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Modern Money (i): States, Central Banks, and Their Banking System

We begin with a highly simplified description of how money at the top of the hierarchy is typically created in the major capitalist economies, building on the analysis of the development of the ‘template’ laid down by the alliance between sovereign states and private capital. However, there is one notable and very important exception to these typical arrangements: the eurozone. Here the monetary space circumscribed by the money of account and its currency is not co-extensive with a *single* sovereign state. We shall see that this has been a significant factor in Europe’s recent monetary and political crises.

‘Top’ Sovereign Money

In all stable capitalist states, the money in most demand is produced by the links between the state treasury, the central bank, and the franchised banking system. ‘Top’ money is often referred to as ‘legal tender’: for example, ‘this note is legal tender for all debts public and private’ is printed on US Federal Reserve bills. In practice, however, the concept of ‘legal tender’ has become increasingly ambiguous: for example, the total value of contactless card payments has overtaken the state’s cash in many modern economies – with the notable exception of Japan. The ambiguity is also evident in some economists’ classification of private bank deposits

– transmitted as payment by cheques and cards – as ‘inside’ (market, or non-state, ‘endogenous’ money) as opposed to ‘outside’ (outside the market, ‘exogenous’) state money. However, deposits in banks regulated by the state’s monetary authorities, denominated in the state’s money of account and accepted as tax payment, are *de facto* franchised state money. Together with notes and coins, immediately accessible deposits and those with short-term maturity are classified as ‘broad money’ – the main component of total money supply – by the monetary authorities in most countries. Transmitted by electronic transfer, they are accepted as public money or ‘legal tender’ and are readily converted into currency: for example, as ‘cash back’ in supermarkets. None the less, in many states there is no legally enforceable obligation to accept these forms of bank-issued payment, but, with certain exceptions, cash payments cannot be rejected.

The following account focuses on the institutional architecture of these interrelations between the state treasury, the central bank, and the franchised banking system. However, it should be borne in mind that the acceptability of money produced in this way is always conditional. The coercive power of the state to make payments and to enforce taxation in its own money can never be enough for the routine operation of a monetary system. As we have emphasized, money also requires legitimacy and the suspension of disbelief in its all too apparent fragility. Successfully institutionalized money shifts the onus of trust in transactions from the *direct* and *personal* level to the *indirect* and *impersonal* trust in the issuers’ ability to produce stable money. For most of money’s history, this confidence was based on its ‘naturalization’ as an intrinsically valuable substance. Today, expert economist technocrats, assisted by the attribution of charismatic intuition to some central bankers such as Alan Greenspan at the Fed, are now the authors of the ‘working fiction’ of stable money (although Greenspan’s ‘charisma’ diminished when he confessed to a US Senate committee in 2008 after the Great Financial Crisis to having held a ‘flawed’ theory of efficient markets). Ultimately, however, trust in the stability of money is dependent on the legitimacy and political stability of the state; failed states invariably have failed money.

Central Banks

The central bank is the centre of a network between itself, the state treasury, and the franchised banking system, coordinating the relationships between the public and private monetary and financial sectors. There are considerable variations in these relationships between different states (Calomiris and Haber, 2014; Pixley, 2018; Tucker, 2018), but three closely linked core functions of central banks can be identified: (i) acting as the state's banker; (ii) producing stable money; and (iii) acting as 'lender of last resort' to the banking system.

The State's Banker

Originating as privately owned banks with a charter to organize loans to governments, central banks occupy a structurally ambiguous position. Straddling the public and private domains has important consequences for how they operate. Most are now state-owned, but some – most notably, the US Federal Reserve – remain formally private institutions performing exclusively public functions which, as we shall see, have important consequences for private capitalism.

The sovereign power to issue and redeem the means of payment, by accepting it in settlement of debts owed to the state, is the linchpin of the entire economy and society. This power resides in the complementary links between the treasury and central bank, governed by the accountancy rules and norms of state finance that have evolved since the late seventeenth century. State treasuries make payment for government expenditure with funds drawn on their accounts at the central bank (see Wray, 2012, chap. 3; Pixley, 2018, 50–6). If tax and other revenue is insufficient, treasuries are permitted only under exceptional circumstances to 'monetize' their debt by borrowing *directly* from the central bank or to issue their own currency – such as the British Treasury's 'Bradbury' notes during the First World War. To repeat: the historical arrangement between state and finance capital requires that treasuries borrow by issuing bonds, through the central bank, to the money market for final purchase

by banks, pension funds, insurance companies, and private individuals.

Strong states' bonds are the safest investments in modern capitalism, normally attracting willing buyers. However, if necessary, borrowing by the treasury for the funding of government expenditure can be almost guaranteed by the central bank's provision of the necessary money reserves to the banking system to make it possible to purchase the bonds. As the US Federal Reserve Chairman, Marriner Eccles, explained to Congress in 1947:

The fact that [the Treasury] cannot go directly to the Federal Reserve bank to borrow does not mean that they cannot go indirectly to the Federal Reserve bank, for the very reason that there is no limit to the amount that the Federal Reserve can buy in the market. . . . [I]f the Treasury has to finance a heavy deficit, the Reserve System creates the condition in the money market to enable the borrowing to be done, so that, in effect, the Reserve System indirectly finances the Treasury through the money market. (Quoted in Tymoigne, 2016, 1329)

Direct 'monetization' of government debt is anathema, but *indirect* monetization is accepted practice – highlighting the ambiguity of capitalist states' public-private monetary systems.

The Pursuit of Stable Money

As we saw in the previous chapter, 'monetarism' failed fully to understand that the money supply was not primarily the result of its 'exogenous' transmission into the banking system by government spending. It was thought that this 'high-powered' money was the main constituent of the 'fractional reserve' which was the base for the 'money multiplier'. As we noted, however, money is largely created 'endogenously' by bank lending, which does not require the prior existence of reserves. Rather, banks lend and then seek reserves, provided by central banks at a 'base' or 'overnight' rate, to maintain solvency (see also Ryan-Collins et al. 2011; Tucker, 2018). In other words, money creation operates in the opposite direction to the one in the 'money multiplier' model (Goodhart,

2009). This recently received belated semi-official acknowledgement in the *Bank of England Quarterly Bulletin* in 2014, endorsing credit theory's contention that all money is an IOU that the issuer promises to redeem by accepting it as payment in settlement of any debt. That is, money's value is given by the value of the debt that it can settle.

Consequently, the *Bank of England Quarterly Bulletin* also agreed that in 'normal times' inflation can only be controlled by interest rates to influence the demand for money. But, of course, the level of control is compromised and limited by the shared sovereignty in the dual private-public system. In 'normal times', most central banks cannot authoritatively impose interest rates on the banks; rather, they use their ultimate money-creating power to manoeuvre banks into conforming. The rate set for lending to the banks in the franchised system is intended to be the 'benchmark' which will influence all other borrowing rates. In 'normal times', this rate cannot be mandatory; rather, it is a 'target' that the central bank aims to hit by using its own greater power to create money. As noted, banks borrow from the central bank at its 'base', or 'overnight', rate to balance their books in the short term, which it is hoped will be the platform on top of which the private banks set the interest rate on loans to customers. In turn, this will strongly influence demand for money-creating loans and the total supply of money. For example, the Bank of England's Monetary Policy Committee decides on an appropriate 'benchmark', or 'base', rate which it is thought will balance price stability and economic growth: high rates to deter borrowing and check possible inflation and low rates to encourage borrowing for production and consumption.

However, banks are not compelled to borrow if they have their own ample reserves or can find funds at a more attractive rate elsewhere. If so, the central bank will not achieve its target rate and desired impact on the money supply. We shall see in the following chapter that central bank control of the money supply can also be weakened by the availability of privately issued IOUs ('near money') in the 'secondary', or 'shadow', banking system. Therefore, the central bank influences the franchised banks' need to borrow at its 'base'/'overnight' rate by using its money-creating power to

manipulate the level of the banks' reserves. In conjunction with the treasury, the central bank buys and sells government bonds on the money market ('open market operations'). Bond purchases put money in the banking system and bond sales remove it from the banks' reserves – consequently, influencing their capacity to create money by lending. By attempting to calibrate the supply of money in this way, the central bank tries to exercise a degree of control over the demand for its reserves and, consequently, the 'target' interest rate and, in turn, the demand for money.

Again, in this private-public partnership, the banking and financial system's purchase of government debt is not based on direct compulsion by the central bank. Clearly, the central bank has the ultimate power of lending in 'last resort' to safeguard the system. But bank and government bond investors' compliance is also grounded in so-called 'moral suasion' and confidence in the assurance that the level of government spending will not lead to an inflationary erosion of the value of their safe investment. During the 1970s inflation in the UK, there were 'gilt strikes': that is, there was a refusal to buy government debt unless deflationary policies were introduced (on the power struggles between central banks, the banking system, and investors in the money markets, see Pixley, 2018).

With the further globalization and deregulation of financial markets during the 1980s, 'bond vigilantes' in international financial markets and credit-rating agencies became the major force in judging what are prudent levels of government spending. Establishing the credibility of the currency's inflation credentials to reassure the money and financial markets is now one of the central bank's primary goals. If bond markets lack confidence in government policies, they will require a higher rate of interest to attract demand, which will consequently increase the cost of borrowing – as the governments, for example, of Portugal, Greece, Argentina, and countless developing countries know only too well.

In pursuit of these goals, as we saw in the previous chapter, many central banks were granted formal 'independence' from government control to lend credibility to 'sound money' credentials and reassure increasingly powerful foreign exchange and money markets. Most central banks aim to keep inflation below a target, usually between 2 and 4 per cent, using a

'benchmark' interest rate to influence demand for money. The desired non-inflationary supply of money is calculated using the most generally accepted 'new macroeconomic consensus' models (see Pixley, 2018, chap. 7; Skidelsky, 2018, chap. 4). Here money is a 'neutral' instrument for coordinating the 'real' economy comprising variables – employment, rates of interest, inflation, and so on – which are deemed to have a 'natural' level, objectively determined by their contribution to the economy's equilibrium. For example, the models are used to determine the 'non-accelerating inflation rate of unemployment' (NAIRU): that is, the level of employment which is consistent with a steady low rate of inflation (see Skidelsky, 2018, chap. 4). In short, it is claimed that the question of the appropriate supply of money can be determined objectively by economic science and therefore should be removed from the political arena.

Globally prestigious universities play an important role in establishing the hegemony of a shared consensus based on academic economics. In this way, decision-makers in central banks, the International Monetary Fund, organizations such as the OECD, credit-rating agencies, and the global money and financial markets come to form an 'epistemic community' by which the central banks' actions and the markets' reactions are rendered intelligible and 'reasonable'. To achieve this, deliberations are formally recorded and communicated following a consistent procedure: that is, decision-making should be 'transparent'.

This framework strongly implies that there can be no rationally objective basis for opposed interests in the economy. In this view, there exists a theoretically optimum supply of money which maintains the equilibrium, which, by definition, is beneficial to all sectors of the whole economy. Dissent from the independent bank's measures can only come from the disruptive illegitimate pursuit of sectional interests based on mistaken theories which will bring sub-optimal solutions to the universally desired goals of efficiency and equilibrium. To some extent, effective control of money in non-authoritarian regimes requires that the population shares – or, at least, doesn't question – this hegemonic ideology. This enables monetary authorities and governments to resist creating money to appease demands when it is no longer

possible to hide behind the pretence of 'intrinsically' scarce and valuable gold.

'Lender of Last Resort': Rescuing Capitalism and Finance-Capitalists

The threat posed by banking crises brings the pivotal importance of money into even sharper focus. Aside from the disruption of investment for production and employment, the day-to-day fabric of the capitalist economy's payments and contracts is immediately placed in jeopardy. In 2008, central bankers and governments were terrified; saving the financial and banking system was deemed to be essential to prevent utter disintegration.

Banking systems are linked by complex networks of debt which render all banks – regardless of the health of their balance sheet – vulnerable to some extent to the failure of any of the participants. In the late nineteenth century, as we noted in the previous chapter, Bagehot recommended that the Bank of England should lend 'most freely' during a crisis. Saving banks with sound balance sheets, who were in danger through no fault of their own, would halt a potential chain-reaction of debt-default, preventing wholesale disintegration, and, at the same time, reward the prudent. Gradually, the Bank of England took on this role. Reluctance in the USA to establish a central bank, noted earlier, was finally overcome by the need to deal with serious crises in the early twentieth century.

In the immediate aftermath of the Great Financial Crisis (GFC), the Federal Reserve went much further than 'lending in last resort' to endangered but solvent banks by also acting as 'dealer of last resort' (Mehrling, 2011). The Fed took on the outstanding unsaleable assets of the entire money and securities markets. This not only ensured the continuity of the market for government bonds but simultaneously also rescued all private firms in virtually the whole range of financial markets. Central banks perform a public function by lending to halt crises but, given the structure of the monetary and financial system, this necessarily entails saving privately owned capitalist banks. In this case, the Fed went much further by granting much of US finance-capital immunity from

the discipline of the market. This ensured the continuous operation of the market in government securities which is essential for government finances and, of course, its creditors' stake in the capitalist state. This rescue focused attention on central banks' ambiguous location between the private and public financial sectors – especially the legitimacy and autonomy of their actions in relation to democratic government. Was the rescue of private capital with the money of taxpaying citizens democratically accountable and legitimate (Pixley, 2018; Tucker 2018)? We will return to these questions in chapter 7.

Although banking systems had been saved in 2008, it was feared that capitalism might yet be thrown into a more serious depression than the 1930s. In earlier academic life, Ben Bernanke, Chairman of the Federal Reserve, had concluded that the 1930s Depression had been prolonged by persistent high interest rates and by allowing the money supply to remain restricted. Bernanke and other central bankers moved to avoid a repetition of the 1930s by cutting their 'base' interest rates to near zero, followed by 'quantitative easing' (QE) of the money supply. The measures brought the routine mechanism for creating money, involving government treasuries and central banks, to wider public scrutiny.

Cutting 'base' interest rates to near zero to encourage borrowing for investment and consumption was also equally important in reducing the cost of borrowing for highly indebted governments. However, maintaining low rates required that they were prevented from rising in response to any increased demand by the banking system in the market for monetary reserves. To supply the money to pre-empt this occurrence, central banks again tapped on their keyboard to trigger QE.

Contrary to widely held opinion, the only unusual feature of the operation was its magnitude – the means for creating the money followed established procedure. Although this was erroneously reported in the media as 'printing money', QE was conventional *indirect* money-creation involving the reciprocal manoeuvres between the three main agencies – (government) treasury, central bank, and banking system – and their assets. The treasury issued and sold government bonds, via the central bank, to the banking and financial

system which were subsequently repurchased by the central bank with money it had created electronically by the tapping of its keyboard. Central bank payments for the securities were added to the banks' reserves, eliminating the possibility that any increased demand for money by the banks would cause interest rates to rise. Since the GFC, the US Federal Reserve has purchased almost \$4 trillion of bonds and the Bank of England over £3.5 billion. By 2017, the leading six central banks that had used QE – the Bank of England, the Federal Reserve, the Bank of Japan, the European Central Bank, the Swiss National Bank, and Sweden's Riksbank – held 20 per cent of public debt (*Financial Times*, 16 August 2017). With access to this new money and the ability to borrow at the now very low interest rate from the central bank, the banks had no need to raise interest rates to attract deposits.

QE funding followed the procedure in which government (*public*) debt must *appear* to be financed by private capital – even if the *private* capital is provided indirectly by the state's (*public*) banker. Although not intended in the original agreement between king and merchant bourgeoisie, establishing sovereign debt, managed by the Bank of England, became the means to check the arbitrary sovereign power to create money, or manipulate its value, to finance expenditure (see chapter 4). In the past, this could be done by debasement or an alteration of the money of account (see chapter 2). Following abandonment of the 'gold standard' constraint on the creation of money, the temptation to 'print' fiat money to fund expenditure is checked by the bond market's reaction. If it is judged that government expenditure is potentially inflationary or that interest payments might lead to an 'unsustainable' burden for governments, the markets will be reluctant either to finance any deficit by purchasing government bonds or to demand a higher return. States with a capitalist economy are truly 'capitalist states' in the sense that they are largely funded by private capital (Hager, 2016).

In chapter 7, we will examine the responses to the questions raised by QE. Was it a necessary or indeed a legitimate use of the 'public purse'? Are simpler, more accountable democratic methods available? Is private capital's power to exert a strong influence on the terms at which it is prepared to lend a *necessary* check on profligate government expenditure? In

the eurozone, the GFC shone a stark light on these and other questions.

The Anomalous Euro

With minor variations, the relationships between states, treasuries, and central banks, which produce a nation's sovereign money, are typical of all major capitalist countries, with one significant exception: those in the European Monetary Union, or eurozone. Here, there are two departures from the norm: first, the *fiscal* and *monetary* domains have been separated; and, second, the central bank is not a part of a sovereign power. The pre-1914 Austro-Hungarian Empire is the only other case in which the independent constituent countries shared a common currency but retained their national budgets (Goodhart, 2003 [1998], 195, n. 1).

Member states of the eurozone control their taxation and government spending and the European Central Bank (ECB) is responsible for the euro, which was introduced as a money of account in 1999 and as a means of payment in notes, coins, and electronic transmission in 2002. In the absence of a single sovereign state of Europe to which it would be attached, the ECB is the most 'independent' of all the independent central banks; the 'exception' of its power and autonomy is unmatched and unprecedented. The historic link between monetary sovereignty and state sovereignty has been broken, which many see as the basis for the eurozone's enduring monetary and economic problems (Bell and Nell, 2003; Ingham, 2004; Wray, 2012; Varoufakis, 2017).

For some orthodox economic theory, the single European currency is a logical counterpart to the single European market. If 'real' values, embodied in the costs of the factors of production, are uniform within a region, then it is an 'optimum currency area' (OCA). For example, an area is 'optimum' for a single currency if labour is sufficiently mobile within it to allow supply and demand to bring about uniform wage rates (see the discussions in Bell and Nell, 2003). Europe was obviously not an OCA at the time the Common Market was created in the late 1950s: costs of production varied considerably owing especially to the impact of

different systems of welfare and social insurance on labour costs. None the less, OCA theory was a template. Given free movement of labour across the European Union (EU), the theory could be used to justify enacting measures to harmonize labour law, welfare expenditure, and other conditions which might eradicate these differences and create the 'real' economic foundation for a common currency.

Of course, the European project was also driven by geopolitical and other non-economic motives, but OCA theory was understood to offer objective economic grounds for monetary unification. Confidence in the viability of the stateless euro is based on the belief that the market, as it is understood in economic theory, is – or should be – the ultimate foundation for social order. The theoretical rationale for the EU's inter-state federalism and the economic Common Market is based on the Hayekian belief that economic transactions bind societies together in webs of advantageous interdependence. In this conception, money is not – as Simmel insisted – a bond with society (see chapter 3), but is merely the 'neutral' measure and representation of economic links. The 'state' and 'credit' theories of money provide a better understanding of the euro's short but troubled history (Goodhart, 2003 [1998]; and Ingham, 2004, as developed by Otero-Iglesias, 2015).

Following the logic of the theory of the 'real' economy and 'neutral' money, it was thought that the creation of a single currency, managed by a stateless central bank, would permanently pre-empt profligate government spending and inflation. An academic member of the ECB Board, Otmar Issing, could not have expressed economic orthodoxy more succinctly: 'the euro represents depoliticised and hence stable money' (quoted in Otero-Iglesias, 2015, 355). Similarly, the first European ECB President, Wim Duisenberg, explained that 'the euro, probably more than any other currency, represents the mutual confidence at the heart of our community. It is the first currency that has not only severed its link to gold, but also its link to the nation state. It is not backed by the durability of the metal or by the authority of the state' (quoted in Otero-Iglesias, 2015, 354). (If so, one might ask precisely how it is backed; or, following the 'neutral' money orthodoxy, Duisenberg might have been implying that money really didn't require to be backed.)

The surrender of monetary sovereignty by the member states was reinforced by their agreement to abide by common stringent fiscal rules and limits, which was intended to placate the global bond markets and suppress domestic demand for government spending. The rules and conventions in capitalist states that prohibit treasuries from borrowing directly from the central bank ('monetization' of debt) were given strict interpretation in the formal terms of the Maastricht Treaty (1992) and the Growth and Stability Pact (1997). These treaties laid down the fiscal and monetary foundations for the euro and the role of the ECB. Member states' fiscal control was severely restricted by the prohibition of budget deficits greater than 3 per cent of GDP and a debt-to-GDP ratio of above 60 per cent.

With a stateless central bank divorced from independent states' government finances, the 'memorable alliance' between state and capital had been significantly modified. As we saw in Chairman Eccles's explanation of the US Fed's role, discretionary central bank accommodation of government spending and capitalist funding had developed as the linchpin of sovereign state finances. The detachment of the ECB from the member states prevented this accommodation of their funding requirements; but we shall see that the GFC of 2008 created pressure to conform to the arrangements that had evolved in single sovereign states over the previous centuries.

Strict conformity to Maastricht fiscal rules left little room for discretionary budgeting and deficit spending by member states. Unlike counterparts outside the EU, they were required to establish their fiscal position in relation to revenue (taxation) and borrowing in advance of any expenditure – in the same way as any private enterprise raising finance from the money, bond, and stock markets. Raising taxes before spending was politically unpopular, and to attract loans from the global money market, member states were drawn into competitive fiscal stringency, enhancing the power of global finance-capital. Eventually, some of the more powerful governments – notably the French – were able to flout the fiscal rules.

However, from the early days of the European Economic Community, some European politicians were aware that –

notwithstanding the economic theory of OCA – a single currency was not viable without a single sovereign polity with its own independent fiscal policy, as argued by the 'state theory of money' and shown by history (Bell and Nell, 2003; Goodhart, 2003 [1998]; Ingham, 2004, 188–96; Otero-Iglesias, 2015). Indeed, the suspicion that the single currency was an almost inevitable step along the path to a single European state was one of the reasons for the UK's decision not to adopt the euro. Events since have added weight to these views. It is now more widely believed that the separation of fiscal and monetary sovereignty has played a large part in the euro's difficulties, which can only be resolved by their reintegration.

The single currency and fiscal–monetary separation pre-empted the deployment of separate policy measures to deal with individual cases of economic inequality and structural differences among member states. Economically uncompetitive members of the eurozone have been deprived of the right to adjust their current account deficits by currency devaluation to stimulate exports and restrict imports. Rather, these weak economies – Portugal, Italy, Greece, and Spain – have had to adjust by 'internal devaluation': that is, a reduction of nominal prices by cutting production costs, especially wages and social welfare. In neoliberal circles, this was welcomed as the application of market discipline to remedy economic inefficiency. The resulting social unrest in the poorer Mediterranean members of the eurozone and their conflict with the richer states have created unresolved political tensions.

The economic weaknesses and financial fragility of individual member states were exacerbated by the GFC, exposing the flaws of a stateless monetary system with a central bank that does not have sovereign power to create money. During the crisis, the most highly indebted states were not only in danger of default but also had insolvent banking systems on the brink of failure. The time-honoured solution of pumping money into the system, employed by the USA and the UK, was prevented by the strict terms of the Maastricht Treaty and the Growth and Stability Pact. The EU and European Monetary Union (EMU) were paralysed by their self-imposed rules in which there was no single body with the *discretionary* sovereign power to create the money to alleviate the debt and solvency

crises (Ingham, 2004, 194–5; Otero-Iglesias, 2015). Member states' central banks were not permitted to create euros and the ECB was prohibited from purchasing EU member states' government bonds as a means of QE. In short, over a century after it had become standard practice in capitalism, there was no 'lender of last resort' in the eurozone.

The intensification of the effects of the GFC, which produced debt crises in Ireland, Greece, Spain, and Portugal, eventually led to significant departures from the definitive constituent elements of the eurozone system: that is, the strict separation of the monetary and fiscal domains and the creation of money to buy government debt. The prospect of the collapse of Greece's economy and its departure from the eurozone led the so-called 'troika' – the European Commission, the ECB, and the International Monetary Fund – to introduce a series of monetary 'bailouts' to enable the Greek government to meet interest payments on its debt to the bondholders. To maintain the formal integrity of the eurozone rules in the face of this blatant transgression, these were construed as an 'exceptional' measure in exchange for Greece's promise to restructure pensions and income tax and to introduce market reforms to 'liberalize' the economy. The episode clearly exposed the location of the euro's sovereign power in the unelected 'troika'.

Eventually, the effects of the GFC forced a further relaxation of the prohibition of the direct purchase of EU member states' government bonds by the ECB and a blurring of the separation of monetary and fiscal domains. Following QE in the USA and UK, the ECB embarked on similar indirect funding, which was done in a way that guaranteed profits for private banking and finance, maintaining the terms of the 'memorable alliance' between states and capital. The institutional mechanism for money creation by the contracting of debt on profitable terms to private capital was perfectly illustrated. After 2012, the ECB's state of 'exception' outside the democratic political realm enabled it to grant itself permission to create euros to purchase unlimited numbers of bonds issued by highly indebted EU governments at a fixed price. However, this was conditional on the prior purchase of the bonds from the member governments by private banks with money borrowed from their respective central banks.

The bonds were bought by the banks at a small discount – say, 95 per cent – and immediately resold to the ECB at a fixed price which guaranteed a profit of, say, 0.5 per cent (Streeck, 2014, 166).

The EMU was intended to provide a common currency for economic transactions in markets that were, in turn, intended to transcend the separate member states of the EU. Indeed, some believed that the liberal free trade policy, based on Smith's and Ricardo's 'classical' economics and its implicit theory of society, would eliminate conflict and competition between nation states. The longstanding rivalry between France and Germany would be overcome by the mutual benefits of economic interdependence.

Confidence in the viability of the eurozone project ultimately derives from economic models in which money is only a 'neutral' medium for the exchange of values created in the 'real' economy. In this conception, banking and financial crises are unfortunate aberrations, not systemic ever-present possibilities. Consequently, arrangements to resolve crises were not given priority in the blueprint for the single currency. The EU had not given the ECB the authority to act as a 'lender of last resort', but it could do so by exercising its 'exceptional' monetary sovereignty. In convoluted contortions aimed at disguising the departure from Maastricht, the ECB adopted this role *de facto* – if not *de jure*.

Of course, not all the *political* founders of the EMU were as convinced by economic theory's rationale for the euro. In 1991, the year before Maastricht, the German Chancellor, Helmut Kohl, told the Bundestag that 'history . . . teaches us that the idea of an economic and monetary union without a political union is a fallacy' (cited in Otero-Iglesias, 2015, 358). At this juncture in the late twentieth century, rivalry between member states precluded the logical way forward to political union; but the turmoil wrought by the GFC gave support to Kohl's judgement. In 2012, this was repeated by his successor as German Chancellor, Angela Merkel, who said that 'we need not only a monetary union, but we also need a so-called fiscal union, . . . we need most of all a political union – that means we need to gradually give competencies to Europe and give Europe control' (cited in Otero-Iglesias, 2015, 361). However, the arch-rivals Germany and France

still cannot agree on the nature of a sovereign power that is necessary for European ‘competencies’ and ‘control’. And if they do reach agreement, the weaker members fear the Franco-German dominance that might follow. Furthermore, the surge in populist nationalism has deterred many EU elites from pressing for pan-European political unification.

Conclusion

Aside from the eurozone, the creation of money in most modern capitalist states involves two sets of three-cornered relations. First, there is an institutional linkage – consisting of constitutional relationships, conventions, and accounting rules – between the state treasury, the central bank, and the franchise of regulated banks. Each produces money in the form of debt owed to them by their borrowers. The most important of the conventions governing these relationships are those which are intended to deter governments from using state sovereignty to create money for the direct financing of their expenditure (‘monetization of debt’). This preserves the power and profitability of private capital in the money-creation process but compromises state monetary sovereignty. We shall see in chapter 7 that the GFC has revived the advocacy of democratic ‘sovereign money’, in which the power to create money would be removed from private banks.

The institutional mechanism and its conventions have been produced over time by struggles and tacit agreements between the main antagonists in the second of the three-cornered relationships: between the state expenditure; the state’s bond-buying creditors, and the revenue from taxpayers for expenditure and interest payment on government debt. These complex and contradictory struggles dominate politics in modern democracies. On the one hand, for example, the state’s creditors profit from their purchase of government debt, but at the same time fear that its growth might increase the possibility of default, posing a risk to their investments. On the other hand, however, they are ambivalent about the impact of any drastic reductions in government borrowing on the continuity of this safe lucrative investment opportunity.

Following President Clinton’s intention to redeem US government debt in the 1990s, Federal Reserve Chairman Alan Greenspan had to placate the financial markets’ concerns about the potential reduction of safe investment opportunities (Hager, 2016, 68). Increasing taxation to fund government debt is resisted by the electorate – especially, the wealthy creditor class, whose preferences prevail. In the USA and most probably elsewhere, there is a very high correlation over time between the top 1 per cent ownership of government debt and the top 1 per cent ownership of wealth (Hager, 2016, 41). Unease about the sudden large increase of government debt incurred by the bailout of the financial system in the GFC led to the introduction of ‘austerity’ in social welfare spending and public services rather than increased taxation to curb the debt.

In essence, monetary management in capitalism involves two ‘balancing acts’ in an uncertain world. First, money must be made scarce enough to avoid inflation and instability; but, at the same time, there must be enough money for *ex ante* financing of production and consumption by the creation of debt (Smithin, 2018). Currently, the production of this supply is shared: the largest single economic agent in capitalism – the state – *spends* it into existence; and the banking system *lends* it into existence. Second, this must be done in the face of the competing and conflicting claims of those who have an interest in how and how much money is produced: states, banks, debtors (including the state), and creditors (financiers and taxpayers). In chapter 7, we will return to questions raised about the efficiency, effectiveness, and legitimacy of these arrangements.

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Modern Money (ii): 'Near' Money; 'Complementary', 'Alternative', and 'Surrogate' Money; and 'Crypto-Currency'

In addition to the money created by the state and franchised banks, most capitalist societies contain other means of payment that originate in smaller economic networks and local communities. Typically, these are found at each end of the economy. In the upper levels, capitalist financial enterprises issue their own promises of payment (IOUs) which circulate widely within relatively closed networks: that is, the 'near money' of the 'shadow' banks. As the term implies, these banks and their 'near' money exist alongside the state-regulated banking system in an opaque area of shifting and overlapping boundaries. They are the modern counterparts of the mercantile credit networks that grew in the early stages of capitalism. At lower levels, local communities and networks of small and medium-sized enterprises issue their own means of payment. In addition to these domestic moneys, there has been a proliferation of transnational crypto-currencies, based on blockchain technology and transmitted globally via the internet. By and large, a preponderance and proliferation of non-state moneys is inversely related to state power – especially, effective control of taxation. Weakening of state power can lead to an anarchic proliferation of 'alternative', 'complementary' forms of money, or of money 'surrogates' (commodities denominated in a money of account and used as payment).

'Near Money'

Capitalism's private property and contract law has ensured the continued existence of private acknowledgements of debt (IOUs) which by mutual agreement are accepted as payment in financial networks. In fact, as we have seen, most modern money is produced by the private–public partnership between the banking system and central bank by which privately contracted debt is transformed into public money. Strictly speaking, all bank money is 'private' at the point of issue and is often referred to in textbooks as 'inside' money, as opposed to 'outside' state money in the form of notes and coins.

Outside the monetary space of sovereign currency and the regulated banking system's franchised money, privately issued acknowledgements of debt/promises to pay (IOUs) circulate in financial networks as means of payment: 'commercial paper', 'certificates of deposit', 'bills of exchange', and so on. The 'liquidity', or 'nearness' to sovereign money, of these IOUs is determined by their degree of short-notice convertibility into it – either by the issuer or by a third party in the 'shadow' or 'secondary' banking network. This 'near money' is truly 'inside' today's relatively closed capitalist money and financial markets and is used in the same way as its early capitalist forerunners to short-circuit, or evade, the regulated banking and financial system.

The growth of 'inside' money and 'shadow' banking is closely associated with periods of rapid expansion and innovation in capitalist finance – especially, speculative booms in housing and stock markets. As the major locations of finance-capital, the UK and USA have experienced crises which were triggered by 'near' money's abrupt loss of liquidity caused by a chain reaction of issuers' defaults on their IOUs: for example, the UK's 'secondary banking crisis' in 1972. By far the largest expansion of 'near' money culminated in the GFC of 2008. Between 1995 and 2007 in the USA, privately issued financial sector IOUs grew from 54 per cent to 75 per cent of the total money supply, shrinking back again to 54 per cent by 2012 (Ricks, 2016, 35). Subsequently, the percentage has increased yet again in the USA and some other economies, particularly where 'socialism with Chinese

characteristics' has unleashed 'shadow' banking on a vast, potentially destructive scale.

In very broad terms, half the total money supply in modern capitalism is privately issued 'inside' financial networks (Ricks, 2016). Consequently, governments and central banks have far less control of the monetary system than they would like and, indeed, claim to have. Their situation is a direct expression of the contradictory consequences of capitalism's hybrid public-private monetary and financial system. On the one hand, an attempt by states to reduce, or even prohibit, the issue of 'near' money in the money and financial markets would face fierce and powerful opposition, as shown by the dilution of the proposed reforms after the GFC (for a discussion of the control of private money, see Ricks 2016). Even if national radical reforms were enacted, they would most likely be rendered ineffective by global finance-capitalism. As we saw in the previous chapter, the exceptional government control of money after 1945 was possible because private capitalist finance had been unable fully to operate internationally during the war and had been temporarily subordinated in war finance and post-war reconstruction. This brief period of state power soon came to an end when global capitalism's 'normal service' was resumed.

'Near' money involves a constant struggle between monetary authorities and private financial enterprise money creation. There is a recurrent tension in capitalist monetary systems as 'shadow' banks resist and evade regulation but clamour to be rescued from crises for which they are largely responsible. Attempts to impose tighter regulation of 'shadow' banks are often a largely ineffectual condition of the rescue.

However, although 'franchised' and 'near' private money creation by banks is a major factor in periodic crises, it has also been closely associated with economic growth throughout the history of capitalism. With the collapse of state socialism, almost all governments now see it as the only viable form of economic organization. The question of monetary reform and the role of privately issued money in the wake of the GFC will be considered in chapter 7, but we now turn to money creation at the other end of capitalism.

'Complementary', 'Alternative', and 'Surrogate' Money

Using force to consolidate the twin power bases of territory and taxation, states carve out co-extensive monetary and physical spaces, circumscribed by a single money of account and currency. These increasingly homogeneous and extensive monetary systems unintentionally laid the foundations for nationwide economic transactions. Large-scale, impersonal markets were superimposed on local community and regional markets, gradually displacing their local moneys (Fantacci, 2008). However, non-state moneys were never completely eliminated, and under certain circumstances 'complementary', 'alternative', and 'surrogate' moneys quickly reappeared alongside state money. It is estimated that over 5,000 such moneys exist across the world (North, 2007; Lietaer and Dunne 2013).

The different terms should not be taken precisely to identify distinct phenomena. They are inevitably used loosely, reflecting the complexity and fluidity of politically and economically unstable situations in which non-state moneys emerge. For example, transactions in urban Argentine communities can be conducted in complex combinations of state currency, local 'alternatives', and genuine barter of commodities (Saiag, 2019). None the less, it is useful to distinguish between 'complementary' and 'alternative'/'surrogate' money. Here, 'complementary' is used to refer to moneys that co-exist with but do not compete with the dominant state currency. 'Alternative' moneys arise in those situations where state money either has been rejected or is unavailable. In some cases, the state's money of account is replaced by an 'alternative' for denominating prices and debts. Despite the additional complexity, the term 'surrogate' makes it possible to make an important distinction between 'barter' and 'payment in kind' and to avoid an all too frequent confusion. Barter exchange of commodities, at a ratio agreed by the parties involved, does not involve a common money of account. Where commodities are used as payment after a state's currency has collapsed – for example, paint and electricity in Russia after 1991 – they are generally, but mistakenly, seen

as barter. However, if the extant money of account is used to denominate prices and debts, goods accepted as ‘payment in kind’ are ‘surrogates’ for conventional means of payment. In Keynes’s terms, the ‘things’ answering the ‘description’ of money have changed.

Complementary Currency

Local or regional complementary currencies are usually, but not exclusively, created to deal with economic depression. They seek to facilitate and maintain economic transactions by restricting money to its function as a *medium of exchange* in limited networks. The first widespread appearance of complementary non-state money in modern capitalism occurred during the inter-war Great Depression in Europe and the USA. In the USA between 1931 and 1935, hundreds of experimental local currencies were issued by various bodies for redemption in exchange for goods at local stores. In the main, they were short-lived and largely ineffective in improving economic conditions. However, US city governments’ ‘tax anticipation scrip’ was more successful – enduring in some areas until the early 1940s. The depression had drastically cut local taxation revenue and cities met the shortfall by issuing their own credits, or ‘scrip’, which was used to pay employees and fund public services and, in turn, was accepted together with US dollars in payment of local taxes (Gatch, 2012).

In 1932, the city of Wörgl in Austria issued a currency (*Freigeld* – ‘free money’) based on the application of Silvio Gesell’s monetary theory, which was favourably discussed by Keynes (Keynes, 1973 [1936]). To encourage spending rather than saving money as a store of value (Keynes’s ‘liquidity preference’), Gesell proposed that dated paper money should be stamped periodically with progressively deflated value (*demurrage*). The ‘miracle of Wörgl’, as it became known, was so successful in creating employment through new roads and housing that it attracted the attention of the Austrian central bank, which dealt with the threat to its power by prohibiting local currency. Unemployment returned to the town.

Although non-state moneys continue to be used to counter local economic deprivation, ‘complementary’ currencies

also emerged during the late twentieth century in affluent regions of advanced economies – perhaps as a communitarian response to globalization. The origin of modern grassroots ‘complementary’ money is widely attributed to a computer-based ‘local exchange trading scheme’ (LETS) set up by Michael Linton in Vancouver, Canada, in 1983. The software enabled participants to communicate their offers and wants and record their credits and debits in terms of a common unit of exchange. LETS spread rapidly across advanced and developing societies, using paper, collection boxes, and the internet for posting and clearing credits and debits. Units of account for the transactions usually shadow the national currency, sometimes assuming a local identity, such as Canterbury ‘Tales’ and Manchester ‘Bobbins’ in the UK.

Strictly speaking, LETS are barter-credit networks in so far as currency for further trading can only be acquired by offers of goods and services by network participants. This allows a separation of transactions in time, overcoming the limitation of the ‘absence of a double coincidence of wants’ in direct bilateral barter. By shadowing the mainstream nominal currency, participants can post a price for their goods and services which resolves the problem of the absence of a unit of account in barter. In this way, a level of multilateral exchange is achieved, but the media of exchange remain firmly embedded in a network based on continuous preparedness to trade. Hoarding would impede the continuity of exchange and is actively discouraged in some systems by *demurrage*. Therefore, unlike the disembedded money in the mainstream economy, LETS media cannot be dissociated from transactions to become abstract stores of value for use as unilateral settlement of monetary debt. Furthermore, LETS media of exchange are not backed by an issuer’s promise to accept them in payment for any debt owed – as in taxation. This is money as ‘a mere intermediary, without significance in itself, which flows from one hand to another, is received and is dispensed, and disappears when its work is done’ (Keynes, 1971 [1923], 124).

If a separate money of account is adopted, ‘complementary’ currency often becomes an ‘alternative’ to the mainstream money, which is unattainable owing to high levels

of unemployment or unavailable owing to shortages. In Argentina, the crédito replaced the national peso as a unit of account in many of the exchange networks (*trueques*) which have expanded and contracted in response to economic conditions and monetary crises over the past thirty years. Credits and debits denominated in créditos are issued to participants to be used in exchange networks centred on local markets (*feria*) in urban areas. By enabling local economic and social projects, some ‘alternative’ créditos have become symbolic expressions of communal and political solidarity.

Argentina presents an exceptional case of a modern developed state in which a plurality of ‘alternative’ currencies has existed to varying degrees and at all levels since the late nineteenth century. In addition to grassroots créditos, Argentine provincial governments have issued their own currencies (*bonos*) periodically over many years to pay employees and suppliers. The provincial issue is accepted in payment of local taxation, giving the currency value and inaugurating a stable fiscal cycle of employment–taxation–expenditure. Indeed, it has been argued that the currency issued in Tucuman is more stable than the national currency (Théret, 2017).

Some ‘complementary’ currencies have the potential to move out of their original ‘embedded’ network by promising convertibility with the mainstream currency: for example, ‘Brixton pounds’ in the UK and ‘SoNantes’ in Nantes, France. An incentive to use these local convertible currencies is given by favourable/unfavourable exchange rates for buying/selling local currency. For example, until the end of 2013, £100 in UK pounds would buy £110 in Brixton pounds; conversely, £100 in Brixton pounds exchanged for £90 in UK pounds. If local ‘complementary’ currencies do not diminish tax revenue or challenge control of the monetary system, they are tolerated by modern states and, in some cases, actively encouraged in the pursuit of economic welfare and employment.

Advances in information and communication technology have made it possible to develop large and extensive online credit networks (‘closed loop’ payment systems) between enterprises in economically depressed regions. For example, the Sardex network in Sardinia, which is supported by the

EU, is a clearing mechanism for transactions that enables participating enterprises with a cash shortage to continue to operate. Its impact is limited, however, accounting for less than 1 per cent of Sardinia’s GDP (Lucarelli and Gobbi, 2016, 1416).

‘Complementary’ currency is widely advocated by otherwise opposed ideological camps as a means of escaping or countering the overweening control of the modern state (North, 2007; Dodd, 2014, chaps 7–8) For economic liberals, the emergence of non-state money is evidence for the Hayekian free market theory of money. At the other end of the ideological spectrum, ‘complementary’ currency is seen as a means of fostering and expressing communal solidarity. Indeed, many schemes are explicitly intended primarily to generate social solidarity by empowering local communities to unlock the ‘real’ wealth, or social capital, residing in their skills and enterprise (see Dodd, 2014, 342). Some proposals today are closely associated with anti-state, anti-capitalist, and anti-globalization movements. It is believed that communal money could counter and transform despotic bank and state power – a truly ‘social technology’ for improving human welfare, controlled by its users in a truly democratic society.

Crypto-Currencies

Information technology has also been used to create an entirely novel form of money. Crypto-currencies are expressly intended to be an alternative to state money, but in sharp contrast to community-based currencies, they are not embedded in a local social and economic network. On the contrary, one of the intentions behind Bitcoin’s launch in 2009 was to remove money entirely from its social and political foundations. This has been followed by Ethereum, Litecoin, Ripple, and many others, which by 2018 totalled over 1,500 (www.coinmarketcap.com).

Crypto-currencies do not simply use computer software and information technology to transmit money electronically to and from bank deposits in ‘online banking’. Rather, the money itself is cryptographically located in the very software

– blockchain technology – by which it is produced. Blockchain is a series of records of crypto-currency creation and transactions, or ‘chains’, forming a ‘block’. Secure encryption ensures that traders and owners of currency cannot modify the files governing its creation. Scarcity of currency is built into the programs: for example, no more than 21 million Bitcoins will ever exist. These are acquired by being ‘mined’, using complex algorithms on ‘application-specific’ PCs with vast computing power, and then stored in digital ‘wallets’ in cyberspace. As more ‘miners’ become involved in acquiring crypto-currency, computation increases in complexity, requiring very expensive multiple high-performance computers. Before its surge in value, Bitcoin scarcely justified the expenditure on setting up the machines, the electricity required to run them, and the air conditioning to deal with the enormous amount of heat produced.

Three claims were made for the superiority of Bitcoin over conventional money. First, the finite supply built into the encryption is analogous to the natural scarcity of gold, pre-empting credit bubbles caused by the potentially unlimited supply of state fiat money and bank-created deposits. In the words of Satoshi Nakamoto, the pseudonym of the individual or group who devised the Bitcoin scheme,

The root problem with conventional currency is all the trust that’s required to make it work. The central bank must be trusted not to debase the currency, but the history of fiat currencies is full of breaches of that trust. Banks must be trusted to hold our money, but they lend it out in waves of credit bubbles with barely a fraction in reserve. (<http://p2pfoundation.ning.com/forum/topics/bitcoin-open-source>)

Ironically, this has been precisely Bitcoin’s fate together with myriad other ‘alt-currencies’ that have been devised to take advantage of speculation on their rapidly rising price. At the peak of the ‘crypto-mania’ during 2017, several hundred currencies with a market value of over \$80 billion were listed on several exchanges. As in the South Sea Bubble craze of 1720, which featured a stock prospectus for ‘a company for carrying out an undertaking of great advantage, but nobody to know what it is’, some speculators found themselves in possession of claims to currencies that never existed. By 2017, Bitcoin’s

dollar exchange rate had risen rose from \$106 in 2013 to \$19,000 before the bubble burst in December, sending the price down to \$7,000 by April 2018. A gradual slide has followed to \$4,000 by November 2018 followed by a slight recovery to over \$5,000 in May 2019.

A second claim that secure encryption ensured that Bitcoin was safer than mainstream banking and conventional currency was dashed by the collapse of Mt Gox and other crypto-currency exchanges. Based in Tokyo and launched in July 2010, Mt Gox was handling over 70 per cent of all worldwide transactions at the time trading was suspended in February 2014. Hackers broke into the exchanges’ encrypted ‘wallets’ and ‘ledgers’ and stole around 850,000 Bitcoins, valued at more than \$450 million. Subsequently, Bitfinex, CoinCheck, and other exchanges have been penetrated by ‘Trojan Horse’ computer programs which have looted their ‘ledgers’.

Thirdly, it was claimed that unlike the deposits of named account holders in conventional internet banking, securely encrypted ownership of the currency was as anonymous as state-issued cash, making it useful in illegal trade on the ‘dark web’ and criminal networks. However, FBI investigations have shattered confidence in Bitcoin’s anonymity. In 2015, Ross Ulbricht, the American creator of the \$1 billion Silk Road drugs market, which was underpinned by Bitcoin, was sentenced to life in prison. Later the same year, the organizer of a \$150 million crypto-currency Ponzi scheme was charged with fraud and a former Mt Gox employee was charged with embezzling \$390 million of Bitcoins from the exchange. Again, ironically, the trail of data associated with illegal trading can be traced using similarly powerful information technology. These security failures have cast doubt on the much vaunted forecasts of ‘end of cash’ and its replacement by blockchain monetary technology, administered by central banks.

Apart from a short period after its introduction, crypto-currency has proved unable to perform money’s basic functions. The extreme volatility of Bitcoin’s exchange-value has made it unsuitable as a money of account for pricing commodities and unacceptable as a means of payment. Rather, it has become the latest in a long line of capitalism’s speculative ‘manias’, which began with tulips in mid-seventeenth-century

Holland. ‘Initial coin offerings’ of crypto-currency are now made exclusively on expectations of a rise in their value. The volatility has attracted the attention of derivatives markets offering contracts on future prices and the emergence of ‘shorting’, in which speculators offer to sell crypto-currencies at a higher price than the one they subsequently hope to buy them for. Crypto-currency does precisely what money should *not* do: that is, introduce uncertainty into transactions. There is reluctance to use it as a means of payment for fear of losing a possible large increase in exchange-value; but, conversely, an equally probable loss of value may deter acceptance on the part of the seller.

Conclusion

Large claims are made for how information technology might transform money and society, liberating us from the centralized domination of the modern state. This common stance, found at each end of the broad political spectrum, can be traced to the implications of the two fundamentally different general theories of social order that we encountered earlier. On the one hand, the relative ease with which the internet and information technology enable the proliferation of non-state currency is seen to confirm that the ‘market’, comprising otherwise ‘isolated’ utility-maximizing individuals, is the basic unit of society (see the discussion of ‘market isolation’ in Orléan, 2014a). On the other hand, it is widely believed that local ‘complementary’ currency, based on the same information technology, could unlock latent skills to counter unemployment and economic deprivation, revitalizing ‘social capital’ and social solidarity lying dormant in all communities. Some take these possibilities further and envisage the triumph of the local over the global, the community over the state, and cooperation over monopoly capitalism. With non-state media of exchange, ‘[t]he sheer volume, speed and spatial dispersion of . . . transactions will ultimately defeat the revenue collecting bureaucracies . . . [T]he territorial dimension of society will devolve to more local units’ (Hart, 2000, 316; see the discussion of money and ‘utopia’ in Dodd, 2014, chap. 8).

However, recent history has shown the limitations of both ‘market’ and ‘community’ money and, by implication, the shortcomings of the underlying theories of money and social order on which they are based. ‘Market’ theories of money, following Hayek, hold that stable money will emerge from rational choices between myriad competing currencies and, by implication, that social order is produced by recognition of the advantages of interdependence for the pursuit of self-interest. However, competition between the exchange-values of an increasing number of crypto-currencies has produced the bubble and instability that the market was supposed to eliminate. To be sure, local money can help to generate communal trust and economic activity, but there is no foundation for thinking that it could ever be more than ‘a complement’ to a viable mainstream currency and become the basis for socialist or communitarian society. Despite the ideological opposition to the market exchange theory of social order, these ‘utopian’ schemes imply the same – somewhat contradictory – underlying theory of money. On the one hand, both view money itself as the active means by which their respective ‘vision’ of a social order could be realized independently of a centralized state. On the other hand, both see money merely as a reflection or passive expression of the ‘real’ values created in economic exchange and the ‘real’ social forces inherent in communal solidarity.

However, money is a ‘social technology’ that has enabled the construction of large-scale social systems from Babylon to the present. Money performs most effectively as the means of coordinating complex transactions when the question of trust is detached from those directly involved and is transferred to the issuer. This replaces personal trust with the impersonal trust that enables exchange between strangers across time and space. Money makes markets. It is significant that the most successful and enduring local currencies in Argentina have not been those in the communal *trueques* but the *créditos* issued by provincial governments acting as ‘mini-sovereign states’ in a loose monetary federalism.

State monopoly of coercion and the gradual dissipation of general violence in society is the ultimate foundation for a large-scale society and viable money. Furthermore, this perspective allows us to see more clearly that money is more

than a mere medium of exchange and means of payment. The successful establishment of Mirowski's 'working fiction of an invariant standard' is a precondition for the continuity of social and economic order.

7

The Great Financial Crisis and the Question of Money

On 5 November 2008, when opening a new building at the London School of Economics, Queen Elizabeth II drew attention to academic economics by asking why none of the distinguished practitioners had foreseen the GFC. How could complex mathematical models have failed to detect any signs of such an event? Goldman Sachs's Chief Financial Officer, David Viniar, was ridiculed for the answer he gave to the US Senate Committee in April 2011. The crisis was unforeseeable because according to the models it consisted of events of 'twenty-five standard-deviation points several days in a row'. Statisticians flocked to point out that even one such twenty-five standard-deviation point event was unlikely to occur in the entire history of the universe. Did this mean that the models were telling Viniar that the financial crisis had not happened (Authers, 2017)?

In response to a similar question at the same time, Larry Summers – former Chief Economist at the World Bank and ex-Director of President Obama's National Economic Council – bluntly explained that the 'vast edifice of economic theory constructed since the Second World War had been virtually useless' because money and finance were excluded as independent variables from central banks' models (cited in Martin 2013, 190; see also Buiter, 2009; Ingham, 2011; Turner, 2016; King, 2017). Consequently, the models foreclosed any possible anticipation of the GFC. Mervyn King,