

## Speech: “Future of Cash”

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It is fitting that on the 20<sup>th</sup> anniversary of the convertible mark, we will discuss the future of cash.

Since the mark was first introduced 20 years ago, technology has changed rapidly. Smartphones today have more processing power than “Deep Blue”—the supercomputer that beat chess legend Gary Kasparov in the late 1990s. Data that we now conveniently store on these smartphones would require at least a dozen cartons of floppy disks twenty years ago. Such technological changes have also brought about rapid changes in financial technology—or fintech as we call it—and redefined the way we make payments. They have enabled us to make payments with a swipe of a card, a click of a mouse, or a tap on a phone. According to ECB Payments Statistics (2017), the total number of non-cash payments in the European Union increased by about 8 percent in 2017 compared with the previous year.<sup>1</sup> Digital payments have made significant inroads in developing countries as well. In Kenya, mobile payments, such as M-pesa, are giving millions of people access to the formal financial system.

What is the future of cash? What are the implications for policy? How should authorities respond? These are some of the questions I will touch upon today.

Let me begin by clarifying what I mean by cash. Sometimes, cash denotes just currency, that is banknotes and coins. And at other times, it includes banks’ reserves at the central bank, or even demand deposits held at banks. Despite differences in the nomenclature, all of them perform three important functions: medium of exchange, store of value, and unit of account. In my speech today, I will refer to cash as currency. Before I talk about the future of cash, let me reflect on recent trends in the use of cash.

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<sup>1</sup> Globally, non-cash transaction volumes grew at about 10 percent in 2016 (World Payments Report 2018).

## Trends in the Use of Cash

After what I just mentioned about the rise of digital payments, one might think that cash has become irrelevant. But the reality is that cash has been surprisingly resilient. Globally, currency in circulation has increased significantly in the last decade or so from 6.1 percent of nominal GDP in 2001 to about 7.6 percent in 2018. This is a trend that holds in many European economies, including Bosnia and Herzegovina. One notable exception to this trend is Sweden, where cash to GDP has fallen by over 15 percentage points in the past decade and now stands at only 1.2 percent of GDP, one of the lowest in the world. Fewer than half of Swedish banks now handle cash. But Sweden is more an exception than the rule. In most countries, demand for cash has remained robust.

What explains this surprising resilience of cash? *Cyclical* factors are part of the answer. Low interest rates, following massive monetary accommodation after the global financial crisis, have lowered the opportunity cost of holding cash. The banking crises and the rise in uncertainty during this time also increased the demand for cash, particularly for reserve currencies, reflecting flight to safety.<sup>2</sup>

Another reason why cash remains popular—and this is a *structural* factor for the world's major currencies—is that a large share of it is being hoarded abroad, but also because cash is often used for illicit transactions. Much of the increase in currency in circulation in the United States and the Euro Area—by value as well as volume—is driven by high-denomination notes, which are unlikely to be used in day-to-day purchases. In fact, Europol Financial Intelligence Report (2015) finds that the 500-euro note is largely used to facilitate money laundering and criminal activity.

Beyond these store-of-value motives, transactions-related demand for cash has remained robust as well, especially for low-value payments. Globally, some 85 percent of the number of transactions are done in cash.<sup>3</sup> In the euro area countries, the figure is about 80 percent, although it is half in value terms.<sup>4</sup> The popularity of cash reflects its enormous convenience and flexibility. Compared to digital payments, cash is universally accepted; does not require electricity or internet; and is completely anonymous. Cash remains particularly relevant in countries with less developed financial systems and higher shares of the grey economy. "Cash is still king" in the Western Balkans, partly because of low

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<sup>2</sup> Jobst and Stix (2017).

<sup>3</sup> Wheatley (2017).

<sup>4</sup> Esselink and Hernández (2017).

bank penetration and the high costs of transactions—card assessment fees are up to four times higher than in the European Union.<sup>5</sup>

Will these trends continue? As physicist Niels Bohr quipped, *"prediction is very difficult, especially if it's about the future"*. One could, however, chart a trajectory for the future of cash based on how the cyclical and structural factors might evolve. As advanced economies gradually normalize their monetary policy, this would increase interest rates that would reduce the demand for cash. A return of the global economy to more tranquil times would have the same effect. As authorities tackle illicit transactions, high-denomination notes might be phased out. In fact, the ECB decided to end the issuance of the 500-euro banknote by the end of this year. Other countries could follow.

The future of cash may be even more related to the future of fintech. If digital payments become much more flexible, convenient and universally accepted than they are now, they could well result in a "creative destruction" of cash. All of this would steer our societies towards less cash or cashless systems. Sweden then could be more like the rule rather than the exception. So, what is happening to fintech?

### **Fintech Innovations**

Among the numerous fintech innovations, I will consider the ones that seem to be most relevant for the future of cash. These innovations are rapidly expanding alternatives to cash.

**E-payment platforms**—such as Apple Pay, AliPay, WeChat, M-pesa, and Venmo—have broadened access and increased the speed of making payments, empowered by the rise of mobile technologies, including in developing countries that are underbanked. So far, they do not threaten the current payment systems as they ultimately settle via bank accounts and, so for now, only imply a shift from currency to bank deposits. But their pervasive use may soon challenge banks' business models and existing payment systems.

**Crypto-assets** are the latest innovation, based on distributed ledger technology (DLT). Over 2000 crypto-assets and digital tokens exist today. Most of us have heard about Bitcoin—it is the most dominant, accounting for more than half of the market. Even though the market size of these digital

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<sup>5</sup> Bruggink and Birovljev (2017).

currencies has increased rapidly, their total market capitalization represents only about 7 percent of the currency in circulation for the US dollar and the euro combined.

Currently, crypto-assets perform the functions of money poorly. As store of value, their prices are extremely volatile—the average daily change in Bitcoin price since mid-2017 was about 4 percent. As medium of exchange, Bitcoin confirmation times are measured in minutes, transaction fees can be a dollar or more, and its energy use is legendary—recently estimates suggest that the Bitcoin network uses as much electricity as Ireland. At the same time, if Bitcoins were less expensive to produce, their underlying security could be compromised. As unit of account, Bitcoin acceptability is very limited. All told, a consensus seems to be emerging that crypto-assets are not money, but a high-risk investment.<sup>6</sup>

### **Merits and Challenges of Fintech**

In general, fintech has many potential benefits, but also presents several challenges. Potential benefits include greater speed, convenience, efficiency, more financial inclusion, and respond to users' desire for peer-to-peer transactions. Cross-border payments are one area where fintech holds great potential. Currently, cross-border transfers—remittances are a good example—are opaque, costly, and remarkably slow. Globally, sending remittances costs an average of about 7 percent of the amount sent; and remittances to Sub-Saharan Africa are much costlier.<sup>7</sup> By lowering barriers to entry, fintech can reshape cross border payments and make them not only more efficient, but also more competitive. For crypto-assets, proponents emphasize their anonymity and non-reliance on the middlemen in finance—banks and central banks. Distributed ledgers—the technology behind crypto-assets—could have much broader payment and settlement applications.

Yet, fintech innovations are a double-edged sword. These innovations could be vulnerable to potential system-wide disruptions and cyberattacks. Excessive reliance on a few players outside the financial regulatory perimeter might exacerbate these threats and raise issues of abuse of market power. For crypto-assets, the absence of a centralized clearing system makes them vulnerable to

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<sup>6</sup> The “Scalability Trilemma” indicates that blockchain systems can only possess two of the following three properties: security, privacy, and speed. So, the trilemma poses a fundamental constraint on the design of an ideal crypto-asset.

<sup>7</sup> World Bank (2018).

manipulations and security breaches.<sup>8</sup> If private crypto-assets become widely accepted, central bank money may no longer be the unit of account. This could make monetary policy irrelevant as in the case of dollarized economies, where monetary policy for the local currency becomes increasingly disconnected from the local economy.<sup>9</sup>

Let me also add that fintech is not limited to countries with highly developed financial systems. In some emerging and developing countries, as I alluded earlier, mobile payments are becoming popular. In China, for instance, mobile payments now account for about 75 percent of total payments. Also, because these innovations can be borderless, they can have spillovers. In that sense, the promises and the challenges of fintech are universal. Hence, they are relevant for the Western Balkans as well.

### **How Should the Authorities Respond?**

Policymakers' task isn't an easy one. On one hand, they need to safeguard the integrity and the stability of the financial system; protect consumers and investors against fraud; and combat tax evasion and money laundering. The global financial crisis showed us how risk could accumulate in unexpected places, especially if financial innovation was little understood. On the other hand, policymakers need to be careful not to stifle innovation or be oblivious to a rapidly shifting financial landscape.

The Bali Fintech Agenda, presented at the last IMF and World Bank Annual Meetings, provides a useful framing of the key issues. The approach should be forward-looking, flexible, and creative to successfully embrace the promise of new technologies, while ensuring their orderly development and application. First, **integrate**—authorities should facilitate the adoption of promising innovations that enhance the provision of financial services. Second, **regulate**—they should broaden and modernize the regulatory and policy frameworks to ensure adequate supervision. Third, **experiment**—they could experiment with creative solutions. Allow me to elaborate on these points.

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<sup>8</sup> For instance, Gandal et al. (2018) demonstrate that suspicious trading activity likely caused the unprecedented spike in the US dollar to Bitcoin exchange rate in late 2013, when the rate jumped from around \$150 to more than \$1,000 in just two months.

<sup>9</sup> He (2018).

**Integrate**

Broadly speaking, the evolution of the financial system should be welcomed. There is increasing pressure for faster and more efficient payment systems against an outdated and complex infrastructure that banks use. Deploying new technologies to upgrade existing Real Time Gross Settlement Systems is crucial, not only to satisfy the growing demand for digital transactions but also to ensure that central banks' payment systems remain competitive against private platforms. There is a strong case for governments to provide the public good of an efficient and reliable payment system. In that regard, the ECB is investing in a system called New Target Instant Payment Settlement for the euro area, which should be fully operational soon. Also, Serbia recently introduced a new 24/7 instant payment system to help reduce transaction costs. At the same time, private platforms can be welcomed, but may require regulation.

**Regulate**

Regulatory frameworks need to expand their perimeter to cover uncharted waters in payment technologies. For instance, financial institutions may no longer be involved in transactions that take place through peer-to-peer platforms such as using crypto-assets. In that case, the regulatory model will need to be more activity based—i.e. targeting the transactions themselves—as opposed to institution-based—i.e. targeting the financial institutions. AML/CFT regulation has already begun to evolve in response. For example, the Financial Action Task Force has already issued guidance on the application of AML/CFT for new forms of payment, including digital currency exchanges, which are now included under the definition of financial institutions.

Regulation should also protect consumers and investors against undue risk and fraud in the digital age, avoid regulatory arbitrage, and ensure financial stability. Frameworks need to adapt to new technologies that greatly increase the speed and volume of financial transactions, raising risks of market volatility and instability. The Financial Stability Board, which coordinates financial regulation for the G20, is already studying ways to monitor the growth of crypto assets with an eye on emerging financial stability risks. However, oversight and regulation of algorithms underlying fintech are likely

to prove challenging and would require a significant commitment of public resources to build the necessary expertise within the regulatory community. Creating new avenues for dialogue between regulators and the fintech industry will prove crucial to deepening our understanding of how novel technologies operate and designing systems that effectively monitor them. Privacy and anonymity, which are inherent in some of the “permission-less” distributed ledger networks that underpin crypto-assets, are another key hurdle for regulators seeking the information they need to conduct supervision.

Potential risks and regulatory implications of crypto-assets deserve attention. Although digital currencies have so far posed little challenge to the existing fiat currencies, their proliferation can draw activity outside the boundaries of the traditional financial system, redefine boundaries and jurisdictions, and even challenge the monopoly of central banks on currency issuance.

### **Experiment**

So, are new forms of money needed? And if so, what would be the implication for monetary policy, financial intermediation, and regulation? Some central banks, including Swedish Riksbank, the Central Bank of Uruguay, the People’s Bank of China, and the Eastern Caribbean Central Bank are already considering issuing their own digital currency. This is all the more pertinent as younger technology-accustomed generations shift their preferences toward a digital economy in which digital activity is not only central but nearly second nature.

As we will discuss later today, there are various design choices for Central Bank Digital Currencies (CBDCs). Chief among them are the degree of access to the public, the degree of anonymity, and interest-bearing characteristics. CBDCs could run on different technologies, including decentralized settlement via distributed ledger technology. They can be token-based—held in e-wallets on mobile devices—or account-based like banks’ reserves.

In all cases, CBDCs offer direct access to central bank liabilities and could serve as an alternative safe, robust, and convenient payment instrument. The adoption of CBDCs would also limit the practice of fractional reserve banking, which could aid monetary policy transmission.<sup>10</sup> Yet, their relative appeal

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<sup>10</sup> Smets (2016).

will ultimately depend on the design features. For instance, if a CBDC replicates the anonymity of cash, it will likely dominate other forms of digital payments, including crypto-assets, given its stability, security, and reliability and would likely be more convenient than physical cash as well. However, central banks are unlikely to allow full anonymity, lest CBDCs become a vehicle for illegal activities. In that respect, they will likely compete with commercial bank deposits used for fast payments.

In that context, the main rationale for central banks to issue CBDCs seems to be countering the growth of privately issued digital currencies and associated operational risks in jurisdictions where use of cash is rapidly declining like Sweden. Reducing costs associated with managing physical cash is also relevant. Among emerging and developing economies, the main interest in CBDCs stems from fostering more financial inclusion by leapfrogging to digital approaches.

Introducing CBDCs could nonetheless pose challenges to financial stability, financial intermediaries, and monetary policy implementation. Access to central bank liabilities could give rise to higher instability of commercial bank deposit funding in periods of financial stress. Deposit flight towards the central bank may occur on a fast and large scale, increasing banks' vulnerability to bank runs at the click of a mouse. Even in tranquil times, CBDCs would compete with commercial bank deposits, especially if they are interest-bearing. The volatility of commercial banks' deposit base could discourage intermediation and make for a "narrower" banking system.

Although CBDCs are unlikely to change the basic mechanics of monetary policy transmission and implementation, they could have some implications. They could enrich a central bank's toolkit by strengthening the pass-through of policy rate changes to other interest rates and allowing more effective implementation of negative interest rates. However, these benefits are unclear. Moreover, the effect on exchange rates and other asset prices may be difficult to foresee.

In sum, there is still considerable uncertainty whether CBDCs should be issued, but the debate should continue. For instance, if CBDCs were used for cross-border transactions, should central banks assume some of the functions of correspondent banks? To what extent might safe-haven flows be encouraged, potentially out of countries facing banking, sovereign, or currency crises? And could CBDCs facilitate dollarization in countries with weak institutions. Also, we should stay open to other fintech innovations, which may warrant experimentation through regulatory sandboxes.



## **The Role of the Fund**

Much of what I have discussed today strongly calls for increased information-sharing and international cooperation across the global regulatory community to share experiences and best practices in pursuit of more effective regulatory frameworks, especially as new technologies increasingly operate across borders. Institutions with universal membership like the IMF are well positioned to facilitate the global dialogue. The IMF will continue to remain fully engaged, carefully monitoring the implications of fintech for capital flows and cross-border spillovers.

## **Conclusion**

Digital payments have seemingly come of age, and they are offering us various alternatives to cash. Yet, the cashless or less-cash society, as appealing as it may sound, has so far remained elusive. But the tide could turn. Fintech innovations could provide ever more opportunities that favor digital payments. And as Swedish Riksbank Governor Ingves predicts, it is quite possible that soon *"we will almost exclusively be paying digitally, both in Sweden and in many parts of the world"*.

Authorities need to adapt their frameworks and build institutional capacity to effectively regulate new instruments and platforms to reap the benefits of fintech. Central banks should address challenges posed by private digital currencies and crypto-assets, and consider whether CBDCs may make sense, even if not immediately. The challenges posed by fintech warrant international cooperation. The IMF is prepared to facilitate this global dialogue.

Cash certainly has not been left behind for now. But, to quote a recent Nobel prize winner, *"the times they are a-changin"*. We must keep an open mind about fintech so that we do not get left behind.

Thank you.

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