

The Data of Money

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*For those trying to understand the implications of 'cashless society':
The battle is not 'cash vs. card' or 'cash vs. pin' or 'cash vs. mobile'.
It's cash vs. corporate datacentres – Brett Scott¹*

Surveillance capitalism thrives on data, big data. Data is the strategic asset, which is used to market further goods and services. Data has always been a crucial element of finance as an input for trading, pricing, and so on. Much has been written about the monetisation of data, but in this essay I discuss the data of money. More precisely, I focus on the geopolitics of the data of payment systems and the opportunities for digital sovereignty.²

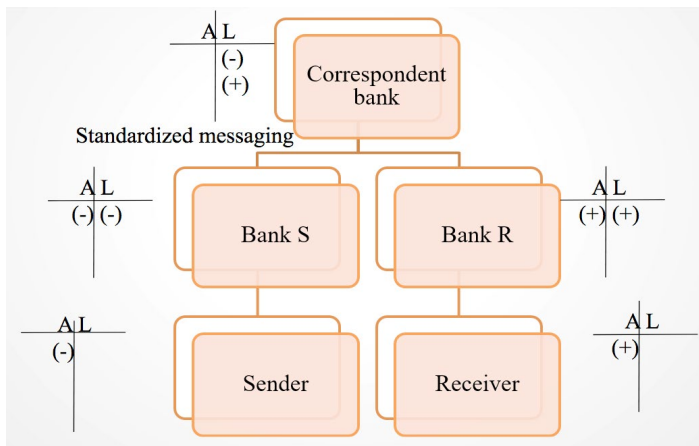
Origins of the data of money

When the convention of double-entry accounting was born in Renaissance Italy, most probably in Venice, so was bank-issued book money.³ Florentine banks perfected how book money was accounted for and transferred.⁴ Money existed as a social relationship recorded in the banks' books. While each client knew her or his own records, the bankers had access to *all* the clients' money holdings and *all* the history of their money transfers. Furthermore, powerful banks kept a *libro segreto*, a secret book of accounts hidden away from state audit.⁵

With the foundation of the Wisselbank of Amsterdam in 1609 – the first government-owned quasi-central bank – *international interbank book money* was born: the banco guilder. Others, from a contemporary perspective, have named it the euro-florin.⁶ Banks from different city-states in Europe deposited their commodity-money at the Wisselbank to facilitate exchange and settlement in a central – or, rather, a *common* – location. The Wisselbank of Amsterdam's privileged position allowed it to have not only more liquidity,⁷ but also more *information*, which led it to become the world's trade and finance centre.⁸

The fact that other banks deposited their money at the Wisselbank is a key concept, because payment systems always function as a *hierarchically triangular relationship*.⁹ This relationship is depicted in Figure 1.

Figure 1: Interbank payment triangular relationship



A represents Assets and L liabilities. Whichever is the bank at the apex of the pyramid has the most liquidity, but also the most *information*. It witnesses the transactions that occur below it. The bank at the top of the pyramid worries the least about bank runs, because financial transactions are only records on its books (liabilities). This is what former French Finance Minister – and subsequent President – Valéry Giscard d’Estaing referred to as ‘the exorbitant privilege’.

Digital sovereignty of payment systems

The apex of the pyramid in today’s world is the US Federal Reserve, the issuer of dollars. In other words, banks from around the world have accounts at banks that have accounts at the New York Fed. Even the world’s largest central banks resort to the New York Fed when in need of liquidity.¹⁰ This is why the US can exert its unipolar and hegemonic status with financial sanctions by the Office of Foreign Assets Control or by New York courts.¹¹

In today’s world, the messages that flow from the base of the pyramid to the top and back down again use three types of software. For an *intra*bank transaction – meaning that the transfer occurs within the bank – it uses the bank’s proprietary messaging software: a set of straightforward accounting instructions that alter that one bank’s books. Those systems are usually digitally sovereign because they are suited to domestic regulatory requirements with constant adaptations with in-house or close providers. When it is an *inter*-bank transaction, the banks predominantly use the central bank’s state-owned and digitally sovereign regulated messaging service software: in the US it would be the FedWire, in the eurozone it would be Target2, in Ecuador it is called SNP. Increasingly, more payments (such as credit and debit cards) are channelled via Automatic Clearing Houses (ACH), which are usually consortium-based private entities with their own technology, but with relatively rigorous oversight by central banks.

For *international* transactions between any two banks in the world, the software used is SWIFT. However, SWIFT is owned by private firms and although it is based in Belgium, its majority stake is controlled by US banks. Its message protocols are open and available as ISO 20022 standards. It is analogous to saying that e-mail protocols are open but the software to use them is privatized by a global monopoly that charges a fee for every e-mail sent. SWIFT is obviously not digitally sovereign, but could be seen as a pillar of contemporary *digital colonialism*.¹² There are retail cross-border

payments known as remittances that usually bypass the banking system. International remittance businesses are private, use proprietary technology for the retail operations as an international ACH would do, and usually settle their affiliates' net accounts with wholesale SWIFT transactions.

Geopolitics of the data of payment systems

For all practical purposes, the US government has broad and unrestricted access to almost *all* international cross-border transactions by accessing SWIFT data. In 2009, the US exerted its geopolitical influence directly when the EU was forced to issue a directive¹³ specifically to share SWIFT *data* with the US government.¹⁴ In fact, during the Obama Administration, the US government established extraterritorial file transfer protocols (FTPs) with basically *all the banks in the world*.¹⁵ For now, this 'International Data Exchange Service' is used in order to receive data on US persons' finances. In a global economic system based on money, this kind of global surveillance by only one government is a major issue.¹⁶ SWIFT itself has recently decided to embark on surveillance capitalism. In September 2018, SWIFT created a new institutional Head of *Data Analytics*. The person appointed to lead this division is a *former Google global security and compliance strategist* and an advisory member to the European Agency for Network and Information Security.¹⁷

The international remittance market is populated by many small firms and a few dominant US firms: Western Union, Moneygram and Euronet (Ria). The data for hundreds of millions of international transactions per year is stored by these companies. Due to the USA PATRIOT Act, they must be made available to the US government agencies. In 2015, PayPal acquired a growing provider, Xoom, to 'strengthen its international business'.¹⁸ In 2018, the US Committee of Foreign Investment rejected the intended purchase of MoneyGram by Jack Ma's Chinese firm Ant Financial (provider of Alipay). Reuters cites concerns over *safety of data* and lobbying by Euronet.¹⁹

However, despite their crucial importance, the volume of cross-border transactions is dwarfed by the number of domestic interbank payments, by digital and cash payments. The scale of selected countries' payments is shown in Table 1.

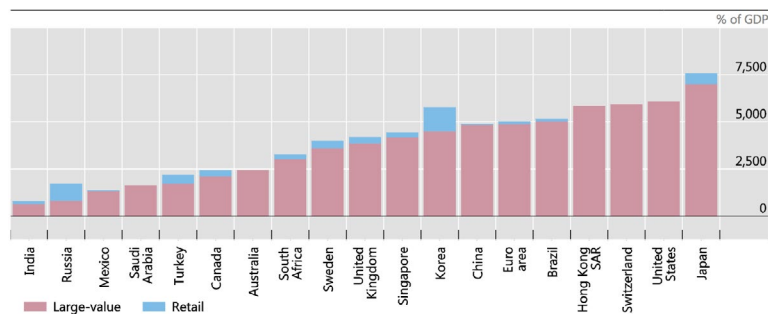
Table 1: Payments by type, selected countries (in number of transactions)

Country	SWIFT: Cross-border	Domestic non-cash
Brazil	24 million	31 billion
China	53 million	134 billion
Germany	440 million	21 billion

Source: BIS, 2018

In terms of the domestic interbank payment systems, national central banks consider these a key asset and *raison d'être*, making it unlikely that they would be privatised or outsourced abroad. They manage billions of transactions a year. However, to my knowledge, most central banks *do not use these data* in any meaningful way except for simple arithmetic to determine net positions for clearing and settlement. The abundant data is grossly underused.

Figure 2: The value of payments dwarfs GDP¹



¹ The volume of payments in a country's large value payment system reflects many factors, including the structure of the banking system, access policies or other requirements. The figures in the graph are indicative of the orders of magnitude of a country's payments, but not lend themselves to straightforward cross-country comparisons.

Source: CPMI (2017).

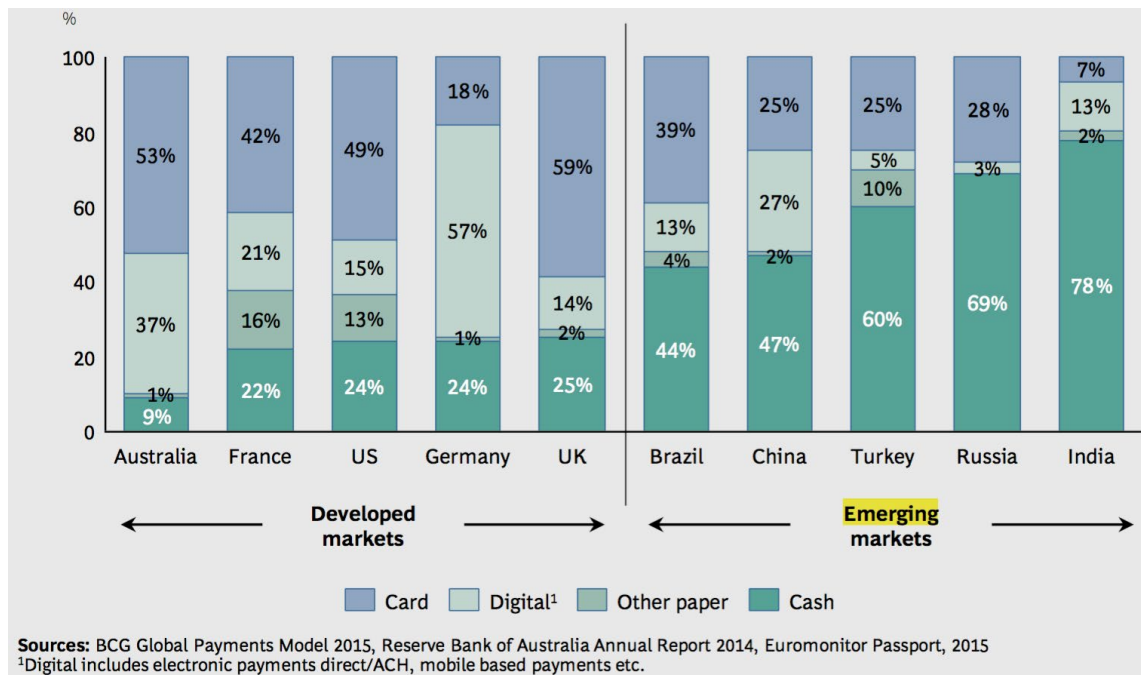
Source: Borio, 2018.

The US government also has access to most of the world's plastic (credit and debit card) money data. Because Visa and Mastercard, the dominant US companies with a combined 81 per cent of global market share,²⁰ store a copy of the financial information in their US corporate datacentres, the US government can lawfully access this information. A Canadian government agency confirmed that a Canadian bank's Visa operations are stored in US servers.²¹ 'As recently as a couple of years ago, Visa's stated policy was to keep all data-processing facilities within US borders, a policy that was evidently made obsolete when the company began its acquisition of Visa Europe in 2015' and its new datacentre in Singapore.²² Visa informed the UK parliament that they 'operate two redundant data centres in the UK, meaning that either one can independently handle 100 percent of the transactions for Visa in Europe'.²³ MasterCard's global transactions are stored and run in its US datacentres.²⁴ This is so even if a foreign bank issues the card and the money is spent in other countries. The US government is keen on opposing data localisation for plastic money. In fact, US senators urged the Indian central bank to undo its very recent plastic money data localisation rule.²⁵

In addition, cross-border spending of the plastic money – at least in the case of payments to and from Ecuador – is settled in US and UK banks.²⁶ With settlement comes data for each of those transactions.

Most transactions, however – at least outside rich countries – are settled in *cash*. With cash, there is no such triangular relationship. Data for person-to-person (P2P), person-to-business (P2B and B2P) and business-to-business (B2B) cash payments simply do not, and *cannot*, exist in centralised datacentres. The largest potential for *data of money* comes from substituting cash payments with triangular electronic payments. A MasterCard executive confirms this: 'When you look at payments overall, the biggest opportunity we have is not against another payment process. It's with cash and check, because the majority of all payment transactions are still done via cash and check. You see it declining at a very fast rate every year. But today over half of the transactions are cash and check'.²⁷ In fact, MasterCard has formed 'an independent subsidiary... [that] combines expertise, data, technology, and philanthropic investments' to make use of this harvested *data for philanthropic purposes*.²⁸

Figure 3: Payment instrument mix for countries in 2015



Source: BCG and Google, 2016

USAID, the US bilateral aid agency, along with US philanthro-capitalists led by the Bill & Melinda Gates Foundation, have embarked on a mission to harvest and access billions of untapped transaction data for 'digital profiling', i.e. surveillance capitalism purposes.²⁹ They created an organisation called 'Better Than Cash Alliance', now led by Visa and MasterCard, to 'dwindle the usage of cash'.³⁰ Recent events in India serve as a good example of this agenda.

Demonetisation was anticipated as part of the Digital India vision in mid-2014: 'All financial transactions above a threshold shall be made electronic & cashless'.³¹ Given its size and considering the lack of access of US firms to the Chinese payments' market, the US government and the Gates Foundation were very active in promoting demonetisation in India even as early as 2013.³² Boston Consulting Group and Google issued a report that called the Indian payments' market a '\$500 Billion Pot of Gold' shortly before the government's announcement.³³ While for average Indians demonetisation was regarded as a catastrophic failure, for the members of the Better Than Cash Alliance it was a success.³⁴ The globally dominant issuers of plastic money, the US firms Visa and MasterCard, greatly benefited from the demonetisation experiment in India.³⁵

The only significant country that has been successful and strategic in exercising sovereign protectionism of their payment systems – and its data – is China. The People's Bank of China (PBOC) has expressly protected its market for payments services. First, it granted monopoly rights to UnionPay, the national state-owned plastic money champion.³⁶ Then, after losing a World Trade Organization (WTO) dispute, by not complying with it.³⁷ After several years, it agreed bilaterally with the US to extend compliance with the WTO ruling.³⁸ Finally, when MasterCard and Visa were ready to enter the Chinese market, the PBOC changed its regulatory technical standard for payment processing.³⁹ In November 2018, the PBOC approved the entry of American Express, another US firm, but as a 50:50 joint venture with a Chinese fintech firm.⁴⁰

Given the path of internet-based and mobile technologies, plastic money is projected to become less relevant than electronic payments. Therefore, USAID, Citibank and Omidyar are pushing for commercial bank-led mobile and online electronic payments as another alternative to cash, under the umbrella of financial inclusion. Omidyar is the philanthropic wing of PayPal, the largest US e-payment firm. Citibank pushed aggressively to promote non-bank branches, but they were quickly overtaken by mobile technology. Besides PayPal, and after several failures, there are no clear US leaders in the global mobile and e-payment international markets.

Chinese private firms WeChat (Tenpay) and Alipay are the large players (40 per cent and 54 per cent of the Chinese market, respectively) that are ready for global expansion in the mobile and electronic payment markets. Each of these companies was the apex for each of their pyramid networks and harvested the payments data successfully into insurance, credit-scoring and even loans. The PBOC recently created a multi-stakeholder clearing service for mobile and online payments called Nets Union; it is now the Chinese government that hovers at the top of the pyramid. According to *Forbes*: 'Until recently, information about capital flow was tightly guarded by third-party payment companies and was only used for targeted marketing and credit scoring, which bypassed the regulator... it would require Tenpay and Alipay to disclose valuable data to the government and competitors, both benefiting smaller payment providers'.⁴¹

Digital cash as digital sovereignty

As shown, international cross-border payments are currently US-centric. An open-source alternative to SWIFT and, possibly, certain distributed ledger technologies could advance an international payment system of the global digital commons. However, in the short term, digital sovereignty in cross-border payments seems distant, unless sanctions on Iran cause BRICS and the EU to unite in establishing alternative systems.⁴² In terms of plastic money, because of the US incumbents and their private global standards, apart from data localisation, there is very little space for digital sovereignty.

However, in terms of interbank payments and electronic and mobile payments, there are untapped opportunities for digital commons and digital sovereignty. Central banks could open the underused data – with rights-enabled privacy protections – to promote domestic research and innovation. Central banks could also open APIs that democratise the national payment systems to domestic (state-led) champions so that alternatives to the US-dominated monopolies can thrive, at least initially, in domestic markets.⁴³ The national champions could be digital commons initiatives led by numerous credit unions and financial co-operatives that exist all over the world. Between 2009 and 2011, the Central Bank of Ecuador approved 123 rural co-operatives to access the SNP, thus significantly increasing the number of stakeholders of the digitally sovereign payment system. Currently, over 400 co-operatives access the SNP.

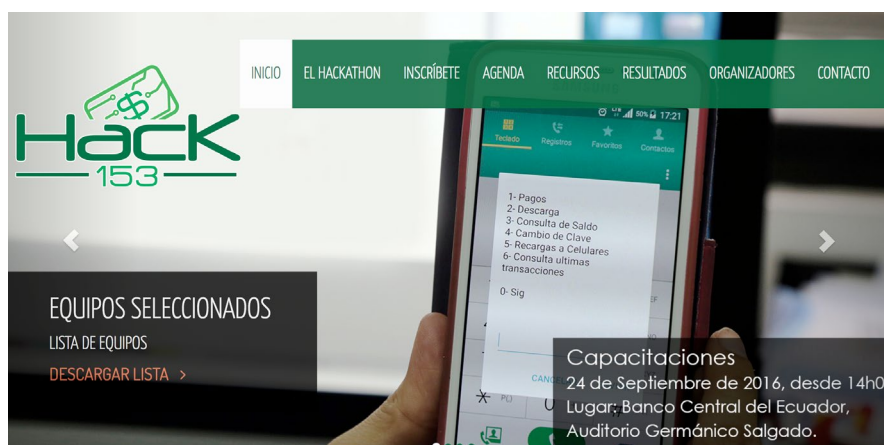
Central banks should not be passive. Rather, they should promote central bank-issued mobile-powered digital currencies. Many governments are already looking into it, but fear a backlash from the power of commercial banks.⁴⁴ After reiterated warnings by the BIS⁴⁵ and after this author received outright negative comments from the World Bank's Payment Systems chief Massimo Cirasino in 2011, IMF Director Christine Lagarde has recently stated: 'Today, we are releasing a new paper on the pros and cons of central bank digital currency... I believe we should consider

the possibility to issue digital currency.⁴⁶ There may be a role for the state to supply money to the digital economy'.⁴⁷ The IMF paper cited by Lagarde argues that

Modern payment systems are often operated by a few commercial banks and by even fewer clearinghouses and messaging services. Payment systems tend to become natural monopolies. This reflects... significant gains from aggregating data, which – to an individual – is worth little. However, private monopolistic providers will tend to offer inadequate and expensive services and could take unfair advantage of data. The prevalence of cash as an attractive and low-cost competitor may have limited the monopoly power of private monies. In the future, if antitrust regulation and data protection prove insufficient, CBDC could serve that same purpose.⁴⁸

Ecuador did it – the Central Bank issued sovereign digital cash. Adoption grew very quickly, but transaction use grew at slower pace. In the spirit of democratic accountability, digital commons and digital sovereignty, the Central Bank of Ecuador, together with Science and Knowledge Ministries, ran a hackathon pilot and was the world's first central bank to open and publish the digital cash platform's standards and establish an API for innovators to develop new solutions for rural financial access, transport, web applications and so on.⁴⁹

Figure 4: Screenshots for the electronic money hackathon



Source: Hack 153, 2016

In early 2018, the Central Bank Digital Cash was discontinued by Lenin Moreno after political pressure from the banks. Fortunately, the infrastructure is intact and the regulation straightforward to restore. Democratic suspicion of banks will make way for the return of sovereign digital cash.

This is an essay that accompanies the State of Power 2019 report (www.tni.org/stateofpower2019) as recommended reading. TNI has copyedited the essay and is pleased to share it but does not necessarily endorse or agree with all the views within it.

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Endnotes

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2. Avila, 2018.
3. Yamey, 1949: 101; Brown, 1968/2013: 120.
4. Soll, 2014: Ch.3.
5. Soll, 2014: 53.
6. Gilliard, 2004: 142.
7. Jonker, 2004.
8. Gilliard, 2004: 245, 255-262; Smith, 1984.
9. Graziani, 2003: 73-77.
10. Fed, 2018.
11. Zarate, 2013.
12. Avila, 2018.
13. Processing of EU originating Personal Data by United States Treasury Department for Counter Terrorism Purposes - 'SWIFT' (2007/C 166/09).
14. Zarate, 2013.
15. IRS, 2018.
16. In 2018, the US unilaterally reinstated sanctions on Iran and forced SWIFT, defined as a US person for this specific occasion, to comply with US sanctions and de facto disconnect Iran from the international money transferring system. Banks have the duty to comply with the sanctions and freeze them on behalf of OFAC even if the money is only passing through. Non-US banks are deterred from engaging with those on US sanctions lists for fear of being sanctioned. Atlanta Fed, 2011; OFAC, 2014, 2018.
17. SWIFT, 2018.
18. *Forbes*, 2015.
19. *Reuters*, 2018.
20. Nilson, 2017.
21. OPC, 2005.
22. Hall, 2017.
23. Hogg, 2018.
24. Reeg, 2008.
25. Kalra, 2018.
26. The average transaction was USD 6600 to the US and USD 300 to the UK, compared to the average transaction to Germany of USD 168,500. The difference is two orders of magnitude, making it straightforward to conclude that the transfers to the US and the UK are retail transfers, i.e. plastic money. Arauz, 2018.
27. Reeg, 2008.
28. Macnee, 2017.
29. Kumar and Muhota, 2012 quoted in McRee, 2015.
30. McRee, 2015.
31. DeitY, 2014.
32. Haering, 2017a, 2017b
33. Boston Consulting Group and Google, 2016.
34. Kumar, 2017; Haering, 2018; Manish, 2017.
35. MeitY, 2018.
36. WTO, 2012.
37. WTO, 2013a.
38. WTO, 2013b.
39. Russel, 2015.
40. *WSJ*, 2018.
41. *Forbes*, 2017.
42. Between 2008 and 2010, Ecuador took the initiative for a regional payment system with other Latin American countries to try to overcome the excessive reliance on the US financial system. Ecuador also pushed for reforms at the UN and at the IMF to establish a payment system based on the IMF's quasi currency called the Special Drawing Right (SDR). SUCRE, 2010; UN, 2009: 115.
43. India's state-led Bharat Interface for Money Unified Payments Interface and data localisation for plastic money payments could be an option that pushes in the direction of digital sovereignty. BHIM UPI, 2018; Singh and Narayanan, 2018.
44. Kaminska, 2016.
45. BIS, 2017; Houben et al., 2018
46. Curiously, also very recently, the IMF staff recommended against the Marshall Islands' decentralised digital SOV currency initiative. IMF, 2018.
47. Lagarde, 2018.
48. Mancini, 2018: 19.
49. Hack153, 2016.

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