

The end of cash: Why, when and how to flick the switch



Written by

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Foreword

written by EY

Why the move away from cash is about more than money

The transition to a cashless society is much heralded, but is it really inevitable or desired?

It is a complex concept that involves far more than money. The prospect of going cashless highlights how currency and transactions are increasingly and inextricably linked to identity. However, it also reflects how the increasing digitalization of our world can paradoxically open up opportunities for some groups while excluding others.

Globally, cashless transactions are on the rise, increasing their share of the payments mix each year. The seemingly progressive demise of cash presents significant opportunities, particularly for banks. Handling money, including maintaining ATMs, currently accounts for about 10% of banks' operating expenses. The potential for digital transactions to cut these costs, while allowing for new insights into how customers spend and save, is appealing. For governments and central banks, a cashless economy could help combat fraud and the money laundering that supports criminal activity, while providing information on monetary flows that could guide better policy.

But, the pace and nature of adopting cashless transactions differs across the world, partly because of different

technological approaches, as well as varying levels of cultural willingness to give up notes and coins. Trust is also an issue. Despite the proliferation of digital banking options, the customers we surveyed for our recent series of [reports on open banking](#) told us they are wary of sharing data with financial institutions and uncertain of the need for, and benefits of, online banking. Stronger cybersecurity and regulations are obvious measures to help overcome the trust barrier, but we have found that it's often those markets with the toughest laws, such as the UK, that have the most skeptical customers. The ability of financial institutions to inspire trust through innovation in cashless solutions may be a more effective way forward.

Certainly, technology-led innovation is helping bring financial services to the world's unbanked population for the first time. India's electronic Aadhar scheme, which uses biometric authentication to overcome know your customer (KYC) issues, has created digital identities for more than one billion people and helped increase the country's rates of financial inclusion.

However, India's overnight ban on some bank notes in 2016, which led to widespread panic, is also a cautionary tale of the downside of removing cash too quickly. Even in countries further along their cashless journey, there are concerns that removing notes and coins altogether may harm vulnerable groups, including the elderly, people with disabilities and rural communities with patchy internet access. Financial inclusion in a digital economy is a significant, complex issue that needs addressing carefully before we move further down the road to do away with cash.

In a cashless society, identity would be inextricably linked to financial participation, raising concerns around the wisdom of going entirely digital and prompting important questions around how digital data are managed and protected, as well as who actually owns our digital identities. As Mastercard's Mike Cowen suggests in this report, "degrees of validation"—where a consumer owns their own identity that is validated from multiple sources—may be a safer, more transparent and privacy-friendly option that also builds trust with consumers.

This is where we return to consumers. Although digital transactions are on the rise, cash is still king in many markets. Most consumers are not ready to completely do away with cash, and many merchants feel the same. The end of cash is a long way off.

In the meantime, and as this report highlights, the ongoing digitalization of

our economy must be done by carefully considering a range of complex issues. The benefits of going cashless are clear, but the risks of a transformation that is too fast or radical are real too. It is important that, even as cashless transactions increase, a range of payment options are available for different situations and to ensure

vulnerable consumer and business segments are not cut off from the economy and society. Digital systems must be safe and, critically, fair. Financial inclusion is a global imperative. It can be enabled by cashless options that help build a better working world, while unlocking new growth opportunities for banks.



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In a cashless world, access, identity and data issues are complex.

What does a cashless society mean for the **US\$1.7b** unbanked worldwide?

Will the 21st century see the rise of a cashless society? The introduction of credit cards, digital wallets and cryptocurrencies have led experts over the past decade to speculate on the progressive demise of physical money, with stakeholders such as banks, consumers and governments seemingly gaining from the change.

If the world went cashless tomorrow, banks may rejoice at no longer handling notes and coins, which can be counterfeited or stolen. Digital payments would also give banks and payment processors greater information on their customers' lifestyle.

For central banks, digital money could mean more insight into how money flows through the economy, with early warning signs possibly helping monetary policy function more efficiently.

But what of the US\$1.7b unbanked worldwide? If people rely entirely on cash, they cannot borrow to grow their businesses or improve life for their families, as cash-dependent often means credit-less.

The end of cash as an anonymous and accessible method of payment also raises vital concerns. The first is whether money, or specifically identity, ownership

and transactions, could and should go entirely digital. The second is ensuring the transition to digital money leaves no vulnerable populations behind.

A not-so-modern trend

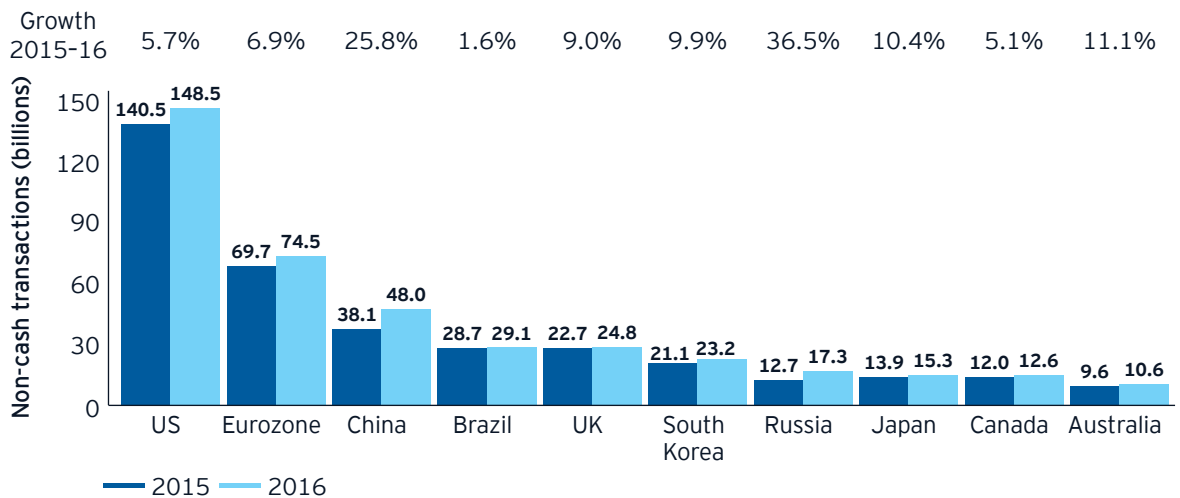
Cashless transactions are nothing new. Traders settled debts by checks in medieval Italy and Catalonia. For consumers, little changed in the intervening centuries until the first Diners Club charge card appeared in 1951. Mobile wallets later followed after Apple's iPhone launched in 2007.

Open banking, which opens up banking customer data to third-party developers, promises another revolution, with account-to-account payment services appearing across the European Union (EU).

Canada, Australia, Singapore and other nations are also breaking the control banks have on customer data, and allowing other licensed firms to initiate digital and mobile payments.

Non-cash payments are rising worldwide. Their volume jumped to US\$482.6b in 2016, growing on average by 10.1% globally, including a 25.2% upswing in emerging Asian countries.¹

Number of non-cash transactions in the top 10 market (billions), 2015-16



Note: Some numbers may differ from data published in WPR 2017 due to previous year data updated at the source.

Sources: Capgemini Financial Services Analysis, 2018; ECB Statistical Data Warehouse, 2016 figures released October 2017; BIS Red Book, 2016 figures released 2017; Countries' central bank annual reports, 2017.

¹ World Payment Report, Capgemini/BNP Paribas, 2018
<https://worldpaymentsreport.com/non-cash-payments-volume/#transactions-volume-top-10-markets>

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When India made certain banknotes illegal overnight, the population suddenly discovered that 86% of its cash was obsolete.

While these figures are impressive, cash still prevails. In fact, cash in circulation relative to GDP increased in 2018 to 9.6% across all continents, up from 8.1% in 2011.²

In Europe where payment infrastructure is efficient and increasingly cheap to use, the European Central Bank says household cash payments were €1.7t compared with €1.1t for cards. Seventy-nine percent of all point-of-sale transactions were still cash-based.³

While digital payments are becoming more widespread, going completely cashless is evidently not going to happen overnight.

Global drivers

When it comes to non-cash payments, not all markets have followed the same chronology or technology.

Asian countries, and their banks, are closely watching WeChat Pay and Alipay of China. The two platforms offer a mix of cheap, transactional functionality with shopping and lifestyle features. So quick has been their rise that the Chinese government is now curbing their near duopoly on mobile payments to address concerns and enhance control of monetary policy.

In the US, change has been slower paced. While electronic payments continue to grow, business payments still rely heavily on checks and only 53.5% of card transactions used modern Europay, Mastercard and Visa (EMV) chip and pin authentication in 2018.⁴ The Federal Reserve announced in August 2019 a new 24/7 real-time payment system, FedNow, an alternative to the large bank private-sector solution, Real Time Payments. However, the big banks have spent billions building their own network and fear the Fed as a potential competitor.⁵

In sub-Saharan Africa, swapping mobile phone credits began replacing cash in the early 2000s. The trend led to the creation in 2007 of M-Pesa, a mobile phone-based money transfer service in Kenya. Other countries have adopted the mobile money operator (MMO) model with various degrees of success.

In Latin America, many people are wary of traditional banks on cost or trust grounds, yet MMOs have gained far less traction. Governments are pushing electronic payments to enforce traceability and curb corruption. As FinTech firms offering low-cost payment services grab market share, mobile wallets may prove more popular than credit card- and bank account-based solutions.

Unintended consequences

There are many ways to digitize money and transactions, but they often come with unintended consequences.

When India made certain banknotes illegal overnight, the population suddenly discovered that 86% of its cash was obsolete.⁶ Digital transactions rose quickly, but not before widespread panic took hold. Banks and FinTechs are now battling fiercely, possibly unprofitably, to hold onto their new mobile payment app customers.

In Sweden, famed as one of the most cashless countries, the withdrawal of cash from bank branches has led to widespread political debate about exclusion.

Hanna Armelius, a senior adviser at the Sveriges Riksbank, thinks rural, older and disabled populations may be at risk if cash disappears too quickly. One concerned Swede has even raised the issue of

In the US, only
9.6%
of card
transactions
used modern
EMV chip
and pin
authentication
in 2018.

² World Cash Report, G4S, 2018
<https://www.g4scashreport.com/>

³ The use of cash by households in the euro area, European Central Bank, November 2017

⁴ EMV Deployment Map, EMVCo
<https://www.emvco.com/about/deployment-statistics>

⁵ Banks confront Fed on Faster Payments, Wall Street Journal, 4 August 2019
https://www.wsj.com/articles/banks-confront-fed-on-faster-financial-payments-11564911000?mod=article_inline

⁶ Early Lessons from India's Demonetization Experiment, Harvard business Review, 14 March 2017
<https://hbr.org/2017/03/early-lessons-from-indias-demonetization-experiment>

dyscalculia, which renders electronic numbers hard to read. The physical characteristics of bank notes are more easily distinguished, such as Greta Garbo featured on the blue 100kr note.

EU or national legislation could eventually provide for the disadvantaged via universal service obligations, as telecom and utility companies face in some countries. Private e-money providers may not like the terms.

“Will the regulation be enough? Will the private sector be able to handle all of that? It might not be profitable,” stresses Ms. Armelius.

A three-point plan

As David Birch, author of *Before Babylon, Beyond Bitcoin: From money we understand to money that understands* points out, few moves to cashless models have been planned from a top-down perspective.

He believes three issues need addressing. First, what does cashless actually look like? “Do you literally mean there is no cash? Does cash disappear from polite society and is only seen in the corners?” he asks.

Indeed, there are reasons for retaining the anonymity of cash. There are some that point to the benefits of cash’s autonomous nature; for example, for privacy reasons, some people will prefer to buy transport tickets with cash so they cannot be tracked.

But enforcing the continued use of cash, for good reasons or bad, also incurs a cost. Mr Birch suggests that retailers, such as those in San Francisco, should be compensated when they are legally forced to keep a cash option available.

That leads to Mr Birch’s second assertion: to ensure no citizen is left behind, a concerted action is required. A cashless strategy may come from the government and central bank, or be left to the private sector. Whichever route is chosen, all the existing and new payment “rails” have to work together.

Mr Birch’s third point is: “Who issues the money?” If a central bank starts creating e-money (see ‘Card declined’ case study), that is “pretty much the end of the story,” he suggests. Payment initiators and processors could then use the central bank’s infrastructure, providing access is fair and equal.

If it is left to the private sector, or if multiple currencies are allowed, competition and interoperability issues arise. If a single e-money issuer is dominant, its money has more use and, potentially, more value in the real world. In effect, the difference between the cost of producing that e-money and its face value (known as “seigniorage”) will vary between issuers, even if all new e-money is denominated in the same currency.

A case study

Card declined

In Mexico, the actual value of cash transactions is rising steadily, by 3.14% on average each year. The reason is simple: trust, or the lack of it.

Mexican banks are both card issuers and payment switch, a role usually handled separately by the likes of Visa, Mastercard or UnionPay of China. But bank rules disfavor merchants, allowing hundreds of thousands of unscrupulous buyers to unfairly claim back their online payments each month, where they usually win their case.

“The banks are still trying to push a system that invites fraud. For an online chargeback, the merchant needs an original signed receipt,” says Hector Cárdenas of Conekta, which handled US\$700m of e-commerce payments last year.⁷

Conekta circumvents the chargeback problem entirely, by allowing customers to buy goods online and pay in cash at 17,000 OXXO convenience stores. A QR code links to their online basket, letting merchants know they have been paid.

“I know that cash is not the best way, but it was the first step,” notes Mr Cárdenas.

Conekta has also built its own fraud detection system to help more businesses accept card payments. Without giving out names, Mr Cárdenas says the system has helped a large home delivery company reduce chargebacks from 31% to under 1%, and a ride-hailing firm from 10% to around 0.5%.

⁷ Comisión Nacional para la Protección y Defensa de los Usuarios de Servicios Financieros, retrieved 15 August 2019 <https://www.condusef.gob.mx/gbmx/documentos/comercio/por-producto-institucion.pdf>

The question of identity

Card and digital payments require holders to have a recognizable identity. Banks, card and e-wallet issuers must follow Know Your Customer (KYC) processes to onboard new clients, and ensure that anti-money laundering and combatting the financing of terrorism rules are followed when transactions are made.

Likewise, consumers need to know that their digital data and identities are safe. In some countries, governments have stepped up to provide universal digital IDs.

The Monetary Authority of Singapore built a public platform to allow citizens to store their personal data securely, called MyInfo. Users decide on the data they want to store, such as passport, nationality, income, profession and contact details. Crucially, users also decide which banks or government agencies can access their information.

In India, over one billion people now have an electronic Aadhaar identity. Financial institutions too can use it for electronic KYC procedures. But identity holders must consent, using biometric authentication or one-time-passwords sent to their phones.

Not everyone believes that digital IDs should be managed solely by governments, however. Mike Cowen, head of digital payments and labs for

Mastercard in the UK, Ireland, Nordics and Baltics, suggests “degrees of validation,” dependent on the level of authentication required.

In countries without national ID schemes, like the UK, Mr Cowen suggests it is already feasible to pull information from different sources in the private and public sectors to build a profile of each applicant.

“If no one entity is the owner of your identity, you own your identity with validation from multiple sources,” says Mr Cowen.

Mastercard has called for global standards for e-commerce security in the past, however. The company is part of a new global group working to identify gaps in existing technical specifications and increase compatibility among different technologies.⁸

The global battle

The form, legal basis and oversight of digital money will be a long-term battleground as personal behavior, expectations and technology evolve.

In Africa, efforts are being taken to join the silos of digital money that have built up between different MMOs and banks, and the separate pool of cash.

“Most of the merchants are in the informal sector and do not have a bank account,” explains Patrick.

A case study

How central should a central bank be?

Sweden’s Riksbank, the oldest central bank in the world, is examining the viability of an e-krona and the role the Riksbank should play.

Since 1904, the Riksbank has had the sole right to print money, while only private institutions can offer consumer and business account and transaction facilities. The Riksbank could offer direct access e-krona accounts if the laws were changed, maintaining a state presence in the market.

“There could be problems in the future with competition. We know that with the network effect, someone could gain a monopoly power, and until now cash may have had a disciplining effect,” says Hanna Armelius, senior adviser at the Riksbank.

The alternative might be to offer an electronic store of value, without direct accounts at the Riksbank. Such e-money is allowed under EU (and therefore domestic) law, but comes with restrictions. E-money issuers cannot offer interest payments, for example.

No decision has been made on whether the direct account or wallet should prevail if a decision to issue e-kronas is taken. The Riksbank has called on the private sector to help develop workable solutions by the end of 2020.

⁸ EMVCo, FIDO Alliance, and W3C Form Interest Group to Enhance Security and Interoperability of Web Payments, press release, 17 April 2019

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We will see some consolidation and integration of domestic schemes. Where we see state-of-the-art ACH systems, they are in patches. You don't tend to see 10 adjacent countries with a real-time ACH.

Mike Cowen
Head of Digital Payments and Labs for Mastercard in the UK, Ireland, Nordics and Baltics

Roussel, director of mobile financial services at telecoms major Orange. “They will have a mobile wallet, but most of the countries we operate in do not have interoperability [between different MMOs].”

Benin, Burkina Faso, Guinea-Bissau, Ivory Coast, Mali, Niger, Senegal and Togo share a common currency, the West African CFA Franc, a single central bank and banking regulation. New electronic money issuer rules allow non-banking firms, like Orange, to issue their own e-money for use across their shared territories. But, they must connect separately with each bank if they want to allow money to flow between accounts and e-wallets. Those one-to-one connections are inefficient.

“It is extremely costly and by definition excludes small mobile money operators who do not have the means to set up the IT projects to build three or four interoperability links with their peers,” says Mr Roussel. He emphasizes that Orange and rival MTN have proposed Mowali, a system that replaces one-to-one connections with one-to-many.

In Asia and the Nordic region, some countries are connecting their domestic one-to-many, real-time systems to allow cross-border money to flow quickly and cheaply. But a worldwide account-to-account automated clearinghouse (ACH) for US\$689b of annual global remittances⁹ is likely to be years, or even decades, away.

“We will see some consolidation and integration of domestic schemes,” says Mr Cowen of Mastercard. “Where we see state-of-the-art ACH systems, they are in patches. You don't tend to see 10 adjacent countries with a real-time ACH.”

He may have reason for doubt, of course. Credit card processors already operate their own global and profitable infrastructure. However, Mastercard recognizes that real-time ACH systems are increasingly part of the payments picture. It bought the UK's automated clearing, faster payments and

ATM network operator Vocalink in 2016,¹⁰ and the account-to-account payment arm of Denmark's Nets Group in August 2019.¹¹

Will these diversifications be enough for private-sector firms to retain their national and global roles? Cryptocurrencies, such as Bitcoin, that use distributed ledgers to validate transactions are already global. But they too face barriers, particularly their anonymity.

First, cryptocurrencies are not much use in the real world yet. Few locations accept them as payment and their value can fluctuate, sometimes wildly. Second, anonymity is not a feature that governments and regulators tolerate for long. Cryptocurrency operators increasingly have to seek licenses and conduct KYC checks on users. They may also struggle to monitor transactions for money laundering.

Facebook has recognized that there are significant barriers to its plans to establish a global digital currency, Libra, and digital wallet, Calibra. In a recent filing by the US Securities and Exchange Commission, it said regulation “may delay or impede the launch of the Libra currency as well as...increase our operating costs.”

If Libra does launch, there is no guarantee that significant numbers of people will want to use it, or that businesses will accept the currency in the digital and real world. And as Facebook admits, “We do not have significant prior experience with digital currency or blockchain technology.”

A global digital currency governed by the public sector and backed by an international coalition of central banks may be more realistic. As Mark Carney, Bank of England governor, pointed out during a speech at the Jackson Hole Symposium 2019, such a “synthetic hegemonic currency” could replace the US dollar as the global reserve currency and help stabilize financial systems.¹²

⁹ Record High Remittances Sent Globally in 2018, The World Bank, 8 April 2019
<https://www.worldbank.org/en/news/press-release/2019/04/08/record-high-remittances-sent-globally-in-2018>

¹⁰ MasterCard Announces Acquisition of Vocalink, MasterCard, 21 July 2016
<https://newsroom.mastercard.com/press-releases/mastercard-announces-acquisition-of-vocalink>

¹¹ Mastercard Advances Its Leadership Position as a Multi-Rail Payments Company with the Acquisition of Nets' Account-to-Account Payment Business, MasterCard, 6 August 2019
<https://newsroom.mastercard.com/press-releases/mastercard-advances-its-leadership-position-as-a-multi-rail-payments-company-with-the-acquisition-of-nets-account-to-account-payment-business>

¹² <https://www.finextra.com/newsarticle/34312/carney-digital-currencies-could-counter-the-destabilising-influence-of-the-us-dollar>

Conclusion

Fair, open and dependable.

Cash is costly. Retailers and banks spend millions of dollars storing it, counting it and moving it around the system. Cash-dependent citizens face robbery and higher ATM fees in underbanked areas. As cash usage falls, the fixed cost per transaction, for counting and storing money, or maintaining ATMs, rises.

The prevalence of cash is also a burden for governments. Cash circulating in the black economy is not taxed or monitored. Some US\$800b to US\$2t is laundered globally every year,¹³ lowering the tax take and supporting crime, human trafficking and terrorism.

While a cashless society makes sense on many levels, there are hazards in pushing for transformation too hard and too fast. People have an emotional attachment to cash, nudging some French town halls to €1,500 per month to retain ATMs, even though few people use them.¹⁴ Regulators must ensure cashless doesn't cut off vulnerable populations and small, low-value transaction businesses from society and the economy.

As Mr Cowen from Mastercard points out, "there have to be suitable payment options for every environment."

Digital systems must also be fair and safe. Those who want to use them will require control over their identities and how their data are used. In this respect, Europe's data and open banking rules set global standards.

Central banks and supervisory agencies may also need to ensure that infrastructure works reliably and is provided with fair access. The Bank of England recently opened its settlement system to FinTech firms, when previously only banks could access the fast and cheap network.

Other central banks may follow suit, with a focus on money laundering or cyber-security risks. Policymakers will also need to ensure that dominant payment platforms, whether public or private, do not hurt the competition or their own users.

Whatever cashless systems emerge, educating every stakeholder will be paramount. Merchants, customers, family and friends will have to learn how to use their digital wallets, cards and apps, and to keep their precious personal financial information safe.

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US\$800b to US\$2t is laundered globally every year supporting crime, human trafficking and terrorism.

¹³ Money-Laundering and Globalization
<https://www.unodc.org/unodc/en/money-laundering/globalization.html>

¹⁴ Will French towns pay for their ATMs?, Cash Essentials, 5 August 2019
<https://cashesentials.org/news/will-french-towns-pay-for-their-atms>

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