CRYPTO CURRENCIES – BETWEEN HYPE AND SCEPTICISM
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Foreword

The exchange rates of crypto currencies really exploded in 2017. Within a year’s time, the price of “market leader” Bitcoin soared from around USD 1,000 to almost USD 20,000 for a while. That’s an increase of around 1,900%. And then Bitcoin & Co. went on a rollercoaster ride in 2018. After plunging in January to less than USD 10,000, the exchange rate has since remained in a volatile sideways pattern between USD 6,000 and USD 8,000. And the market capitalization of all crypto currencies shrunk drastically from more than USD 800 billion in January 2018 to less than USD 200 billion in September. So has the bubble burst? Or is the crypto market just winding up for a new rally?

Although the question of the appropriate valuation of crypto currencies has dominated the public discussion to date, a number of other questions need to be asked. And even if they are generally not as interesting to the public, they are extremely important for the future role of crypto currencies. Will Bitcoin & Co. become established as an asset class or even a means of payment? What new financing possibilities will emerge with the help of the crypto market? How should virtual currencies be regulated and taxed?

We have examined these questions and attempted to illuminate the future of this unusual market. For this purpose, we at Berenberg and the financial daily Börsen-Zeitung convened a group of experts for a workshop and subsequent panel discussion on June 12, 2018. In his keynote speech, retired Bundesbank Director Carl-Ludwig Thiele outlined the viewpoint of central banks. Prof. Dr. Philipp Sandner, Director of the Frankfurt School Blockchain Centre at the Frankfurt School of Finance & Management, discussed the opportunities created by blockchain technology. Dr. Dirk Niedling, partner with KPMG AG, spoke about the opportunities and risks of Initial Coin Offerings (ICO), a kind of virtual IPO. Joachim Dahm, Head of the Tax Department of the National Association of German Banks, described the challenges having to do with tax law. And finally, Berenberg economist Dr. Jörn Quitzau outlined the monetary theory aspects and background circumstances of Bitcoin as an investment instrument. The panel discussion was moderated by Dr. Detlef Fechtner, deputy editor-in-chief of Börsen-Zeitung. We have summarized the most important results of this discussion as by-line articles in this publication.
Thank you very much for inviting me to speak at this panel discussion on "Crypto currencies – Between hype and scepticism". The event organisers could not have chosen a more topical issue. After yesterday’s cyber-attack in South Korea, crypto currencies dominate the news today, with headlines like »Bitcoin loses 13 percent after hacker attack« or »Exchange rate collapses after hacker attack« in business dailies.

I would like to begin the discussion by addressing five points. First, I would like to examine the history of Bitcoin and digital payment. Second, I would like to briefly discuss the function of money. The third point has to do with the hype surrounding some crypto currencies today. Fourth, I would like to discuss all those reasons that should make one sceptical about Bitcoin & Co. Finally, I will like to sum up.

Let us begin with the history. Satoshi Nakamoto invented Bitcoins in 2008. As of today’s date, no one knows who Nakamoto is. The goal was to create a way to use transfers and monetary values as a cross-border, decentralised means of payment.

Guess what? It works. It worked then and it still works now. Therefore, it is indeed possible to transfer value using digital units. Money transfer restrictions in China were possibly one of the factors driving the use of Bitcoin. Many people who have accumulated money but have trouble transferring it out of the country use Bitcoin. Obviously, official payment channels are not suited for this purpose. Thus, Bitcoin is used for some cross-border currency transactions.

On the function of money: Money must fulfil three functions. First, as a means of payment, for transferring value. The second function is to serve as a unit of account, by stating prices in monetary units. The third key function of money is to serve as a store of value. In the case of crypto tokens, the store-of-value function is not fulfilled because they are extremely volatile. That is why the Bundesbank has been warning about the risks. It does not make investment recommendations, but it wants people to know that a crypto currency investment can be risky.
About the hype: The movement of virtual currency exchange rates is extremely dynamic. For example, the exchange rate for Bitcoin, the virtual currency with the biggest market capitalisation, quadrupled in 2017, particularly in the fourth quarter. This rise in value prompted increased news reporting, with the result that the role of virtual currencies is no longer something that only market professionals talk about today: Now it has caught the interest of individual investors as well. The media hype and the price rally were mutually reinforcing at the time.

The entire market capitalisation of all virtual currencies rose from around EUR 11.6 billion in January 2017 to almost EUR 600 billion at 14 January 2018. Only one week later, however, it fell to EUR 410 billion. And because the prices of some other virtual currencies rose faster than the Bitcoin price over that year and the number of virtual currencies is constantly increasing, the relative dominance of Bitcoin among the units of account referred to as virtual currencies diminished. Whereas Bitcoin still accounted for about 87 percent of the market capitalisation of all virtual currencies at the beginning of 2017, this proportion had fallen to around 36 percent on 17 January 2018. In the meantime, the relative importance of Ethereum has grown so much that it almost rivalled Bitcoin at times. Ripple currently ranks third, followed by Bitcoin Cash, the payment-friendly Bitcoin spin-off, and the remainder of smaller virtual currencies. At times, the ten biggest virtual currencies have accounted for less than 80 percent of the total market capitalisation. And the trend of creating new coins and tokens continues unabated.

The website coinmarketcap.com had listed a total of 501 coins and tokens with known market capitalisation values in early 2017; by the end of 2017, this number had more than doubled to 1,051. And the number of total coins and tokens listed on the website, including those without indirect market capitalisation values, continue to rise.

As a virtual currency that offers fewer use possibilities than say Ethereum or Ripple for technical and economic reasons, Bitcoin benefits from the trend of new coins. For ICOs (Initial Coin Offerings) and other financing variants, payment is usually required in virtual currencies, including Bitcoin.
This is because Bitcoin is traded on most virtual currency exchanges and must be considered the most liquid virtual currency. Another factor benefiting Bitcoin is the heightened interest of the financial community in offerings of Bitcoin futures and Bitcoin funds. It has been possible to trade Bitcoin futures contracts on the US CBOE and CME exchanges since the beginning and middle of December, respectively. Nasdaq and Eurex are also thinking about introducing it.

The capitalisation of all virtual currencies shot up quickly, but then collapsed just as quickly. Virtual currencies lost nearly two thirds of their market value between January and June 2018.

About the scepticism: I already pointed out that the original idea was closely linked to the payment function. That is indeed possible. But we should consider the magnitudes involved in order to assess the degree to which crypto currencies have been established as a means of payment. Payments worth 80 million euros are conducted every day in Germany, as compared to 300,000 worth of payments with Bitcoin worldwide. From the standpoint of the Bundesbank, therefore, it is a niche currency, especially considering that there are only 17,000 acceptance locations worldwide.

As recently proven by the hacker attack in South Korea, transaction security is not always assured. And what happened in South Korea was not the first attack. Just think of Mt. Gox, once one of the biggest trading exchanges for Bitcoins, which was the target of a hacker attack.

Another critical factor to consider besides security risks is energy consumption. A euro payment made in Germany requires one watt of electricity. A few month ago one Bitcoin transaction consumed 430,000 watts. This quantity has increased substantially in the meantime, so that it now costs more than the monthly energy consumption of a four-person household in Germany – for just one transaction!

This need for energy is the reason why the so-called miners (in China, for example) have set up shop in close proximity to hydroelectric power plants. I spoke with a start-up owner who operates two factories in Iceland, where energy costs are low and the outdoor temperature dissipates much of the heat, relieving the strain on cooling systems.
The production of crypto currencies has long required tremendous energy consumption. This circumstance must always be considered in any debate about crypto currencies. In addition, the time it takes to make a payment has become much longer. This means that when you buy a coffee at Starbucks and want to pay with Bitcoin, the coffee will be cold by the time the transaction is completed; or so I have been told. You can speed up a transaction by paying higher transaction fees.

Finally, I would like to address the issue of Initial Coin Offerings (ICOs). The German Federal Financial Supervisory Authority (known by the German acronym BaFin) has published a fact sheet on this subject. The BaFin wants to require case-by-case approval. In an information letter, it has listed the possibilities that must be checked and has stated that crypto currencies must be reviewed according to this process. Anyone who wants to operate in this segment has certain rights and obligations. But many aspects are still unclear.

In conclusion, I would like to talk about blockchain. The Bundesbank itself has developed a blockchain-based application together with the German stock exchange operator Deutsche Börse. And this prototype works, meaning that digital coins and digital securities are transferred on the basis of a blockchain. In addition, interest payments on securities can be made in this prototype.

Central banks have found it extremely hard to come to terms with the role of money in the context of crypto currencies. A critical question is, who would use a digital currency? Would it be the banks, like today, or would it be everyone? The issuance of digital central bank money for everyone would entail numerous consequences that cannot yet be fathomed. What would happen in the event of a bank run, for example? Therefore, we need to be very careful.

After all, trust is the lifeblood of any currency. I would have no objection if certain smaller economies and even central banks explore the issues involved with crypto currencies. But the euro is not just any currency. The euro is the world’s second currency after the dollar. Consider the development of cash money: Last year, the Bundesbank issued 7 percent more bank notes than the year before. And we are practically on the same level with the United States.
Cash is not even being used that much for payments. We estimate that only 9 to 10 percent of cash is used for this purpose. The rest is being hoarded – in Germany, the Eurozone, and especially outside the Eurozone because that is another, specific form of storing value. If you look at Turkey or other countries outside the euro currency zone, you see much higher inflation rates than in the Eurozone. Regardless of whether you keep money in the form of cash or bank deposits, you lose to inflation. Therefore, many citizens have an interest in preserving value and keeping it liquid. In my opinion, this is one of the main reasons for the growth of cash.

One of the key points is and always will be trust. Trust depends on the stability of value retention. Without that, trust declines. On this point, there have been two schools of thought in the financial community since the beginning of the debate regarding Bitcoin and digital currencies or tokens. The one school says that we want to be free from government influence, but we then have the problem of massive value swings. And the other school says, we want to have rules because that is the only way of achieving a somewhat more stable value retention than we have today.

In a speech to the Frankfurt School of Finance that he recently gave here in Frankfurt, the new General Manager of the Bank for International Settlements, Agustin Carstens, referred to an important aspect of this debate. Private digital tokens disguised as currencies cannot be allowed to undermine trust in currencies. Carstens continued by saying that Bitcoin has become a combination of a speculative bubble, a pyramid scheme, and an environmental disaster.

It is important that we understand digitalisation as an opportunity and a chance for the better integration of payments in our everyday lives. Making payments faster, more convenient, and more secure. For this reason, central banks in general, including the German Bundesbank, will need to grapple with the question of digital money and the development of payment systems in the future as well.
I believe that the Vision 2020 programme for the market infrastructures of the euro system, which deals both with integration and further development and with cross-border securities clearing and settlement, puts the central banks in a good position to deal with this problem, but of course the challenge is not only for central banks, but also for established market participants. After all, those who do not keep up with the times will fail in time.

To summarise, digital units referred to as currency are interesting. But which of them will survive, and whether they will survive at all, are questions that have not yet been answered. Some of them present opportunities for investors. And it is indeed the task of market participants to seize opportunities, but also to avoid placing too much stock in the hype.
Crypto currencies: The better money?

Introduction

Crypto currencies have electrified the public, most especially the »market leader« Bitcoin: Bitcoin entered the limelight at the latest when its exchange rate shot up from around USD 1,000 in January 2017 to nearly USD 20,000 in December 2017. Although the exchange rate has since normalised to a great extent after falling substantially in January 2018 and the tremendous euphoria has faded a little, it is worthwhile to take a look at the market of innovative crypto currencies.1 From the standpoint of banks, two aspects are particularly interesting:

1. Are the exchange rate eruptions nothing more than speculative excesses? Or is the exchange rate performance a reflection of the fact that new, valuable assets are becoming established in the investment universe?

2. Will crypto currencies eventually replace established currencies like the euro, the US dollar, or the Swiss franc?

Bitcoin & Co.: money or currency?

»The term currency refers to the nationally organised monetary system of a state or territory, including all the regulations aimed at ensuring the stability of monetary value (monetary constitution).«

According to this definition from the glossary of the German Bundesbank, terms like crypto currency, virtual currency, or digital currency are misleading when applied to Bitcoin & Co. because they are most certainly not the nationally organised monetary systems of a state. They are neither nationally organised nor linked to a state. Instead, they are denationalised money »organised« by algorithms, which was placed into circulation by private actors in most cases. Strictly speaking, therefore, the term crypto currencies is only accurate if it refers to a crypto currency issued or created by a national central bank. However, this applies today only in exceptional cases. For the sake of avoiding semantic dogmatism, however, we will continue to use the term crypto currencies in this essay, the way it has since come to be used in general speech.

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To date, crypto currencies fulfil the functions of money only inadequately

Let us take a look at the characteristics of money as the starting point for further analysis. According to economic textbooks, money fulfils three functions:

1. **Unit of account** – Money facilitates the exchange of goods because monetary prices make it easier to compare the value of different goods.
2. **Means of payment** – Trading money for goods is much simpler and more efficient than exchanging goods for goods, in which a suitable trading partner would need to be found for each transaction, which would be laborious.
3. **Store of value** – Money has a value preservation function and acts as a mechanism for the loss-free transfer of purchasing power to the future.

**Regarding 1:** In principle, crypto currencies are suitable as a unit of account because it makes no difference whether prices are stated in US dollars, euros, Swiss francs, or a crypto currency like Bitcoin. For individuals, the currency used to compare prices is only a matter of custom. However, the price comparison can work smoothly only if income and expenditures are denominated in the same currency. At the present time, employees receive their pay in the currency of their country, and not in crypto currency, aside from very few exceptions. If they want to pay for goods in Bitcoin, for example, it would be like conducting a transaction in a foreign currency.

When making payments in Bitcoin, therefore, the current exchange rate with the individual’s own currency must first be considered and the amount in question converted. Particularly when the exchange rate fluctuates widely – which has been the case in the last few years – Bitcoin is largely useless as a unit of account.

On the other hand, this problem will diminish to the extent that the price of Bitcoin stabilises. And if employees were paid in Bitcoin, this problem would disappear completely; but we are a very long way from there.
Regarding 2: Crypto currencies are still virtually meaningless as a means of payment. According to the website btc-echo.de, only 16 businesses and service providers in Hamburg, for example, accept Bitcoin as a means of payment (as of 20 August 2018). Even in the supposed Bitcoin capital Berlin, there are only 37 acceptance locations at the present time. Thus, Bitcoin and other crypto currencies are niche forms of payment at best – and even then presumably more peer-to-peer than in regular retail shops. And this situation is not likely to change much as long as prices fluctuate so widely in the crypto market because there is always one side of the market that will have no interest in transactions conducted in virtual currencies. If for example Bitcoin prices rise sharply, Bitcoin owners will have no interest in spending their digital coins because the purchasing power may increase on the next day. Or to put it another way, prices of consumer goods and services will decline, meaning deflation. In deflationary times, however, no one likes to spend his money; on the contrary, they will postpone consumption purchases – with the exception of daily-use goods – to the future.

On the other hand, if Bitcoin prices are falling, you have the reverse situation: Seeing their purchasing power sink, Bitcoin holders will want to spend their digital coins as quickly as possible. In such a situation, providers of goods and services will have no interest in trading their goods and services for Bitcoins because they could potentially lose a lot of value within a few hours. Thus, prices would need to stabilise considerably in order for Bitcoin to be taken seriously as a means of payment. A first small step in this direction occurred after the price crash in 2018, after which price fluctuations have been somewhat smaller.

Regarding 3: A glance at Bitcoin’s price development to date shows that it is not very well suited as a store of value. While there have indeed been long phases during which the value was not only preserved, but actually increased dramatically, there have also been many phases during which Bitcoin lost substantial value. It fell by more than 65% from the previous all-time high of almost USD 20,000 in December 2017 to its price in August 2018. Therefore, its usefulness as a store of value has been critically dependent on the right timing so far.

In summary, the result is indisputable: Based on the three functions of money, established currencies are clearly preferable to Bitcoin & Co. at the present time. Nevertheless, good things can be said about the crypto currencies. Their very existence creates competition for the established currencies, thereby increasing pressure on central banks to pursue stability-oriented monetary policies. The above-mentioned inadequacies of digital currencies are only indicative of the status quo. If on the other hand, crypto currencies gradually become more established and more widely accepted as a means of payment, and if employees would rather receive their pay in crypto currencies than in the national currency, the previous inadequacies will be mitigated. The more market players distrust the monetary policy of the major central banks, the more likely it is that the importance of Bitcoin & Co. will grow. Conversely, the more successful central banks are in their currency stability efforts, the lower the demand will be for competing crypto currencies.
Crypto Currencies: The Better Money?

Bitcoin was created when the trust in paper money currencies was shaken in the aftermath of the global financial crisis. At that time, central banks had no choice but to «flood the markets with money» in order to revive the moribund money cycle. Banks and other market participants had mistrusted each other so much that they stopped lending to each other. In this situation, central banks provided substitute liquidity, as it were, thereby filling the void that resulted from the crisis of confidence. In turn, however, this «creation of money out of thin air» irritated many observers, it being an economic truism that an increase in money in circulation without a corresponding increase in the supply goods leads to inflation in the long run. We now know that the fears of consumer price inflation were unfounded. However, those fears prompted a programmer or group of programmers known by the pseudonym Satoshi Nakamoto to create an alternative to paper money currencies – Bitcoin – in 2008.

The decisive characteristic of Bitcoin from the standpoint of investors is the strict upper limit on quantity of 21 million units. The cryptocurrency is designed in such a way that so-called «miners» (alluding to the commodity gold) can create new Bitcoins by performing computing operations. As the number of Bitcoins in circulation increases, however, this mining process becomes most costly and will eventually come to a halt once the upper limit of 21 million is reached (there are currently around 17.2 million Bitcoins). This feature is meant to rule out the possibility of arbitrary, inflationary money creation. It prompted many investors to speculate on the currency’s price. After all, if an alternative currency emerges in the shadow of paper money currencies, one for which the supply of money becomes completely inelastic at a certain point in time even as the demand for this money is potentially infinite, it is only rational to venture into this new market segment and stock up on this currency at the earliest possible stage of its development. From this viewpoint, the preceding price jumps can be interpreted as the justifiable anticipation of Bitcoin’s successful future.

However, the strict upper limit on the quantity of Bitcoin does not mean so much after all because there is no guarantee that the Bitcoin system will not be duplicated. In the extreme case, therefore, «structu-
rally identical« currencies with the exact same properties could be placed into circulation. The 21-million limit would still apply in the original Bitcoin system, but the quantity of parallel crypto money could be increased at will. Thus, even the crypto world is not immune to the possibility of »creating money out of thin air«, for which the established money system has been so roundly criticised. Already today (as of 1 October 2018), 2004 crypto currencies are listed on the website coinmarketcap.com, and more are added practically every day.4

In the long term, therefore, the value of Bitcoin will depend on whether it can exploit the »first mover advantage« and become established as the standard among crypto currencies. The »winner-takes-all« logic that is so prevalent in the digital economy would then cause demand for crypto currencies to be concentrated in Bitcoin. For this to happen, it would first be important for Bitcoin to become established as a means of payment, in order to benefit from the so-called network effect.5 Whether or not this will happen remains to be seen. In the meantime, the high price even after the sharp correction is just an expression of speculation that Bitcoin will eventually assume an important role in the financial system.

Outlook

Due to the inadequacies described above, it cannot be expected in the foreseeable future that established currencies will be pushed to the side by the new competition from the crypto world. Nevertheless, central banks could well test and perhaps even use the underlying blockchain technology for their own purposes.6 In fact, various countries and central banks are already studying ways of putting the new technology to use (see the table on page 18). We consider it conceivable that blockchain technology will eventually be used in the established monetary system in one way or another. At the same time, we think an abrupt shift is improbable. Central banks will not change to a fixed money supply (like Bitcoin) in the future, but will allow the money supply to increase in line with the growth of production capacities. Therefore, any technology transformation will probably occur behind the scenes, hidden from individuals.

4. However, these are not Bitcoin duplicates, but currencies with their own characteristics.
5. The network effect simply states that the benefit of a good increases in proportion to the number of users.
Annex:
Crypto currency projects of central banks and governments

Canada  The currency department of the Canadian central bank examined the effects of a digital central bank currency in a report. The report concluded that development in the direction of a cashless society would lower the seigniorage profits of central banks. However, the Canadian central bank does not see this as posing any risks for it.

China  The Digital Currency Research Lab researched the concept of a digital central bank currency. It concluded that the development of a digital currency is inevitable, but that an overly fast implementation of blockchain technologies would have negative consequences for monetary policy and consumers.

Dubai  The country plans to develop an encrypted digital currency, the emCash. However, the project is still in the initial phase and no timetable has been announced.

Ecuador  Qualified users were able to transfer money with a state electronic currency in 2015. The currency was directly tied to the US dollar, but it never caught on.

Estonia  Estonia had considered introducing a national digital currency, the Estcoin. This would also be the official currency for the e-residency program and would help citizens have their documents notarised from anywhere in the world. After consultations with the ECB, the use of Estcoin was permitted only in connection with the e-residency programme.

Iran  Iran wants to create a national digital currency in cooperation with local companies. Iran hopes to circumvent US sanctions this way.

Israel  This country is considering the introduction of a national crypto currency. It would mainly target the black market, which accounts for about 22% of GDP.

Marshall Islands  The national crypto currency «sovereign» has been legal tender alongside the US dollar since 2018. Supply is limited to 24 million tokens and the quantity of money cannot be controlled after the ICO.

Norway  Norges Bank is researching various aspects of a digital central bank currency. It has also stated, however, that such a currency should not be allowed to impede the provision of credit services.
Senegal  The digital currency eCFA was issued at the end of 2016. It is legal tender alongside the national currency.

Singapore  »Project Ubin« is a plan to place the Singapore dollar on a private Ethereum blockchain as a token.

Sweden  The Riksbank is studying whether it would be possible to issue a digital complement to cash, known as the e-krona. A preliminary analysis did not identify any major obstacles to introducing an e-krona in terms of monetary policy, payment markets, or financial stability.

Switzerland  In May 2018, the Federal Council requested a report on the opportunities and risks of a national digital currency. In June, the Director of the SNB declared that crypto currencies are not innovative enough to be considered as a national digital currency.

Thailand  The central bank is working with other Thai banks to develop a digital central bank currency that would facilitate clearing and settlement between banks.

Tunisia  The e-dinar was issued in 2015.

United Kingdom  The Bank of England has found that a digital central bank currency would endanger the current model of commercial banks.

Uruguay  The central bank presented a six-month pilot plan for a national digital currency in November 2017. As part of this project, 10,000 people will download and use an app with an integrated digital wallet.

Venezuela  The petro was introduced as a state crypto currency in February 2018. It is tied to the price of oil and backed by commodity reserves.

7 Critics complain that the petro could be an attempt to open new financial channels to foreign countries in order to transfer assets out of the country. The petro could also be used to circumvent US sanctions. However, US President Trump has already signed an order stating that trading with the petro is also a violation of US sanctions. Critics also complain that the petro is not a genuine crypto currency due to the lack of transparency. The tie to the price of oil also raises questions.
Blockchain technology is a key technology that will not necessarily replace the financial industry, but will at least revolutionise it. Its relevance lies in the fact that it can digitally represent assets such as money (for example) in such a way that they cannot be copied or manipulated and can be securely transferred between persons. Thus, blockchain technology makes it possible to conduct transactions without the need for a directly responsible and central intermediary (e.g. bank, company, government). Besides influencing the financial industry to a significant extent, this technology could also potentially spread to other industries in the medium term. It could conceivably be used in the automotive industry, the insurance industry, German SMEs, and even the public sector.

A core concept underlying blockchain technology is the dematerialisation of assets. Taking the example of e-mail vs. traditional letters, information today can be dematerialised and transmitted at a low cost to anywhere in the world within milliseconds. But when it comes to directly and immediately transferring objects of value, a physical carrier such as a bank note or security certificate is usually required today. With blockchain technology, however, objects of value can be dematerialised and transferred directly without the involvement of a third party such as a bank or notary, for example.

Companies that provide services on blockchain systems use a publicly accessible and digital infrastructure for delivering the assets that represent their services. Already today, many companies use a wide variety of blockchain systems to offer services such as digital wallets, safe custody of crypto currencies, exchanges, or the issuance of blockchain-based securities. It should be noted here that the term »crypto currencies« has gained widespread acceptance, but is usually used in the wrong context in terms of its meaning. Strictly speaking, it would be correct to say »crypto assets« or »tokens« instead of »crypto currencies« because technical approaches like Bitcoin and Ethereum do not meet the definition of currencies due to the inflexible supply of money, to name only one reason.
In addition, blockchain technology is used for so-called «Initial Coin Offerings», which represent a new way of financing projects or even entire companies in a purely digital form. It can therefore be expected that a much larger class of assets or other rights will be represented on blockchain systems and a good number of services based on these rights will be offered in the future. This will happen on a large scale precisely when securities such as shares of stock can be represented by means of a blockchain system. When this happens, blockchains could perform the function of a registry, thereby replacing formats such as commercial registers or share registers. While such developments are far from being realised in Germany, they could be realised in countries like Switzerland and Liechtenstein as soon as 2019.

Foundations of blockchain technology

A fundamental understanding of blockchain technology is needed, however, before this topic can be discussed in more detail. There is no need to analyse the technical intricacies, but rather the resulting characteristics.

First foundation: Storage of transactions. Blockchain technology makes it possible to digitally represent assets such as money, but also shares of stock, in such a way that they cannot be copied or manipulated and can be securely transferred between persons (peer-to-peer transactions). With the aid of blockchain technology, data can be distributed decentrally to numerous computers and thus securely stored in an immutable format. Until now, such assets have been managed by intermediaries (e.g. stock exchanges, banks, providers of safe custody services). In the future, these activities will be represented by blockchain technology in large part, with the inevitable consequence that stock exchanges, banks, and financial services providers (for example) will need to significantly adjust their business models.

Second foundation: smart contracts. First-generation crypto currencies like Bitcoin are only capable of storing transactions and are therefore primarily designed for payments. With the ensuing emergence of new ecosystems, it will now be possible not only to store assets decentrally, but also program them with the aid of »smart contracts«. Smart contracts are computer protocols that can represent and verify contracts or technically implement
the negotiation and fulfilment of contracts. The crypto currency Ethereum plays a pioneering role in this respect because its protocol was the first to make assets «programmable». There are many diverse applications for smart contracts, including the clearing and settlement of securities trades, the processing of loans and interest payments, and the provision of insurance services. In just a few years, it should be possible to represent all financial instruments by means of smart contracts (in addition to the existing contractual arrangements). Lawyers and public-sector employees (e.g. the German Federal Financial Supervisory Authority, BaFin) will increasingly need to deal with smart contracts because they will represent the logic of money flows. For example, it will be possible in the future to perform regulatory reviews of financial instruments by reviewing the program codes.

Third foundation: security of the blockchain. Under blockchain technology, security is assured not by an external and central party, but by means of a purely mathematical process – cryptography – and clearly defined rules. The blockchain is normally provided via the Internet and is available to a large group of private individuals and enterprises. While there are a number of theoretical attack possibilities, it is virtually impossible in a practical context for attackers to modify data once they have been stored, due to the redundant storage of identical data records on numerous computers (among other reasons). As a result of this redundancy, data modifications can be detected and ultimately rejected by other network participants. This makes data manipulation significantly more difficult compared to conventional client-server architectures.

Blockchain and the financial industry

Blockchain technology was first used in the best known of all crypto currencies, Bitcoin. Bitcoin describes a direct, digital monetary system that functions without the involvement of an institution responsible for monetary or currency policy. Blockchain technology performs the function of a register in which monetary transactions can be stored decentrally and immutably. In the realm of finance, blockchain technologies were mainly used initially for payment processing, from whence their popularity has grown with the use of crypto currencies like Bitcoin.
However, the potential applications of blockchain technology extend far beyond Bitcoin and its potential uses. Since it was created in 2008, blockchain technology has been further developed by many persons and organisations and extended to other applications besides just payments. Securities such as equities, bonds, and derivatives can be transferred and traded via blockchain systems, like traditional transaction systems in the realm of finance. The financial market regulations applicable to securities and financial instruments retain their validity regardless of whether these instruments are represented in a blockchain. It can be expected that a much larger class of assets or other rights will be represented on blockchain systems and a good number of services based on these rights will be offered in the future.

**Blockchain and conventional industries**

Beyond its uses within the financial industry, blockchain technology has the potential to permanently change other sectors of the German economy. Blockchain is considered to be a logical means of digitalising core German industries like mechanical engineering, mechatronics, sensors, the automotive industry, and logistics. One highly promising field of application for blockchain technology that unites many of the above-mentioned German industries is the »Internet of Things«.

The Internet of Things links physical and virtual objects together; information and communication technologies allow them to work together. Blockchain technology can be used to securely and efficiently manage the quantities of data produced in this process. This will also make it possible for devices to participate in payment processes in the future. One example is a sensor that receives a small amount in exchange for sensor values or data records. It should be emphasised that the sensor receives these payments as a »thing«. Naturally, they can be transferred from there to other places.
Ramifications of blockchain

The growing influence of blockchain technology on the German economy will have a number of ramifications. The digital transformation of all sectors, beginning with the financial sector, will lead to a considerable enhancement of efficiency combined with substantial cost savings. The steady rise of blockchain technology, along with other technologies like artificial intelligence and data analytics, will also have an impact on the German labour market. Whereas staff is being reduced in many industries to save money, the future of the IT sector is secure. All those who have the skills required to operate in the digital environment stand to benefit. This does not necessarily only refer to those with programming skills: Workers who are able to deal with the new wave of digitalisation will also benefit from this trend and thrive in tomorrow’s interconnected, yet decentralised world. On the other hand, those who continue to resist digitalisation and technological change will increasingly have a hard time, at least in business and government.

Blockchain and corporations

Despite all the hype surrounding blockchain technology, only 700 employees of corporations listed on the German DAX index are currently working on blockchain projects, according to estimates of the Frankfurt School of Finance & Management (not counting outside consultants). In light of the expected future importance of blockchain technology, this number is to be considered rather low. As a result, no market-ready blockchain applications have yet emerged in Germany. However, if you compare this number solely with the size of the Ethereum ecosystem, you will be surprised by the results. Ten thousand developers worldwide are currently working on the development of the Ethereum ecosystem or on applications based on this blockchain alone. This fact is indicative not only of the astonishing dynamism, but also the tremendous relevance that many experts already ascribe to blockchain technology.
It is vitally important that German industry actively participate in these developments in order not to fall behind other industrialised nations such as China and the United States, which are already very active in this field. Although the blockchain ecosystem in Berlin, for example, is outstanding, the commitment of German corporations and public-sector entities to this field leaves much to be desired, with only a few exceptions. Due to the lack of a legal framework and general familiarity with this field, only start-ups for the most part are currently pursuing innovations in the blockchain environment. Although well-established, traditional companies (in sectors like industry and finance) are indeed working on their first experimental projects, they are by no means significant drivers of innovation in this field so far.

**Crypto assets and stable coins**

In addition to the »traditional« crypto currencies that are usually most suitable for payment applications, a number of new applications could be observed already in the spring of 2018. One such example is the EURS project, which aims to represent euros on the Ethereum blockchain for the first time. It would be conceivable, for example, to process security deposits for rental apartments by means of programming »smart contracts«, obviating the need for a third party such as a trustee. The EURS project is interesting because it aims to create a new class of crypto currencies referred to as »stable coins«. Stable coins are crypto currencies that are tied to a stable asset and therefore often exhibit less volatility than conventional crypto currencies. Generally speaking, there are two mechanisms that can be employed to preserve the stability of such a tied currency.

One of these mechanisms is direct collateral in the form of a reserve in a traditional currency like the euro or the US dollar. The biggest and probably best known project of this kind is the crypto currency »Tether«, which holds one US dollar in reserve for each unit of crypto currency issued.
Tether is currently capitalised with almost 3 billion US dollars, but is subject to criticism because tying the crypto currency to the US dollar is structurally questionable. The second mechanism is collateral in the form of an asset or group of assets. Precious metals or land could be used for this purpose, gold in particular being very popular in this context.

**Institutional investors**

Thanks to the strong growth of blockchain projects (the value of many crypto currencies has increased by factors of one to ten within one year), institutional investors are increasingly taking an interest in this field. Both the motivations of the new investors streaming into the market and the amount of capital they are bringing in are changing. Most of the early owners of Bitcoins were «computer-savvy hobbyists». However, institutional investors will find only a limited selection of investment options. For this reason, many alternative investment funds are being created now to serve the interests and needs of this new clientele. The regulation of these funds is sometimes very complex in many countries, for which reason most of these new investment vehicles are located in countries with more crypto-friendly legal frameworks such as Switzerland, Malta, and Liechtenstein. The legislators in these countries have understood how to design the legal infrastructure in such a way that these new kinds of funds are backed by a legal basis that meets investors’ understandable need for legal security.

**Geographical sphere of influence of blockchain**

Looking at the penetration rate of blockchain technology outside of Germany, we find that most activities in the crypto environment are concentrated on the Asian continent. Especially South Korea, Japan, China, and Singapore are known for major projects and the availability of necessary and adequate financing. Considering regions like «Crypto Valley» (i.e. the Swiss cantons of Zurich and Zug, as well as Liechtenstein), as well as Berlin and
the Baltic states, it would seem that Europe already has unusually strong ecosystems, albeit with an apparently lower investment capacity. There are many blockchain start-ups and projects in the United States, but they must contend with serious regulatory obstacles at the present time. This circumstance has caused some US companies to migrate to Asia and Europe.

Germany and Europe now have an excellent (and perhaps one-time) opportunity to become one of the world’s leading technology regions for blockchain applications in the next few years, but we must act now to seize this opportunity.
Introduction

The continuously advancing trend of digitalisation is leading to new, innovative concepts for corporate financing. As a result, a new, internationally widespread financial model has recently been developed, especially for start-ups and fintechs, under which companies in search of capital can raise funds with the help of blockchain technology by means of Initial Coin Offerings (»ICOs« for short). Under this model, capital providers receive »coins« or »tokens« stored in a blockchain from the issuer. These coins can exhibit a wide range of features and fulfil various functions. There are many different ways to concretely implement this innovative capital-raising method, as well as many different tax issues to be considered in this context. The following article provides a cursory overview of the tax issues related to ICOs.

I. Manifestations of Initial Coin Offerings

The term Initial Coin Offering (ICO) refers to a new kind of financing employed by companies to raise capital. Due to the strong affinity for digital solutions, fintechs and young companies, often start-ups, are most likely to resort to this innovative capital-raising method. An ICO offers relatively uncomplicated access to a presumably little-regulated or even unregulated segment of the capital market, by means of which a substantial amount of new funds can be raised.  

Under an ICO, the issuer generates tokens or coins by means of a »token-generating event« using blockchain technology. These tokens are then sold to capital providers by way of a token sale. The token or coin is offered for sale at a predetermined issue price, which is often reduced for early subscribers. The issue price is usually payable either in fiat money (i.e. existing common currencies) or crypto currencies such as Bitcoin or Ethereum. The issuers use the funds so raised either to implement specific projects that are described in more or less detail in a so-called white paper or for the general development of their business activities.

Tokens can be endowed with a variety of attributes implemented in the form of »smart contracts«, i.e. programmed contractual modalities. Smart contracts make it possible to tie certain results to the use and possession of the tokens under predefined conditions. This way, certain advantages such as access rights to digital platforms or price advantages related to the
purchase of goods or services can be granted to token holders. However, membership or company rights could also conceivably be granted within the limits of civil law and regulatory requirements. Tokens are often issued in the form of newly created virtual currencies. In such cases, a means of payment function is connected with the tokens, although no binding commitment is made to accept, redeem, or exchange the tokens.

In practice, the tokens issued within the scope of an ICO are often referred to as »utility tokens«, »security tokens«, »asset tokens«, »payment tokens« or the like. Although these terms suggest clearly distinguishable categories of different manifestations of tokens, such clear distinctions are hardly possible in practice.

II. Legal classification

The legal treatment of ICOS is largely unclarified. The treatment under the regulations of the German Banking Act (KWG), Securities Trade Act (WpHG) and the Payment Services Supervisory Act (ZAG) is directly dependent on the specific design of the issued tokens, making it impossible to make generally valid statements on this subject. Due to the regulatory classification uncertainties, ICOS are often initiated and executed in foreign legal jurisdictions. Countries like Switzerland, Liechtenstein, and Malta are repeatedly observable destinations for companies planning an ICO. When potential domestic investors are addressed, however, the domestic capital market regulations must be observed.

Under civil law, it can be assumed that elements of sales law and works contract law will be predominant in most cases. In any case, the issuer owes a specific performance result in the form of transferring the tokens to the individual digital address of the token buyer. Sales law may be applicable if any other right or other object can be seen in the transferred token. The contractual framework may additionally exhibit management or service elements or be classified as contracts sui generis.

III. Legal classification for a domestic ICO

a) Accounting classification of tokens and crypto currencies

aa) Eligibility for recognition as an asset

Crypto currencies and tokens are fundamentally eligible for recognition as assets. The basic prerequisite for recognition as an asset is that the objects in question are independently usable and measurable.\(^{12}\) Because crypto currencies and tokens are exchanged between subscribers and issuers for a certain jointly agreed market value in an ICO, the conditions for recognition as an asset are generally met.\(^{13}\)

bb) Intangible assets

In the literature published to date, there is general agreement that crypto currencies such as Bitcoins (for example) meet the definition of intangible assets.\(^{14}\) If an issuer receives a crypto currency from the subscriber for a token sale, it must recognise the crypto currency received from the subscriber as an intangible current asset. If the issuer then exchanges the crypto currency received for euros or another comparable fiat currency in order to satisfy current payment obligations in its business operations, foreign exchange gains or losses are realised at this time.

Like crypto currencies, the issued tokens also meet the conditions for an intangible asset because the tokens can be sold and will normally have an observable market value. They could also give rise to concrete legal positions for the purchaser, regardless of whether it is a virtual currency that has not yet been established in the market. Due to the absence of an intention to permanently hold the asset, they are recognised as current assets measured at production cost under both commercial law and tax law until they are sold.

b) Sales of token by way of a token sale

Under a token sale, the previously created tokens are exchanged for crypto currency used as a means of payment or the token is transferred against payment of the agreed purchase price in fiat money. The transfer of tokens against payment of crypto currencies is probably also a transaction under tax law because an asset is exchanged for another asset, similar to the use of

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foreign currencies from the standpoint of a domestic enterprise. For valuation purposes, this exchange means that the crypto currencies received are to be measured at the common value (market value) of the issued tokens, the value of which is determined on the basis of the defined issue price at the issuance date.

The asset exchange generally gives rise to a profit in the amount of the difference between the book value of the tokens and the exchange rate value of the crypto currency in euros. A profit is generated to the same extent when tokens are sold in exchange for common fiat currencies.

It is questionable whether the resulting issuance profit can be neutralised by concurrently recognising a liability or provision. Insofar as the tokens do not grant enforceable legal positions to the holder or the holder is only promised unspecific and non-binding future advantages from using the tokens, it is fundamentally not possible to recognise a liability under both commercial law or tax law. This is particularly the case of tokens that are only meant to fulfil a means of payment function without a right of acceptance by the issuer. It would also be largely impossible in such cases to recognise a provision. The issuer can recognise a provision only in respect of future obligations incurred before the reporting date when there is a minimum probability of occurrence.15

Some foreign countries permit reporting entities to recognise future expenditures associated with the planned project execution as expenses already at the time of the token sale and by this means avoid taxation of any issuance profit. The liability or provision will be reversed later when the funds are actually spent. The income on reversal offsets the concurrent expense of project execution. For companies operating out of Germany, however, caution is advisable when utilising the services of a foreign issuing company. First, withholding taxes could be incurred when the issue proceeds are transferred to Germany. Second, care must be taken to ensure that the comparatively favourable tax treatment of the ICO in the foreign jurisdiction does not trigger taxes under the controlled foreign corporation rules of German tax law.

So-called »security tokens« or »asset« tokens, which are relatively rare at the present time, grant the token holder enforceable legal positions under civil law. Depending on the design of the tokens, they can be classified on

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the books of the issuer as debt capital, equity capital, or a hybrid form of capital. Recognition under tax law is based on the normal recognition of the instrument represented by the token. To this extent, the special form of documentation for the ownership of rights based on the use of blockchain technology will not generally entail special treatment under income tax law.

c) Gift tax

An ICO basically does not meet the criteria for gift tax. For that, it would be necessary for the token buyer to grant to the issuer an economic advantage without appropriate consideration. However, a general gift in this sense cannot be assumed if it also precisely depends on the token buyer’s obtainment of the token under the ICO. To this extent, the question of whether or not the token conveys specific rights or obligations is probably insignificant.

d) Sales tax

Under sales tax law, the transfer of crypto currencies is sometimes classified as a service or other performance. A related exchange of a crypto currency for tokens under an ICO could therefore constitute a transaction subject to sales tax. In this case, the crucial question is whether it is possible to obtain an exemption from the sales tax. The German Federal Ministry of Finance originally held the view that the sales tax exemption for cash sales is not applicable to sales in Bitcoins. However, after the European Court of Justice ruled in favour of a sales tax exemption, the German Tax Administration now also classifies the transaction as being exempt from sales tax. Under the currently applicable utilisation decree, however, the exemption is limited to virtual currencies insofar as they are accepted by the persons involved in the transaction as an alternative, contractual and direct means of payment, and it serves no other purpose than to be used as a means of payment. On the other hand, virtual play money (so-called game currencies or in-game currencies, especially in online games) is not equivalent to a means of payment. Therefore, the use of such virtual play money positions could be regarded as a transaction subject to sales tax in individual cases.

The extent to which the foregoing distinction between virtual play money and other virtual money is expedient in view of the blurring boundaries in the digital world is a question to be discussed in the future. When design-
ing and issuing tokens, it must always be clarified in every case if the usage possibilities of the tokens are limited to the use as a means of payment or if other functions or advantages are associated with the tokens. Considering the financial consequences of an unrecognised sales tax obligation of an ICO, consideration should always be given to the possibility of clarifying the sales tax treatment of the planned issuance in advance with the responsible tax office. In such cases, the tax procedural law allows the option of obtaining a binding assessment.

Summary

In summary, it can be noted that the numerous design possibilities and manifestations of ICOs and issued tokens do not allow for a generalised tax classification. The legal nature of the tokens, their functions and usage possibilities determine the tax treatment of a given ICO. At this early stage of development of this new financing form, definitive answers cannot yet be given to a number of tax questions. Thus, the sales tax treatment is not entirely transparent despite partial clarifications by the tax administration. Furthermore, the immediate income taxation of the issuance of tokens intended solely to serve as a means of payment places domestic issuers at a critical disadvantage compared to foreign issuers. Even foreign issues initiated by subsidiaries present tax problems for the domestic token holder. In this respect, particular attention must be given to the potential consequences of the German taxation of controlled foreign corporations.
Crypto currencies are increasingly capturing the interest of the general public. In particular, the sometimes very pronounced exchange rate gains (and losses) of Bitcoin have increasingly awakened the interest of individual investors and even some professional investors in crypto currencies, not least due to the fact that attractive returns can hardly be achieved on traditional fixed-income investments like deposits and interest-bearing securities in the current phase of low interest rates.

In this context, the question arises as to whether and how investments in crypto currencies are to be taxed. It can basically be noted that some questions have been clarified, but binding regulations have not yet been published with respect to other questions. At least, a broad outline of the tax treatment of such investments is emerging. The crux of the matter is the question of whether crypto currencies are to be considered equivalent to conventional currencies like the euro or the US dollar. Different approaches can be applied in answering this question with respect to sales tax and income tax.

**Let us begin with the sales tax**

The European Court of Justice (ECJ) dealt with the sales tax treatment of exchanges of conventional currencies for Bitcoins in a judgment dated October 22, 2015 (Case C-264/14). In this judgment, it equated Bitcoin with conventional currencies and decided that the exchange of a conventional currency for Bitcoins is indeed fundamentally a service subject to value-added tax within the meaning of the VAT System Directive, but found that this service should be exempt from the value-added tax as a transaction using foreign currency.

After consulting with the highest tax authorities of the German federal government and state governments, the (German) tax administration published a letter by the German Federal Ministry of Finance (BMF) on the tax treatment of virtual currencies in February 2018. In this letter, it expressly references the above-mentioned ECJ judgment and states that an EU-conformant interpretation of national law within the meaning of the ECJ judgment demands that it be applied to other virtual currencies, and not only to the matter decided in the case in question. Bitcoin and other virtual currencies are to be treated like conventional currencies insofar as they are used as an alternative, contractual and direct means of payment. If this...
is the case, the exchange of conventional currencies for virtual currencies and vice versa represents a transaction with a means of payment, but one which is exempt from the sales tax. In the view of the tax administration, however, this should only apply if the crypto currency is not used as virtual play money.

If the virtual currency is used to pay for goods or services, the rules applicable to foreign currencies are applied. The consideration payable for the good or service and serving as the basis for the assessment of sales tax is to be measured as the equivalent of the virtual currency in the currency of the country in which the performance is rendered. In the case of »payment« for an object purchased in Germany with Bitcoins (for example), this means that the Bitcoin amount is to be converted to euros at the exchange rate applicable at the purchase date. The sales tax must then be calculated on the basis of the amount converted to euros.

However, the BMF letter not only sets rules for trading with Bitcoins, but also for mining (the maintenance of computer networks), the maintenance of electronic wallets, and the operation of trading platforms. Insofar as the operation of a trading platform for crypto currencies is limited to the technical clearing of trades in virtual currencies for third parties, the service is to be considered subject to sales tax at the regular tax rate of 19% according to the general principles. If the trading platform is used to clear trades in crypto currencies in the name of the operator, the operation of the trading platform and the trades in the crypto currency itself should be exempt from sales tax.

About the income tax

Unlike the case of sales tax, no nationally uniform regulations have (yet) been issued for income taxation. In the German federal government’s answer to a Minor Inquiry of the Left Party faction in June 2018, it stated that »the income tax assessment ... is being discussed with the highest tax authorities of the federal government and state governments« and the consultations have not yet been completed.

Nonetheless, the North Rhine-Westphalia State Tax Administration commented on virtual currencies in a so-called »brief notice« in April 2018. Admittedly, the statements made therein do not represent the legal view of the highest tax authorities of the federal governments and state governments.
and have a legally binding effect only on the tax authorities of North Rhine-Westphalia. However, they are probably indicative of the direction of future, nation-wide regulations. Also in this case, we observe that the tax questions related to transactions with crypto currencies can be answered on the basis of the existing statutory regulations.

Unlike the case of sales tax, the North Rhine-Westphalia State Tax Administration does not base its assessment on the ECJ’s classification of Bitcoin as a means of payment, but on the classification of the German Federal Financial Supervisory Office (BaFin). In the view of this latter institution, Bitcoin and other crypto currencies are not legal means of payment, but units of account within the meaning of Section 1 (11) sentence 1 no. 7 KWG, i.e. units of account comparable to foreign currencies that are not deemed to be legal means of payment. This classification has far-reaching consequences for income taxation because the classification of claims denominated in crypto currency as monetary claims no longer applies, and such claims are deemed to be non-monetary claims or other assets for accounting purposes.

With respect to the income of private individuals, this means that the interest paid on a deposit of crypto currencies or for the subscription of securities based on a crypto currency, as well as the gains and losses arising on the sale of such investment instruments, cannot be taxed as income from investment assets within the meaning of Section 20 of the German Income Tax Act (EStG). Only the taxation of profits on derivatives for which the underlying asset is a crypto currency, such as options or futures on Bitcoins, could potentially be subject to income tax.

This does not mean, however, that private individuals can collect income from crypto currencies free of tax. The North Rhine-Westphalia State Tax Administration points out that the sale of Bitcoins and other crypto currencies represents a private sale transaction within the meaning of Section 23 EStG if the period of time between the acquisition and the sale is not longer than one year. Exchanging Bitcoins for another crypto currency also meets the criteria of an acquisition or sale in the same way as an exchange for euros and the use of the crypto currency as a means of payment. The speculation period of one year is extended to ten years if income is generated on crypto currencies.
If the sum of profits from private sale transactions conducted by each person in a calendar year does not exceed the tax exemption limit of €600, such profits remain tax-exempt. If the profits are higher, they are subject to income tax in the full amount. If losses are incurred on the acquisition and sale of crypto currencies – which is indeed improbable in view of their volatility – such losses can only be set off against the profits earned on other private sale transactions in the same calendar year. Any remaining losses after such a set-off must be separately determined in the calendar year in which they were incurred and can only be set off against profits on private sale transactions in the preceding calendar year or subsequent years.

A reclassification of transactions in crypto currency conducted by a private individual as business income, which would allow for the unlimited set-off of losses, but also require the full taxation of gains on disposal, is probably only possible in isolated cases. On this subject, reference should be made to the jurisprudence of the German Federal Tax Court on the subject of »commercial securities trading«, according to which even a considerable number of transactions conducted with a certain professionalism are not to be classified as business income.

Due to the fact that the crypto currencies generated by mining itself require a considerable technical effort, mining should fundamentally be attributable to commercial activity. Particularly the high initial investments required to create the substantial computing power required for mining can be seen as an indication of commercial activity.

The order of the State Tax Administration does not include any statements on other questions related to commercial mining, say regarding the accounting treatment of crypto currencies created by the mining itself. Instead, lower-ranking tax assessment offices are asked in the brief notice to report activities related to the commercial mining of crypto currencies. In addition, numerous articles dealing with the tax treatment of matters related to crypto currencies can be found in the tax journals.

The question of tax enforcement should also be raised in this context. After all, the relevant transactions are mostly conducted on the Internet and to a considerable extent with business partners and on platforms located outside of the sovereign territory of the Federal Republic of Germany. The tax
administration will need to address the issues related to this if it means to enforce its legitimate tax claims. The necessity of finding a solution will probably depend in large part on whether crypto currencies become an investment instrument for a large number of investors or whether they continue to be only a niche product for highly risk-tolerant investors, due to the associated risks. It also remains to be seen whether and to what extent the oversight authorities take measures to regulate activities related to crypto currencies.

The necessary planning security for taxpayers – at least with respect to income taxes – will only be established when the ongoing consultations among the highest-level tax authorities of the German federal government and state governments have been completed and the results have been published in the form of a letter by the German Federal Ministry of Finance.

The necessary planning security for taxpayers – at least with respect to income taxes – will only be established when the ongoing consultations among the highest-level tax authorities of the German federal government and state governments have been completed and the results have been published in the form of a letter by the German Federal Ministry of Finance.