5.3 Discussion of Chapter 4, "Digital money, payments and banks", by Dirk Niepelt

The chapter offers a rich overview of the dramatic changes in the world of money and banking that we have seen in recent years. Case-study like, it discusses various facets of that ongoing revolution – including developments in technology, the monetary architecture, the product space, and regulation – and draws conclusions for the competitive landscape that banks will have to navigate.

This landscape is going to differ across regions and segments. In countries with well-developed retail banks, FinTech and BigTech firms will continue to make inroads in the payments business, but less so in finance proper. Where central banks and commercial banks have worked to upgrade their payment systems (in the West, possibly with the exception of the United States), the incumbents will better be able to defend their market shares. In countries with less regulation or less developed banking systems, FinTech and BigTech will substantially change the industry structure if they have not already done so. China is the leading example.

In the process of motivating these conclusions, the chapter discusses many products, services, and firms that have emerged in the last few years. For the uninitiated who seek to connect the dots and to relate the daily news flow to the underlying trends, this is very helpful. I learned a lot. In my discussion, I will be much narrower. I want to focus on two themes in the chapter: the nature of money and how it relates to these developments, and the government's response to the structural changes we observe.

Money

Money is an asset, albeit a special one. Its price reflects a fundamental value as well as two bubble components. The fundamental value is strictly positive when money pays dividends in the form of some other security or commodity.[265] The first bubble component – I will call it the 'store-of-value bubble' component – may be strictly positive when the interest rates of alternative stores of value are low relative to the growth rate, or when risk is high.[266] And the second bubble component – I will refer to it as the 'liquidity bubble' component – reflects money's usefulness in providing liquidity, that is in relaxing means-of-payment constraints.[267] Only monetary assets feature a liquidity bubble. If the liquidity bubble is strictly positive, then this also affects the discount factor and therefore the fundamental value.[268]

Three points on how the observed changes in money and banking relate to these three components of the price of money. The first point concerns the practical importance of the legal tender concept. As discussed in the chapter, this concept is quite opaque since agents generally are not obliged to use government money to discharge their debts. More and more often, businesses rule out payment in government money (cash) for security reasons or to lower transaction costs. The

265 The price of the other security may itself contain a bubble component.
266 Samuelson (1958); Bewley (1980); Townsend (1980); Wallace (1980).
267 See, for example, Clower (1967). The liquidity bubble component can alternatively be viewed as a fundamental value where the dividends correspond to shadow values of liquidity constraints that the money helps to relax.
268 Brunnermeier and Niepelt (2019); Niepelt (2019).

most extreme instance of this development is that governments themselves no longer accept government money. A German journalist has challenged the public broadcaster in court to gain the right to pay his dues in cash – the legal tender. The Federal Administrative Court is sympathetic but has deferred the case and requested guidance from the European Court of Justice.[269]

Less extreme but in a similar vein, governments force consumers and businesses to use privately issued monies - typically bank liabilities – for payments whose amount exceeds a certain threshold, often less than a monthly salary. While these restrictions may be well intended (to fight money laundering, tax evasion, or terrorist financing) they have led to the absurd situation that the government outlaws the use of government money – the exact opposite of the premise of certain theories of money. According to these theories, it is crucial for the value of government money that everybody must accept it or use it for tax payments.

This leads me to the second, related point, which is on the role of trust. Both the store-of-value bubble and the liquidity bubble rely on expectations that the money will be accepted in the future. In some equilibria, agents hold these expectations and the expectations are confirmed; in others, the opposite holds true and the bubble components collapse to zero. What does it take to coordinate expectations on the 'good' equilibrium, especially when the legal tender concept does not provide much support?

This issue has become first-order for central banks like the Riksbank that worry about the prospect of a financial system in which consumers no longer come into contact with government money because cash has disappeared and only banks have access to digital government money. Does trust in government money require tangibility, or at least direct access? Or can central banks hope to steer monetary conditions even in a 'cashless limit' where consumers only use privately issued means of payment and banks need not hold minimum reserves? I have my doubts. The reaction of policy makers worldwide to the Libra project, which aims at a convenient global payment instrument, suggests that I am not alone.

My third point concerns the effect of technological change on money, a core theme in the report. The chapter is very clear about the fact that modern money is defined with respect to a payment technology. Accordingly, new payment technologies give rise to new forms of money. For example, when only specific distributed ledgers offer 'pseudo anonymity' for transactions, and such transactions create private value, then cryptocurrencies that operate on these ledgers may be valuable due to their liquidity bubble component. (Or they may not be valuable when investors fear that the pseudo anonymity is in danger or that a better coin is about to appear and conquer the market.) Similarly, cryptocurrencies might have value because of a strictly positive store-of-value bubble component if the currency constitutes the only available store of value subject to anonymity restrictions.

Convenience surely is a much more common factor for the valuation of new monies than pseudo anonymity. Since some novel payment technologies offer more convenience, FinTech businesses which push them have convinced consumers to store real balances with them, even if the financial return on these balances is dominated. But this process could revert. On the one hand, it is easier to create new monies when interest rates are low such that a small convenience

269 See https://norberthaering.de/en/my-ecj-courtcase-on-cash/timeline/.

yield (supporting a liquidity bubble component) suffices to compensate for the return disadvantage. On the other hand, new technology could (and already does) turn existing securities into monies and thereby undermine the demand for new forms of real balances.

To make this happen, technology must enable contracting parties to simultaneously settle two legs of a transaction, thereby eliminating credit and price risk. The seller and the buyer have to agree on the quantity of commodities or securities sold and on their price, expressed in some unit of account. They must define the time at which the transaction is to take place. And then it is up to the payment technology to charge the buyer whatever quantity of her securities corresponds to the contracted price at the agreed time. In the limit, the payment technology collapses to a smart contract tied to a database that registers ownership.[270]

Government response

The accelerating digitalisation of many areas in society reflects novel technological possibilities and shifting consumer preferences. It challenges governments in multiple ways, of which Figure 1 highlights a few areas. Without discussing them in detail, let me just mention some: legal aspects (e.g., related to the definition of identity and property); the cloud and its implications for contagion and national security; increasing returns to scale due to interoperability and the consequences for market structure, product quality, and regulation; skills and the risks due to digital illiteracy and unequal opportunities; and information, which becomes more and more abundant but partly also more asymmetric, affecting efficiency, liquidity, and privacy.

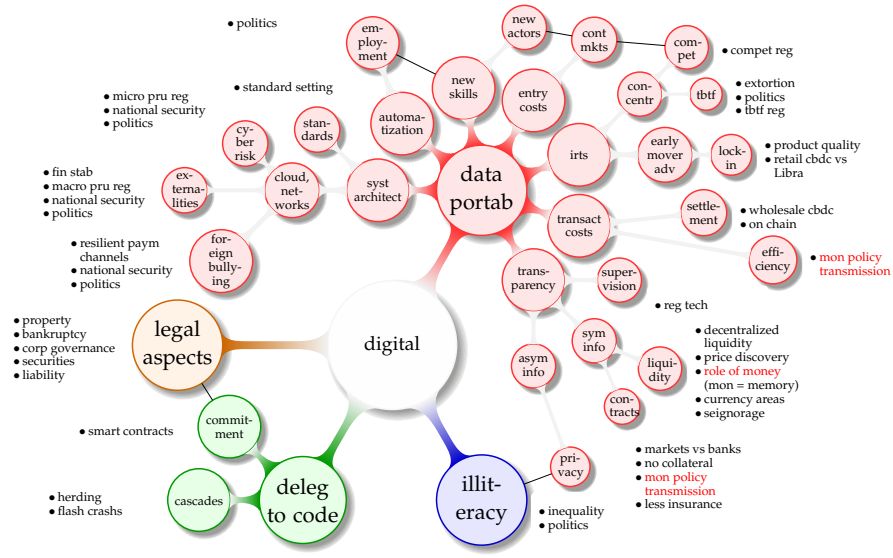
Against this background, it is not surprising that regulation in banking and finance has barely been able to keep up. This might have been a disadvantage for firms which are used to operating within the boundaries of a clear regulatory framework (think of banks). And it might have helped start-ups which are small enough to benefit from sandboxes or negligence and BigTech firms which have expanded their operations without being subjected to stringent new regulatory frameworks. The chapter discusses that the intersection between competition law and financial regulation warrants further attention. Similarly, the intersection between financial regulation and consumer protection, specifically concerning privacy, warrants such attention.

The time lag between the origination of new business models and the regulatory catch-up will give rise to permanent structural change in the banking sector. As the chapter discusses, some activities are less affected (e.g., the deposit-taking business) because the traditional players are well positioned to defend their market shares. Other activities (mainly in payments) are more vulnerable because the agile new entrants exploit synergies with platform businesses and social networks.[271] We will see more of that, specifically in regions with archaic payment systems.

270 Kocherlakota (1998).

271 An interesting question is why the incumbents do not respond in kind. Banks and credit card companies hold vast amounts of information about their clients but they do not exploit them in ways comparable to the technology firms entering their turf. Maybe banks and credit card companies simply lack technical expertise. Alternatively, they might be more constrained by the regulatory framework.

Figure 1



Among the many challenges that legislators and regulators face, the biggest might concern the question of whether central banks should issue central bank digital currency (CBDC) or, in my preferred language, 'reserves for all'. The chapter discusses several arguments in favour of CBDC. Let me expand a bit, because I believe that the issue is key.[272] Regulatory adjustments come and go, but 'reserves for all' would change the financial system fundamentally, at its core.

We have already encountered two arguments in favour of CBDC. First, if trust in a currency requires tangibility or, at a minimum, direct access, then CBDC is a prerequisite in cashless societies for citizens' trust in government money, and by implication for sound and stable money.[273] And second, CBDC would correct the awkward situation that many governments outlaw the usage of government money for common transactions. But there are more potential advantages.

CBDC would spur competition in the payment industry. This would also lower transaction costs for international payments where lack of competition (often due to regulation), not technology is the bottleneck.

CBDC would strengthen the monetary policy transmission channel. Changes in central bank policy rates would more directly feed through to the rates faced by households and firms. In contrast, today deposit rates barely respond to monetary policy.[274]

272 The following discussion partly draws on Niepelt (2020a).
273 Landau (2019).
274 Drechsler et al. (2017).

CBDC would reduce the 'too big to fail' problem. One motivation to support struggling banks derives from the fact that bank failure puts strain on the payment system – a key pillar of the economy. Since payment system failure is not an option, so is bank failure. If many households and firms transacted using CBDC rather than deposits, the social cost of bank failure would be lower and so would be the motivation to provide state support. With less need for state support, regulatory constraints on banks could be relaxed.[275]

Finally, CBDC would help to protect monetary sovereignty. True, it takes a lot for society to abandon the national currency. But if digital payment instruments issued by other monetary authorities (or a private intermediary like the Libra association) offer much more convenience or safety, a tipping point is reached and the local currency is dumped, as is well known from the "dollarization" experience in countries with weak monetary institutions.[276] Countries issuing their "own" CBDC (without restricting other payment options like cash transactions) likely are less prone to suffering from dollarization and its consequences, including losses in seigniorage, monetary autonomy, and national security.[277]

The risks of CBDC are not fundamentally macroeconomic in nature, although this is a common concern. When issuing CBDC (without simultaneously retiring other liabilities) the central bank raises funds and as a matter of accounting these funds must be invested somewhere.[278] One option is to pass them on to the banking sector, thereby insulating bank balance sheets even if households or firms shift funds from deposits to CBDC. In fact, the central bank can shield not only banks in this way but the whole economy, and in doing so need not get involved with credit allocation to main street. This holds true under broad conditions.[279] It entails that, at the margin, deposit-based payments can be substituted by CBDC-based payments and both means of payment require the same amount of resources. This seems plausible.

CBDC could change macroeconomic outcomes if the central bank chose not to pass the funds through to commercial banks but to invest them elsewhere, for instance due to political constraints or in order to discourage political interference.[280] After all, a longer central bank balance sheet could invite lobbying from special interest groups. And a pass-through policy would also make the distributive effects of the monetary system more transparent, which could strengthen the resistance against bank support or, to the contrary, the support for bank subsidies if they were perceived to relax funding constraints for households and firms.

There are more subtle political risks. Network effects might undermine the user base of cash once CBDC is introduced[281] and this might weaken the political support for cash. Some see this as a plus because the abolition of cash would let the central bank lower interest rates far into negative territory without triggering cash withdrawals, thereby empowering monetary policy.[282] Others who believe that cash provides a welcome protection against extreme monetary policies disagree.

275 Tobin (1985, 1987).
276 De Nicolo et al. (2005).
277 See also Brunnermeier at al. (2019) on digital currency areas.
278 Unless the central bank hands out CBDC for free, as a 'helicopter drop'.
279 Brunnermeier and Niepelt (2019).
280 Niepelt (2020b).
281 Agur et al. (2019).
282 See, for example, Bordo and Levin (2017).

Financial stability would be less at risk with CBDC, not more. If the central bank were to pass the funds raised from CBDC issuance through to the banking sector, as described above, it would simply render the implicit guarantees in today's monetary architecture explicit. In fact, since the central bank would become a large depositor it could internalise run externalities. Even if central banks were not to implement pass-through policies the risk of bank runs would not have to rise, for central banks could still implement measures to stem runs.[283] One should also not forget that households and firms can already today swiftly move funds from bank to government accounts – in the US through Treasury Direct; there is little concern that this could trigger bank runs.

In summary, the case for CBDC is stronger than what is often suggested. How strong it is, varies across countries and also depends on personal value judgements.[284] What is clear, however, is that the introduction of CBDC would constitute a bold step towards a modified monetary architecture. Accordingly, it should be for societies to decide about CBDC, not for central banks.

Concluding remarks

In last year's report, Vickers writes that "[a]nother banking crisis, within living memory of 2008, would be immensely damaging to central banks, all the more so given the reassuring tone projected by leading central bankers about Basel III".[285] At the time of this writing (March 2020) it is unclear whether we are already heading into another such crisis. What is apparent, however, is that the decidedly 'real' Covid-19 shock triggers as many questions about the stability of banks as about the robustness of logistic chains, and nearly as many as about break points in the healthcare system. This is disturbing. Finance, and especially payments, should work like basic utilities; they perturb us much too often.

Will the repercussions of Covid-19 be damaging to central banks, as predicted by Vickers? Or to those who defend today's financial architecture based on the argument that change would create uncertainty and new risks? The growth of private digital monies forces not only banks but society at large to confront broad questions about adequate institutions for intermediation and payments in the 21st century. Change will come for sure. We should push for change to the better.

283 See, for example, proposals by Kumhof and Noone (2018) and Bindseil (2020).
284 For a discussion of some trade-offs, see Niepelt (2020a).
285 Bolton et al. (2019, p. 121).