

The significance of MMT in linking money, markets, sector balances and aggregate demand

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This essay explores some neglected elements in the MMT view of money, and its relation to other (mainstream and “Keynesian”) economic approaches, which might affect the economic content of its policy recommendations. Excitement over the macroeconomic implications of modern money theory (MMT) often deflects attention from its origins, as an explanation of what money is and does and how it came into existence. Section 1 of this contribution asks what is new (or judiciously revived) in the theory’s explanation of money, and Sections 2-3 explore its significance for the way we understand the relationship between money and markets, as a foundation for reviewing MMT’s macroeconomic contribution in sections 4-5.

MMT’s integration of the financial sector with aggregate demand analysis helps to clarify why, while governments can avert a recession caused by private-sector liquidity squeeze or other aggregate demand deficiency, this requires an expansion of *circulating* money via fiscal deficit spending. Base-money expansion via quantitative easing is not enough. MMT’s three sector balances approach delivers powerful policy implications that have now been taken up in public debate, but depends on an analytical distinction between private-sector saving and investment which could mislead if misaligned with accounting measurements. Behavioural assumptions appropriate for applying macro balances to policy for a demand-constrained economy could be undermined by a downturn featuring supply shocks, resulting in stagflationary interventions. The role of falling tax rates and rising debt in widening income and wealth inequality means that MMT’s growing influence could have unintended political consequences.

1. Money-of-account and money in circulation

After the *Treatise on Money* (Keynes, 1930), Keynes and his followers moved on to more urgent fiscal and monetary policy questions from which their attention never fully returned. Harrod (1969, p. 3) began his own treatise on *Money* - the distillation of forty years’ teaching - by observing that “many primitive societies, including the feudal regimes of the middle ages, have conducted most of their exchanges without the intermediation of money”, citing the prevalence of landlord and peasant self-sufficiency or payment in kind. He went on to suggest that “The use of money as a measure of value arises naturally from its use as a medium of exchange” (1969, p. 3). On this basis, money only started to function as a “unit of account” with the onset of industrialisation as more people began to sell their labour or goods for money and needed to name their price.

MMT has plausibly reversed this sequence, recognising that money became the unit of account as soon as accounts began to be drawn up – long before the first published description (in Europe) of double-entry bookkeeping by Luca Pacioli in 1494. Money is likely to have appeared *first* as an abstract accounting device – recording who owed what to whom

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– in many places that lacked the precious or base metals required to mint a “commodity” money which people could carry around. A unit of account is needed for general agreement on how much of one item should exchange for another, or repay a debt. In a barter system the unit could be a commodity, like a cow or an hour of labour; but these are hard to standardise, and their acceptable “exchange rates” vary as technologies (or seasons) change. There are advantages in a separate “money” whose relatively stable exchange-value allows commodities’ shifting use-values to be accounted for. Money’s essential function is as a unit of measurement for transaction flows, commodity stocks, assets and liabilities. “Complex multilateral indirect exchange – that is, an authentic market – presupposes a money of account” (Ingham, 2004, p. 25).

Once established as a unit of account, money becomes a store of value and can also start to function as a medium of exchange and means of deferred payment. It becomes a medium of exchange when sellers are willing to deliver in return for money (or of a credit agreement that will later be settled by transfer of currency), and when buyers know that handing over money now will ensure delivery later. Money is interchangeable with credit, since even money as currency is a form of loan, entitling the recipient to be “repaid” by delivery of goods they buy later. Currency, as a representation of money-of-account, is in effect a loan to the holder of that money, settled when the recipient of the currency deposits it and receives a transfer of money from the holder’s account.

Money’s use in current or deferred exchange, in any community larger than a close-knit village, requires a portable form or representation of money (of account) to enter into general circulation. The representation is conventionally called currency, a diminishing subset of which takes physical form as notes and coins (cash), most now being carried in “virtual” form as a plastic card or its phone-screen image. Currency overlaps with, but does not equate to, legal tender, which is money in a form that creditors must (legally) accept in repayment of debt (Bank of England, 2019). The apparent conflict between MMT’s version of credit theory and Lawson’s (2019) theory of money might be avoided by observing that Lawson is discussing currency – a socially positioned representation of money as debt – whereas MMT asserts the primacy of the represented money as a unit of account.

Currency can bridge both a gap in trust between two transactors and a gap in time between two transactions. The trust gap is closed because currency is a generally accepted form of IOU, which someone can take as payment knowing they can use it in future to make payments to others, even if they do not know or trust the person who pays them with currency. Private IOUs are not acceptable, unless issued by someone whose word is his or her bond to an exceptional degree. Frank McNamara’s use of his business card to pay for a meal when he forgot his wallet may have enabled him to found Diners Club (Diners Club, 2019); but for everyone else, the restaurant is only satisfied by a card backed by cash or by a bank that’s credit-checked us. Sellers ask for payment in a generally accepted IOU, that can be deposited as money in a bank, because a merely personal promise to pay is too easily reneged on; a word cannot substitute for a bond, hence “evil is the root of all money” (Kiyotaki & Moore, 2002).

The time gap is closed because currency can represent the unexercised entitlement of someone who sells one commodity and does not immediately receive another in return. In the absence of currency agents would be confined to delayed barter, “which could only exist generally in face-to-face communities in which every exchange partner has knowledge about others such that he can trust payment to be made for items given” (Humphrey, 1985, p. 51).

Time and trust gaps are hard to distinguish in practice, since most commodity transactions (and all borrowing and lending) involve a delay between one side delivering and the other side paying. Money is required because complete trust can never be established, even in small groups or family networks: an increase in one party's belief that the other will later pay up, honouring their personal IOU, tends to mean an increase in the other party's gain from unexpectedly renegeing. And in the absence of trust, completion of transactions cannot be enforced – even with the most effective policing and judicial processes – unless money also changes hands.

Circulating money (currency) is indistinguishable from credit. It represents unexercised spending power, for which someone “owes” a delivery of goods or services at a later date. Equivalently, it is a promise to transfer an agreed sum of money-of-account, if and when the recipient pays the currency into their account. MMT goes further than reviving the credit theory of money, by offering a very specific answer to the long-evaded question of how a form of currency first gets agreed, putting one representation of money into general circulation. To assess this answer against the mainstream's it is first necessary to ask why money matters, in a market economy now fast becoming “cashless”.

2. Why money matters for market economies

Putting money into circulation – as currency representing money-of-account – solves the practical problem of how to prevent cheating (undelivered goods or unpaid invoices) when there are too many scattered and simultaneous trades for anyone to keep an accurate, up-to-date central ledger. The problem does not exist with barter, where goods exchange directly for goods (or services) and the transaction ends once this is done. It may soon cease to exist in today's economy, as technology makes it possible to re-create a central ledger from instantly updated bank records, and make instant, verifiable transfers of funds between buyers' and sellers' (or borrowers' and lenders') accounts.

When first introduced, however, circulating money had more revolutionary effects, according to free-market theory. It became the foundation of a private enterprise system in which individuals and firms, as small traders, could conduct their business unobserved and unregulated by stifling government or corporate bureaucracy. The obvious problem with a centralised ledger is that it must be kept by a central authority, which thereby potentially gains a panopticon's surveillance and regulatory powers (and might also grant itself special privileges, such as charging commission or crediting money to its own account). Putting the money of account into circulation, as currency, radically decentralises the ledger, into the myriad accounts with which households and companies track their own finances. A circulating currency, representing the money of account, enables large numbers to engage in simultaneous decentralised trading – fully settling their exchanges, running-up and repaying debt – without the transaction being observed by a central regulator or recorded by central authority. It means that any prospective buyer who can pay the market price is allowed to buy at that price, and any prospective seller who is happy with the market price can sell at that price. The existence of an advertised “market price”, set collectively but by uncoordinated action, removes the need for bilateral bargaining or haggling over price, which might expose prospective buyers to “price discrimination” on the basis of what the seller thinks of them personally, or knows about their preferences and ability to pay.

While not eliminating central power, circulating currency greatly disperses it, by allowing traders to make reliable transactions out-of-sight of any central record keeper. Central oversight of the system is lost, because it is no longer needed for ensuring that traders stay within their means and transaction patterns stay coherent. If everyone trades through a bank account, a central authority might still be able to requisition and collate the accounting information. Until now this has not been possible without significant delays and costs, which have deterred the compilation of “macrodata” from “microdata” even for the most important economic aggregates. “Existing sets of microdata relating to establishments, households and government agencies are not viewed as part of the statistical system” (Ruggles & Ruggles, 1999, p. 319).

Even the staunchest free-market advocates acknowledge that some oversight is needed to stop the over-issuance or counterfeiting of currency. But they regard these risks as worth incurring, because of the social benefits from decentralised, unobserved two-party transaction. Agents are shielded from discrimination, and permitted to trade anonymously, because permission to trade – and the price and quantity at which deals are struck – depend solely on the quality of what they offer as sellers and the quantity of money they can offer, not who they are. Market trade, decentralised through circulating currency, thus prevents both price discrimination and any other form of prejudice that could arise if transactions became “relational” with buyers or sellers allowed to compile information on another (except, perhaps, regarding creditworthiness, but this can be done non-prejudicially via a third-party reference agency).

A decentralised bilateral trading system enabled by circulating money leads, in the Austrian view, to individual transactors receiving all the information needed to get the best deal, and the information being scant enough for them to process in real time. Markets with portable money avoid the problems of imperfect, incomplete information and bounded rationality that other authors (e.g. Williamson, 1975) argue blocks profitable trades with “transaction costs”. Neoclassical general equilibrium (GE) theory has always struggled to demonstrate that free markets are a better route to it than “socialist calculation” of a central plan. In contrast, Austrian theory can – with the help of circulating money – by presenting the attainment of equilibrium as dependent on decentralised trade. This enables markets to operate with numerous, anonymous, interchangeable and heterogeneous agents on both sides of the transaction – in contrast to GE, which explicitly uses a “representative agent” by imposing homogeneity of preferences, and implicitly needs agents with market power to set prices (Richardson, 1960).

The existence of a unified ledger, recording all transactions and agents’ resultant assets and liabilities, is not inherently problematic to free enterprise, provided it is decentralised or “distributed” across the trading community. Many Austrians welcome the arrival of Bitcoin and other cryptocurrencies based on the Blockchain, a continually updated distributed ledger. Their objection is to the centralisation of account information, which could give one agency the power to maintain it and possibly to monitor transactors through it. Blockchain turns from Austrian dream to nightmare when a central bank proposes to launch its own cryptocurrency to replace commercial bank accounts, as China’s is reportedly preparing to do (Cuthbertson, 2019). A centrally designed and managed distributed ledger could potentially lead to all money (and not just cash or cheques) being withdrawn from circulation, replaced by centrally supervised transfers of money as the unit of account – a China-sized version of the village-pub bar tab, made possible by digital technology and dictatorial ideology.

The introduction of circulating money does not eliminate centralised power, since a generally agreed representation of the money-of-account appears to require a central authority to issue it, or at least to regulate its supply. But any sovereign monopoly on currency issuance is broken by the arrival of private-sector banks, whose “inside” money created through decentralised lending long ago overtook the “outside” money represented by state-issued notes and coins. MMT has usefully clarified the way that governments’ unfunded expenditure (not financed by taxation or backed by borrowing from the private sector) represents a new source of outside money, greater in importance than traditional note and coin issue. But as soon as it makes such unfunded expenditures, the new outside money arrives in private-sector accounts from which it can enter decentralised, unmonitored circulation.

3. Markets and money as constructed not evolved

The centrality of circulating money in the Austrian depiction of free markets contrasts with that of mainstream GE theory, which finds no obvious reason to insert (a representation of) money among the commodities in circulation. Money in GE functions solely as a unit of account (the numeraire), since individuals and firms transact either by agreeing the size and timing of commodity transfers at the start via a series of forward contracts, or by continually agreeing trades via a central auctioneer who conducts and records the necessary accounting transfers.

“It is not clear if what we know as Walrasian general equilibrium theory is compatible with a model in which money as a medium of exchange plays an essential role... incorporation of monetary exchange tests the limits of general equilibrium theory, exposing its implicitly centralised conception of exchange” (Ostroy, 1989, p. 187).

Circulating money could conceivably be a solution to the problem of getting an economy into general equilibrium, given that a centralised scheme of current and future transaction devised by a Walrasian auctioneer is both impracticable and inimical to the individualism that free-market theorists champion. But there are unsolved problems in explaining how a system of uncoordinated decentralised exchanges can quickly and reliably achieve and maintain general equilibrium. Kirzner (1992) concedes that the social knowledge problem which free markets solve, according to Hayek (1945), actually has two distinct elements. One imperfection – the setting of offer prices too low by prospective sellers or too high by buyers – can be thought of as quickly resolved by market signals (excess demand or supply) and price adjustment. But the second – the existence of mutually profitable trades which potential buyers and sellers are unaware of – is not automatically signalled by the market process. This has to be “solved through entrepreneurial discovery of hitherto overlooked opportunities” and presupposes “a powerful market tendency for all pure profit opportunities to be noticed and grasped” (Kirzner, 1992, p. 170). It does not matter that many opportunities for profitable trade are unknown to most market participants, because “entrepreneurs” will quickly spot the chance to meet unsatisfied wants or put resources to more profitable uses, and (if unhindered by regulation) conduct the missing trades.

Conventional accounts of the market economy appeal to general equilibrium theory to “prove” the existence and uniquely desirable properties of GE, then jump to an Austrian account of profit-driven price-led decentralised trade and entrepreneurial alertness to explain how the equilibrium is achieved. The existence of circulating money as a portable version of the unit of account, enabling the transactions ledger to stay decentralised, is as essential to the Austrian

vision as the existence of abundant entrepreneurship. This begs the question, unexplained by the “function” of money and unresolved by GE, of how a generally accepted currency enters circulation. The Austrian answer, a “spontaneous emergence” from market-based interaction, lacks both historical and logical support, seeming to trace its origin to a system that cannot work until it already exists. Kirzner (1992, pp. 175-177), paraphrasing Menger and Hayek, likens the convergence on one currency to the formation of a path across a snowscape in the tracks of the first person to cross it – ignoring the contrast between a solo expedition, which may be highly advantageous to the person who completes it, and the offer of an individualised IOU, which no other traders (other than close friends) have any reason to take up.

MMT provides the profoundly anti-Austrian answer that a sovereign nation standardises on whichever currency its government chooses to accept in payment of tax. This gives taxpayers a strong preference for receiving income and storing wealth in the government’s chosen currency. So even non-taxpaying traders are pressurised into using it. When a government decides to charge taxes in (say) dollars, it does not necessarily prevent traders from continuing their exchanges in other mutually-recognised currencies. But they have little incentive to do so, as those currencies’ fluctuation (and likely depreciation) against the dollar makes them a risky and unprofitable way to store the funds for their next tax payment. The one exception is where a government takes tax payments in a “soft” local currency, while domestic trade has been dollarized due to past inflation. Taxpayers will continue to use dollars, trading them for local currency when they need to make a tax payment, because of the likelihood of the local currency continuing to depreciate. Governments in this situation tend eventually to replace their local currency with one pegged against the dollar, or to re-designate the dollar as acceptable for tax payment. This re-aligns with the situation proposed as typical by MMT, but raises the possibility of causation running the other way, with governments choosing to tax what most people are paying with – a dispute that only further historical probing can resolve.

While advocates like to depict a single type of “free market”, there is in practice a variety, ranging between the Austrian ideal of a fully decentralised marketplace and the centralised, currency-free system of exchanges implied by GE theory. This can be illustrated by the existence both of “order driven” and “quote driven” financial markets, and the transition between them that can follow technological or regulatory change. An order-driven system collects and advertises (anonymously) all prospective buyers and sellers, the amounts they wish to buy or sell and the prices they are happy with. A quote-driven system features market-makers who intercede between buyers and sellers, setting buy or sell prices either by buying and re-selling on their own account or by acting as intermediaries who link a buyer and a seller unilaterally. Conventionally, order-driven systems are said to promote transparency, because all extant offers and demands are displayed alongside one another and continually updated, but to restrict liquidity, because there is no guarantee that buyers or sellers can (at that moment) actually complete the transaction in their favoured price range. Quote-driven systems are said to promote liquidity, because deep-pocketed marketmakers can always buy or sell at the advertised price, but to sacrifice transparency, because marketmakers’ trades (and the bilateral trades they promote) are not visible to all participants.

Financial economists observe a related distinction between markets that work over-the-counter (OTC), and those that run through a central exchange. OTC markets are conventionally admitted to lack both liquidity and transparency compared to the centralised alternative. These characteristics expose non-centralised markets to systemic-risk problems, as experienced in the 2008 global financial crisis (in which an early breakdown of OTC

derivative trades propagated the financing constraint which spread to large banks). The advantage of OTC trade is to widen markets to products (such as small-firm equities and tailor-made option contracts) which could not be listed on a centralised exchange due to compliance-cost or specificity. Post-crisis reforms (under the Dodd-Frank Act) forced central reporting of US OTC derivatives trades, a move designed to raise their liquidity and transparency, but to which traders responded by shifting much of their trade to less regulated (European) markets.

Quote-driven trading systems whose intermediaries absorb liquidity risk from traders, and centralised markets which display all traders' exposures for prudential regulation, might represent hybrid forms which promote an adjustment towards general equilibrium, without a radical decentralisation of trade and the associated need for a portable form of money. But they have often proved unstable, are largely confined to trading in products whose heterogeneity is curtailed by regulation, and are a long way from the popular depiction of how markets work. As well as critically re-assessing the functions of money, in a way that draws closer attention to market mechanisms, MMT has revived a neglected debate on the social origins of money as currently used.

4. MMT and demand-deficiency explanations

Through its association with renewed attention to macroeconomic sector balances, developed (in the common Levy Institute home) with Wynne Godley and other stock-flow-consistency developers, MMT has become a driving force behind the new Keynesian prescriptions discussed, and occasionally implemented, in response to the global financial crisis (GFC) that began in 2007. Some MMT-informed economists burnished their credentials by forewarning of that crisis. Their lessons on when, and why, monetary economies suffer demand-deficient downturns are especially important at present, with policymakers receiving conflicting advice on whether today's recessionary threat comes from a recurrence of the GFC's liquidity-crisis conditions or a new set of shocks this time arising on the supply side.

MMT's macroeconomic insights arise from the macroeconomic balance identity

$$(G-T) + (I-S) = (M-X)$$

which implies that if a country's external accounts are balanced ($M=X$), any private-sector surplus of saving (S) over investment (I) will have to be offset by a public-sector deficit with government spending (G) exceeding tax revenue (T). As this is purely an accounting identity, policy prescriptions derived from it depend on additional behavioural assumptions about the processes that enforce the identity ex-post (Palley, 2019).

MMT revisits the proposition of Keynes (1936) that effective demand is linked to excessive liquidity preference – the unspent portion of private-sector income being held as money in readily expendable form (currency or cash). The holding (or hoarding) of money in this form means that it is not spent on consumption goods, or directly invested (by spending on industrial capital goods), or made available as funds that others will invest (because the expected return on capital projects is kept below the costs of financial capital, due to lack of demand for bonds and stocks that would bid their price up and flatten their yield). This situation, shown by MMT as an excess of private saving over investment, can only be offset by a fiscal deficit or current-account surplus. It recalls Keynes' (1936) observation that saving

and investment decisions are taken by two sets of people with no obvious mechanism (in a decentralised market economy) to equate the two. When transactions are dispersed, through the use of currency as a medium of exchange, those who hoard the represented money (rather than spending it) cannot assure producers that they will spend it on their products in the future. So producers are deterred from investing in future production. The problem does not arise if money serves only as a unit of account, and is not needed as a medium of exchange or store of value. Hence the absence of demand deficiency in general equilibrium theory, unless caused by “imperfections” that inhibit price adjustment.

That money as medium-of-exchange is a *representation* of money as a unit-of-account highlights the sometimes neglected Keynesian insight that there are two distinct motives for moving money out of a bank account. One is to buy a financial or real asset that is expected to yield investment income, investments being “illiquid” to the extent that they cannot be instantly, reliably converted back into money-of-account at their present market valuation. The other is to turn money-of-account into currency, so as to spend it in decentralised trading. Conversion into currency is sometimes viewed as a move into greater liquidity, because (to take a crude example) goods may still be bought for cash when an IT failure is preventing banks from processing debit-card payments. But this is to conflate cash with currency; both are representations of money, whose acceptance is conditional on traders’ confidence of reconvertng them to the unit of account.

Keynes (1936) was concerned about money remaining stored in people’s or firms’ accounts, converted neither into currency for spending on consumer goods or fixed industrial assets, nor into financial assets in a way that reduced their yield so as to make fixed assets more attractive. A downturn caused by non-transaction money being hoarded as currency, rather than invested, could be resolved if real interest rates fell low enough to make investment in fixed (or circulating) capital more attractive than holding money, and worth borrowing for. But speculative money-holding and price deflation could prevent real interest rates from falling far enough, or else the stimulating effect of lower interest rates could be offset by falling expectations of available projects’ rate of return.

Subsequent developments (arising partly from breakdown of arrangements which Keynes tried to design for the post-war period) have raised two additional concerns. First, “financialisation” can increase the expected return on financial assets relative to directly-owned industrial assets, and on investments in financial institutions relative to those in non-financial business. Rising stock markets enable ongoing real returns to be made on re-trading existing financial assets, despite this doing little to promote the flow of investment via purchase of *new* share and bond issues. Real interest rates have been pushed down towards or even below zero, but money has been shifted into financial investment rather than into fixed or working capital that would actually boost supply. The money that households and firms choose to part with, along with the money that central banks injected via quantitative easing, has gone largely into revaluing existing industrial assets (lifting stock markets towards record levels) rather than buying and installing new industrial assets.

Second, increased regulation of market transactions (much of it required to prevent abuses by producers or financial institutions), and increased expenditure taxes, have incentivised the creation of alternative currencies for exchange of goods and service within sub-communities. Prominent examples are virtual currencies purchased within computer games; the digital wallets that now dominate transactions on China’s e-commerce sites Tencent and Alibaba (Klein, 2019); and Libra, the cryptocurrency backed by “a basket of currencies and assets”

(Libra, 2019) for which social media giant Facebook has promised to launch a digital wallet. Whereas a digital card payment moves funds from the buyer's account straight to that of the seller, these systems "upload" funds from the buyer's account into a digital wallet, from which they are passed to a seller who then downloads them back into an account. Money-of-account is turned into currency which is then converted to a digital token, which is used in transaction before being turned back into currency and then money-of-account. "Digital wallets still require funds to be moved into the banking system for banking purposes" (Klein 2019, p. 11), but they offer users the benefit of trading without centralised regulation, taxation or observation, which traditional state-supplied currencies may no longer fulfil. This advantage is offset by a loss of liquidity, because the wallet currency (and any profits made trading with it) must be re-converted to conventional currency, then swapped for the unit of account, before it becomes an addition to the trader's stock of wealth.

The inevitable next step – allowing customers to "save" or "invest" their online currencies as well as spending them – will actually be a return to the financial future envisioned before the 2001 "dot-com" crisis – in which money-of-account can be converted simultaneously into an investment and into a currency for immediate expenditure. The same representation of money can then offer a return on investment and be exchangeable as (interchangeable with) cash. Merrill Lynch's "cash management account", launched in the late 1970s in time to catch the jump in US prime rates in the Reagan deficit years, offered customers a cheque account and debit card linked to a money-market fund that paid them interest, and allowed them to trade on margin (Noble, 1981; Egan, 1977). The arrangement sidestepped (perhaps hastening the abandonment of) the Glass-Steagall separation of commercial from investment banking, and was widely imitated. The Merrill chairman who oversaw this move into shadow-banking, Donald Regan, had moved on to become Reagan's Treasury Secretary well before the experiment (and later the whole company), met its end in a flight back to ordinary interest-free cash. But a financial industry geared (literally) to developing synthetic financial instruments, whose major players are still "too big to fail", will continually seek to offer financial instruments combining the liquidity of a currency with the real returns of an investment, eroding the incentive for necessarily-illiquid fixed capital investments.

Central banks have, as financial regulators, traditionally been wary of such innovations, concerned about the risks required to create any instrument combining high yield with high re-convertibility (into money-of-account), and the migration of those risks from regulated institutions to non-banks and shadow-banks (such as Facebook and the long-gone Merrill Lynch). In their role as promoters of a fully-employed, expanding economy, central banks have since the GFC been more concerned to combat deflation than to arrest new asset bubbles. But the exhaustion of their expansionary efforts, without sparking a strong enough recovery for interest rates to return to pre-crisis levels, has lessened resistance to the relaxed fiscal message long delivered by MMT. When public injections of money are done via a central bank, buying-back government bonds to lower interest rates and put more money back in private hands, they only swell the reserves of money-of-account (base money). They do not guarantee its entry into circulation. In post-2008 conditions higher bank reserves did not trigger higher bank lending, since collapsing demand removed the incentive to borrow for investment. "No-one spends reserves. They are not a medium of exchange" (Ashton, 2016, p. 94). Funds injected into private accounts do not automatically convert into investment, any more than other private savings, as Keynes had observed eighty years previously. MMT thus helps to clarify why, while governments can avert a recession caused by private-sector liquidity squeeze or other aggregate demand deficiency, this requires an expansion of

circulating money via fiscal deficit spending. Base-money expansion via quantitative easing is not enough.

5. “Divided” capitalism and private-sector imbalance

The macroeconomic accounting identity leads to some powerful MMT inferences on the scope for macro policy. Government bonds (issued to finance a fiscal deficit) are an essential financial instrument in which the private sector can park its surplus savings. Unless a private-sector surplus is offset by a public-sector deficit, the country must run a current-account surplus, relying on other countries to buy its excess production; but it is arithmetically impossible for all countries to run external surpluses. While a current-account surplus enables the “export” of capital, whose inflow might enable other countries to run equivalent external deficits for a time, this is likely to collapse when the capital-importing countries run up unsustainable external liabilities. “Global imbalances” may delay the reckoning but eventually lead to an implosion under the weight of foreign debt (Turner, 2016). MMT concludes that government deficits are the norm in countries whose high propensity to save (due to high average income) and/or low propensity to invest (due to exhaustion of technological opportunity, or a falling price of capital goods) gives them an endemic private-sector surplus. This inference has put MMT at the head of an emerging consensus on the present policy challenge, behind which some prominent former “Keynesian” dissenters have recently fallen into line. The “secular stagnation” view largely agrees with this assessment of endemic private-sector surplus ($I < S$) in and beyond the western hemisphere, leaving its proponents sounding more sympathetic to the MMT-asserted need for ongoing budget deficits (e.g. Summers & Stansbury, 2019). Proponents of the “savings glut” idea who previously put faith in looser monetary policy to resolve it (notably Bernanke, 2015) have been led by experience to concede that fiscal expansion might be a necessary complement. A chronic private-sector surplus can help explain why endless public deficits need not become inflationary, even if there are no one-off factors (such as the rise of Chinese mass-production or a sinking world oil price) to account for western price levels staying stable or declining.

The flow of saving tends to move above the flow of investment in mature economies because of their rising stock of accumulated private-sector wealth. The gap between S and I is exacerbated by slow growth, which is then compounded by the low rate of investment. Large accumulated wealth, especially when held mainly in real-estate or financial instruments, worsens the deflationary imbalance in flows and the consequent distributional imbalance in stocks – wealth inequality widening, when the real return on financial investment (r) exceeds the real GDP growth rate (g), a typical situation in the US and Europe according to Piketty (2014).

MMT points to a situation that seems to dispel this economic and social doom. Governments can borrow costlessly, and stimulate the economy through public investment without raising their debt: GDP ratio, when the interest rate on public debt (i) is below the GDP growth rate (Kelton, 2019). If this situation co-exists with that depicted by Piketty, implying that $r > g > i$, it is likely to mean that the high return on private wealth is unsustainable and will eventually drop down to a smaller (risk) premium over I , which might even bring it below g . Even if the Piketty situation persists, public investment in social infrastructure (and environmental improvement) might counter the rising inequality associated with $r > g$, by boosting the “social wage” and public capital stock.

Surveying the world soon after the GFC, when governments were cutting welfare provision to finance the bail-out of rich bankers, Piketty warned “Keynesians” about a shift from redistributive tax towards the issuance of public debt which traditionally guarantees the rentier income of the leisure class. Government bonds’ regressive redistributive impact explained “why 19th Century socialists, beginning with Karl Marx, were so wary of public debt, which they saw – not without a certain perspicacity – as a tool of private capital” (Piketty, 2014, p. 131). Ten years on from the crash, MMT seeks a renewal of the optimism that, as bonds still find a market with yields below inflation, rentiers can no longer live on their Treasury interest, and may finally have to take some entrepreneurial risk – reviving g in the process of raising r – if they want to continue enjoying a positive real return.

The MMT argument is reinforced if, over time, structural changes occur which shift capital-intensive projects into the public sector and/or make private-sector investment more capital-saving. Rising per-capita GDP is generally associated with governments taking more responsibility for building and maintaining core infrastructure, including transport, energy and telecoms networks, water supply and storage, schools and hospitals, social housing, social care facilities, and national or public security installations. Public commitment tends to rise even if the construction and maintenance of big infrastructures is “privatised” in an effort to cut public costs. The larger they grow, the more governments must invest merely to maintain the existing stock of public assets, extra investment being required in order to expand them or to deal with technical change which increases their rate of obsolescence. The real cost of infrastructure building and maintenance tends to increase over time, not least because of an unsubstitutable labour component whose real wages rise. In contrast, much private-sector investment has shifted from specialist machines and programs to mass-produced hardware or customisable software, reducing its unit cost, bringing down the investment cost of maintaining or expanding the productive capital stock.

A “Green New Deal” might ease the problem temporarily, by promoting significant public and private investment in re-shaping production to reduce exhaustible resource use and carbon emission. However, since its aim is to reduce material consumption and make investment even more capital-saving, it might ultimately exacerbate the tendency for the private sector to “over-save”. If the world’s carbon assets – currently worth billions on corporate balance sheets, become “stranded” because environmental rules outlaw their use, there will be a massive devaluation of individual and corporate wealth. This might induce some companies to invest more heavily to rebuild their asset stock. But such expansionary spending could well be offset by the sudden diminution of private-sector wealth, whose re-building would require more saving, and the drop in banks’ core capital and loan quality, which under current rules would lower their capacity to lend.

Although most countries’ public and external sectors have expanded over time, larger economies’ private sectors still typically account for most of GDP (at least since 1989). Given their diversity, structural difference between their “real” and “financial” elements (Ingham, 1984) and contrary drives towards accumulation and conspicuous consumption, is it inevitable that private saving will stay above private investment? MMT’s one-sector characterisation encourages a differentiation of S and I by who does them rather than the type of expenditure they represent. Investment tends to be interpreted as “productive” investment by non-financial businesses, in fixed or working capital. Saving is ascribed to higher-income individuals and the financial institutions that manage their wealth, and includes the unspent returns and capital gains they make on existing savings or financial investments, as well as new purchases of bonds and shares.

In practice, the macro-accounting I is more appropriately defined as all expenditure out of income not yet generated, adding to demand before it adds to supply. It includes expenditure of capital gains and equity withdrawals, and debt-financed purchases of property, equity and bonds, as well as purchases of new capital equipment. The macro-accounting S represents all income from productive activity which is received and not immediately spent, resulting in deductions from aggregate demand that are not matched by deductions from supply. To adopt earlier Keynesian terms, I represents all “injections” to the circular flow of income by the domestic private sector, and S represents all “withdrawals”. Too narrow a measurement of I, and any misclassification of I into S, can exaggerate the extent to which aggregate private-sector behaviour remains deflationary. The UK achieved cautiously accelerating GDP growth between 2013 and 2018 with a narrowing fiscal deficit and a widening current-account deficit, despite households being under pressure to pay-down debt and rebuild savings, and firms apparently sitting on large piles of cash or using them to buy back shares. The macroeconomic accounts suggest I was catching-up or even overtaking S for most of this period, ensuring growth despite the government’s refusal to maintain a wider fiscal deficit. The powerful use that MMT makes of the three sector balances compels close attention to the accuracy with which they are measured, which may be especially hard to achieve when a large, mutating financial sector and a financialising production sector continuously test the neat conceptual division between S and I.

6. Conclusion: hazardous steps from modern money to modern monetary theory

Although they are now often conflated, modern money theory (MMT) remains a separate enterprise from the modern monetary theory to which its ideas and acronym now stretch. MMT remains a theory of what constitutes money, and how it is distinguished from such related terms as capital, currency and cash. Its proposition that governments establish the generally-circulated money through collection of tax has usefully re-engaged economic theory with economic history. It also highlights the difference between money-of-account and its representation as currency in circulation, whose importance will grow as corporations and governments begin seriously to consider replacing a decentralised money with one that returns transactions to a central, viewable record.

Modern monetary theory seems to follow logically from MMT, because a government that determines the status of money can in principle create its own, just by crediting additional sums to itself (directly or via a central bank). MMT has, by re-popularising the macroeconomic balances approach, helped return attention to the urgent question of why the American and European – and possibly Chinese – recoveries since the 2008 crisis remain so precarious, despite unprecedentedly long monetary (and in the US fiscal) relaxation. It has strengthened the challenge to the textbook economic warning that public deficits raise interest rates and “crowd out” private investment, along with the idea that public investment or consumption are “unproductive”.

This contribution (and others in the collection) have explored some neglected elements in the MMT view of money, and its relation to other (mainstream and “Keynesian”) economic approaches, which might affect the economic content of its policy recommendations. But as its influence grows, its political repercussions must also be watched. Although largely the work of progressive economists, MMT’s macro message is of increasing political attraction to conservatives – consonant their long-held agenda to replace taxation with public debt, letting those on higher incomes turn a straightforward subtraction into a discretionary investment

which ultimately returns and augments their capital. Governments' power to continue deficit-spending, without a rise in interest rates, has been more keenly exploited by the Trump administration, and other conservative governments, than by those on the centre-left for whom the same actions would prompt sterner market reaction.

Before the GFC, governments' capacity to tax was being viewed as an indication of their power to drive development (DiJohn, 2010). Now their capacity to borrow is being cast in the same light. Whether this change is appropriately contra-cyclical, or a capitulation to those who view all tax as confiscation, is a question likely to be resolved by MMT's prescriptions for the next recession. It could be awkward if, as some formerly successful prophets (e.g. Roubini, 2019) are now suggesting, the next recession will result from shocks to supply and not to demand. The unintended deficit widening by UK governments in the early 1970s notoriously spilled over into inflation and wider external deficits, for which the only remaining remedies were socially regressive incomes policy and politically untenable protectionism (CEPG, 1977). The scope for public debt to redistribute from wage-earners to wealth managers, reversing the role of progressive taxation, could bring MMT political support from some uncomfortable directions. Even the most effective policy weapons can lead to embarrassment when taken up by generals (or Treasurers) intent on re-fighting the previous war.

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