Deutsche Bank
Research

The Future of Payments

Part I. Cash: the Dinosaur Will Survive . . . For Now

#PositiveImpact

Part I. Cash: the Dinosaur Will Survive . . . For Now

Part II. Moving to Digital Wallets and the Extinction of Plastic Cards

Part III. Digital Currencies: the Ultimate Hard Power Tool

Corporate Bank Research January 2020

Summary on a Page

When people discuss the future of payments they tend to predict the end of cash. Our view is different. Not only do we think cash will be around for a long time, we see the transition to digital payments as having the potential to do no less than rebalance global economic power.

This piece is the first in a series of three pieces that examines the past, present, and future of the payments industry. We analyse the unexpected results of our proprietary survey of 3,600 customers across the US, UK, China, Germany, France and Italy and forecast trends in cash, online, mobile, crypto, and blockchain. The implications for customers and business are important; the potential macro and geopolitical consequences are profound.

We start by using the lessons of history to predict that cash will be a part of the economy for decades to come. Over centuries, people have developed a deep-rooted trust in paper and coins during uncertain times. Today is no different. For example, the trade war between the US and China has led notable investors to increase their cash holdings. Our survey shows that people also like cash because it allows them to more easily track their spending.

While we believe cash will stay, the coming decade will see digital payments grow at light speed, leading to the extinction of the plastic card. Over the next five years, we expect mobile payments to comprise two-fifths of in-store purchases in the US, quadruple the current level. Similar growth is expected in other developed countries, however, different countries will see different levels of shrinkage in cash and plastic cards. In emerging markets, the effect could arrive even sooner. Many customers in these countries are transitioning directly from cash to mobile payments without ever owning a plastic card.

Digitalisation will give businesses extra incentive to smooth the payments transition. For starters, when customers are comfortable with a payment technology, they tend to think less about how much they spend. Furthermore, as the data gleaned from payments becomes increasingly valuable, payment fees will approach zero. Business-to-business transactions will also benefit. Currently, corporates wait almost 70 days for payment from business customers. The number one reason for this is inefficient internal processes which lead to payment delays, something digitalisation can fix.

We can deduce much about the future of payments from developments in China where the country is developing world-leading digital payments infrastructure. There, the value of online payments is equivalent to three-quarters of GDP, almost double the proportion in 2012. Today, just under half of in-store purchases in China are made via a digital wallet, way above the levels in developed markets.

As China (and India) develop electronic, crypto, and peer-to-peer strategies, the epicentre of global economic power could shift. China is working on a digital currency backed by its central bank that could be used as a soft- or hard-power tool. In fact, if companies doing business in China are forced to adopt a digital yuan, it will certainly erode the dollar's primacy in the global financial market.

Many are sceptical about digital currencies citing the large energy needs and point out that currencies such as bitcoin and Facebook's libra have encountered significant regulatory hurdles. Yet, if the growth in blockchain wallet users continues to mirror that of internet users, then by the end of the decade, they will number 200 million, quadruple the current level. This will be encouraged by governments, banks, corporates, and payment providers who all stand to benefit from the digitalisation of payments. And when countries and companies eventually look back at the way they transitioned to digital payments, it may become very apparent how they achieved their standing in the world economy.

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Introduction: Cash is not a Dinosaur Doomed to Extinction… Yet

> *"As a result of the proliferation of credit cards, there has been widespread speculation about the possibilities of a checkless, cashless society in the future"*
>
> *Jack Lefler, in the July 24, 1968 edition of the Las Cruces Sun-News (Las Cruces, NM)*

For the last fifty years, various publications have predicted the end of cash. One of the first such articles was written by Jack Lefler in 1968. He envisioned the emergence of a cashless society that would use a single identification card for all transactions. In the late 1970s, a former Citibank leader presented a newspaper article titled "Cashless Society Is Predicted by Credit Card Use." In his 1981 book, *World of Tomorrow: School, Work and Play*, Neil Ardley foresaw a cashless world by 2002. "The answer is simple: You do not carry any money on you and neither does anyone else. You pay for everything you buy with an identity card like a credit card. It has a magnetic strip containing your name and other personal information in the form of a magnetic code," he wrote. In February 2007, *The Economist* cover title was "The End of the Cash Era." The corresponding article projected that cash would be a dinosaur doomed to extinction.

So, are today's predictions about the demise of cash different? For now, the answer seems to be that people still want cash. The *Financial Times* revealed that wealthy investors had been holding ever-larger investable assets in cash. Two-thirds of the people surveyed said they had considered increasing cash holdings given the economic uncertainty around the US-China trade war, conflict in the Middle East, and the potential effects of Brexit.

In this report, we argue that cash is unlikely to disappear anytime soon. However, a real digital payment revolution has been underway for the past ten years. Cash is losing ground as a payment method. Several countries have recently removed large notes worth $100 or more and implemented policies to replace traditional payment methods with digital solutions. In the midst of these changes, non-sovereign cryptocurrencies pose a threat to political and financial stability.

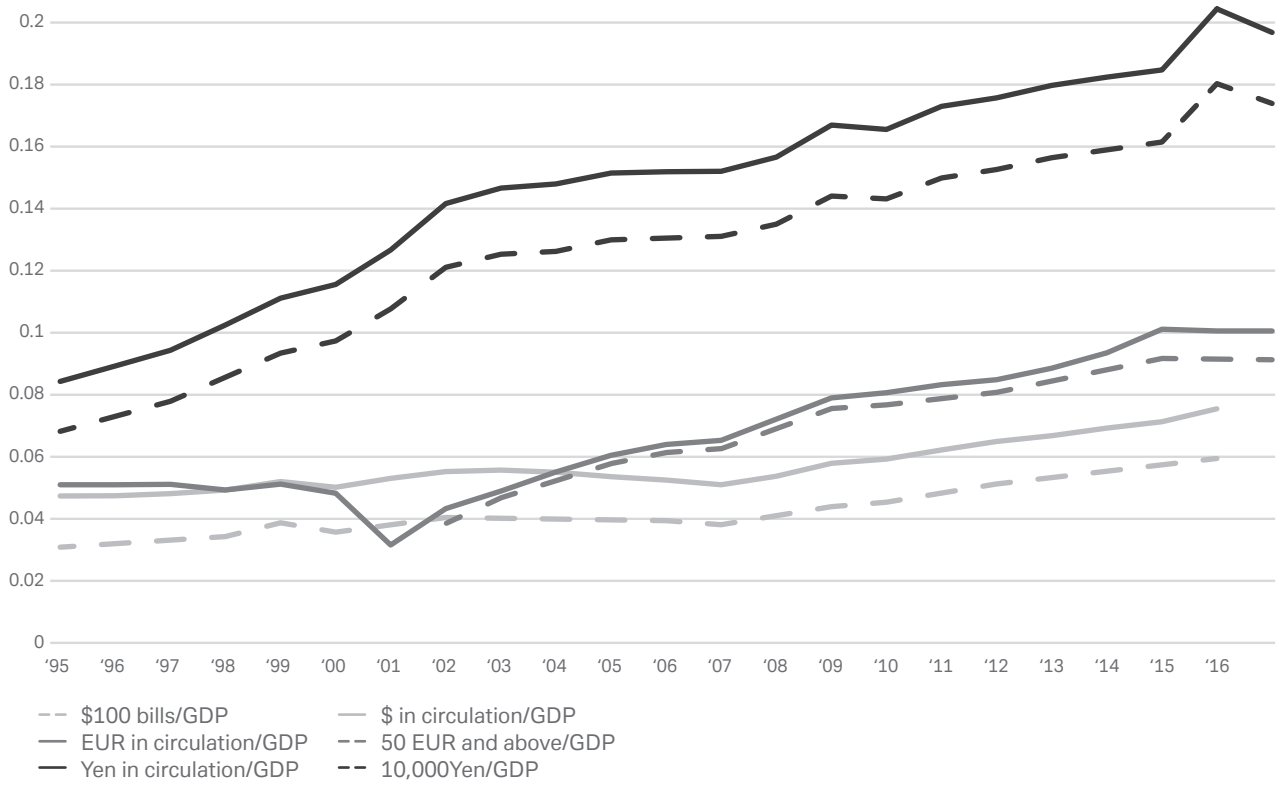
Supply side: Toward a Cashless Society

Governments, banks, and card providers share at least one common goal: the elimination of cash. Governments are more concerned with eliminating large notes from circulation because those notes are mostly used for the black market, but banks and card providers have been finding ways to foster smaller payments with cards through technology innovations, such as contactless cards (cards that can be used without inserting or swiping them in a reader) and mobile payments.

Thus, the global campaign against paper money is lively, especially against large notes. A leading economist, Kenneth Rogoff, has made a persuasive case for getting rid of most paper money, and Larry Summers wrote an article in 2016 titled, "It's Time to Kill the $100 Bill."

The movement against large denominations is driven by the fact that they are mainly used for illegal activities such as tax evasion, drug trafficking, and terrorism. As shown below, the increase of monetary circulation over the last twenty years is almost entirely due to large notes (the USD 100 note in the US, the JPY 10,000 note in Japan, and EUR 50 note or higher in the Eurozone). It is also estimated that two-thirds of USD 100 notes are held outside the United States, which indicates they are not used for ordinary transactions.

Value of currencies in circulation (% GDP)

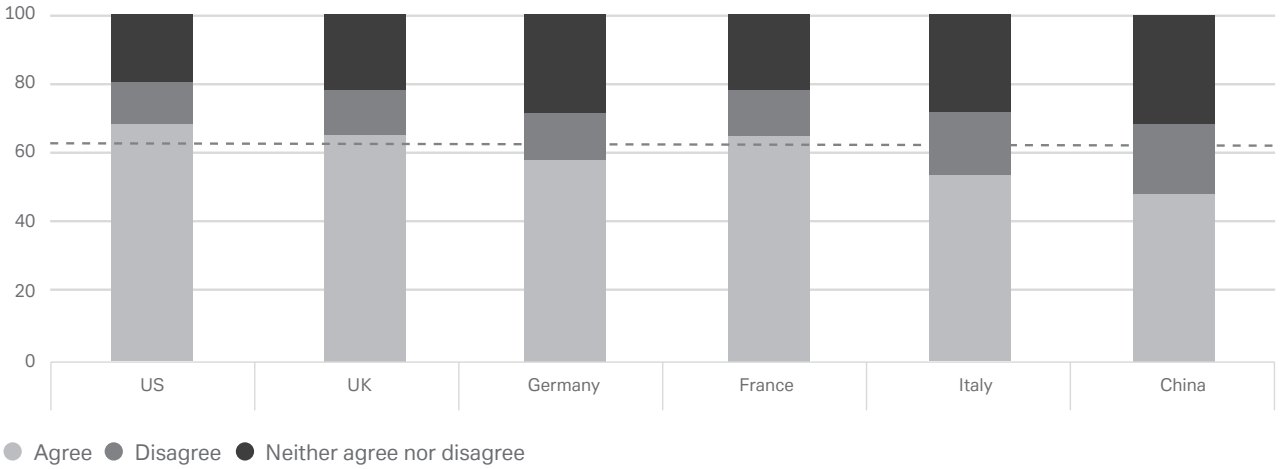


Source: European Central Bank; International Monetary Fund, International Financial Statistics; Bank of Japan; US Treasure; St Louis Fed, Federal Reserve Economic Data.

In fact, large notes are disappearing fast all around the world. The European Central Bank decided to permanently cease new issuance of the EUR 500 note in 2018. The same transition took place in India two years earlier when the government declared in 2016 that its INR 1,000 and INR 500 notes would no longer be valid, despite strong resistance to change and a temporary cash shortage.

Nevertheless, cash is still widely used in many advanced countries, including Japan, Western Europe, and the United States.[1] According to our proprietary survey, a third of people in developed countries consider cash to be their favourite payment method and more than half believe cash will always be around. This statement was true regardless of country, gender, and age.

Cash will always be around – preferred method of payment by country



Source: Deutsche Bank dbDIG. Note: percentage of respondents who think that cash will always be around.

1 With the exception of Sweden, where the use of physical cash is actually declining. According to a nationwide survey conducted by the Sveriges Riksbank—the Swedish central bank—only 18 percent of Swedes reported using cash recently compared to 40 percent of Swedes in 2010. Factors that help include strong broadband coverage, even in remote areas; a small, tech-savvy population; and deeper trust in institutions and new technologies.

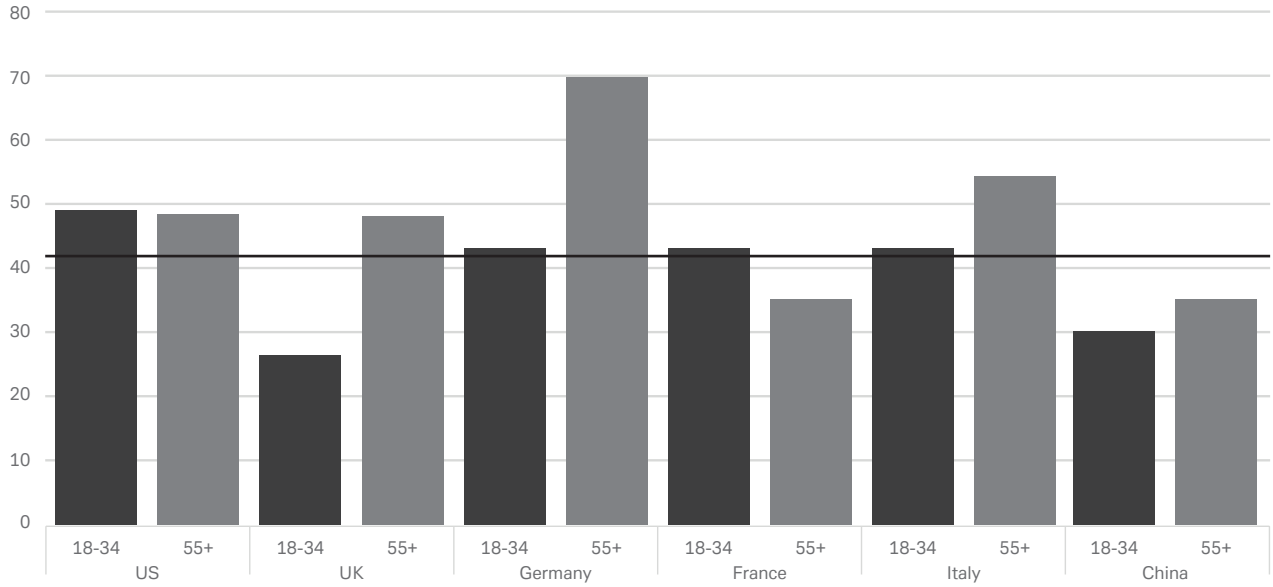
Our survey also showed that nearly 60 percent of in-store purchases in Germany were paid in cash. Germans hold EUR 52 in cash on average, the highest rate among advanced economies, and the average German plans to use even more cash in the coming six months.

Americans, British, and Italians consider cash to be their second favourite payment method (approximately a third prefer cash). Interestingly, 11 percent of Americans plan to use even more cash in the next six months. Specifically, 53 percent of Americans said they want to make sure they always have cash with them and about 70 percent of Americans still use cash every week. On average, each American holds $47 in cash.

Cash has properties that no other payment method has. It helps users remain anonymous and avoids cyberattacks. However, these benefits were not among the top five reasons for why the citizens we surveyed love cash so much. Surprisingly, over 40 percent say cash enables them to easily track spending and make payments faster. They find cash to be convenient, accepted almost everywhere, and secure.

There is, however, a small shift of habits between generations, particularly in European countries such as Italy, Germany, and the UK.

Cash carried by generations on average today (in US dollars)



Source: Deutsche Bank dbDIG. Note: cash carried in the US, UK, Germany, France, Italy and China are denominated in US dollars.

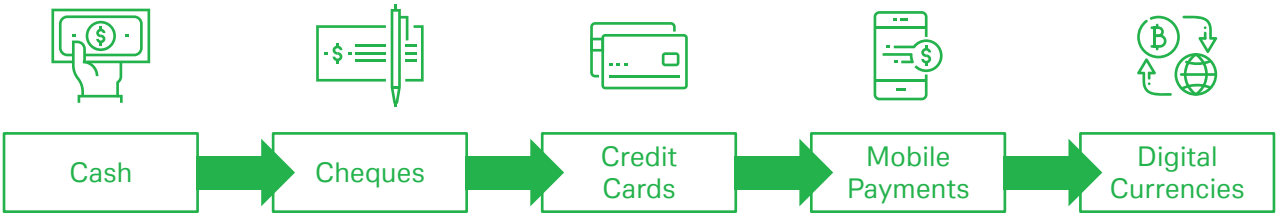
To predict the future of cash, the key question is what happens in the world's two most populous countries—China and India. As the push to remove cash escalates, these governments are encouraging greater use of digital currencies.

In late October, Chinese President Xi Jinping endorsed blockchain as "an important breakthrough for independent innovation of core technologies." He repeated the PBoC's intention to have cash replaced by a central bank-issued digital currency.

In India, change is also coming. The government declared in 2016 that 1,000 and 500 rupee notes would no longer be valid despite strong resistance to change and temporary cash shortage. And recently, a government economic panel pitched for the introduction of an official digital currency with the status of legal tender and regulated by the Reserve Bank of India.

A Century of Innovative Disruptions

We will address these global trends and tensions in more detail later in this report. First, we look at how currencies and transactions have developed since the early days and how change has accelerated in the last thirty years.



Commerce As Barter (from 6000 BC)

The idea of people exchanging goods or services among themselves, with no middleman or base "market" price, by establishing a "double coincidence of wants," is one of the oldest forms of payment. By most accounts, the history of bartering dates to circa 6000 BC. The system may have been introduced by Mesopotamian tribes and further expanded by the Phoenicians through international trade. The Babylonian Empire adopted this system with the concept of exchanging services and goods for items such as weapons, teas, spices, and slaves. The Romans went to great lengths to barter for items such as salt, which was a measure they used to pay soldiers in what we would call a salary today. This barter system became problematic in part because it limited dynamic economic activity, diversity, and growth. The Chinese in about 1000 BC, among others, shifted away from exchanging weapons, and utilised lightweight bronze replicas of weapons as a form of payment.

The Evolution of Currency (from 1000 BC)

These bronze and copper replicas could potentially be considered the earliest forms of metal currencies. Sometime later, gold, silver, or a combination of both, such as the Lydia currency (circa sixth century BC), became the dominant form of currency throughout Eurasia. The Lydia currency may be the earliest form of coinage. It was developed in the Mediterranean region and later copied and refined throughout the Western Hemisphere.

Beyond their visual value, precious metals gave people the ability to transport a durable, lightweight coin and thereby fostered a strong expansion of trade through the Middle Ages. Furthermore, coins enabled people to conveniently fix the prices of goods and services with a common metric unit based on the weights of coins. Additionally, coins facilitated the storing of value, which allowed for populations to buy, trade, and move resources all over the planet.

The Development of Bills (from the Seventeenth Century)

Paper money was implemented in Europe in the seventeenth century. This occurred in the context of a "price revolution" during which large amounts of gold and silver entered Europe (mostly brought by the Spanish from Latin America). With the influx of precious metals, banks handed out payable receipts to the bearers of documented resources.

By the first half of the nineteenth century, many towns in the UK (and the US) had established local banks, and each issued local banknotes. Before national currencies and efficient clearing houses emerged, banknotes were only redeemable at face value by the issuing banks.

Paper currency, specifically the US dollar, only came to worldwide prominence after World War I. It has since played a major role in shaping global history. Inadvertently, paper currency, especially large notes, has also facilitated illegal transactions, underground economies, and money laundering.

The Credit Card (from the 1950s)

The concept of using a card for purchases was described in 1887 by Edward Bellamy in his utopian novel Looking Backward. In 1950, Ralph Schneider and Frank McNamara created the Diners Club card. Initially made of cardboard, this card served to pay for entertainment and travel expenses.

Ten years later, Diners Club had around ten thousand New York City members, all elite business professionals. Using the card, they could visit twenty-eight restaurants and two hotels. The card promised its holder convenience and served as a status symbol. The company convinced merchants that its card would stimulate people to buy more.

Credit card demand dramatically increased once the US Internal Revenue Service began requiring detailed business expense records. In 1958, American Express had launched the first plastic card. Bank of America released the first recognizable modern card with revolving credit, in California, which was first called the BankAmericard and later Visa. To compete with the BankAmericard, a group of banks joined to create the Interbank Card Association, which later evolved into Mastercard.

Visa and Mastercard created a system in which banks could join a network for their cards, with the ability to choose either for their offerings.

The Early Adoption of Mobile Payments (since the 2000s)

Mobile payments are transactions conducted with a mobile phone in combination with a credit card, an invoice, an electronic wallet, or a cash account.

In developing economies, mobile payments started in the early 2000s. Their deployment has facilitated and spread financial services to communities with unbanked or underbanked citizens—those without bank accounts. These payment networks have often been used for micropayments (Alipay started in 2004 in China). In contrast, mobile payments have only started gaining traction in advanced economies in recent years. Apple Pay commenced in 2014 ; Google Pay and Samsung Pay began in 2015.

Meanwhile, in many parts of the world, people are becoming more familiar with non-cash payments such as paying with points accumulated through credit card spending and airline travel. Among US citizens, 45 percent of people are comfortable using an independent, non-government currency. This is evidenced by the widespread use of corporate points programs. The Starbucks Rewards app—one of the leaders in mobile payment apps—recorded about 17 million US memberships in 2019. Thirty percent of payments at Starbucks stores occur with the company's points program.

The Early Adoption of Cryptocurrencies (since the 2010s)

We will discuss cryptocurrencies in more depth later. But for historical context, the concept of cryptocurrency started around thirty years ago when DigiCash created the first worldwide virtual currency. It went bankrupt in 1998, less than ten years after its creation.

The most famous cryptocurrency, bitcoin, was invented in 2008 by a developer using the pseudonym of Satoshi Nakamoto. Since 2011, cryptocurrencies have gained momentum from investors and captured media attention, particularly after bitcoin prices rose dramatically in 2013. Following bitcoin, many new cryptocurrency companies have been created, including Litecoin (2011), Ripple (2012), Ethereum (2015), and Bitcoin Cash (2017).

Cryptocurrencies have passed the tipping point needed to become fashionable. In June 2019, Facebook announced its Libra cryptocurrency. With nearly 2.5 billion users, or one-third of the world's population, Facebook's planned cryptocurrency has the potential to compete with traditional online payment platforms.

Understanding Distributed Ledger Technologies and Cryptocurrencies

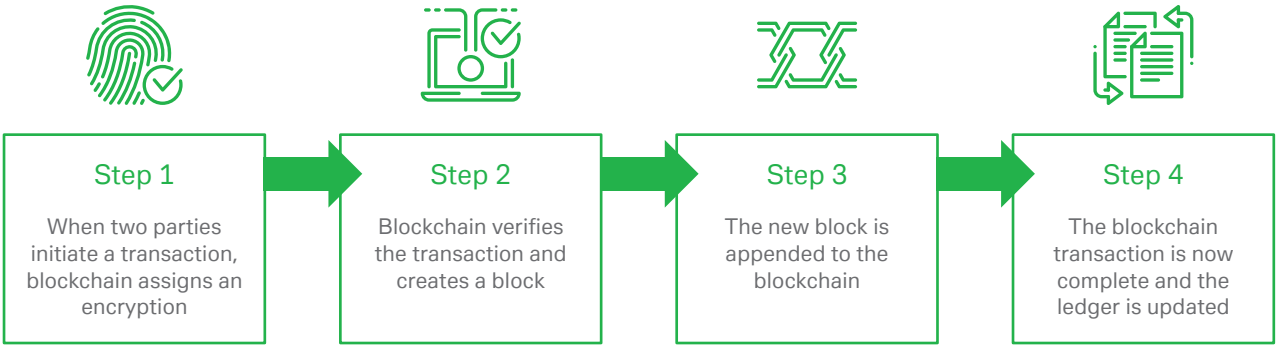
Later in this report we will analyse the influence of cryptocurrencies and distributed ledger technologies (DLT) on the global economy. In this section, we will simply provide a basic understanding of what DLTs are, their capabilities, potentialities, and dangers. It should be remembered that DLT and cryptocurrencies are still in the relatively early stages of a broader, global transition, one that we explore in part 3 of this report.

Distributed Ledger: Decrypting the Technology

We can compare DLTs to a collaborative document creation tool, such as Google Docs. In the past, transactions were saved on a centralised database, such as a computer drive. If someone hacked the drive, they could steal or alter the information contained therein. Similarly, somebody would have to hold the master file and ensure that data within it was always up to date.

The term blockchain is more widely known than the acronym DLT. Blockchain was developed in 2008 to serve as the public transaction ledger of the cryptocurrency bitcoin. Although the term is commonly used in public discourse to describe the whole family of DLTs, blockchain has specific features, including "a chain of cryptographically-linked data blocks to efficiently and securely time-stamp digital data in distributed systems" (Rauchs et al, 2018).

Creating a blockchain transaction



The primary difference between blockchain and other forms of DLTs relates to the storage of data. Blockchain data is stored in groups, or "blocks" of information. It is impossible to delete or modify information previously stored "on the chain" because blocks are replicated across multiple ledgers. Not all distributed ledgers employ a chain of blocks to provide a set of shared, secure, distributed, independently validated records.

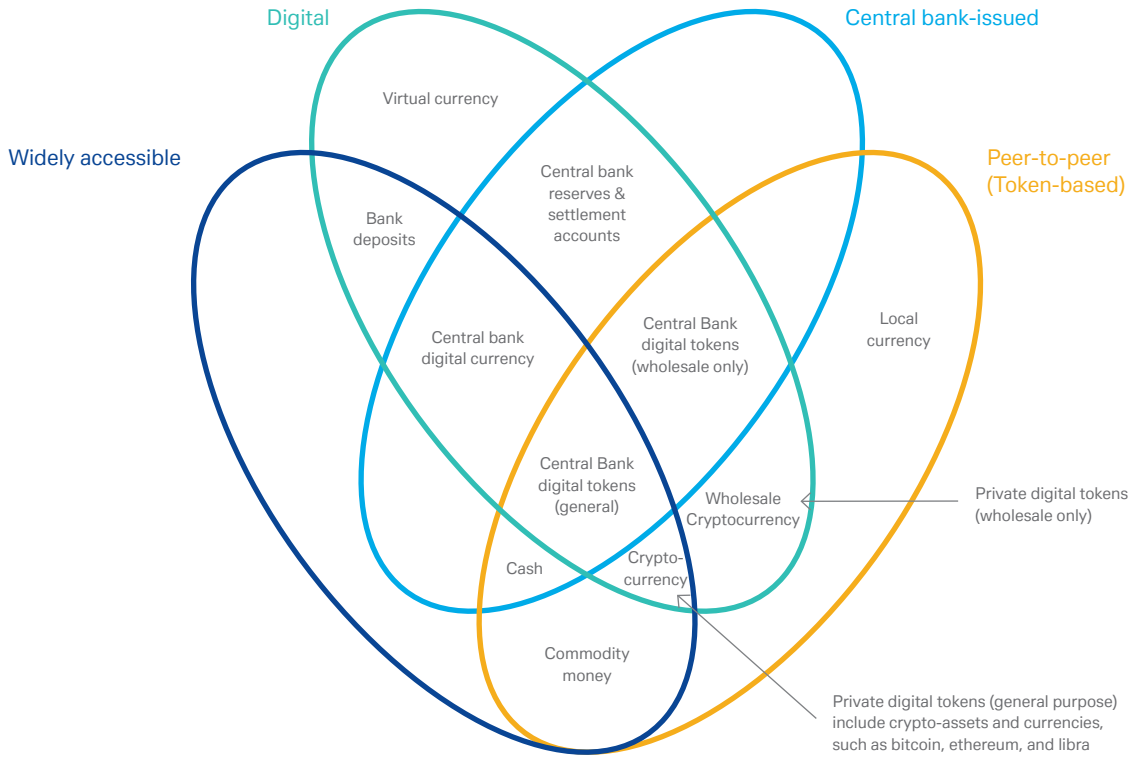
For the above reasons, blockchain is highly secure. Every user has a unique public and private key. The public key acts like a username or an email address. It allows users to transfer a cryptocurrency to and from other users directly. The private key is akin to a personal password that gives individual users access to their cryptocurrency accounts, or digital wallets.

Under the current global system, people must go through several intermediaries to transfer money. This includes a sending bank, a receiving bank, and a credit-card operator. This system increases transaction costs as each intermediary takes a fee. Because cryptocurrencies are based on cryptography and the decentralised system, transfers operate directly between peers thus removing various middlemen.

How Does a Cryptocurrency Work?

Digital currencies are also referred to as digital money, electronic money, or electronic currency. Examples include virtual currencies, cryptocurrencies, and central bank digital currencies (CBDC). Digital money can be centralised, in which case there is a central point of control over the money supply. It can also be decentralised, in which case the various sources control the money supply.

Mapping the landscape with the "money flower": issuer, form, accessibility, transfer



Source: Adaptation from Bank for International Settlements (2017) based on Bech and Garratt (2017). Notes: The Venn-diagram illustrates the four key properties of money: issuer (central bank or not); form (digital or physical); accessibility (widely or restricted); and technology (account-based or token-based). Bank deposits are not widely accessible in all jurisdictions.

A cryptocurrency is a digital "asset" that uses peer-to-peer networking, so it is decentralised and broadly accessible. The asset is a digital "token" with no backing or intrinsic value. If we look at bitcoin specifically, miners use cryptographic code to process large quantities of data to create new coins. The pre-programmed, finite supply of bitcoins determines the value of each bitcoin. The maximum number of bitcoins that will ever exist is just under 21 million. If the current mining rate continues, all bitcoins will likely be mined before 2140. At that point, the bitcoin system will become a transaction-only system. Importantly, bitcoin transactions are not intermediated by a bank or clearing party. While this can make the individual transaction very cheap, the overall cost of implementing a network can be extremely expensive as a result of the computing and energy costs of some of the validation processes.

A Highly Volatile Currency

At the beginning of 2017, bitcoin prices were below $1,000 per coin. In October of the same year, the value reached $5,000 per coin. In November, the value of a bitcoin surpassed $10,000 and in December it reached nearly $20,000. Then came the fall and by February 2018, the price had dropped to $7,000. One of the most important factors driving bitcoin's increased demand was the entrance of hedge funds and other institutional investors.

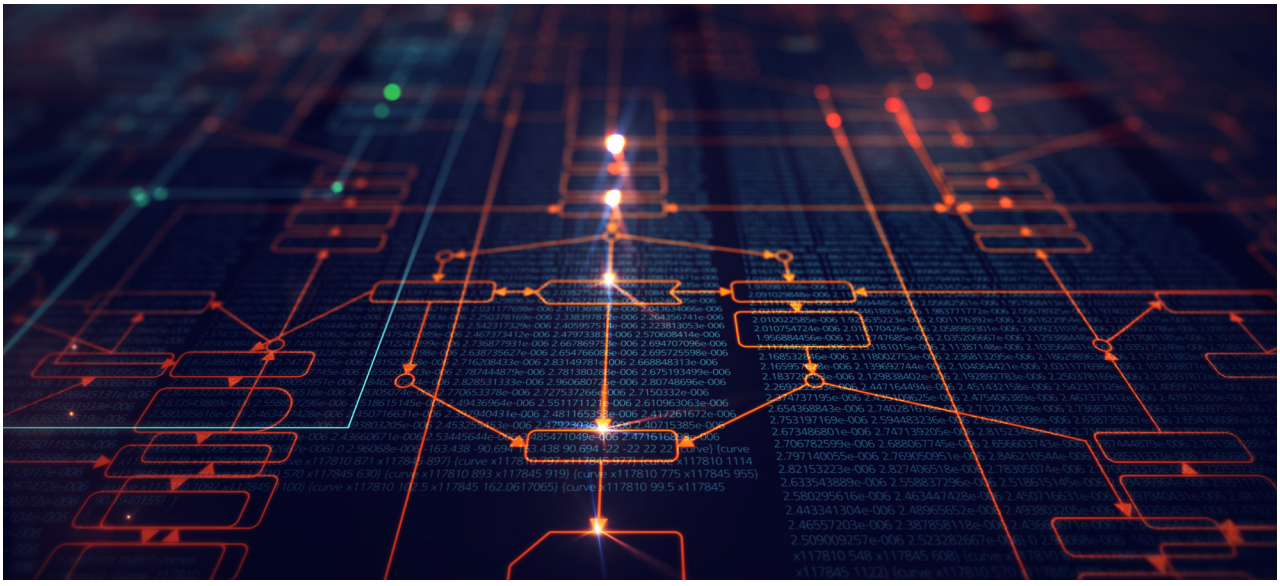
In the US, some established exchanges have, in the past few years, started listing new crypto-asset derivatives. For example, bitcoin futures products have been listed by the Chicago Mercantile Exchange and the CBOE Futures Exchange. In addition, bitcoin binary options have been listed by the Cantor Exchange. In August 2019, Bakkt Trust Company LLC was authorised to provide custody services for bitcoin in conjunction with the launch of physically delivered bitcoin futures contracts for institutional customers.

Bitcoin is too volatile to be a reliable store of value (market price in USD)

Source: blockchain.info. Note: Average USD market price across major bitcoin exchanges.

To minimise fluctuations common for conventional cryptocurrencies, the sector has begun to embrace a type of cryptocurrency called stablecoins. Stablecoins can be pegged to fiat currencies such as dollars, euros, and renminbi, or to exchange-traded commodities, etc. This price stabilisation usually requires some kind of trusted intermediation or centralised infrastructure.

There are multiple approaches to guarantee the currency's stabilisation relative to a fiat currency. First, the stablecoin can have a direct claim on a single currency. The value of the stablecoin is guaranteed by the issuer, who fully collateralises the claim and commits to redeem coins at par value in the same currency in which they were purchased. Second, a stablecoin's value can be linked to a basket of reference assets, such as government securities, commodities, crypto-assets, or combinations of the above—without holding the underlying assets. This is similar to an ETF. Third, a stablecoin could leverage the financial strength and stability of the offering institution. Tokens can be exchanged at par with conventional deposits or exchanged for cash. Among the best known stablecoins that use this approach is Facebook's proposed Libra.

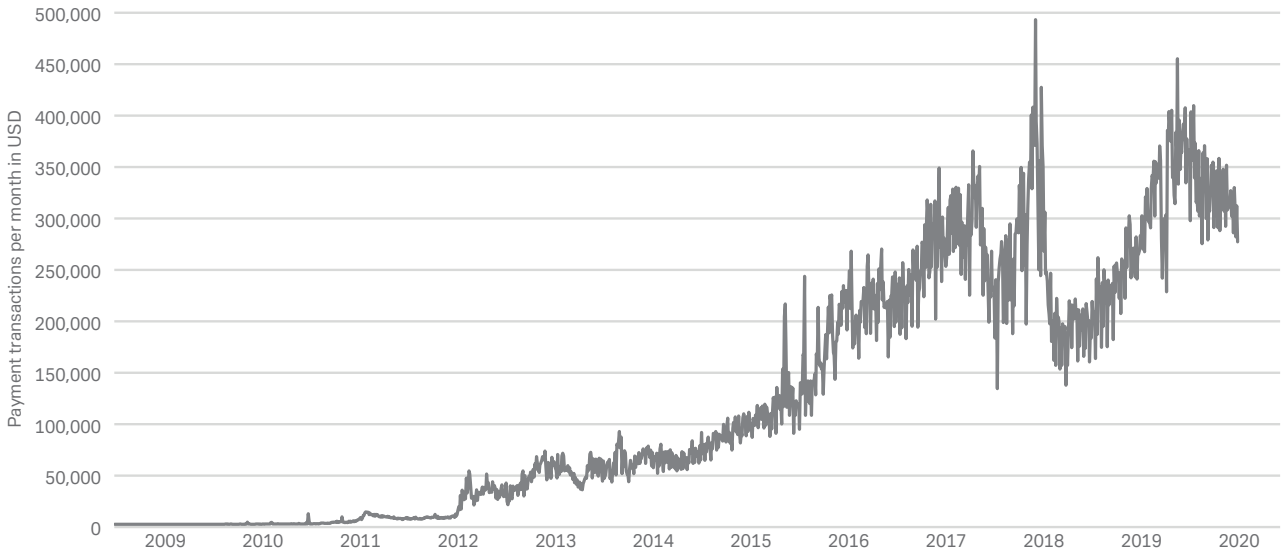


The Future of Cryptocurrencies

Overall, cryptocurrencies are still in the early adoption stage and we should expect further experimentation to take place in the context of a rapidly digitising society and a post-financial-crisis environment.

Some stores have started accepting cryptocurrencies as a payment method. Although the number of stores is small, the growth trend is noticeable among online travel booking platforms such as CheapAir, and through retailers such as Newegg and the telecommunications company AT&T.

Bitcoin payment transactions per month in USD



Source: blockchain.info. Note: Number of daily confirmed Bitcoin transactions.

As the above figure shows, payments made by bitcoin have taken off. However, they still represent a tiny fraction of global payments. Nevertheless, cryptocurrencies have the potential to revolutionise payment standards. Some believe cryptocurrencies should be considered an asset class, akin to gold. Perhaps, but cryptocurrencies are also a revolutionary new technology that can change the way we interact with payments. Looking ahead, it may not be surprising if a new and mainstream cryptocurrency were to unexpectedly emerge. This will be discussed further in part 3.

Appendix

Selected data from dbDIG survey of over 3,600 customers (further data available upon request).

Demographics of people who consider cash as their favorite mean of payment

	Cash					
	US	UK	Germany	France	Italy	China
Base	33%	29%	59%	18%	33%	22%
Female	33%	27%	58%	19%	35%	16%
Male	32%	32%	60%	16%	31%	28%
18-34	37%	23%	53%	27%	40%	21%
35-54	30%	33%	52%	12%	33%	17%
55+	32%	33%	71%	15%	25%	51%
Rural/ Countryside	40%	32%	65%	14%	42%	36%
Suburban	28%	29%	56%	21%	37%	22%
Urban	36%	28%	59%	19%	29%	21%
Up to €20,000			72%	26%	49%	
€20,000 to €29,999			61%	23%	29%	
€30,000 to €39,999			63%	19%	30%	
€40,000 to €49,999			67%	11%	21%	
€50,000 to €69,999			47%	13%	26%	
€70,000 to €99,999			47%	8%	18%	
€100,000+			50%	11%	33%	
Up to £20,000		37%				
£20,000 to £29,999		31%				
£30,000 to £49,999		29%				
£50,000 to £69,999		20%				
£70,000+		23%				
Up to $15,000	54%					
$15,000 to $24,999	38%					
$25,000 to $34,999	37%					
$35,000 to $49,999	36%					
$50,000 to $99,999	28%					
$100,000 to $149,999	18%					
$150,000+	20%					
Up to ¥119,999						31%
¥120,000 to ¥179,999						19%
¥180,000 to ¥239,999						17%
¥240,000 to ¥299,999						24%
¥300,000 to ¥449,999						16%
¥450,000 to ¥599,999						16%
¥600,000 to ¥999,999						6%
¥1,000,000+						6%

Demographics of people who believe cash will always be around by preferred method of payment

	Cash will always be around - Agree											
	Cash						Non Cash					
	US	UK	Germany	France	Italy	China	US	UK	Germany	France	Italy	China
Base	69%	69%	61%	72%	68%	58%	68%	62%	56%	67%	47%	46%
Female	53%	45%	48%	58%	58%	31%	48%	55%	54%	52%	51%	53%
Male	47%	55%	52%	42%	42%	69%	52%	45%	46%	48%	49%	47%
18-34	32%	20%	21%	47%	37%	37%	27%	31%	28%	31%	25%	49%
35-54	27%	36%	31%	19%	36%	36%	34%	35%	46%	37%	35%	46%
55+	41%	43%	48%	34%	27%	27%	39%	34%	26%	32%	40%	5%
Rural/ Countryside	22%	21%	25%	18%	19%	7%	17%	18%	21%	29%	14%	3%
Suburban	44%	52%	23%	31%	20%	28%	54%	53%	25%	21%	17%	26%
Urban	33%	26%	51%	51%	62%	65%	29%	29%	54%	50%	69%	71%
Up to €20,000			18%	22%	28%				8%	13%	19%	
€20,000 to €29,999			12%	22%	18%				16%	16%	23%	
€30,000 to to €49,999			41%	35%	32%				36%	43%	31%	
€50,000 to €69,999			16%	14%	14%				20%	15%	19%	
€70,000+			12%	7%	8%				20%	13%	8%	
Up to £20,000		22%						20%				
£20,000 to £29,999		34%						26%				
£30,000 to £49,999		30%						31%				
£50,000 to £69,999		7%						15%				
£70,000+		7%						8%				
Up to $24,999	36%						16%					
$25,000 to $49,999	22%						21%					
$50,000 to $99,999	28%						36%					
$100,000+	15%						27%					
Up to ¥119,999						41%						21%
¥120,000 to ¥179,999						19%						28%
¥180,000 to ¥239,999						19%						26%
¥240,000 to ¥299,999						11%						6%
¥300,000 to ¥449,999						5%						7%
¥450,000 to ¥599,999						4%						2%
¥600,000 to ¥999,999						1%						5%
¥1,000,000+						0%						5%

On an average day, approximately how much cash do you tend to carry with you?

	France				Germany				Italy			
	18-34	35-54	55+	Overall	18-34	35-54	55+	Overall	18-34	35-54	55+	Overall
€0 - I don't usually carry cash with me	12%	5%	7%	8%	2%	1%	0%	1%	3%	0%	1%	2%
€1 and €10	17%	26%	17%	20%	14%	6%	4%	8%	9%	6%	8%	8%
€11 and €20	23%	21%	28%	24%	23%	17%	13%	17%	18%	17%	17%	18%
€21 and €30	13%	19%	18%	17%	17%	18%	9%	14%	24%	14%	13%	17%
€31 and €40	9%	8%	7%	8%	12%	9%	5%	8%	12%	8%	7%	9%
€41 and €50	8%	8%	11%	9%	12%	18%	22%	18%	17%	24%	23%	22%
€51 and €75	5%	4%	3%	4%	10%	8%	14%	11%	6%	11%	9%	9%
€76 and €100	4%	3%	3%	3%	6%	10%	18%	12%	6%	10%	12%	10%
€101 and €150	5%	3%	2%	3%	2%	4%	7%	5%	2%	8%	5%	5%
€151 and €200	3%	0%	1%	1%	1%	2%	6%	4%	0%	1%	1%	1%
More than €200	3%	0%	3%	2%	1%	3%	1%	2%	2%	1%	1%	1%
Don't know	2%	3%	1%	2%	0%	3%	0%	1%	0%	0%	1%	1%
Mean	*€38*	*€25*	*€32*	*€32*	*€38*	*€52*	*€63*	*€52*	*€40*	*€50*	*€48*	*€46*

	UK			
	18-34	35-54	55+	Overall
€0 - I don't usually carry cash with me	22%	10%	5%	13%
€1 and €10	34%	30%	18%	27%
€11 and €20	17%	19%	26%	20%
€21 and €30	9%	16%	16%	14%
€31 and €40	6%	5%	6%	6%
€41 and €50	4%	8%	8%	7%
€51 and €75	2%	3%	6%	3%
€76 and €100	3%	4%	9%	5%
€101 and €150	2%	2%	3%	2%
€151 and €200	1%	0%	2%	1%
More than €200	1%	1%	2%	1%
Don't know	1%	1%	0%	1%
Mean	*£21*	*£26*	*£37*	*£28*

	US			
	18-34	35-54	55+	Overall
$0 - I don't usually carry cash with me	9%	13%	9%	10%
$1 and $10	14%	17%	10%	14%
$11 and $20	18%	15%	20%	18%
$21 and $30	11%	10%	11%	10%
$31 and $40	7%	8%	9%	8%
$41 and $50	9%	10%	8%	9%
$51 and $75	5%	6%	7%	6%
$76 and $100	11%	7%	12%	10%
$101 and $150	7%	3%	6%	5%
$151 and $200	3%	4%	3%	3%
More than $200	3%	3%	2%	3%
Don't know	3%	3%	3%	3%
Mean	*$49*	*$45*	*$48*	*$47*

	China			
	18-34	35-54	55+	Overall
¥0 - I don't usually carry cash with me	9%	7%	9%	8%
¥1 and ¥25	13%	5%	2%	8%
¥26 and ¥50	12%	12%	6%	12%
¥51 and ¥75	7%	8%	9%	8%
¥76 and ¥100	12%	14%	17%	14%
¥101 and ¥150	6%	8%	8%	7%
¥151 and ¥200	8%	7%	9%	8%
¥201 and ¥250	4%	3%	6%	4%
¥251 and ¥300	4%	4%	4%	4%
¥301 and ¥350	4%	3%	8%	4%
Mean	*¥207*	*¥258*	*¥217*	*¥231*

Which, if any, of the following are the main reasons for cash being your most preferred payment method?

	US	UK	Germany	France	Italy	China
Easier to monitor my spending	28%	46%	51%	44%	38%	25%
Faster to pay	43%	37%	44%	40%	41%	18%
Really convenient	37%	56%	34%	41%	44%	20%
Accepted almost everywhere	33%	47%	46%	44%	27%	15%
Secure method of paying	31%	34%	49%	32%	32%	20%
Don't want to give up cash	9%	37%	48%	39%	32%	17%
Purchases remain anonymous	22%	21%	42%	29%	19%	10%
Easier to tip	21%	20%	32%	23%	11%	12%
Avoid cyber attacks on my money	16%	24%	19%	24%	17%	15%
Easier to split a bill if needed	16%	17%	18%	25%	21%	9%
Don't like using plastic cards	10%	8%	10%	10%	18%	12%
Does not impact my credit rating	14%	6%	11%	13%	10%	14%
Can get a discount	7%	5%	8%	7%	13%	15%
Don't know how to use a smartphone	7%	5%	6%	11%	7%	12%
Places I usually go don't take card	6%	5%	4%	5%	8%	12%
Places I usually go don't take electronic payments	4%	6%	4%	6%	6%	17%
None of these	3%	1%	2%	2%	2%	6%

We would like to thank Anthony Chaimowitz for his contribution to this piece.