

# CRYPTOCURRENCIES AND THE FUTURE OF MONEY

Money and Trust  
in Germany

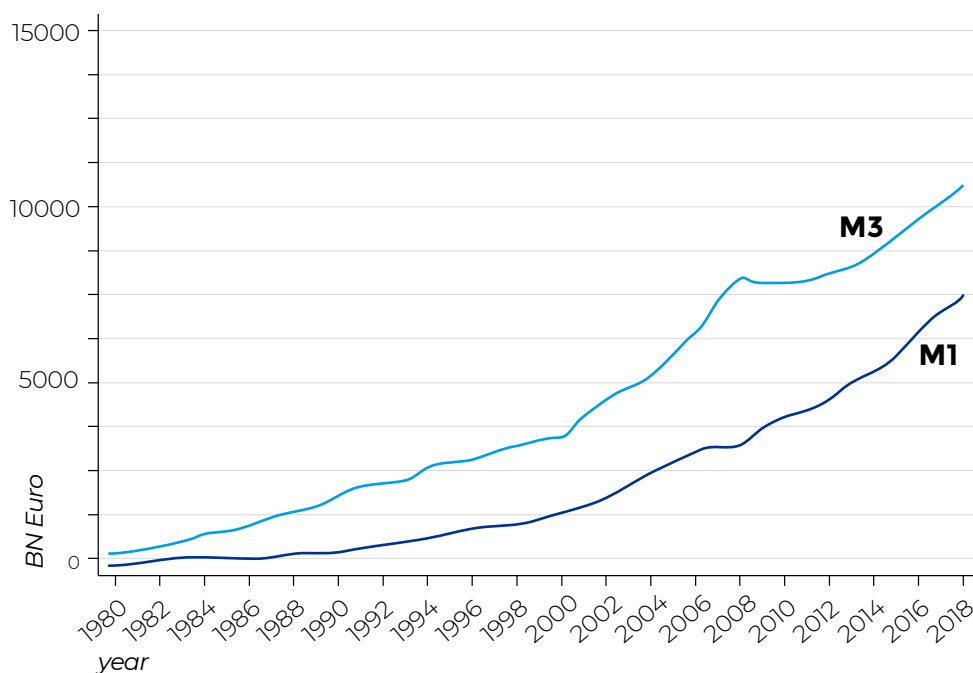
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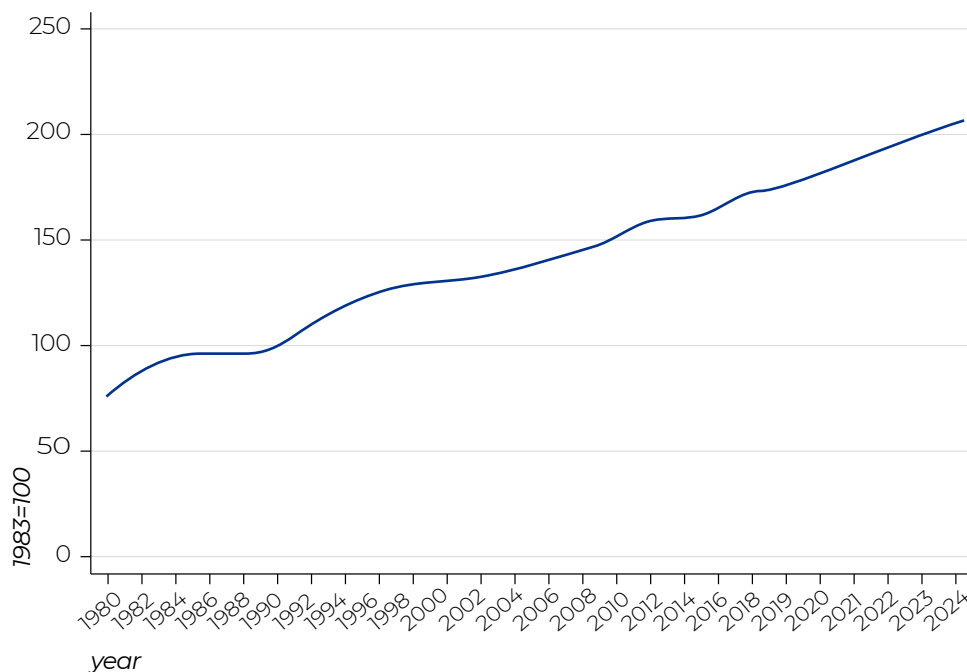
## I. BACKGROUND

The euro was established by the provisions of the 1992 Maastricht Treaty, and is now the official currency of 19 of the 28 member states of the European Union, including Germany. It has replaced the previous German currency, Deutsche mark, which ceased to be convertible to euros by 2002. As of today, the euro is the second-largest reserve currency as well as the second-most traded currency in the world after the US dollar. The euro has even surpassed the US dollar and become the currency with the highest values of banknotes and coins in circulation in the world. As can be seen in Figures 1 and 2 below, the supply of money since 1980 (during both pre and post euro periods) and has a steady increase with stable increase in consumer prices (CPI)

### Money Supply in Germany



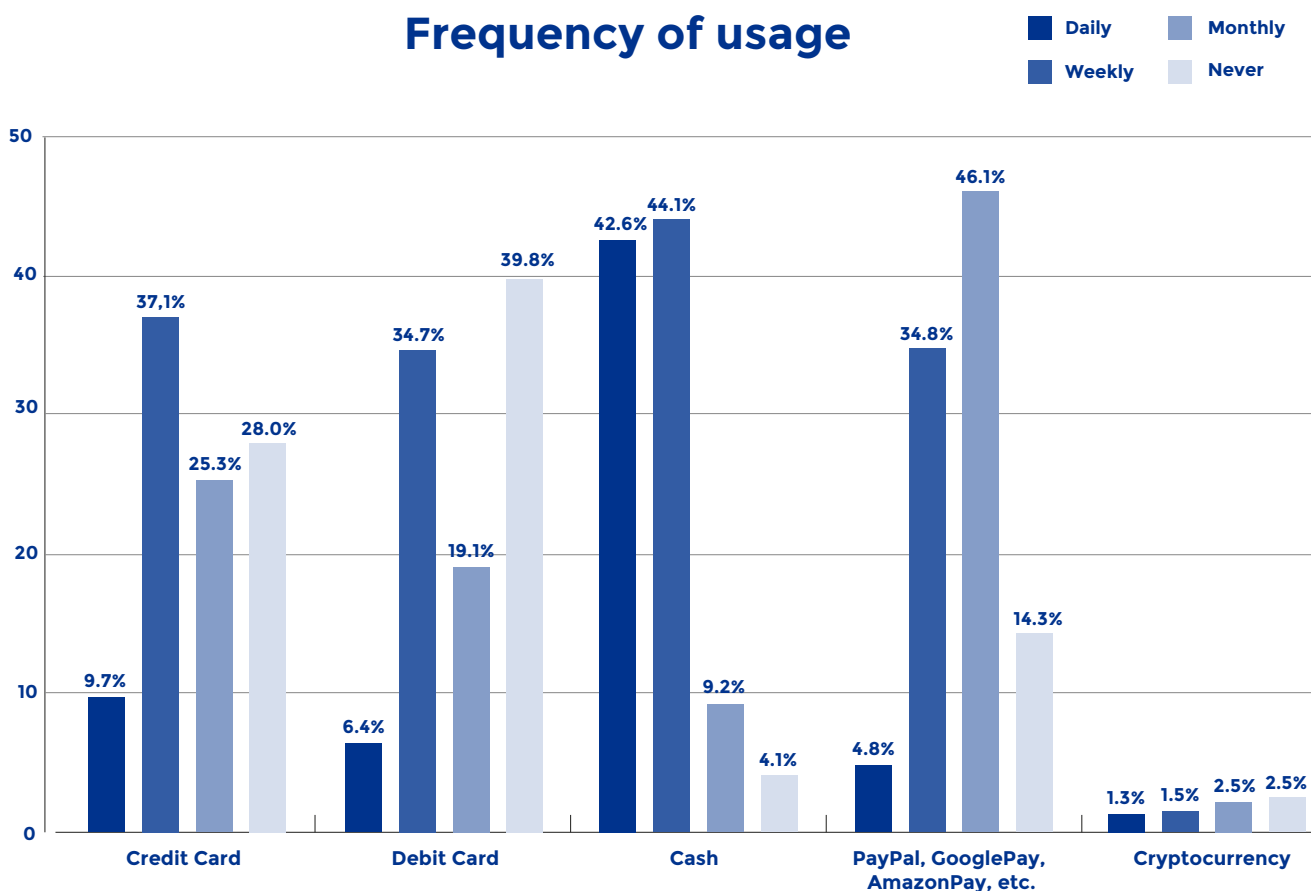
### Consumer Prices in Germany



**DATA SOURCE:** ECB Statistical Data Warehouse (above) and IMF World Economic Outlook (below)

## II. CURRENT USAGE OF MONEY IN GERMANY

Looking at current usage of different types of money in Germany, only less than half of German residents make use of credit cards (47%) and debit cards (41%) on a daily or weekly basis, while a large majority of them use cash (87%) on a daily or weekly basis. The dependence on cash in transaction is quite prominent in Germany. The newly emerging online payment companies have around 40% usage on a daily or weekly basis. By far, the least used form of money in our survey is cryptocurrency with only around 3% of respondents using these on a daily or weekly basis, the lowest among the surveyed European countries.<sup>1</sup>



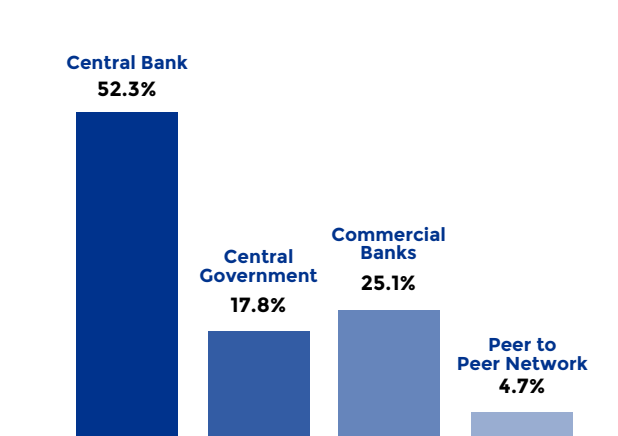
SOURCE: IE Survey 'Cryptocurrencies and The Future of Money'

2 Countries in our sample include: Argentina, Brazil, France, Germany, Mexico, Spain, UK and the US.

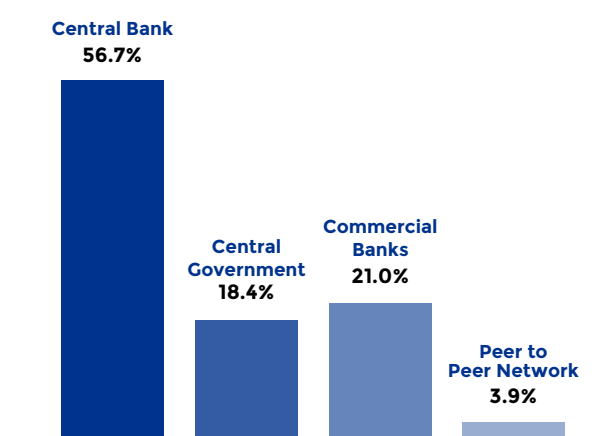
### III. KNOWLEDGE OF AND TRUST IN MONEY IN GERMANY

In 2017, a EuroBarometer survey found that almost half of German residents (49%) tend not to trust the European Central Bank<sup>2</sup>. It would be interesting to see whether such opinion is well-informed. To get an understanding of how well residents of Germany understand some basics regarding the issuance and management of money, we asked respondents who they thought created money and who they thought 'should' create money. The results suggest that the majority of German residents (52%) correctly believe that the central bank creates and manages money. The other creator of money, commercial banks, were not half as well-known with only around 25% of German residents believing that they create money. Encouragingly, only 18% of German residents believed that the central government created and managed money, the lowest among European countries in our sample. Comparing the left and right hand side, it also appears that German residents are pretty content with who they currently believe creates and manages money (no significant changes are desired).

Who creates & manages money in Germany?



Who should create & manage money in Germany?



SOURCE: IE Survey 'Cryptocurrencies and The Future of Money'

In the presence of many new forms of money in the 21<sup>st</sup> century, the types of institutions who create money has increased dramatically over the past five years. For example, in 2019 there are over 2,000 different cryptocurrencies which are not issued by government or commercial banks. To get a clearer idea of how people trust different types of institutions to create and manage money in Germany, we asked them to rank each of five types of money creator from most preferred to least preferred. The results are quite consistent to those above. In particular, the central bank is the most trusted by German residents, while commercial banks (21%) were ranked by more German residents than the central government (15%) as their first choice to create money.

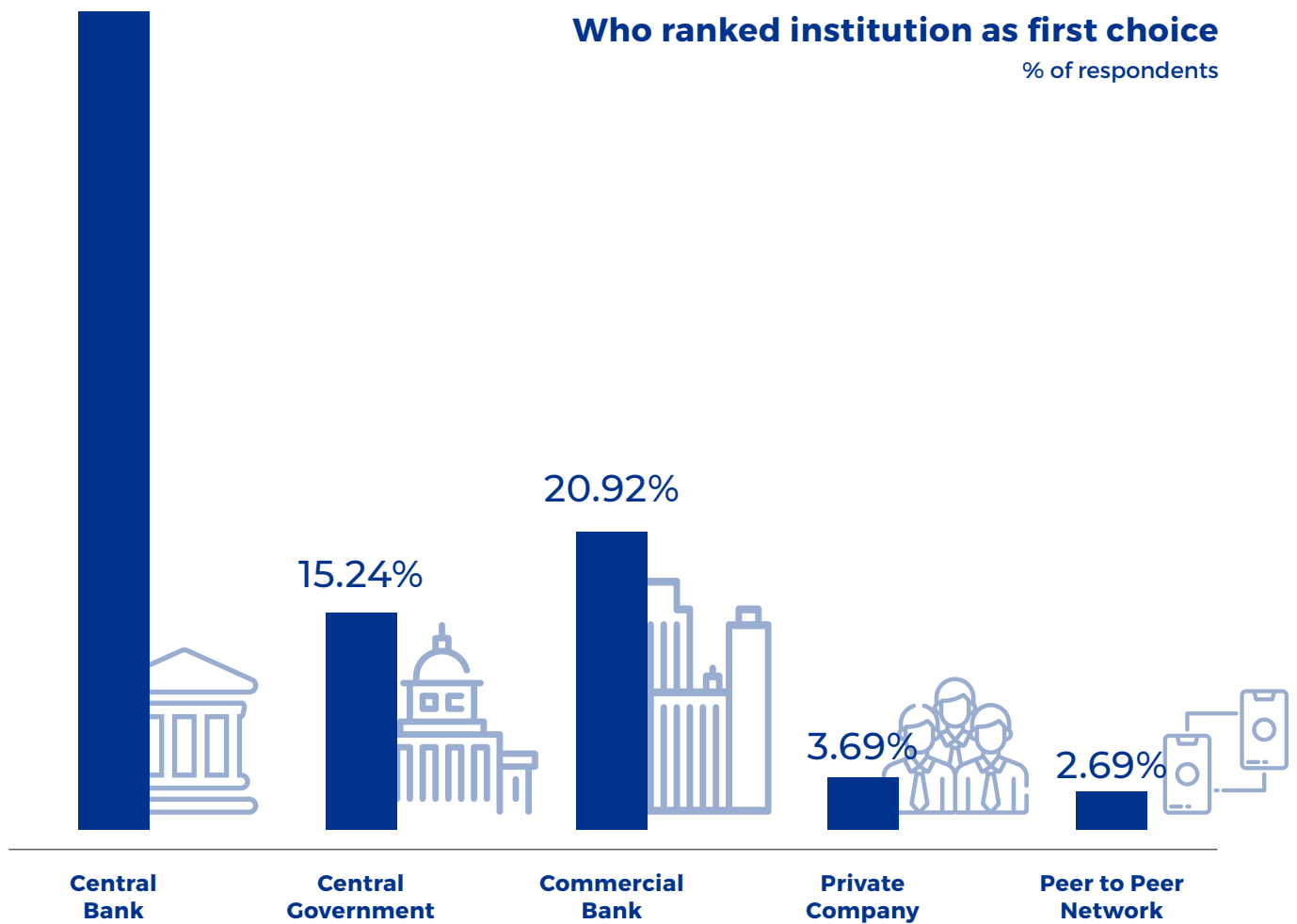
Comparing these levels of trust with nontraditional source of money creation and management shows significant differences with only about 10% of residents of Germany ranking peer-to-peer networks as their first or second choice and 7% ranking private (nonbank) companies at their first or second choice. Lowest among the surveyed European countries, these numbers paint a fairly pessimistic prognosis for cryptocurrencies becoming a widely used type of money in the near future.

<sup>2</sup> <https://ec.europa.eu/commfrontoffice/publicopinion/index.cfm/ResultDoc/download/DocumentKy/82873>

57.47%

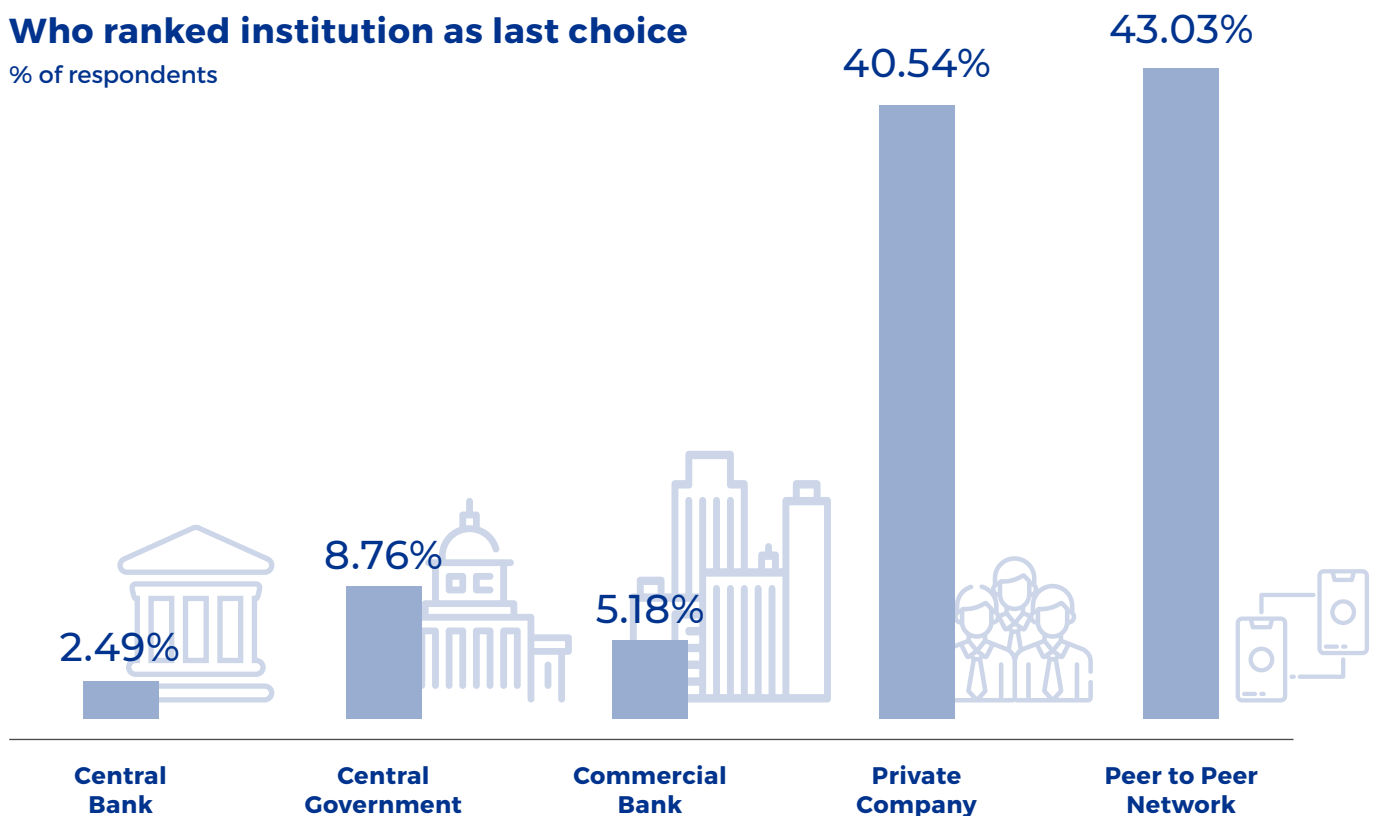
## Who ranked institution as first choice

% of respondents



## Who ranked institution as last choice

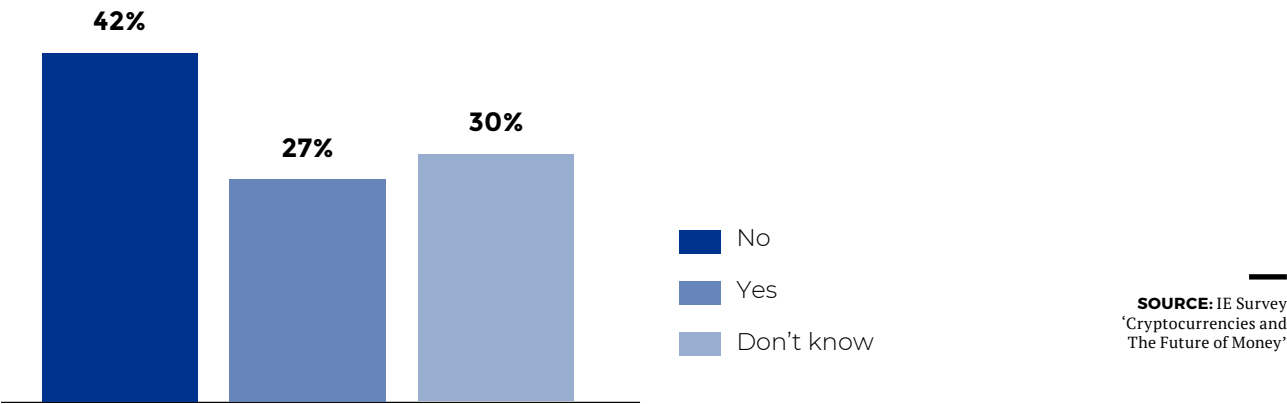
% of respondents



The relative low levels of trust in government (as compared with the central bank and commercial banks) could be partly related to the general public perception of their handling of the recent financial crisis. While the crisis was certainly not caused by the government, a large proportion of the public believes that the regulatory response has been insufficient for preventing another financial crisis in the future.

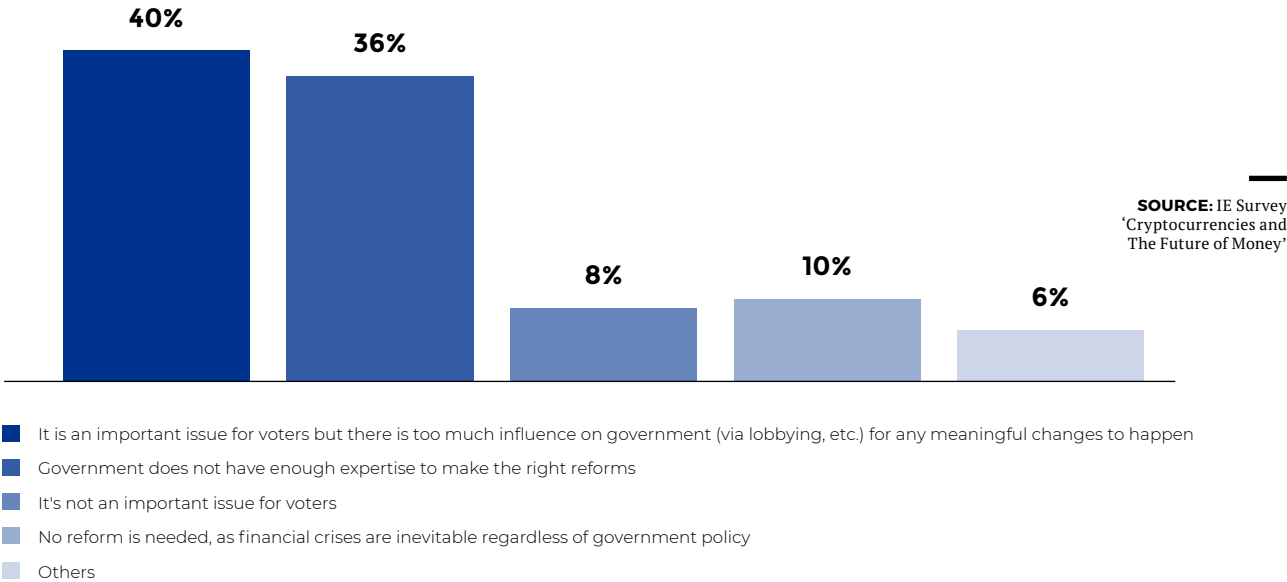
We can see this from the great proportion of respondents believing that government has not taken meaningful steps in regulating the banking sector to prevent a future financial crisis. Specifically, 42% of Germans believed that government has not done enough, while 27% believed that government has done enough. The remaining 30% of respondents were uncertain about whether has taken meaningful steps.

**Government has taken meaningful steps by regulating the banking sector since 2008 to prevent another financial crisis**



For those who felt that government has not has taken meaningful steps in regulating the banking sector to prevent a future financial crisis, by far, the most common response was that 'it is an important issue for voters but there is too much influence (lobbying, etc.) on government for meaningful changes to happen' (40%). The second most chosen option was a belief that government does not have the expertise to make the right reforms (36%). Both of these suggest a lack of trust in the decision makers in government which helps to explain the surprisingly low levels of ranking in the creation and management of money.

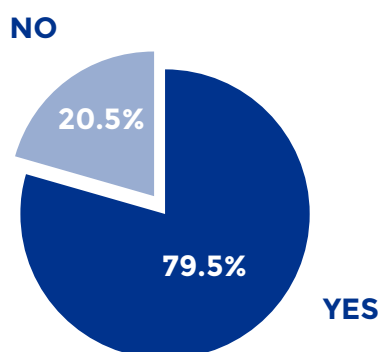
**Why no meaningful steps have been taken**



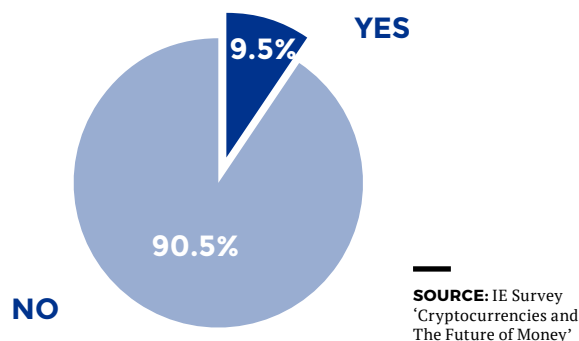
## IV. ATTITUDES TOWARD CRYPTOCURRENCIES IN GERMANY

In a June 2018 survey, ING found that 71% of Germany residents had heard of cryptocurrency with around 8% claiming to own some form of cryptocurrency.<sup>3</sup> In August of 2019 these figures remained unchanged for awareness of cryptocurrencies and slightly increased to 10% for interest in cryptocurrencies amongst German residents.

Have you heard of cryptocurrency?

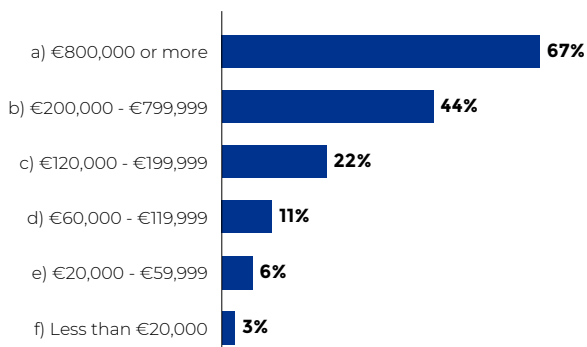


Do you own any cryptocurrency?

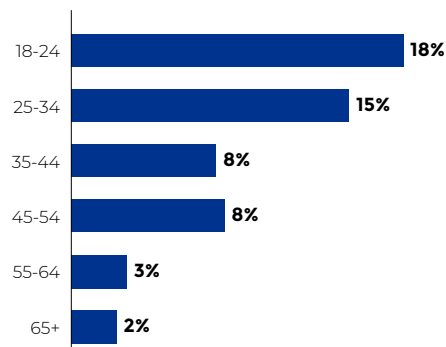


Breaking ownership down by income, levels are very high amongst the very wealthy, with over 67% of respondents with income over 800,000 euros owning some cryptocurrency, and 44% of respondents with income between 200,000 and 799,999 euros. The ownership levels of these high-income groups are at least twice as any other income groups. The variation over age is fairly intuitive with the majority of owner being in the 18–34 age group and very little ownership amongst those 55 and up. The result that cryptocurrencies are largely owned by young and wealthy German residents, suggesting that these are likely to be investments rather than for day to day transactions. There does not appear to be any systematic differences across education and gender.

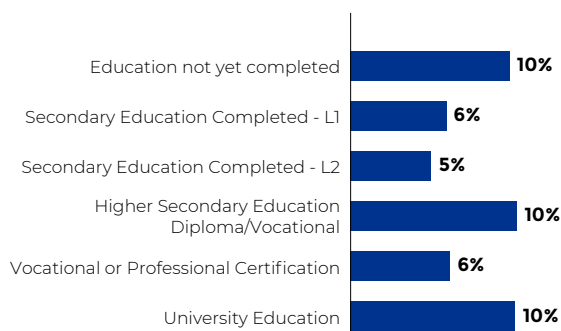
Ownership of cryptocurrency by income



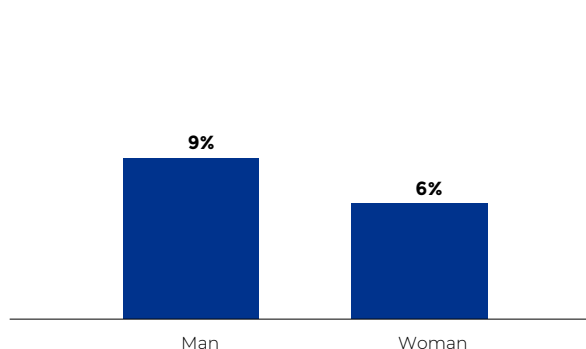
Ownership of cryptocurrency by age



Ownership of cryptocurrency by education



Ownership of cryptocurrency by gender



**SOURCE:** IE Survey 'Cryptocurrencies and The Future of Money'

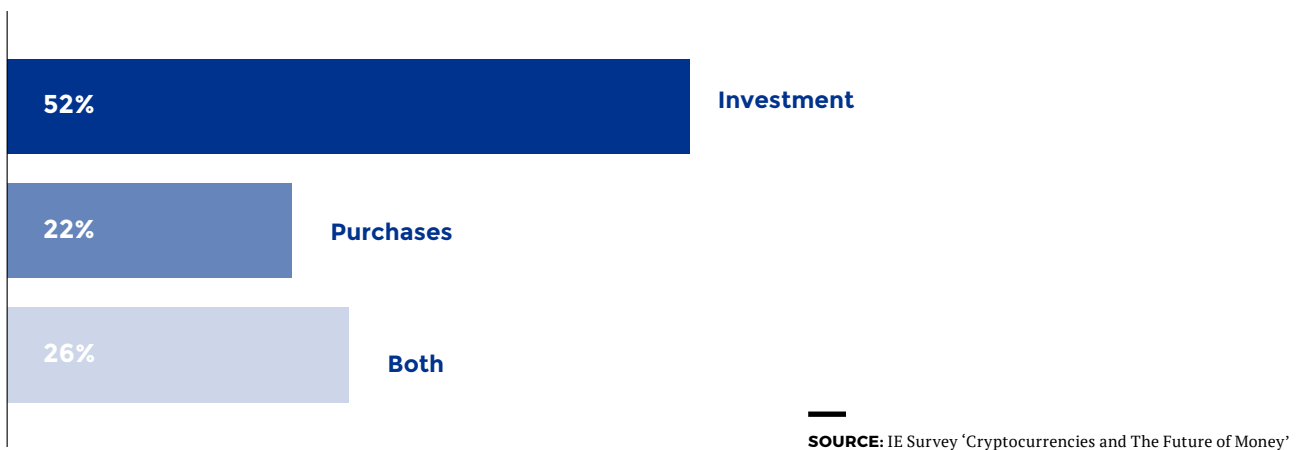
<sup>3</sup> See [https://think.ing.com/uploads/reports/ING\\_International\\_Survey\\_Mobile\\_Banking\\_2018.pdf](https://think.ing.com/uploads/reports/ING_International_Survey_Mobile_Banking_2018.pdf)



To validate this, the survey asked those German residents who owned cryptocurrency whether it was as an investment or to make purchases.

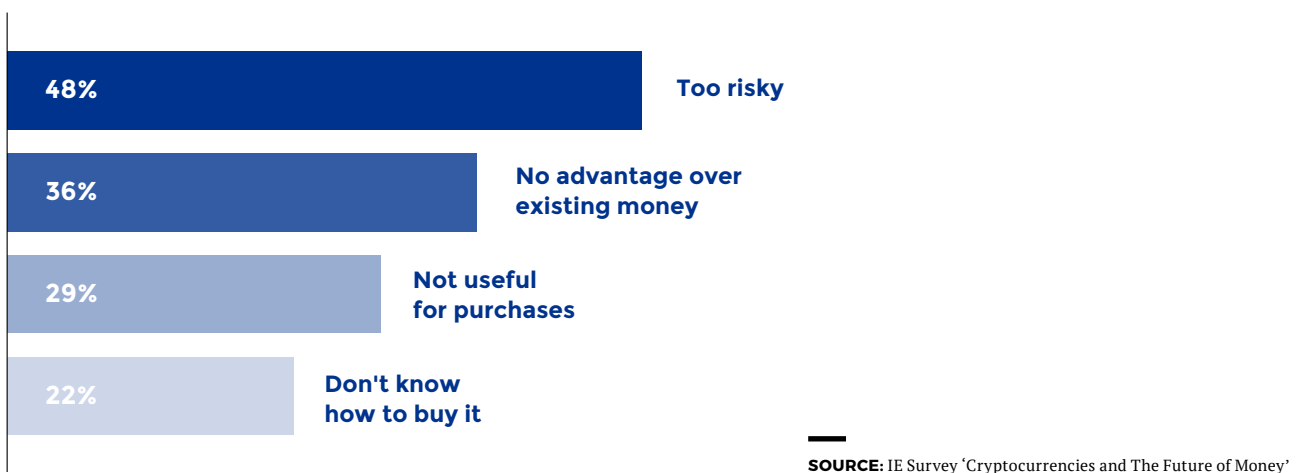
Unsurprisingly, the majority (52%) of cryptocurrency owners hold them specifically as an investment with only 22% using cryptocurrency specifically to make purchases. In this sense, cryptocurrency is not a currency at all in Germany, but instead a financial investment. Tying this in with the results above, the small niche of cryptocurrency owners tend to be young and wealthy and are in the cryptocurrency market as a speculative investment rather than to use it as a type of money.

### Why do you own cryptocurrency?



For those respondents who do not own cryptocurrencies, the most common reason (49%) was they believe that it is too risky, followed by the belief that cryptocurrency does not have obvious advantage over existing forms of money (35%). Under such perception, it appears unlikely that the German cryptocurrency market could grow significantly in the future.

### Why do you not own cryptocurrency?



Putting these findings together, an increasing number of German residents are becoming aware of cryptocurrencies but ownership is still very limited. The majority of current owners are young and wealthy people who hold these as an investment. There is some potential for cryptocurrencies to expand their ownership but this will require the building of trust with the public through better education and communication.

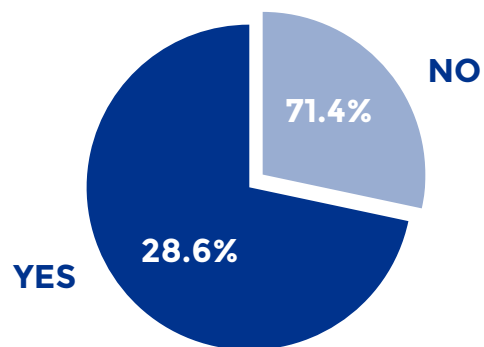
## V. THE FUTURE OF CRYPTOCURRENCY IN GERMANY

As of early 2020, there are over 2,000 different cryptocurrencies in 2019 which can be bought or sold by German residents on public exchanges. With the surge in these alternative types of ‘money’, there is an important question of whether their ownership can be extended beyond the very small pool of young wealthy German residents and their use can move from an investment to being used in day-to-day transactions (as seen in Section IV). One of the unique features of these alternative currencies is that the issuer is a private sector firm which is not a commercial bank which, from Section III, was found to have limited trust from the general public. To gauge the German public’s appetite for a well designed and efficient cryptocurrency (i.e. one that is superior to currently existing money) which is issued by a private company, we asked respondents:

**“Suppose that a new cryptocurrency was designed by a private company (or group of companies) that could be used to make all of your day-to-day transactions (it is accepted by all sellers) and has a stable value over time (low inflation/deflation). This currency could also be converted to other currencies at a very small cost. Would you prefer to use this currency over your current method of payment?”**

The results are more optimistic that current usage levels from Section II, possibly due to the fact that currently existing cryptocurrencies are not efficient and do not have stable prices. Around 29% of German residents expressed a willingness to use a new type of money issued by a nontraditional backer (a private company).

**Would you use an effective private currency?**

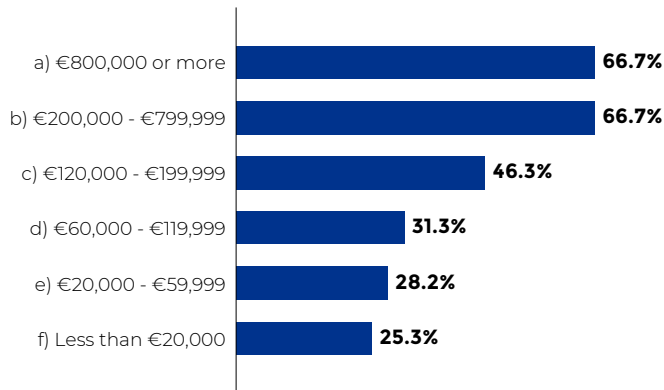


**SOURCE:** IE Survey ‘Cryptocurrencies and The Future of Money’

A willingness to use an effective digital currency follows a similar pattern across income, age and gender (but not education). This is unsurprisingly similar to the patterns we saw with current ownership of cryptocurrencies. Mainly, wealthy individuals tend to support a new effective cryptocurrency more than those who make less than 120,000 euros. Young people (those under 45) are significantly more likely to support a new effective cryptocurrency and women slightly more likely than men.

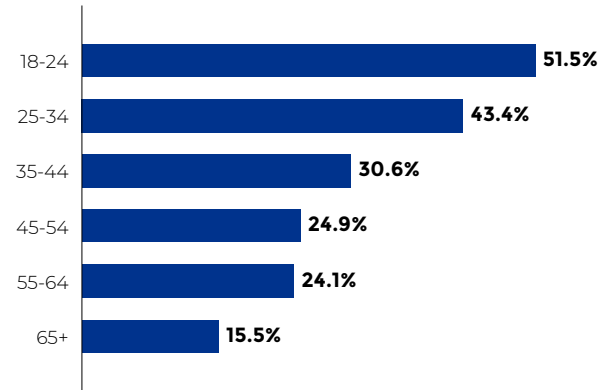
### Would you use an effective private currency?

by Income



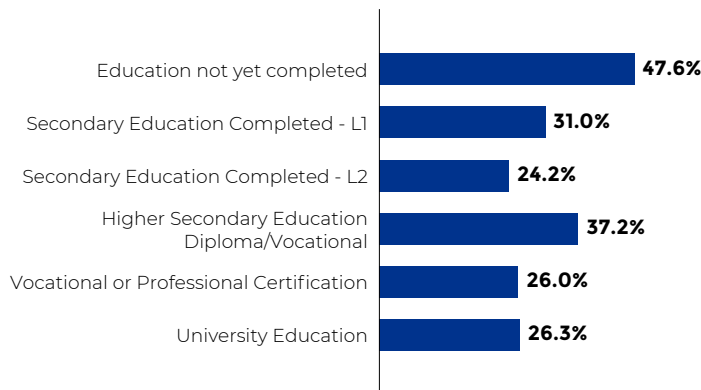
### Would you use an effective private currency?

by Age



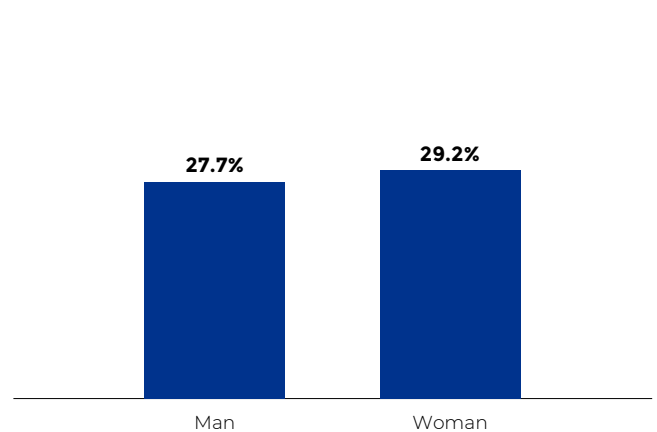
### Would you use an effective private currency?

by Education



### Would you use an effective private currency?

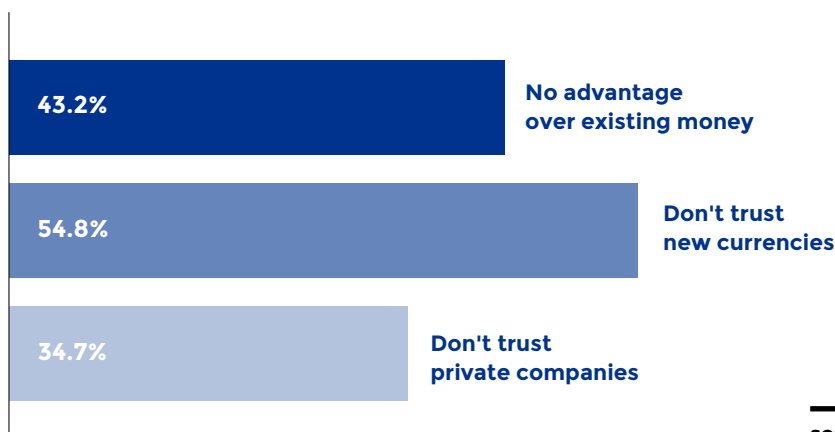
by Gender



SOURCE: IE Survey 'Cryptocurrencies and The Future of Money'

Amongst the 71% of German residents who would not use a new effective cryptocurrency, the most common reason was a lack of trust in new currencies (55%), followed by the belief that it had no advantage over existing types of money (43%) and a lack of trust in private companies (35%). These results are somewhat optimistic for digital currencies as their advantages have apparently not been well communicated to a significant proportion of the general public.

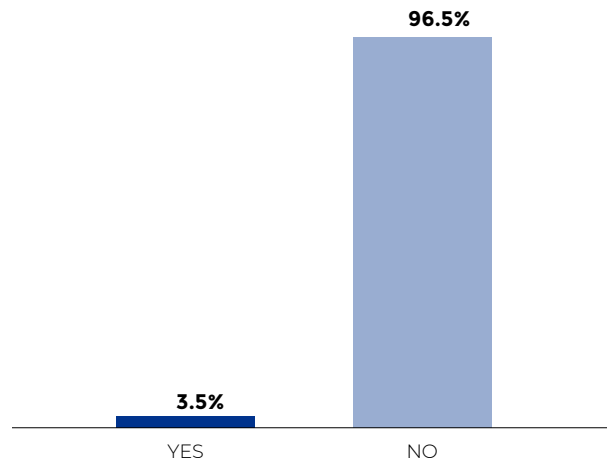
### Why Not?



SOURCE: IE Survey 'Cryptocurrencies and The Future of Money'

## Trust in Facebook to issue a private currency

With the new high profile announcement by Facebook that they, along with a large pool of high profile partners, would launch the 'Libra' in 2020 came a flood of speculation about its potential for success. Following this announcement, a significant proportion of the general public have expressed pessimistic views of the Libra given the low levels of trust in Facebook in managing valuable information.

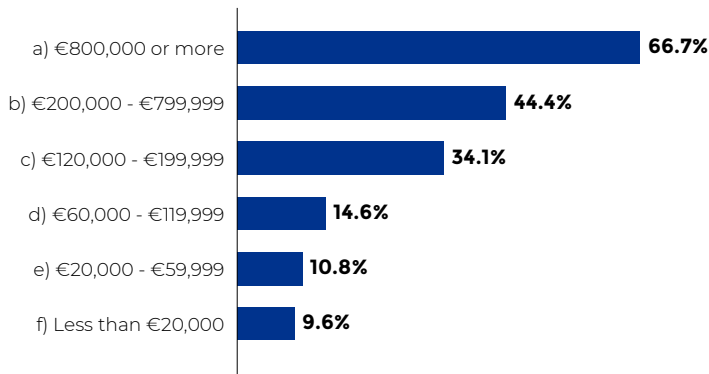


SOURCE: IE Survey 'Cryptocurrencies and The Future of Money'

On top of that, German Finance Minister Olaf Scholz publicly asserted that policymakers could not accept the emergence of parallel currencies such as Facebook's planned Libra, adding that Berlin would reject any such plans<sup>4</sup>. The results from our survey paint an equally pessimistic picture. Around 3.5% of German residents stated that they would trust Facebook to issue a currency with 96.5% responding that they would not. There were significant differences across income and age but only small differences across education and gender.

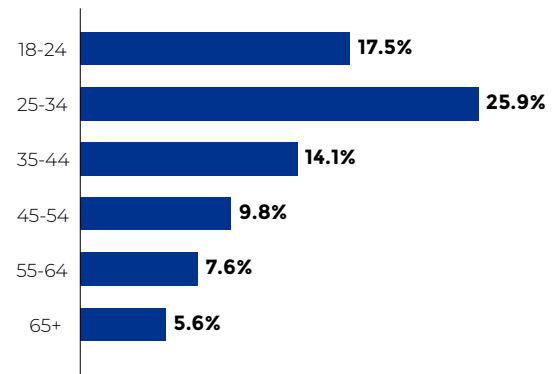
### Trust in Facebook to issue a private currency

BY INCOME



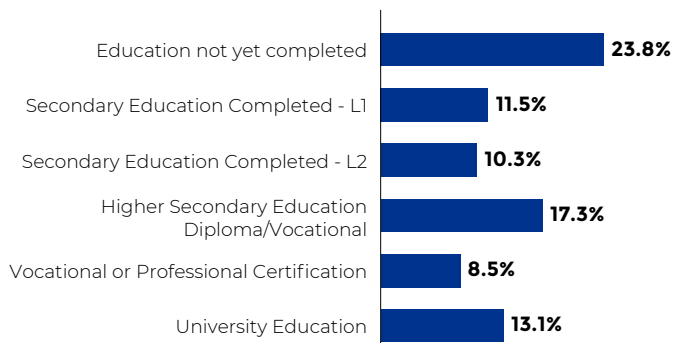
### Trust in Facebook to issue a private currency

BY AGE



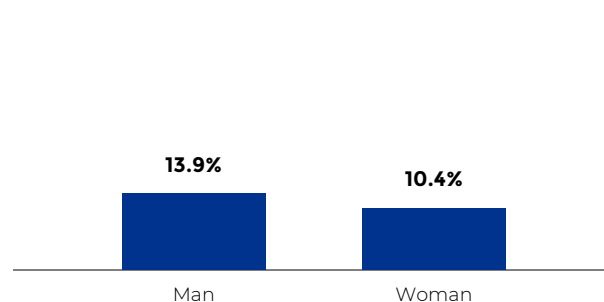
### Trust in Facebook to issue a private currency

BY EDUCATION



### Trust in Facebook to issue a private currency

BY GENDER



SOURCE: IE Survey 'Cryptocurrencies and The Future of Money'

## VI. A CONJOINT ANALYSIS OF PREFERENCES FOR MONEY IN GERMANY

While the above discussion is helpful in gaining a deeper understanding of German usage, knowledge, trust of money. Understanding exactly what characteristics of money are important to Germans requires a systematic approach. Fortunately, a choice based conjoint analysis is an excellent way to measure the relative ‘utilities’ that German residents gain from different types of money which vary across each attribute. We can look at how each of five main attributes are valued against each other. To do this, from the sample of 1,000 adult Germany residents, we provided each respondent with ten frames, each of which provided the respondent with a choice between three hypothetical currencies with varying attributes. For the purpose of this exercise, we characterized ‘money’ as having five underlying attributes:

1. **Issuer/backer** refers to who issues and/or backs that currency. This could be a central bank, a commercial bank (private sector company), or a peer-to-peer nonprofit like Bitcoin (private sector peer to peer).
2. **Acceptability** refers to where are able you use the currency. Is your currency accepted by all sellers of goods/services or only some sellers of goods/services (within the area in which you buy/sell goods and services)?
3. **Transaction** costs are there costs involved in making the transaction (these are commonly known as ‘fees’, ‘premiums’ or ‘spreads’).
4. **Price Stability** refers to the expected change in the amount of goods and/or services you can buy over the course of a month with the same amount of currency (i.e. x\$ in October will be worth y\$ in November)
5. **Digital/physical.** All currency that is stored outside of your personal physical possession can be considered as digital.

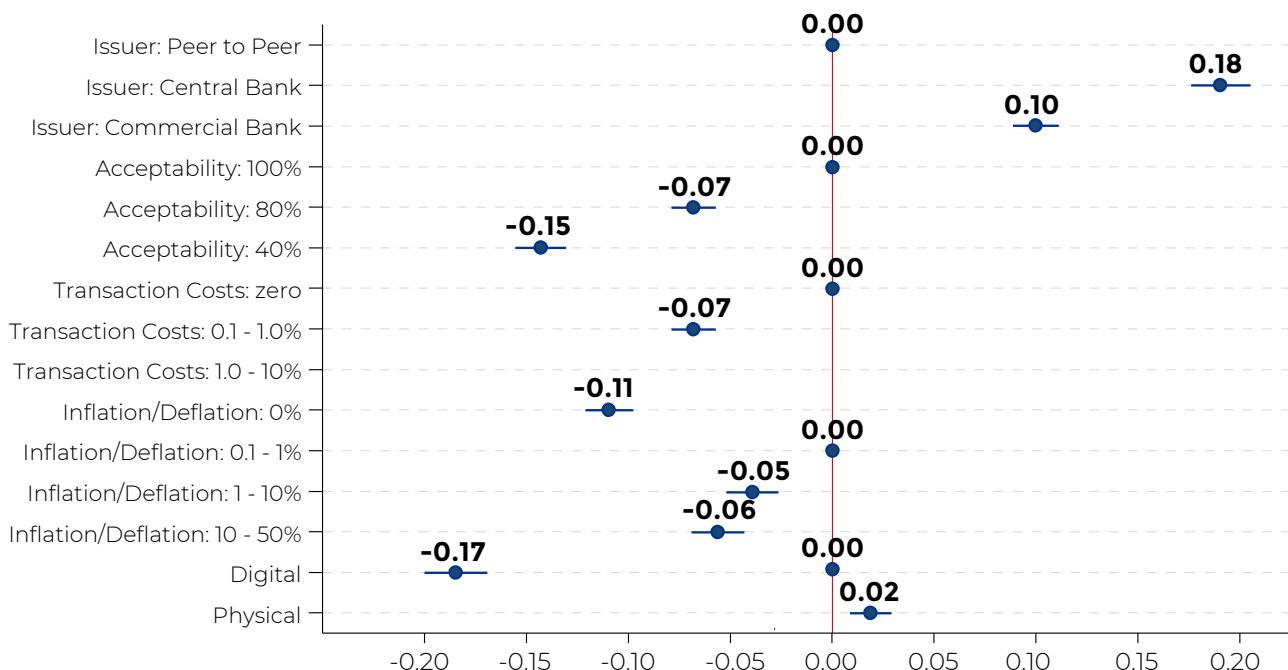
Each of these five attributes was assigned between two and four options shown below.

ATTRIBUTE	ATTRIBUTE CHARACTERISTIC
ISSUER/BACKER	<ul style="list-style-type: none"><li>• Central bank</li><li>• Private sector commercial bank</li><li>• Private Sector peer-to-peer network</li></ul>
ACCEPTABILITY	<ul style="list-style-type: none"><li>• All sellers accept the currency</li><li>• 80% of sellers accept the currency</li><li>• 40% of sellers accept the currency</li></ul>
TRANSACTION COST	<ul style="list-style-type: none"><li>• Zero</li><li>• 0.1–1% of the transaction value</li><li>• 1–10% of the transaction value</li></ul>
PRICE STABILITY	<ul style="list-style-type: none"><li>• Max monthly inflation/deflation of 0 % (100 = 100)</li><li>• Max monthly inflation/deflation of 0–1% (100 = 99, or 100 = 101)</li><li>• Max monthly inflation/deflation of 1–10% (100 = 90, or 100 = 110)</li><li>• Max monthly inflation/deflation of 10–50% (100 = 50 or 100 = 150)</li></ul>
DIGITAL/PHYSICAL	<ul style="list-style-type: none"><li>• Digital</li><li>• Physical</li></ul>

To give an idea of what each of these frames would look like an example is provided below where respondents would be asked to choose their preferred one of the three hypothetical currencies with predefined characteristics across each of the five attributes.

	CURRENCY 1	CURRENCY 2	CURRENCY 3
MONEY ISSUER	Central Bank	Private sector corporation	Private sector peer-to-peer
LEVEL OF ACCEPTABILITY	80% of sellers accept the currency	All sellers accept the currency	40% of sellers accept the currency
COST OF TRANSACTION	Fee of between 0.1 and 1% of the transaction value	Fee of between 1 and 10% of the transaction value	Zero
PRICE STABILITY	100 (local currency) could be worth between 99 and 101 next month	100 (local currency) will be worth 100 next month	100 (local currency) could be worth between 90 and 110 next month
DIGITAL OR PHYSICAL	Digital	Digital	Physical

This gives us over 30,000 (1,000 respondents with ten frames of three options) observations reflecting the preferences of German residents for money across our five attributes. The easiest way to interpret the results in a meaningful way is by examining the average marginal effects of each attribute choice. Effectively, these can be viewed as premiums/discounts place on specific characteristics of money. For example, we can see from the figure below that residents of Germany place a significant premium on central bank issued money and are very averse to low acceptability rates. The advantage of using a conjoint based approach is that we can directly compare different characteristics with each other. Looking at the figure below residents of Germany have a strong aversion to currencies which have limited acceptability, especially when it is below 50%. There is also a fairly strong aversion to transaction costs (above 0%) and high levels of inflation (there does seem to be tolerance of moderate levels of inflation). Lastly, when comparing digital with physical money, residents of Germany still appear to have a slight preference for physical cash.



SOURCE: IE Survey 'Cryptocurrencies and The Future of Money'

Thinking about these results in the context of current types of money, cash, credit cards, and debit cards in Germany all have very high levels of acceptability and relatively low transaction costs. Since the European Central Bank targets inflation rate as its monetary policy, we can expect low levels of inflation with cash, credit cards and debit cards. Overall, these three highly used types of money score quite highly in the context of the conjoint analysis. Comparing this with existing cryptocurrencies, all have very low levels of acceptability and large price fluctuations which are two of the least desired characteristics of money. As noted above, there is also a trust premium enjoyed by the European Central Bank relative to both commercial banks, who have a significant premium over the least preferred issuer (peer-to-peer).

All of this suggests that cryptocurrencies, especially those which are privately issued, have a long way to go before they might be able to compete with or overtake traditional forms of money like cash, credit cards and debt cards backed by central and commercial banks in Germany.



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### **RECOMMENDED CITATION:**

CGC, *Cryptocurrencies and the Future of Money*.  
Madrid: Center for the Governance of Change,  
IE University, 2019.

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