledgeable”. Just because someone thinks that they have at least basic knowledge does not automatically mean that this is the case, as the answers to the next question show. Only 61.6% of crypto-knowledgeable respondents were able to select the correct definition of a cryptoasset from a list.

Bitcoin is the first and best-known crypto-asset. There are, however, thousands of other less well-known cryptoassets on the market besides bitcoin. The survey investigated how many respondents knew the top 10 cryptoassets by market capitalisation.

⁴ [Regulation \(EU\) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on markets in crypto-assets, and amending Regulations \(EU\) No 1093/2010 and \(EU\) No 1095/2010 and Directives 2013/36/EU and \(EU\) 2019/1937](#)

Chart 3 Knowledge of cryptoassets at least by name



The chart clearly shows the large difference in recognition between Bitcoin and all other cryptoassets. It is interesting that Dogecoin achieves such a high level of recognition when its market capitalisation places it at the tail of the top 10 cryptoassets; this would appear to be the result of the media attention garnered by this originally satirical project. Paradoxically, some “crypto-knowledgeable” respondents could not name any cryptoasset types, which is further proof that some respondents may have overestimated their knowledge of this topic. Even though there are thousands of cryptoassets available on the market and more are added every day, only the bare minimum of respondents know any cryptoassets outside the top 10. Although the last two years have seen major changes in the cryptoasset market, recognition of specific cryptoassets remains broadly the same. The 7 most recognised cryptoassets in this survey are the same as those in the 2021 survey.

Knowledge regarding cryptoassets

One of the most significant crypto-related developments in the EU in the last two years was the approval of the [MiCA](#) Regulation, under which NBS will become the supervisory authority for this new sector of the financial market from 2024. We were curious about public awareness of this information. The most frequent finding was that crypto-knowledgeable respondents did not know that NBS would become a supervisory authority for this market (29.9%) while many respondents thought that NBS would not acquire supervisory powers even in the future (24.5%), nearly a fifth of respondents mistakenly thought that NBS already had a supervisory role (19%) and just over a quarter of respondents answered correctly that NBS would start supervising the market in cryptoassets from 2024 (26.7%). These results show that NBS is facing a significant challenge in actively communicating this topic to the public.

The last two years have seen several major global crypto companies collapse. The clients of these companies learned from their own experiences that the government will provide no assistance in such cases and that, unlike the clients of a failed bank or investment firm, they have no claim for government compensation to cover their losses. Most crypto-knowledgeable respondents know these risks (62.6%) but there is still a relatively large group of respondents who think they would get government compensation in the event of a collapse (15.8%) while over a fifth of respondents were unable to answer this question (21.6%). It is somewhat surprising that the results are

approximately the same as in the survey two years ago. The events of recent years do not seem to have increased awareness about this point. It is another topic that NBS, as the supervisory authority for the market in cryptoassets, will need to communicate more clearly to the public.

Opinions about cryptoassets

The survey revealed significant differences in respondents' opinions about cryptoassets. In addition to a noticeable minority with strong opinions for and against crypto, there is also a large group without very clearly defined views. We were therefore interested in the views of the Slovak public about cryptoassets.

As was the case two years ago, a large majority of respondents believed that cryptoassets were a high-risk speculative investment. A significant group of respondents see no real value in cryptoassets and consider them a trend that will go out of fashion in due course. The survey results show that many crypto users are most interested in price speculation; many cryptoassets, including the biggest in the market, have no traditional intrinsic value and cryptoassets have only existed for a short time relative to other asset classes. All of these factors make respondents' attitudes understandable.

Table 2 Opinions about cryptoassets

Claim			
	I agree	I disagree	I don't know how to answer
Cryptoassets are a high-risk speculative investment	70.9%	13.1%	16%
Cryptoassets have no real value	40.3%	35.1%	24.7%
Cryptoassets are just a trend that will eventually go out of fashion	38.3%	36.9%	24.8%
Cryptoassets are the future of online payments	33.8%	40.4%	25.7%
Cryptoassets are a good long-term investment	31.2%	42.2%	26.6%
Cryptoassets will replace traditional currencies in the future	24.1%	50.9%	25%

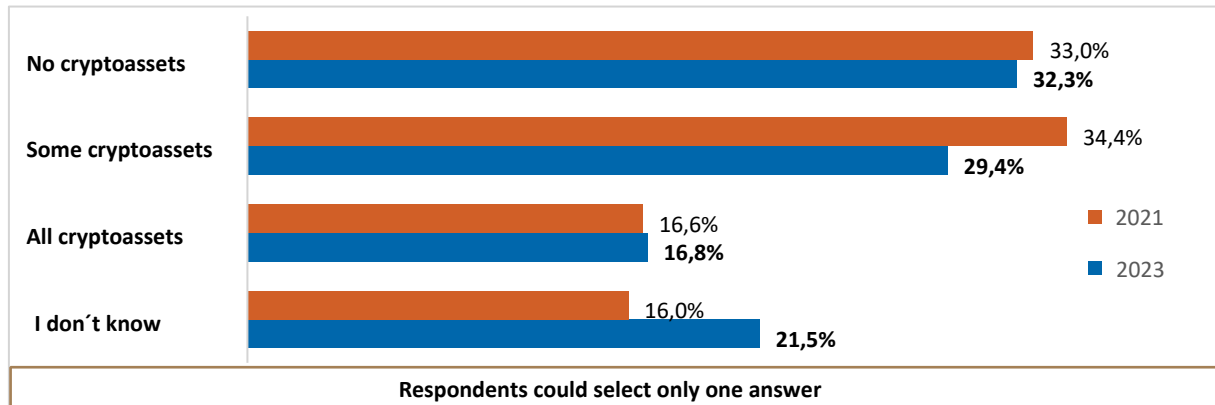
Only around a third of respondents have a more positive view of cryptoassets, seeing them as the future of online payments and a good long-term investment. Just under a quarter of respondents go even further and believe that cryptoassets will replace traditional currencies in the future. The blockchain technology underlying cryptoassets has revolutionised the possibilities for transferring value over the Internet and therefore it cannot be ruled out that cryptoassets, especially stablecoins, could yet play a significant role in online payments. There is no sign of cryptoassets replacing traditional currencies in the foreseeable future though. Owing to high volatility, the main cryptoassets for payments are stablecoins, which are themselves tethered to traditional currencies. Thus, instead of replacing traditional currencies, stablecoins have enabled a different way to use traditional currencies. Even this form may be replaced in the future by the CBDCs currently being developed by many of the world's central banks.

Another major topic is the question of whether cryptoassets are a good long-term investment. Cryptoassets have still not been on the market long enough to give an unequivocal answer to this

question. It is important to note that although there are thousands of cryptoassets on the market, it is likely that only a few of them can preserve their value over the long term.

The electricity consumption of crypto mining and its negative impacts on the environment have been a major topic in politics for several years. We were therefore interested in the views of the Slovak public on this topic.

Chart 4 Negative environmental impacts of cryptoassets



The largest group of respondents think that none of the cryptoassets have a negative impact on the environment. Two years ago, the most common response was that at least some cryptoassets had negative impacts. It appears that despite frequent criticism of cryptoassets and especially Bitcoin for their negative environmental impacts, this view is not gaining traction among the Slovak public but is instead declining slightly. A smaller group of respondents thinks that all cryptoassets have a negative impact on the environment. These respondents are probably unaware that many cryptoassets no longer use an energy-intensive type of consensus mechanism (Proof of Work) and their potential negative impacts on the environment are only minimal. This issue is discussed in more detail in Box 1.

Box 1: Environmental impacts of cryptoassets

Like any other industry, crypto mining is in a state of continuous development. One of the most striking modern trends is the use of renewable and green electricity to mine cryptoassets. Solar, nuclear, wind, geothermal and hydro are now widely used sources of electricity all around the world.

According to the latest estimates from the [Bitcoin Mining Council \(BMC\)](#), a non-profit organisation representing 43% of all Bitcoin miners, 63% of the mining companies that the BMC represents operate using electricity from renewable and green sources.

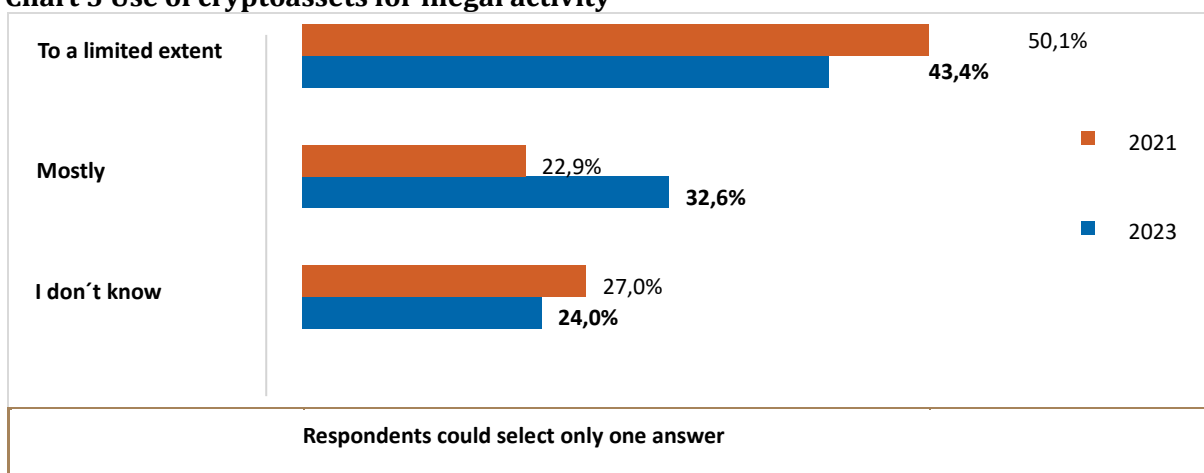
According to [BMC data drawing on the BP Statistical Review of World Energy \(2022\)](#), 167,788 TWh of energy was produced in 2022. Both BMC and the [Cambridge Centre for Alternative Finance \(CCAF\)](#) state that Bitcoin consumes around 350 to 390 TWh based on the most pessimistic estimates (maximum consumption). CCAF estimates that Bitcoin mining's real electricity consumption is around 170 TWh. This means that Bitcoin mining consumes 0,1% to 0,21% of total electricity production.

The environmental impacts of cryptoassets affected the investment decisions of just under a quarter of the respondents (23.7%). However, most respondents' interest in investing in cryptoassets took no account of this factor (52%). It is interesting that the survey results two years ago were almost identical.

In political discussions, calls are sometimes made for the state to restrict activities with cryptoassets to mitigate their impacts on the environment. More than a third of respondents agreed with this opinion (35.6%). Approximately the same proportion of respondents disagreed (36.9%) and the remainder were unable to respond (27.5%).

The extent to which cryptoassets are used for illegal activities have been debated for years. We were therefore interested in Slovak public opinion on this topic.

Chart 5 Use of cryptoassets for illegal activity



The most frequent response in the present survey was that cryptoassets are used for illegal activity only to a limited extent. However, during the last two years, there has been a significant increase in the number of respondents who think that most cryptoassets (not just a limited part of them) are used for illegal activities. This increase may be the result of events in the last two years when it turned out that many large crypto companies had used fraudulent practices and key figures of the crypto scene were prosecuted. However, the available data do not support the claim that cryptoassets are mostly used for illegal activities, as is explained in more detail in Box 2.

Box 2 Use of cryptoassets for illegal activity

Although people often think that cryptoassets are linked to illegal activity because of their pseudo-anonymous or anonymous elements, the transparency of blockchain technology actually makes cryptoassets a poor tool for crime.

According to research by [Chainalysis](#), a company that specialises in blockchain data analytics, addresses linked to illegal activity received approximately USD 24.2 billion in 2023. Very similar sums were recorded in 2021, when crime-linked addresses received approximately USD 23.2 billion. There was a blip in 2022, when the amount shot up to almost USD 40 billion. This increase is explained by activities intended to evade the sanctions imposed on Russia after the start of the war in Ukraine.

At first sight these may seem like relatively large numbers. However, if we look at the total volume of transactions in a year, we see that illegal activity accounts for just 0.34% of the total volume of cryptoasset trading. Looking back in time, in 2021 and 2022, illegal activities made up 0.14% and 0.42% of overall cryptoasset transactions respectively.

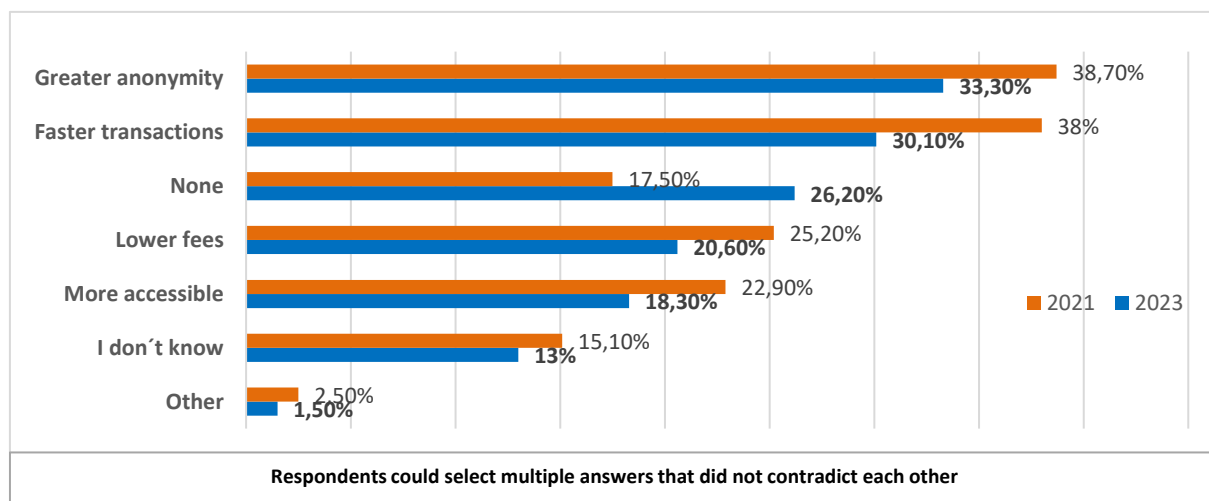
These findings show that even though a certain amount of illegal activity takes place through cryptoassets, it cannot be said to make up the majority of trade or the primary purpose of cryptoassets.

The main attraction of cryptoassets for illegal activity is that crypto transactions offer a certain degree of anonymity. A debate has therefore sprung up about whether the law should restrict anonymity in crypto transactions.

A narrow majority of respondents (54.9%) thought that the state should limit the anonymity of cryptoasset users to mitigate the risk of cryptoassets being used for illegal activity. Less than a third of respondents (28.3%) disagreed and the remainder (16.8%) answered that they did not know. This is very similar to the results that we observed in the survey two years ago.

Besides the risks already mentioned, cryptoassets naturally also have several advantages. The survey asked respondents about the benefits that they found in cryptoassets compared to the traditional financial system.

Chart 6 Advantages of cryptoassets compared to the traditional financial system



As in the survey two years ago, respondents name anonymity, fast transaction speed and lower fees as the main advantages of cryptoassets. However, in the last two years, there has been a sharp increase in the number of respondents who see no advantage in cryptoassets compared to the traditional financial system. This may be due to the fact that differences between the world of cryptoassets and the traditional financial sector are gradually disappearing. Cryptoasset service providers are obliged to identify their clients in the same way as financial institutions. In recent years, the largest Slovak banks have launched instant payments that offer in many cases comparable or faster transfer speeds than crypto transactions.

Differences persist, however, in the speed and price of cross-border payments. While cryptoassets offer the same speed and price regardless of the country where the counterparty is located, the cost and time of a transaction usually increases sharply for transactions outside the EU.

After questions comparing the benefits of cryptoassets with the traditional financial system, the respondents were asked to compare cryptoassets with more traditional investments. Most respondents (70.6%) consider cryptoassets to be riskier than securities while just under a fifth (17.4%) consider securities to be riskier and the remainder (11.9%) could not say. The level of risk depends primarily on the specific security and cryptoasset but given the much shorter history and (until recently) relatively limited regulation of cryptoassets, they are generally, as a group, riskier to invest in than securities.

2.4 Cryptoasset ownership and interest in their purchase

One of the main goals of the survey was to measure what practical experience Slovak citizens have with cryptoassets. We therefore asked the crypto-knowledgeable respondents whether they currently or previously owned cryptoassets. To make an estimate of cryptoasset ownership in the whole adult population, the results were recalculated to apply to the whole representative sample of respondents.

Table 3 Ownership of cryptoassets

		Percentage of all questionnaire respondents	
		2021	2023
1.	current cryptoasset owners	5.8%	6.5%
2.	former cryptoasset owners	3.1%	5.9%
	Users – Current or former cryptoasset owners	8.9%	12.4%

Despite all the negative events that hit the cryptoasset market in the last two years, there was growth not only in the percentage of respondents who had owned cryptoassets in the past and sold them but also in the percentage of respondents currently owning cryptoassets. There was thus a relatively large overall increase in the number of people with practical experience of cryptoassets. This category of respondents are referred to in the text as “users”. Another 3.1% of respondents did not want to answer this question so the actual share of users may be even larger. Despite the difficult period for the market in cryptoassets, Slovaks’ interest in them continues to grow.

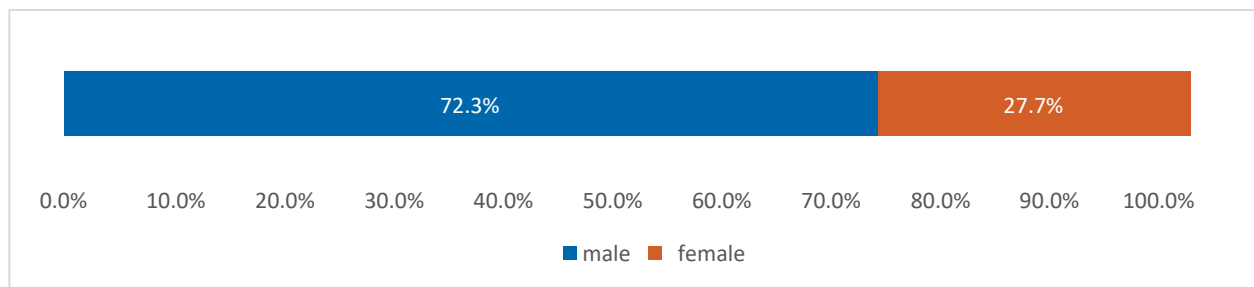
Cryptoasset ownership, however, continues to lag behind ownership of more traditional investments – securities such as unit certificates, shares or bonds. At the time of the survey, 16.4% of respondents owned securities and 23.3% had owned them in the past. Since another 3.8% of

respondents did not want to answer this question and the question was given only to respondents who had already heard about cryptoassets, it can be assumed that the share of people with practical experience of securities is even higher.

Characteristics of cryptoasset users

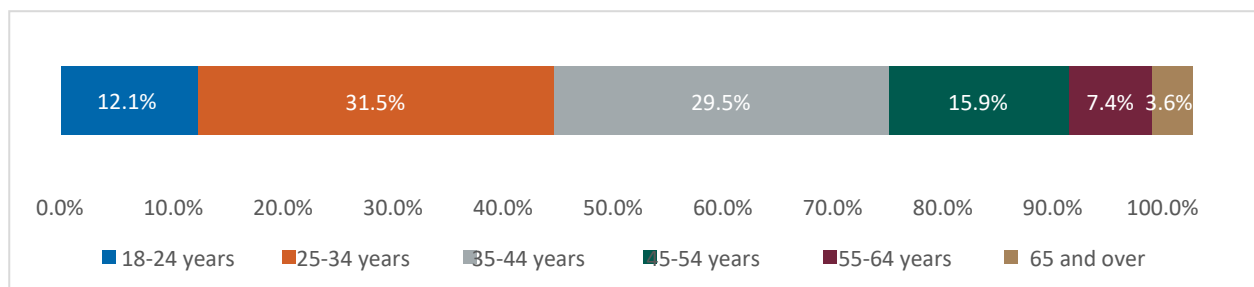
As the 190 declared users made up a relatively small part of the representative sample, they were supplemented by 257 users deliberately selected for the survey to ensure more representative responses for this group. This part of the document compares the basic characteristics of the users as a group and the representative sample.

Chart 7 Users by sex



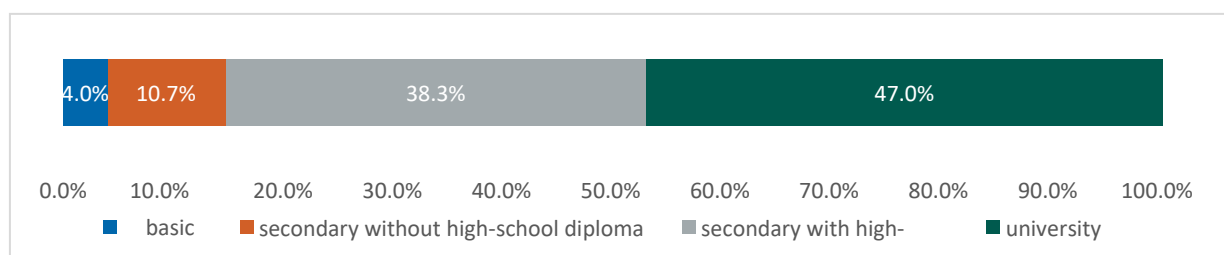
Men make up a clear majority of users even though women are in the majority in the representative sample (51.7%). This result supports the assumption that higher-risk investments appeal more to men.

Chart 8 Users by age



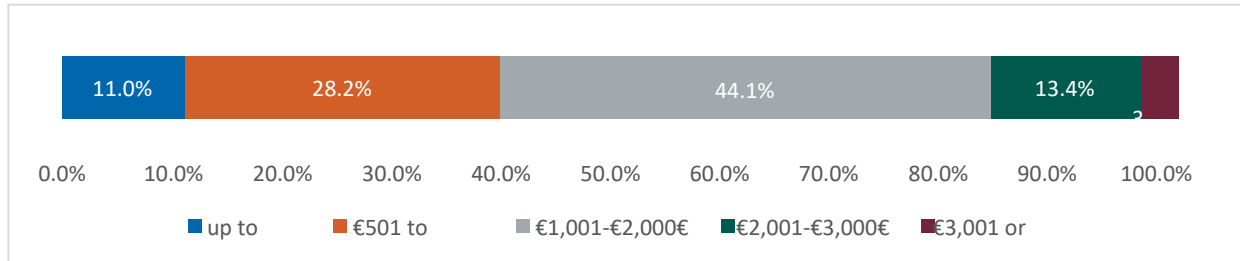
Younger age groups are strongly represented among cryptoasset users. Nearly three quarters of users (73.1%) are under the age of 44 while this age group makes up less than half of the representative sample (46.5%). Only a tiny percentage of cryptoasset users are over 65 (3.6%) despite this age group making up over a fifth of the representative sample (20.3%). A likely explanation for these differences is that cryptoassets are mainly available online, information about them is mainly in English and their use requires at least basic IT skills. These factors make cryptoassets more accessible and more interesting for younger generations.

Chart 9 Users by education



Whereas cryptoasset users are most likely to have university education (47%), secondary education is more common in the representative sample and the percentage of people with university education is significantly lower (23.9%). This is probably due to users being younger and having sufficient funds to invest, as the following chart shows.

Chart 10 Users' net monthly income



Users are most likely to have a net monthly income between €1,000 and €2,000 whereas the most common net monthly income in the representative sample is between €500 and €1,000. A likely explanation is that persons with lower incomes often lack the disposable income for investment as such, not just for cryptoassets.

In respect of housing, respondents were most likely to own their own home in both groups. For the users it was 62.9% and for the representative sample as a whole 69.2%. With regard to loans, the group of users includes more people who are paying off a loan (46.5%) than the representative sample (32.8%). What we see here is probably also an effect of age differences, as younger people are less likely to own their own home and are more likely to have loans.

In terms of settlement size, there are no large differences between the groups. Users are slightly more likely to live in a settlement with over 100,000 inhabitants (19.2%) compared to the representative sample (13.1%) and a little less likely to live in a settlement with fewer than 1,000 inhabitants (10.5%) compared to the representative sample (15.3%).

Users also differ relatively little from the representative sample in their political views. In both groups, a social-democratic political orientation was most common though it occurs slightly more in the representative sample (26.7%) than among users (20.8%).

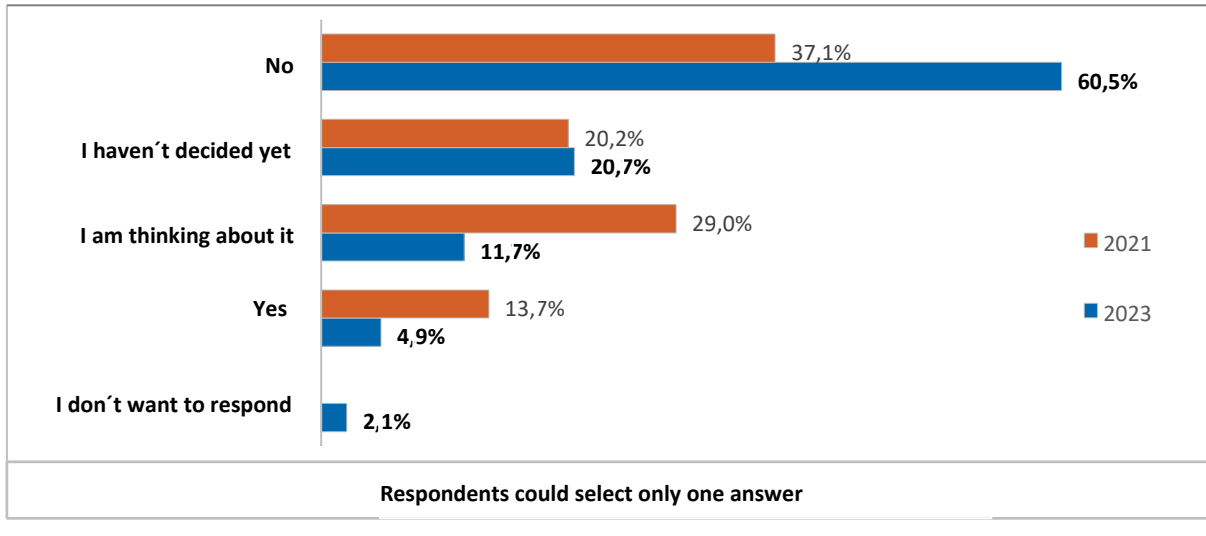
These comparisons do not fully reflect the diversity of users and should therefore be treated with caution.

Interest in the purchase of cryptoassets

These findings reflect the situation at the end of 2023. The survey also aimed to cast light on future developments, so respondents were asked whether they planned to purchase cryptoassets in future.

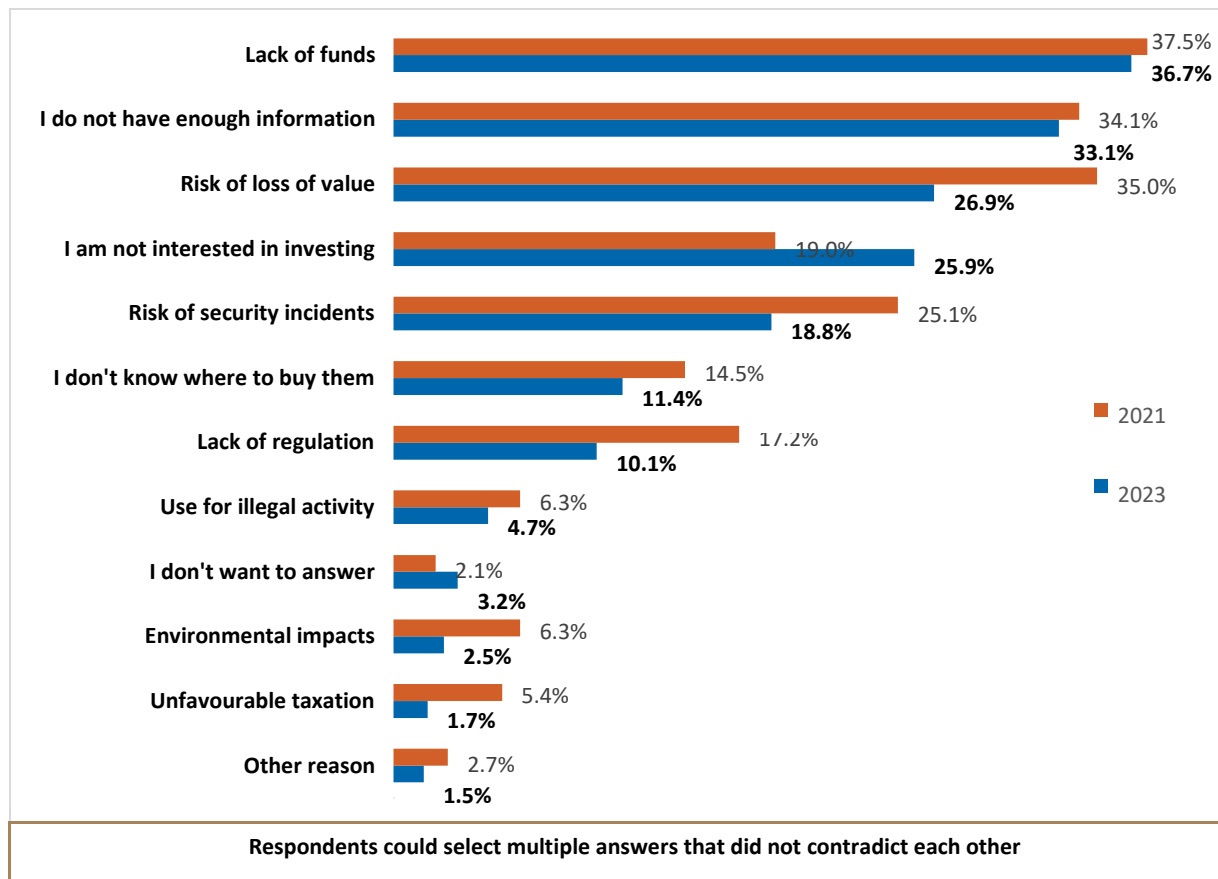
While in 2021 a large part of the respondents were considering purchasing cryptoassets in the future, two years later there were far fewer respondents who were on the fence and more who had no plans to purchase cryptoassets. One of the reasons for this could be developments in prices. At the time of the previous survey, prices were at their absolute peak following a bull market lasting several months. The subsequent steep decline may have deterred many investors who were on the fence.

Chart 11 Purchase of cryptoassets in future



We asked crypto-knowledgeable respondents who had not yet purchased any cryptoassets why they had not taken the plunge.

Chart 12 Reasons for not purchasing cryptoassets



The answers are similar to the results of the survey two years ago. Respondents' main reasons for not investing in cryptoassets are lack of funds / information and concerns about investments losing value. High volatility, a confusing market and the need to possess at least basic IT skills make cryptoassets a high-risk asset class that is not for everyone. Conservative, risk-averse investors have reason to avoid this asset class, as the respondents' answers show.

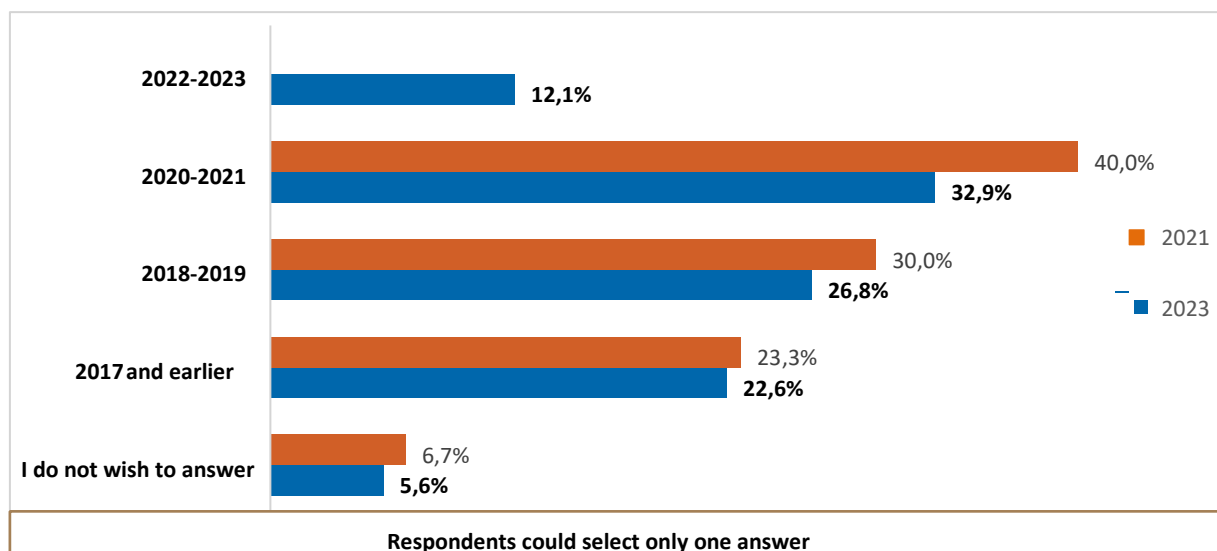
2.5 Practical experience with cryptoassets

The questions in the last section of the questionnaire were given only to users because they relate to practical experience with cryptoassets. The group of users in the representative sample (190 respondents) was supplemented with additional users (257 respondents) who were deliberately recruited to the survey as a boost sample to guarantee more representative answers for this group of respondents. The findings on practical experience with cryptoassets are thus based on an enlarged sample of 447 respondents. In the survey two years ago, questions on practical experience with cryptoassets were answered only by users in the representative sample without the recruitment of a boost sample of users. The new arrangement should better reflect the overall experiences of Slovak cryptoasset users. When comparing the two surveys, it must be borne in mind that differences from the previous survey may be affected not only by developments over the last two years but also by changes in sample size and composition.

Cryptoassets owned

Cryptoassets have existed for around 15 years and significant growth in their popularity has occurred mainly in recent years. We therefore wanted to know when users first bought cryptoassets.

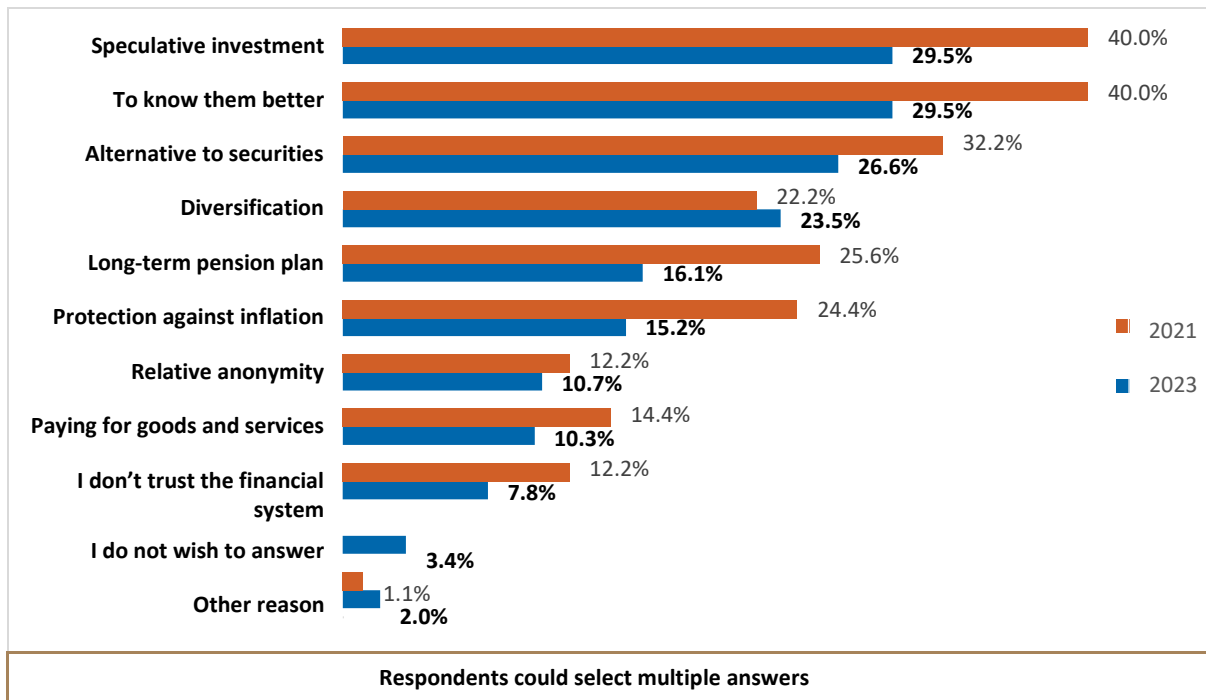
Chart 13 Date of first cryptoasset purchase



Respondents were most likely to have purchased cryptoassets for the first time in 2020 or 2021. This was the case for 32.9% of cryptoasset users. Around 12.1% of users had first purchased cryptoassets in the last two years, i.e. 2022 and 2023. It is reasonable to suppose that the lower interest in buying cryptoassets in the last two years reflects mainly the less favourable development of the prices of leading cryptoassets. Unlike in 2020 and 2021 when cryptoasset prices were primarily rising, the last two years have seen mainly falling prices.

There are many reasons why people acquire cryptoassets so we thought it would be useful to find out what our respondents' motivation was for their purchases.

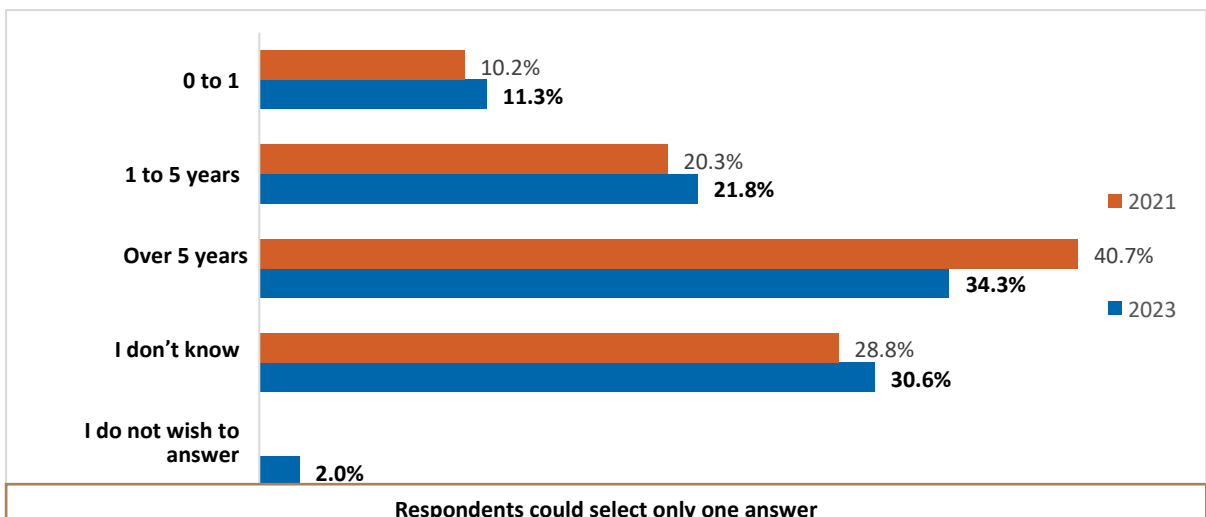
Chart 14 Reasons for purchasing cryptoassets



There was no significant change compared to the previous survey in 2021. Most respondents purchased cryptoassets primarily as speculative investments and to know cryptoassets better (29.5%) or as an alternative to securities (26.6%).

Compared to 2021, both these options and also options such as a long-term pension plan, protection against inflation or distrust of the financial system were mentioned less often as reasons for buying cryptoassets.

Chart 15 Expected time to hold cryptoassets

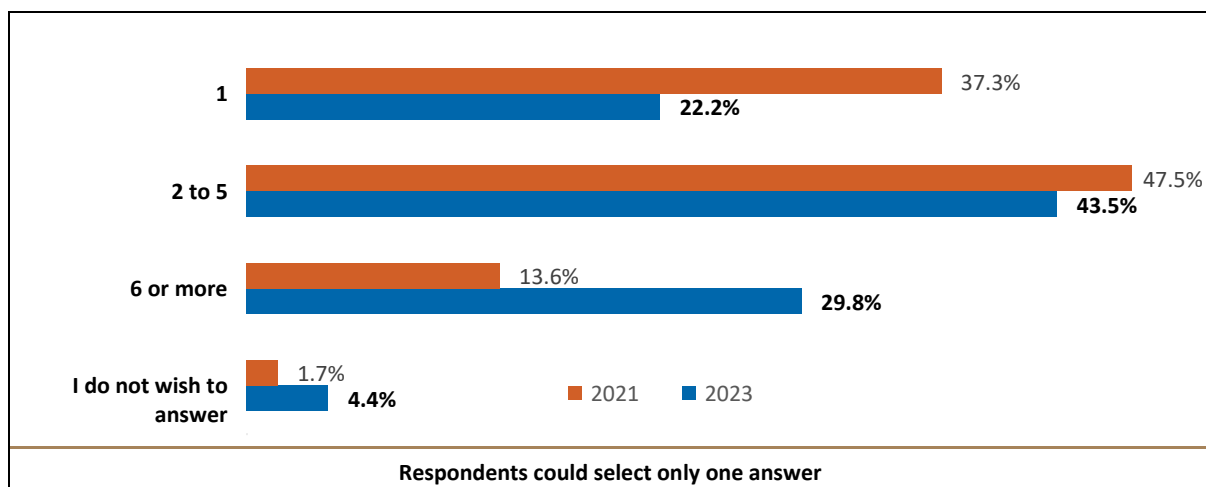


Respondents most often plan to hold cryptoassets for over 5 years. This was the most popular response in 2021 as well, when 40.7% of respondents planned to hold them for over 5 years. In 2023, the size of this group decreased somewhat to around 34.3% of users. At the same time,

compared to 2021, there was an increase in the number of users who did not know how long they would hold their cryptoassets from 28.6% in 2021 to 30.6% in 2023. There was also an increase in the number of users who want to hold cryptoassets for between 1 and 5 years (21.8%) or less than 1 year (11.3%) but the change compared to 2021 was minimal in both cases. It can be assumed that many users, especially those who do not know how long they will hold their cryptoassets, do not yet have a strong opinion and will decide based on developments in areas such as price, adoption and regulation.

The next questions aimed to build a clearer picture of the cryptoassets that people own. There are thousands of types of cryptoasset but most people know only Bitcoin. We were therefore interested to know how many different types of cryptoassets the respondents owned.

Chart 16 Number of different cryptoasset types owned

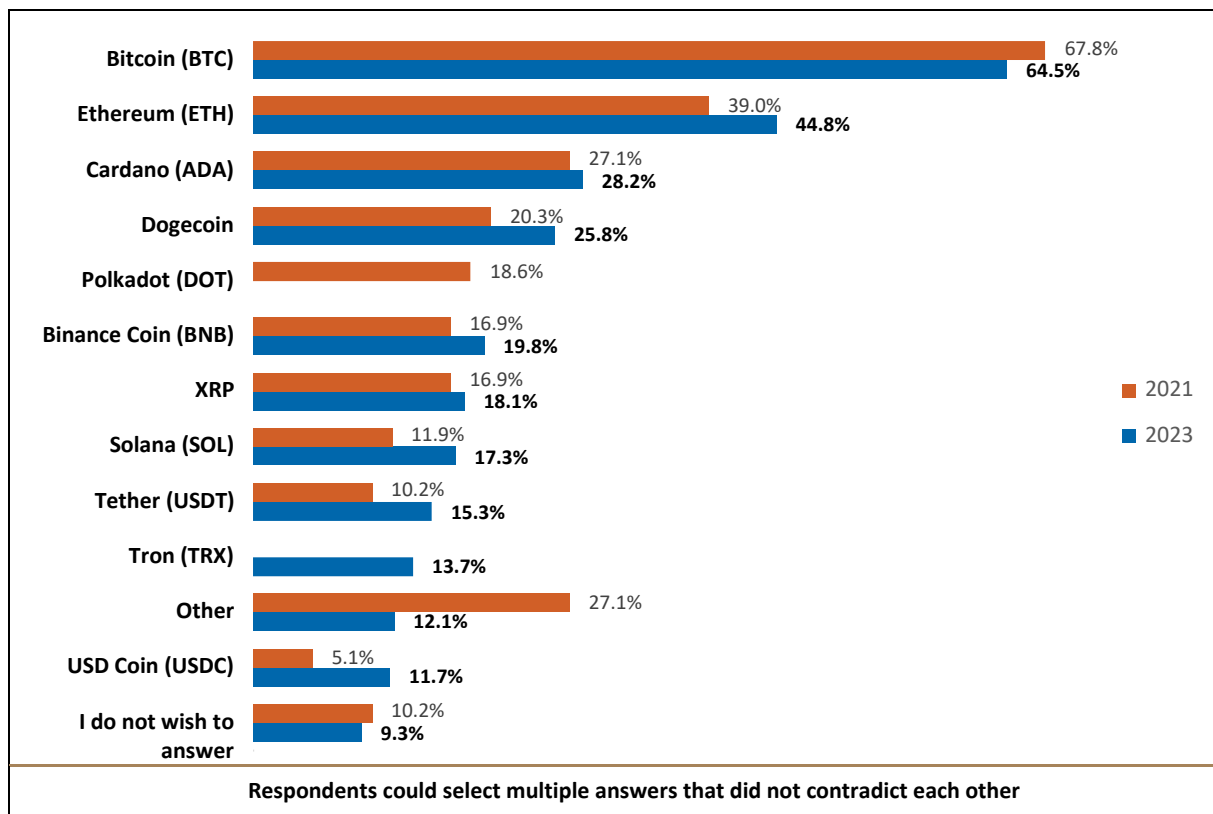


Nearly half of current cryptoasset owners hold between 2 and 5 cryptoassets (43.5%), which is a slightly smaller percentage than in 2021 (47.5%). Nearly 30% of the participating cryptoasset owners hold 6 or more cryptoassets.

There has been a significant decline in the percentage holding just one cryptoasset. Whereas in 2021 around 37.3% held just one cryptoasset, it was 22.2% in 2023. A plausible explanation for this decrease is that many of the owners who had just one cryptoasset in 2021 decided to buy additional cryptoasset types in the next two years.

After clarifying the number of cryptoasset types that the respondents own, they were asked about the specific cryptoassets they owned.

Chart 17 Cryptoassets owned

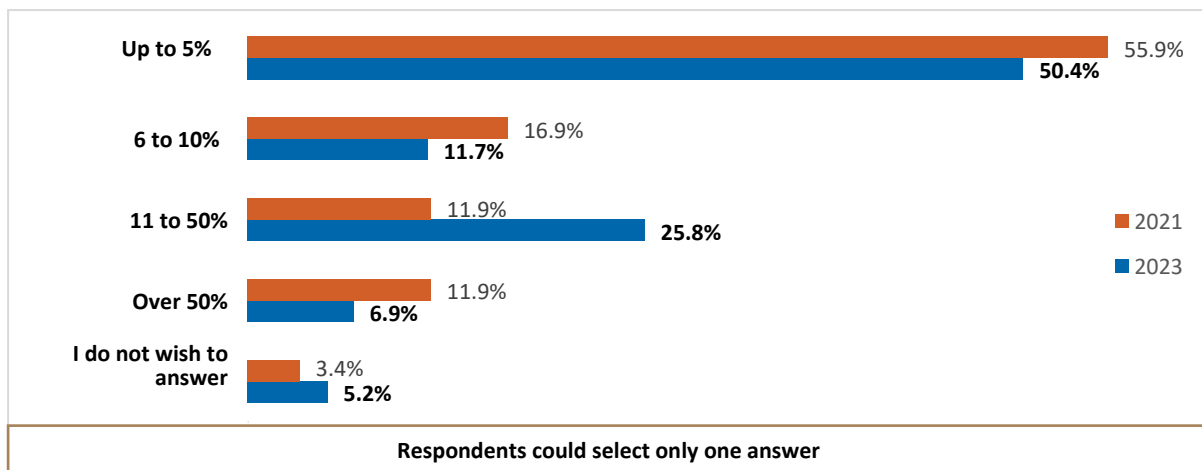


In 2023 as in 2021, Bitcoin was the most widely owned cryptoasset, held by almost two thirds of respondents. The second most popular cryptoasset, Ethereum, was owned by 44.8% of respondents, which is slightly more than in 2021 (39%). The third most frequently owned cryptoasset among Slovaks, as in 2021, was Cardano, which is owned by approximately the same percentage of respondents. In fourth place is Dogecoin, a cryptoasset that enjoys great popularity among celebrities. Compared to 2021, when this cryptoasset was owned by 20.3%, in 2023 it was owned by 25.8% of respondents.

The cryptoassets Solana, Tether and USD Coin also experienced similar and larger percentage growth compared to 2021. Compared to 2021, there was a significant decrease in the number of respondents holding “other” cryptoassets. Under this option, respondents mentioned various cryptoassets outside the top ten.

NBS regularly warns consumers about the risks associated with investing in cryptoassets and the need for a diversified investment portfolio so that losses from cryptoassets do not endanger the achievement of investment goals. For this reason, we were interested how the survey respondents managed diversification.

Chart 18 Percentage of portfolio that is cryptoassets



For most respondents, cryptoassets made up only a small part of their investment portfolio, indicating that they were following advice to invest only funds that the investor can afford to lose.

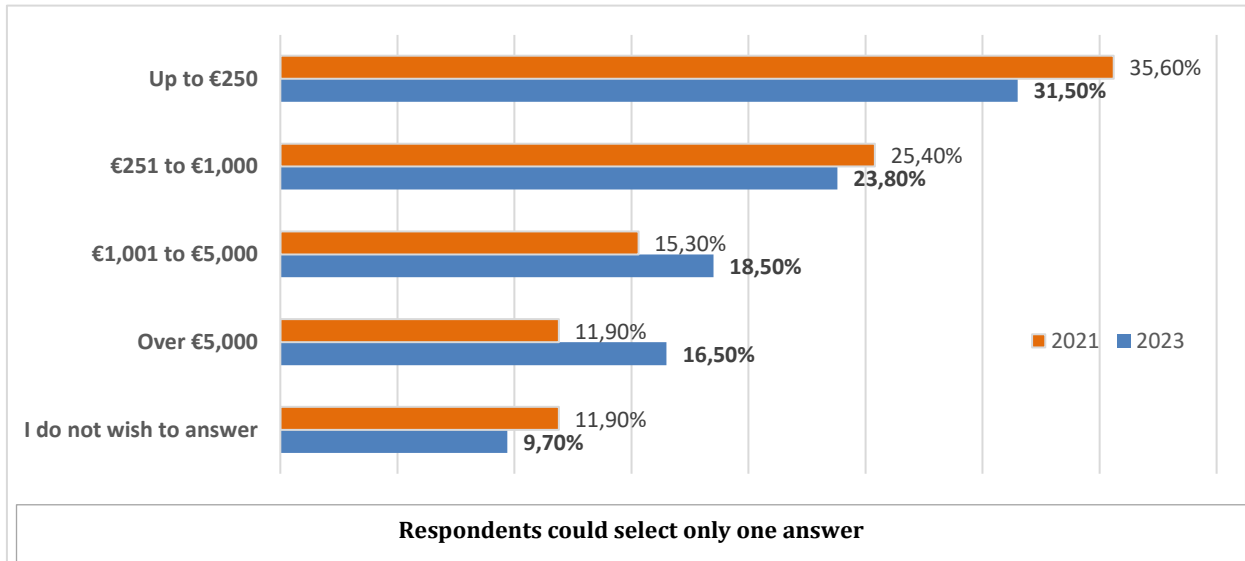
When asked “*What percentage of your investment portfolio are cryptoassets?*”, most owners chose the answer of up to 5%. Even so, there is a noticeable decrease from 2021, when 55.9% gave this answer, to 2023 when it was the choice of 50.3%. There is a similar decline in the share of respondents for whom cryptoassets make up 6% to 10% of their investment portfolio. In 2021, cryptoassets were in this range in the portfolio of 16.9% of owners and 2023 it was 11.7%. A similar decrease could be seen in owners holding 50% or more of their portfolio in cryptoassets. They decreased from 11.9% of the sample in 2021 to 6.9% in 2023.

By contrast, the strongest growth was in the category 11% to 50%. Whereas 12% of owners had holdings in this range in 2021, it was 25.8% in 2023. Yet together with the category of 50% or more this is the strategy with the most risk. These owners must be prepared to lose several tens of percent of their investment due to the high volatility of cryptoassets and they could take many years to recover from a downturn, as has been observed several times in the history of cryptoassets, most recently in 2022 and 2023.

For further insight into investment portfolios, the survey asked how cryptoasset owners diversified their holdings. Cryptoasset owners most often also own securities (53.2%) followed by commodities (22.2%) and investment real estate (just under 20%). The survey found that 15.7% of cryptoasset owners have no other assets in their portfolio, 11.3% did not want to answer and around 5.6% own other assets.

In discussions of the Slovak market in cryptoassets, people often wonder how much of their property Slovaks have invested in them. Given the pseudo-anonymity of crypto wallets and the use of foreign crypto service providers, it is not possible to obtain an exact number but the results of the present research permit at least a rough estimate. We therefore asked the respondents about the total value of the cryptoassets that they own.

Chart 19 Total value of owned cryptoassets



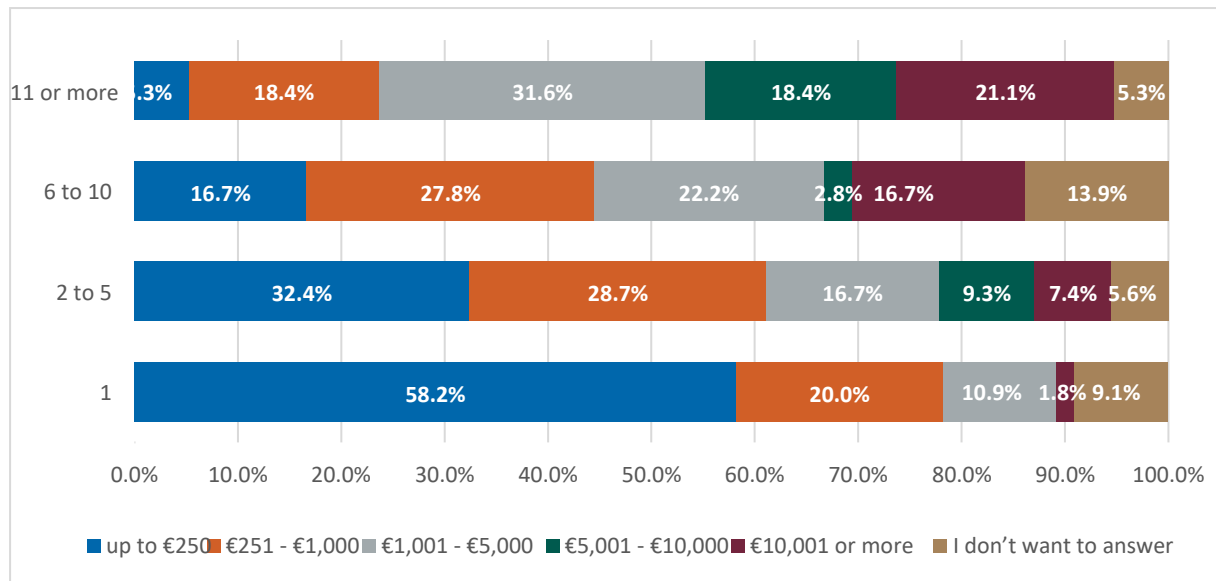
The results for 2023, like those for 2021, found that current cryptoasset holders were most likely to have holdings below €250. The current percentage (31.5%) is actually slightly lower than in 2021 (35.6%). There was also a slight reduction in the percentage with cryptoasset holdings between €251 and €1,000. Their share is now 24% compared to 25.4% in 2021.

On the other hand, the percentage of owners with cryptoasset holdings between €1,001 and €5,000 increased from 15.3% in 2021 to 18.5% in 2023. An even larger increase was observed in the largest category “over €5,000” whose percentage share of cryptoasset investors increased from around 12% to 16.5% in 2023.

In the last two years, it has become more common to own large volume of cryptoassets, which may be due to current holders gradually increasing their portfolios or an influx of new investors willing to invest larger sums in cryptoassets.

We were also interested in the relationship between the diversity of investors’ portfolios and the amount they invested in cryptoassets.

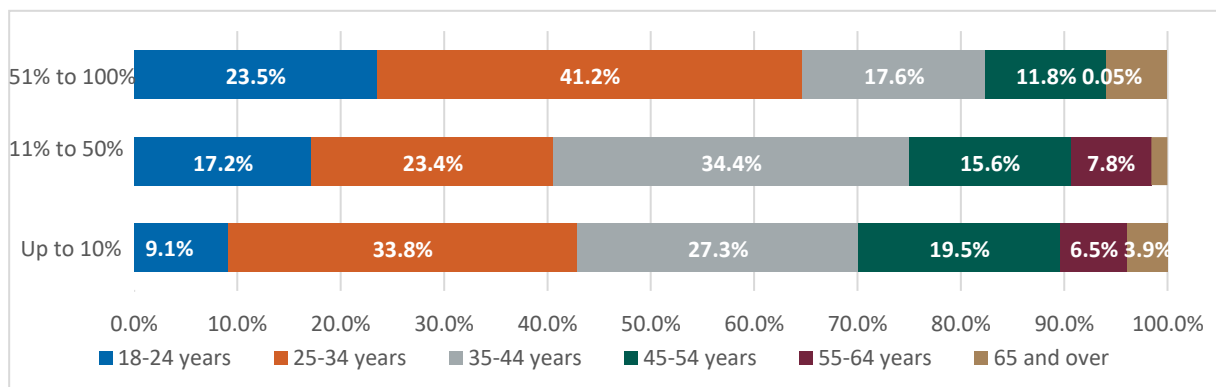
Chart 20 Relationship between the volume invested and the number of cryptoasset types owned



The results are not very surprising in that as cryptoasset holdings grow larger, their owners tend to diversify their portfolio more. Persons investing less than €1,000 made up more than three-quarters of investors holding just one cryptoasset type, over three-fifths of investors holding 2 to 5 cryptoasset types and just under a quarter of investor holding 11 or more types.

Cryptoassets are undoubtedly amongst the riskier types of investments. We were therefore interested in how much people from different age groups had put into cryptoassets. Even though most owners in the 18-24 age group (55.1%) have cryptoasset holdings amounting to less than €1,000, there is still a relatively large percentage in this age group who have invested larger sums. As many as 31% of cryptoasset owners in this age group own cryptoassets with a value of over €5,000, which is more than in other age groups. Potential reasons for this could be the influence of social media, a larger tolerance for risk and volatility or longer investment horizons. In contrast, older investors (over 55) rarely have cryptoasset holdings larger than €5,000. In the 55 to 64 age group, just 5.9% have more than €5,000 in cryptoassets and in the over-65 category there was not even one respondent with such a large investment.

Chart 21 Relationship between age and invested volumes as a percentage of all current investments



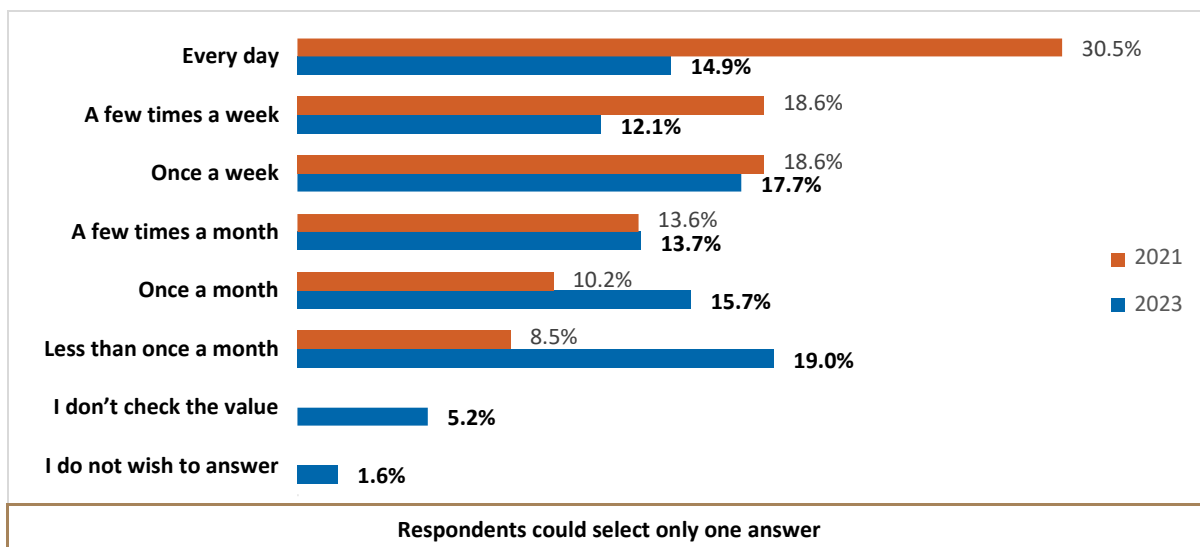
We then wanted to investigate the relationship between the different age groups of investors and cryptoassets' share of their overall portfolios. If we wanted to know which age groups were most likely to put a majority (51% to 100%) of their investments into cryptoassets, it would be younger investors under 34. Cryptoasset owners with 11% to 50% of their portfolio in cryptoassets are most likely to be in the 35 to 44 age group (34.4%).

The larger cryptoassets' share of the portfolio, the less likely it is to be held by an older investor. This may be connected with changes in risk tolerance and investment horizons but it can also reflect differences in the portfolio as such. As younger investors are less likely to have, for example, real estate in their portfolios, diversity naturally increases with age and this could explain why cryptoassets have an overall smaller share of older investors' portfolios.

NBS regularly warns consumers that they should not invest more in cryptoassets than they can afford to lose. We were therefore curious to what extent the public follows such recommendations. The research findings continue to be encouraging. Although the percentage of owners who had invested more than they could afford to lose had increased since 2021, from 8.5% in 2021 to 13.3% in 2023, it remains relatively low. The other findings were that 83.1% of cryptoasset owners invested less than they could afford to lose and 3.6% did not want to answer.

Cryptoassets are famous for their extreme volatility, with values that can fluctuate significantly over the course of just a few hours. Owners might therefore be expected to check their portfolio frequently.

Chart 22 Frequency of checking the value of cryptoassets



This theory was supported by the results in 2021, in which 30.5% of cryptoasset owners said that they checked their portfolio every day. The latest results showed that this trend has changed. Less than 15% of the participating cryptoasset owners check their portfolio every day. There was also a decrease for the option "a few times a week", which was chosen by 12.1% of current owners compared to 18.6% of owners in 2021. Around the same percentage of owners as in 2021 check their portfolio once a week or a few times a month.

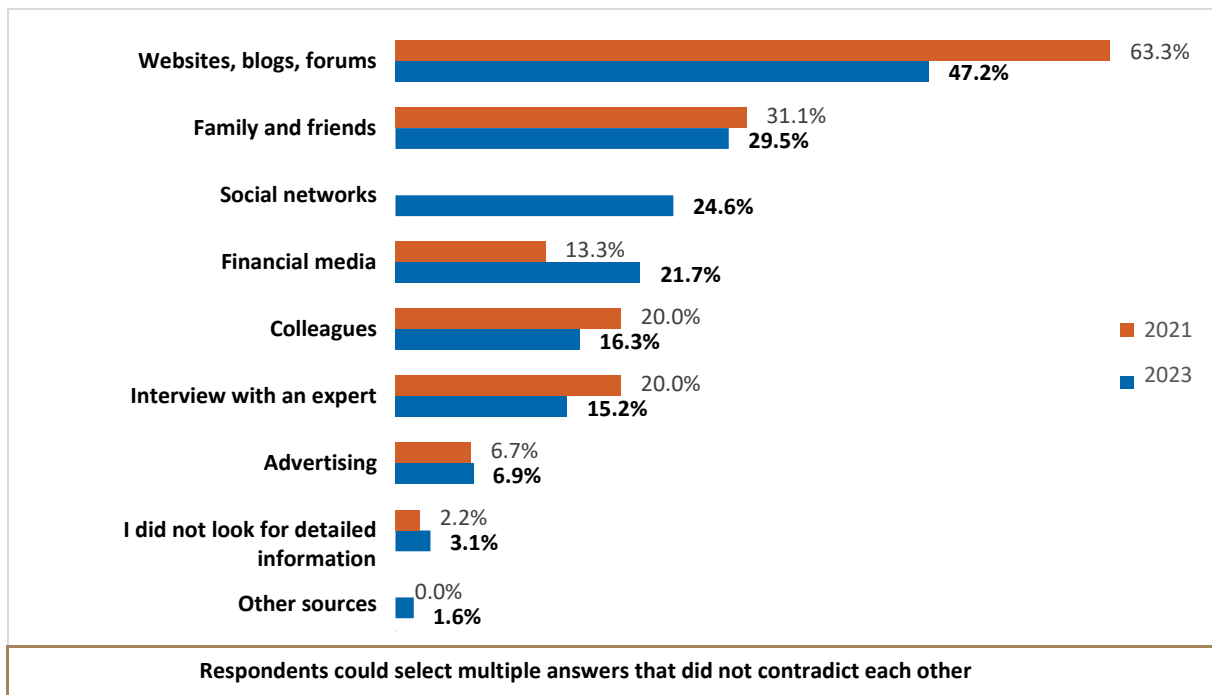
The percentage of cryptoasset owners checking their portfolio once a month (15.7%) was around 5.5 percentage points higher than in 2021 (10.2%). However, the largest group of current owners

(19%) were those who checked the value of their portfolio less than once a month. What is more, as many as 5.2% of owners do not check the value of their portfolio at all.

There are two main factors that could be influencing the change from relatively frequent checking of portfolios at short intervals to longer intervals. The first is that while 2021 was a “bull market” when price rises were quite common and rapid, which would have made frequent checking of the portfolio value attractive, the last two years have seen less positive developments in cryptoasset prices. This could reduce interest in continuously checking the value of the portfolio, not only because of the less favourable performance but also because of the lower volatility.

Source of information on cryptoassets

Chart 23 Sources of information for buying cryptoassets



The chart shows that cryptoasset owners are most likely to gather information on this topic from websites, blogs and forums. However, this category’s share has declined from 63.3% in 2021 to 47.2% in 2023. This decrease can probably be explained by the introduction of a new option that was not available in the previous survey. The relevant change is the creation of a specific category for social media, which as many as 24.6% of respondents used as an information source on cryptoassets.

After the categories Websites, blogs and forums and Family and friends (29.5%), it is the third most reported information source for current users. Compared to 2021, only one option saw an increase in use – Financial media. The percentage who reported consulting financial media increased from 13.3% in 2021 to 21.7% in 2023. It is likely that this increase is due to the fact that financial media have begun to report on cryptoassets more often than they did in the past.

As social media continue to enjoy great popularity and are undoubtedly being used for financial information, we were interested in which specific social networks cryptoasset owners used. The top place went to Facebook, which was mentioned by a majority of social-media users (62.7%). Second place went to YouTube (53.6%) and third place to Instagram (31.8%). Twitter/X (18.2%)

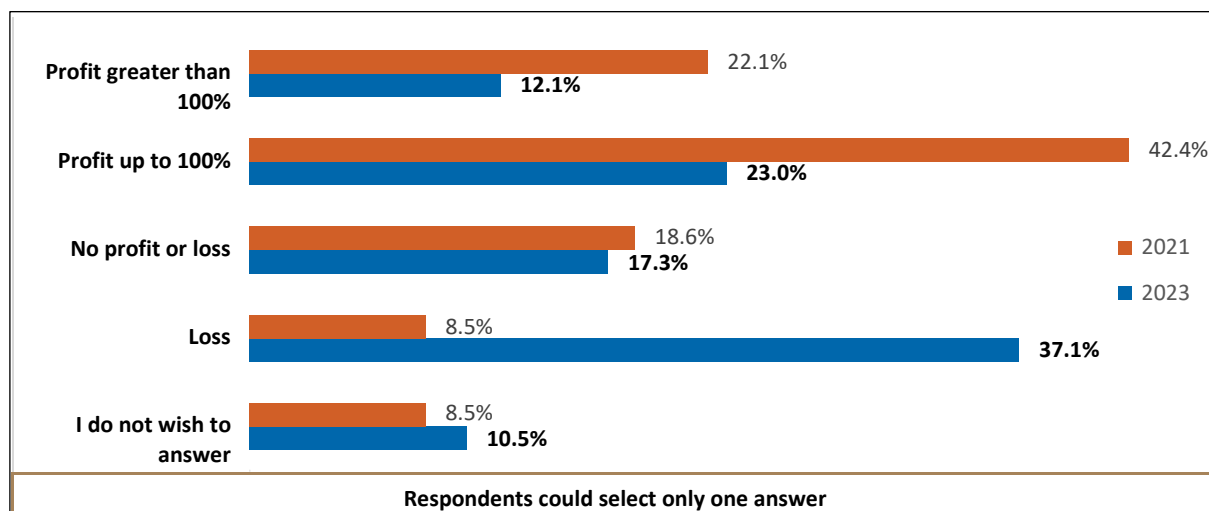
remains a very popular network, especially in the financial world. The same applies for Reddit (15.5%) and Telegram (14.5%), which ranked fifth and sixth.

A related question that often arises is how significant an effect advertising has in decisions on investments in cryptoassets. The most common response was that respondents said they had never seen an advert for cryptoassets (32.7%). A very similar result was reported in 2021 (33.3%). Just over a quarter of respondents (27.1%) thought that advertising had no effect on their opinion about cryptoassets while a little under a fifth (18.3%) said that advertising contributed to their purchase of cryptoassets but they had considered buying them earlier. Another 10.3% of respondents who owned cryptoassets said that they bought cryptoassets based on advertising without considering it beforehand.

Profit or loss from cryptoassets

Although the media frequently report the fairy-tale profits that a few investors have achieved and the total wipe-outs that can follow various frauds, the experience of most investors falls between these extremes. In a period of persistent growth (bull market), even short-term investors make profits but when the market as a whole is falling, many investors make a loss. We were therefore curious how the respondents participating in our research were doing.

Chart 24 Profit or loss from investing in cryptoassets



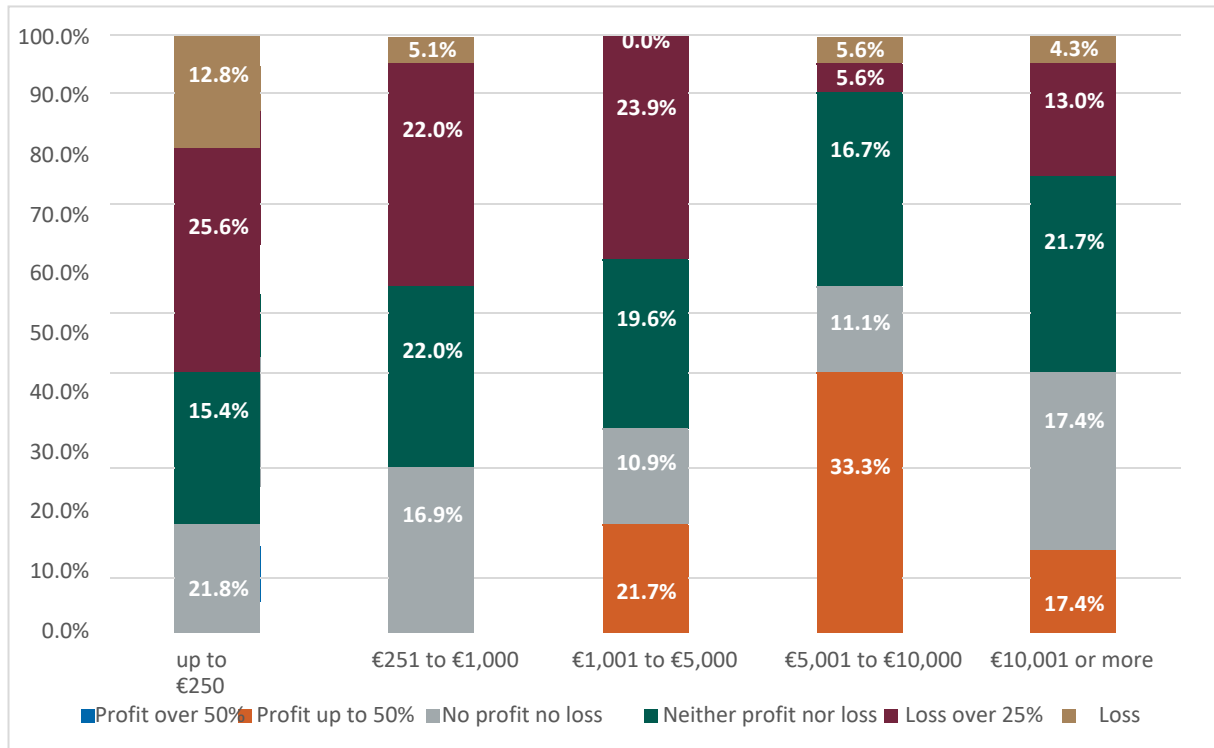
Considering the overall market trend which showed signs of a bull market in 2021 followed by a bear market in 2022 and 2023, the responses regarding profitability in the 2021 and 2023 surveys are not surprising. Whereas in 2021 most cryptoasset owners were making a profit (42.4% a profit of up to 100% and 22.1% a profit of over 100%), significantly fewer cryptoasset owners reported profits in 2023. Profits up to 100% were reported by around 23% of cryptoasset owners and just 12.1% had profits over 100%.

Now the largest group of cryptoasset owners reported having losses. As many as 37.1% of current owners were in the red, which represents a fourfold increase compared to 2021 (8.5%). As has already been mentioned, the significant increase in loss-making investors can primarily be linked to market sentiment, which was particularly negative in 2022.

It should also be noted that most cryptoassets recorded their highest ever prices in 2021. If investors entered the market at just that moment, it is not surprising that many of them still have losses.

Another question about the volumes invested in cryptoassets investigated the relationship between investors' profits or losses and the size of their cryptoasset holdings (whether they invested larger or smaller sums).

Chart 25 Relationship between the volume invested and the investor's profit or loss



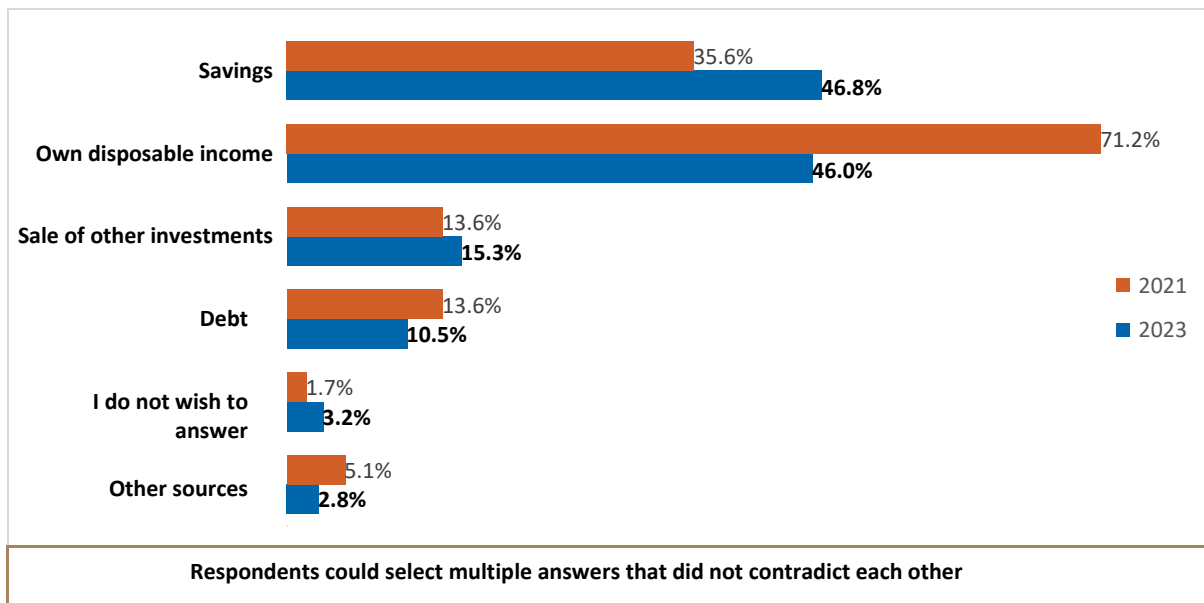
As the graph above shows, investors owning cryptoassets worth €5,000 to €10,000 are the most likely to make a profit. This group of investors was also less likely than the others to have a loss greater than 25%. Looking in more detail at the breakdown of cryptoasset owners who have lost over 25%, we find that cryptoasset owners with holdings under €5,000 are more likely to have lost over 25% than owners with holdings over €5,000.

There are several possible explanations for these results. One is that people who invest smaller sums into cryptoassets tend to have less diversified portfolios (see chart 20) and are therefore much more exposed to the risk of loss due to the volatility of a single cryptoasset. If a cryptoasset that makes up a large part of their portfolio experiences a deep loss of value, this would make their loss larger.

Financing the purchase of cryptoassets

The purchase of cryptoassets can be financed from various sources. We were therefore interested in how the cryptoasset owners participating in the research approached this question.

Chart 26 Financing the purchase of cryptoassets



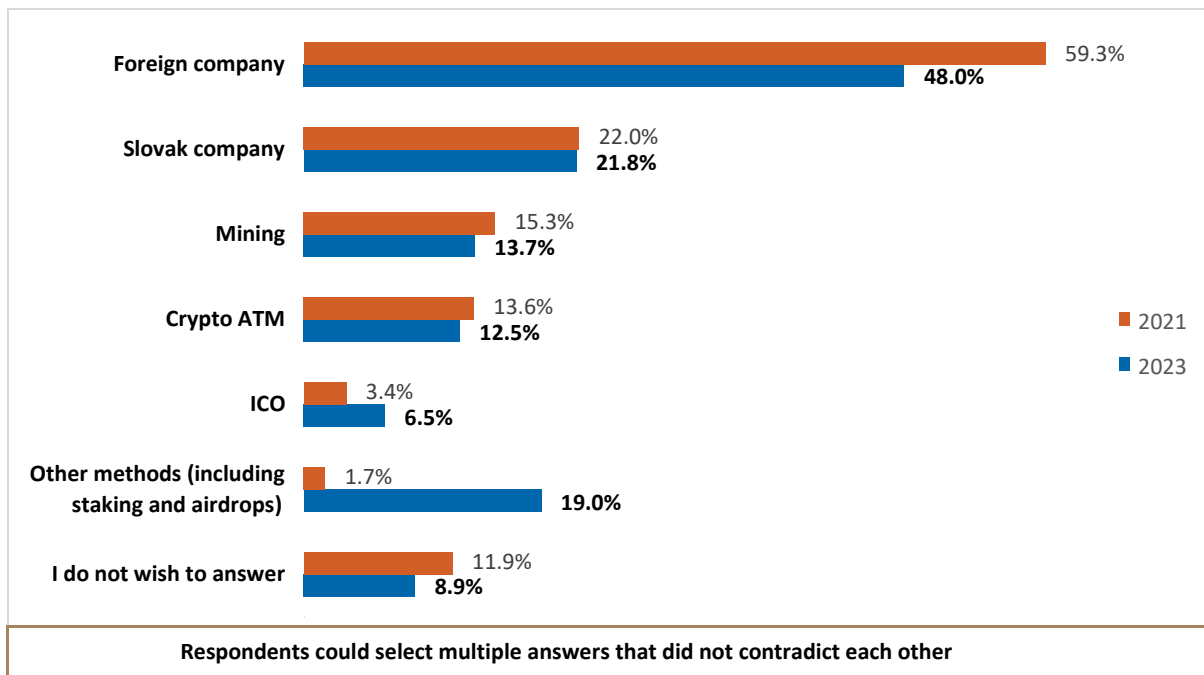
There have been fairly large shifts in how investors finance the purchase of cryptoassets since 2021. Whereas in 2021 cryptoasset owners financed their purchases primarily from their own disposable income (71.2%) and to a much lesser extent from savings (35.6%), these two options evened out in 2023. In 2023 as many as 46.8% of owners financed cryptoasset purchases from savings while almost the same percentage drew on their own disposable income (46%).

There was also a slight increase in the percentage financing cryptoasset purchases from the sale of other investments from 13.6% in 2021 to 15.3% in 2023. On the other hand, the percentage using debt to purchase cryptoassets declined from 13.6% in 2021 to 10.5% in 2023. Despite this decline, it is important to remind investors that financing the purchase of cryptoassets using debt is extremely risky. When the debtor needs to repay the debt, they may end up selling the cryptoassets below the purchase price because of the high volatility of the crypto market. Most respondents probably recognise this risk and therefore do not borrow to finance the purchase of cryptoassets.

Method used to purchase cryptoassets

The method used to purchase cryptoassets is one of the key parameters that can affect the security of cryptoasset custody. The survey therefore included a question about how cryptoasset owners came by their holdings.

Chart 27 Method used to purchase cryptoassets



Most cryptoasset owners participating in the research acquired their holdings through a foreign company. However, this category’s share has declined from 59.3% in 2021 to 48% in 2023. There were also slight declines in the percentages for acquisition through a Slovak company, mining or a crypto ATM, though the numbers remained very close to 2021 levels. Growth was concentrated in two methods for acquiring cryptoassets. The strongest growth was in other acquisition methods such as staking and airdrop (from 1.7% to 19%). For the sake of completeness, it should be noted that staking and airdrops were not mentioned in the previous survey. The survey also recorded increased use of “initial coin offerings” or ICOs, which rose from 3.4% in 2021 to 6.5% in 2023.

The results clearly show that the crypto world inherently functions across borders and therefore NBS supports the emerging regulatory regime for the market in cryptoassets (MiCA) on the European level.

Storing cryptoassets

The way in which cryptoassets are stored can be of vital importance. We were therefore interested how respondents approached this problem. Most respondents (59.3%) leave their cryptoassets in the custody of the company where they bought them. The risks of such custody became evident in 2023 when several large crypto companies collapsed (e.g. FTX, Celsius and BlockFi).

Around a third (33.1%) use a software wallet to store their cryptoassets. This is almost the same result as in 2021 (33.3%). The most secure form of storage, a hardware wallet, was used by 17.3% of crypto users. Although this represents an increase from 2021 (13.6%), it is still a relatively low number considering the security this approach offers. The popularity of hardware wallets is probably limited by the fact that if the owner’s private keys are lost or stolen it is almost impossible to recover the cryptoassets.

The less safe the form of storage used, the greater the risk of losing all one's cryptoassets. We therefore asked respondents if they had ever lost cryptoassets due to a security or technology incident. While the majority of users had successfully avoided such problems (70%), it should be noted that this percentage is lower than two years ago (81.1%). Around 12.8% of users reported losing their cryptoassets when a custodian company collapsed. This is a surprisingly low number compared to 2021 (13.3%) considering the wave of collapses in crypto service companies in 2022. Around 9% of users reported losing their private key.

We then asked if cryptoasset owners had lost cryptoassets or money through cryptoasset fraud. Almost 80% of cryptoasset owners had not lost money through cryptoasset fraud, which can be seen as good news. Around 16% reported having a negative experience where they lost money through fraud and the remaining 4% did not want to comment.

To study how cryptoassets are used, the survey included a question on what purposes cryptoasset owners intended to use them for, where the owners could choose multiple options. The most common intention, which was selected by a majority of owners (70%), was to hold them for the long term, while 20.6% reported using them for activities related to cryptoassets such as staking, providing liquidity or collateral for crypto loans. Around 13.3% use cryptoassets for buying other cryptoassets or trading. Another 10.5% use them to buy goods and services.

Stablecoins are a category of cryptoassets with some distinctive characteristics. They are usually pegged to an official currency at a 1:1 exchange rate and try to maintain this ratio. The aim of this is to deal with the volatility problem in the sector. We were interested in what specific ways crypto users make use of stablecoins and their unique characteristics. The most common answer was that users do not use stablecoins at all (38%). Just over a fifth of respondents (21%) use stablecoins primarily to exchange for cash while nearly 15% use them to purchase other cryptoassets and another 7% use them to buy goods and services. The remaining 18% said that they did not know about stablecoins.

The cryptoasset sector is relatively innovative so new trends emerge frequently. Two of the most widely discussed categories of innovation were decentralised finance services (DeFi) and non-fungible tokens (NFTs). The survey investigated how these topics had resonated with our respondents.

With regard to DeFi, 42% of respondents answered that they did not use such services at all, which was 3 percentage points higher than in the 2021 results (38.9%). Another 36.5% said that they did not know what DeFi meant, which is not so different from the result for 2021 (38.9%). The percentage of users using DeFi regularly has risen since the last survey from 5.6% in 2021 to 7.8% in 2023. On the other hand, there has been a decrease in the cryptoasset owners who had used such services at least once. While this was around 15% in 2021, it was just 8.3% in 2023.

We then asked if our respondents had ever bought NFTs. While 60% of respondents said they had not, another 20% answered that they did not know what the term meant. The percentage of users who had not bought NFTs was larger than in 2021 (51.1% in 2021) but the percentage of people who did not know what they were was smaller (32.2% in 2021). The percentage of users who had bought at least one NFT was 11.2% in 2023 compared to 11.1% in 2021. Just 5% of users said that they bought NFTs regularly, which is very similar to the result for 2021 (5.6%).

Taxation and regulation of cryptoassets

The unfavourable taxation of cryptoassets is a common complaint in discussions of this asset class in Slovakia. At the time of the present research, legislation had been passed that significantly reduced the taxation of returns on cryptoassets held for more than a year. This legislation was supposed to take effect on 1 January 2024 so we were interested what crypto users thought of it.

Many cryptoasset owners had not heard about the change in tax law (34.7%). Around 27.7% saw the new tax regime as a negative change, which was surprising given the significant reduction in tax burden. Around 26.2% of the cryptoasset owners participating in the research saw it as a positive change and around 11.4% did not know if it was good or bad.

We were also interested in knowing whether tax regimes affected the investment decisions of cryptoasset owners. The results were relatively balanced with 43.8% of respondents saying that the tax regime affected their investment decisions and the other 56.2% saying that they did not notice any effect on their investment decisions from the tax regime. This represents a significant decrease in the number of respondents claiming that the tax regime affects their investment decisions compared to 2021 (61.1%).

From 30 December 2024, Slovakia like other EU Member States will have a new regulatory regime for cryptoassets based on the MiCA regulation. We were interested to know whether cryptoasset owners had heard about the new regulation and what they thought of it.

Around 56.8% of respondents thought that the market in cryptoassets should be subject to reasonable regulation. This is an increase from 2021, when 44.4% of cryptoasset users approved of regulation. Whereas 42.2% of users thought that the market in cryptoassets should remain unregulated in 2021, this group had shrunk to 28.9% in 2023. The remaining 14.3% said that they could not comment on the question.

An interesting fact is that even though the regulation will start to apply at the end of this year, it is still relatively little known among cryptoasset users. A clear majority of users (64.7%) had not heard about the MiCA regulation. This majority was even larger in 2021 (75.6%). As more and more regulatory functions are implemented, it can be expected that users' awareness of the MiCA regulation will increase.

2.6 Comparison with foreign surveys

As in the last NBS survey for 2021, we would like to conclude the report by discussing the recent findings of foreign consumer research on cryptoassets. There have been a series of similar surveys in recent years, for example in the UK (conducted by the national supervisory authority, the FCA), in Canada (by the Ontario Securities Commission) and in France (one project in cooperation with the OECD about investing and another in cooperation with IPSOS and KPMG concerning adoption of crypto by consumers and its industrial applications). The area is also touched upon in the repeated Study on payment attitudes of consumers in the euro area (SPACE) launched by the ECB.

In the United Kingdom a [research note](#)¹ was published in 2023 reporting a survey of the growing awareness and ownership of cryptoassets based on a survey with 2,337 respondents plus a boost sample. It was conducted in August 2022. Work is ongoing at the government level to develop a regulatory regime for cryptoassets. The survey results indicate that 91% of the adult population are aware of cryptoassets (in Slovakia 87.9%), which is an increase from 78% in 2021. The survey

also found that 13% of respondents owned cryptoassets or had owned them in the past (compared to 12.4% of respondents in Slovakia). The boost sample enabled researchers to identify an effect of the falls in cryptoasset prices on consumers' interest in buying them. At the same time, the research showed that economic conditions such as inflation and a rise in the cost of living did not change the behaviour of cryptoasset holders. Research also highlights increasing rates of advertising related to cryptoassets: 36% of respondents had seen or heard adverts about cryptoassets, 25% became curious about cryptoassets thanks to advertising and 6% were influenced by an advert to make a purchase. According to the present research in Slovakia, 32.7% of respondents claim that advertising has no significant impact on them, 18.3% said that advertising had some influence on them and 10.3% said that they bought cryptoassets because of advertising. The greatest risk that respondents see in cryptoassets is losing their funds. As many as 79% of users bought cryptoassets with their disposable income, 6% borrowed and 19% drew on long-term savings or the proceeds from the sale of cryptoassets. There is a similar trend in Slovakia with most respondents making purchases with their disposable income. Regulation is a tool that can help to mitigate risks in future. Accordingly, respondents who did not own cryptoassets said that they would be more likely to buy them if the market were regulated.

Another [survey](#)² was published on this topic in Canada in 2023. The survey aimed to measure and track consumer trends relating to knowledge and opinions concerning cryptoassets, consumer behaviour in this area and respondents' experiences with cryptoassets. The survey used a sample of 2,360 respondents plus a boost sample (oversample) ensuring there were always 500 respondents. The survey focused on ownership of cryptoassets, investment behaviour in the area of cryptoassets and where respondents get their information on cryptoassets from. From the results it is evident that fewer respondents currently own cryptoassets than a year earlier (a decrease from 13% in 2022 to 10% in 2023, compared to 6.5% of respondents in Slovakia). The Canadian survey does not include data on the total set of current and past cryptoasset owners. The percentage of respondents who think that cryptoassets will play a key role in the economy is shrinking (26% in 2023 compared to 38% in 2022). The survey also found that more respondents regretted purchasing cryptoassets (77% in 2023 compared to 68% in 2022). The typical profile of a Canadian cryptoasset holder is a man aged 25 to 44 employed full-time with a high education level. In Slovakia, cryptoasset owners are 72.3% male and 27.7% female and are most likely to be in the 25 to 44 age group. Typical cryptoasset owners also own other kinds of investment products, have high financial knowledge and tend to be self-directed investors. The most common reason given for buying cryptoassets is as a speculative investment or gamble (28% both years); the Slovak survey produced a similar result (29.5%). There has been a fall in the proportion of respondents buying crypto as a long-term investment (from 29% in 2022 to 20% in 2023). One of the main reasons mentioned by respondents who have never owned crypto is a lack of knowledge about this asset type (46% in 2023 compared to 49% in 2022), which is also similar to the results of the Slovak survey (33.1%).

In France, the latest [survey](#)³ in this area studied the behaviour of retail investors. It was carried out by the OECD and summarises investment behaviour in the financial market. It reports that 9.4% of the French population own cryptoassets, which have become the second most popular type of investment after real-estate funds. It also finds that just 2.8% of respondents own an NFT. The research also shows that investors are mainly men (64%) in the 36 to 51 age group. As many as 54% of respondents in this age group own cryptoassets.

Another [survey](#)⁵ conducted in France in 2023 was the second edition of a survey by IPSOS in cooperation with KPMG entitled “Web3 in France and Europe: Adoption by the public and applications by industries”. It focused on consumer behaviour and attitudes towards cryptoassets in France and Europe in areas such as investments in cryptoassets, how they are understood by market players and applications in the banking and financial markets, the energy sector, culture and entertainment, luxury brands and other sectors of the economy. Only a part of this research is comparable with the Slovak survey. Regarding awareness of cryptoassets, the survey found that 85% of respondents had heard about cryptoassets. In terms of cryptoasset ownership, 13% of respondents either owned them at the time of the survey or had owned them in the past (4.8 million), which is comparable with our findings from Slovakia (12.4%). As regards custody of cryptoassets, 53% of cryptoasset owners had bought them on an exchange, while the remainder (36%) used a self-managed wallet. According to this survey, 35% of respondents are interested in central bank digital currencies. With reference to this finding, it is important to note that while the NBS survey found that 55% of respondents were aware of the digital euro, this was not (from a methodological point of view) the same thing as being interested in central bank digital currencies (which include not just the digital euro but also others such as the eNaira, digital yuan, digital rupee, Bitcoin, and dollar etc.). This could explain why respondents’ answers in these two surveys differ by 20 percentage points.

In 2022, the ECB published the results of the [SPACE](#)⁶ survey carried out in cooperation with the KANTAR agency from the UK covering 17 EU countries. Countries such as Germany and the Netherlands contributed to the survey directly without the involvement of the agency. The purpose of the SPACE survey was to get a better idea of consumers’ behaviour and usage patterns in relation to well-established means of payment such as cash, electronic or digital payments, online payments, acceptance of payments using POS terminals and the like. The survey focused on numbers and volumes of payments, comparing them among themselves but also between countries. While the SPACE survey does mention cryptoassets, it deals with them only marginally because their current adoption by consumers for both payments and investments appears limited in extent compared to the alternatives. The findings of the SPACE survey indicate that just 4% of the population in Slovakia currently hold cryptoassets, which is less than the figure reported in this NBS survey (6.5%). The difference may be due to differences between samples or the method used to select respondents (randomly across the EU countries, a total of 39,765) or the summarisation of responses which were collected for SPACE in two time periods (the first between October and November in 2021 and the second between February and June in 2022). In addition, the methodology of the SPACE survey indicates that half the respondents were interviewed by phone and half using the web, which may be a factor that could lead to different results. As regards conclusions on cryptoassets, the SPACE survey contains limited information on ownership and how respondents use cryptoassets: in measurements of volume and number of transactions, crypto is bundled in the “other” group (with gift cards etc.) which lags behind the top payment methods (cards, transfer orders, electronic payments), and is best-represented in transactions up to €5. The SPACE survey indicates that cryptoassets are mainly held as an investment (3 to 4 times more than the volume used for payments). Cryptoassets are at present more likely to be purchased for speculative reasons than as a real means of payment. Their use for this purpose remains marginal for now.

⁵ IPSOS, KPMG, Web3 and cryptoassets in France and in Europe: adoption by the public and applications by industries.

⁶ SPACE, a repeated ECB survey, conducted by KANTAR in 2022 (previously conducted in 2019).

We would like to conclude this chapter by noting that there are many reasons why the results of the repeated NBS consumer survey on cryptoassets and the digital euro could differ from the results found by similar surveys conducted in other countries. The difference may be due to the selection of a different research method, i.e. the selection of a different sample of respondents, the use of different forms of inquiry or the research being carried out at a different time compared to the NBS survey. It should also be noted that the survey results are illustrative and may not capture all details and facts. Lastly, we would argue that comparisons of research should primarily focus on trends currently operating on the global level where consumers in other countries are likely to act in similar ways to consumers in Slovakia, and vice versa.

Conclusion

NBS would like to take this opportunity to thank the individual respondents and the Focus agency for the practical implementation of the research. The results help us to track the development of Slovaks' knowledge, attitudes, opinions and practical experience in relation to cryptoassets and the digital euro. NBS will use the research findings in its activities as a central bank taking part in the digital euro project and as the supervisory authority for the cryptoasset market.

We plan to repeat this consumer research in future to follow further developments in the relationship of the Slovak population to these topics.