The New Monetary Economics Revisited

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This article revisits the key conceptual aspects of the New Monetary Economics (NME) by examining the idea of "monetary separation" and objections raised against it. So long as a dominant role for base money in exchange exists, using it to provide the unit of account remains advantageous and is likely to outweigh any mooted benefits of separation. Recent quantitative analysis, however, shows the transaction demand for government base money to be falling, a development that can be expected to continue in the years ahead. The passage of time thus seems to be weakening the principal basis on which monetary separation has been criticized—namely, the superiority of base money in payments. That development fits into the history of money told by Austrian economists, which emphasises payment practices evolving over time in response to technological improvements and market forces.

The New Monetary Economics

The "New Monetary Economics" is a term that was first used by Hall (1982a). It refers to a body of literature, epitomized in articles by Black (1970), Fama (1980), Hall (1982b), and Greenfield and Yeager (1983), which proposes that monetary arrangements could be

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improved by liberalizing the supply of media of exchange within the economy and by requiring that prices no longer be quoted in terms of government-supplied fiat base money.

To ensure a determinate price level, the government has only to provide a unit of account and require that prices are quoted in terms of it. The unit of account would be defined in terms of a commodity, or a bundle of commodities, not used to settle payments. A state of monetary separation would then exist with the medium of account (the medium in units of which prices are expressed) and the medium of exchange differing from one another. More than one medium of exchange could operate within the economy and transactions could be effected using accounting-based transfer methods. There would be no justification for government intervention in money and banking since there would be nothing special about the issue of media of exchange, whose equilibrium quantity would be determined by the same demand and supply forces that operate in other markets.

The payment system would differ from the current fiat money system, in which a unit of the settlement medium, government base money, provides the unit of account. It would also differ from a directly convertible payment system in which there is an obligation on the issuer to convert a unit of the medium of exchange into a predefined quantity of some medium of redemption, a unit of which acts as the generally accepted unit of account. Examples of this type of system are historical gold standards. In contrast, with monetary separation, only indirect convertibility arises. In such systems, the redemption medium, or media, and the bundle defining the unit of account are different.

The principal argument put forward by White (1984) and O'Driscoll (1985, 1986) against monetary separation proposals is that having the unit of account be a unit of a general medium of exchange is a part of the natural evolution of monetary arrangements and brings advantages to trade which monetary separation could not achieve.[1] Those authors draw on monetary history, in particular Menger's (1892) historical account of the evolution of money, in giving reasons why a unit of a generally accepted medium of exchange

[1]Another important element of the critique of NME offered by White and O'Driscoll is their highlighting the dominance of credit-based money systems over equity-based money systems historically and as a better basis for organizing monetary systems more generally.

should, and does, provide the economy's unit of account.[2] That history also indicates, they claim, a continuing demand for currency, and base money more generally, in exchange. As such, base money will remain the medium of account as well. Monetary separation is thus seen as inefficient and unlikely to emerge on an unfettered path of monetary development.

Criticisms of monetary separation rely heavily on the claim that there will be a continuing demand for base money in payments. Today's base money is issued by the central bank. Recent quantitative analysis shows the transaction demand for currency to be falling, in both absolute and relative terms, in many developed economies in response to technological change, a trend that is forecast to continue in the years ahead. The demand for settlement balances held at the central bank is being impacted by computer algorithms designed to economize on the amount of liquidity required to settle interbank payments and by the substitution of commercial bank money for central bank money in settling many large-value payments. The passage of time thus seems to be undermining the principal basis on which monetary separation has been criticized.

Proposals for Monetary Separation

Unlike Black (1970), who has relatively little to say about the unit of account in his payment system, Fama (1980) makes monetary separation a prominent feature of his contribution to the NME. In his payment system, transactions involve book-entry of debits and credits on bank accounts. The value of account balances, from which payments are made, fluctuate in line with the market values of the portfolios they are held against. With no entity with a fixed nominal value being utilized in transactions, there is no exchange medium to define the unit of account. Any tangible commodity could act as a medium of account: "It could be tons of fresh cut beef or barrels of crude oil" (Fama 1980: 43). Defining the unit of account using such a medium would be credible and appropriate as the real numeraire good would have a determinate price relative to all other goods.

[2]Dowd (1999) also uses a Mengerian approach in developing a conjectural history of monetary laissez-faire. He sees a progression in the monetary system over time from one based on coinage and a directly convertible gold standard to one with an indirectly convertible commodity-basket standard.

Hall (1982b) and Greenfield and Yeager (1983) express unhappiness with the prevailing monetary standard in which base money serves as both the general medium of exchange and the medium of account and contend that monetary arrangements could be improved by separating the medium of account from the medium of exchange. The ANCAP and BFH schemes are their respective proposals for achieving separation. Both schemes involve government defining the unit of account physically, in terms of a number of commodities, and not in terms of any medium of exchange.

In the ANCAP scheme, Hall advocates a commodity standard (or what he calls a resource unit) whereby fixed weights of ammonium nitrate, copper, aluminium, and plywood make up the dollar.[3] A selection of commodities would be preferable to one based on a single commodity, such as the gold standard, as offsetting fluctuations in the four ANCAP commodities relative to other goods would tend to even each other out and, therefore, would provide a more stable price level over time than one based on a single commodity.

Like Hall's scheme, the BFH system proposed by Greenfield and Yeager (1983) would see the government define the unit of account and enforce contracts but otherwise it would exercise laissez-faire in money and banking.[4] Their "idea is to define the unit of account physically, in terms of many commodities, and not in terms of any medium of exchange whose value depends on regulation of its quantity or on its redeemability" (1983: 303). The bundle would have a fixed price of one unit. There is no legal tender provision in the scheme and it does not require convertibility of media of exchange into the medium of account. Under the BFH system, privately issued notes, demand deposits, and checkable equity holdings would form the available exchange media. Settlement would involve issuers of exchange media offering to provide a quantity of goods or assets equal in value to the quantity of the medium of account promised by the fixed value of the exchange medium.

[3]The first letter of each these commodity words is used in denoting the standard's name, ANCAP.

[4]The BFH scheme is so named to acknowledge the influence of Black, Fama, and Hall in devising it.

Criticism of Monetary Separation

Perhaps the sharpest criticism of NME monetary separation is made by White (1984). His reading of monetary history is that the medium of exchange and medium of account being jointly embodied in one entity is a logical, natural, and, indeed, final outcome of monetary development so separation of the two would not prevail in real-world exchange. He highlights Menger's (1892) account of the historical evolution of money in explaining how what White terms "outside money"—and what others would call base money—emerges and comes to play the role of a generally accepted medium of exchange and a medium of account in payment systems. Gold and silver (and coinage of those metals) emerged as the first outside monies and served the functions of being both medium of exchange and medium of account. Even when specie-backed currency was replaced by fiat currency, the new outside money continued to perform both functions.[5] He concludes that in a decentralized or deregulated economy there is a need for an outside (base) money to act as both a medium of exchange and medium of account so as to minimize exchange costs and that there is no economic benefit to be gained from separating them.

It seems conceivable, however, that base money could lose its standing in payments. Ongoing changes in exchange media are, after all, a continuation of and a part of the market process (Centi and Bougi 2004). It is important, therefore, that the demand for base money is examined to see whether it is in decline or not. If it is then the prospect of there being no base money in payment systems in the years ahead arises and the case against monetary separation is weakened.

In modern economies, base money comprises physical currency (notes and coins) issued by the central bank and reserves held by commercial banks at the central bank. The next two sections consider

[5]This historical account serves to undermine the NME view that money is "exactly a creation of regulation" (Hall 1982a: 1554). As Cesarano (1995) points out, the basic features of a monetary economy do not depend on the nature of the issuers. Cowen and Kroszner (1990) also suggest that from a Mengerian perspective many of the regulations governing money simply codify existing social conventions. They are critical of such regulations which they deem unnecessary given that the conventions are already in place and which may hinder the continued evolution of monetary institutions.

how the payments-based demand for those two components of the base money stock has been evolving in recent times and what path the demand for each is expected to take in the years ahead.

The Demand for Currency in Exchange

A key issue in any review of empirical evidence in this area must be on ascertaining the extent to which base money is used as a medium of exchange, and not as a store of value. Drehmann, Goodhart, and Krueger (2002), for instance, find a continuing demand for large-denomination banknotes (which account for a large fraction of the value of currency outstanding) sustaining an overall demand for currency in euro area countries but a substantial part of that, they note, reflects a preference for households to hold currency as a store of value. Such evidence, however, cannot be used in the monetary separation debate given that it is currency's role as a medium of exchange that is relevant there.[6] Measures of the currency stock, such as currency-to-GDP ratios, are poor guides to the amount and proportion of payments made using cash, as they are stock-based measures and fail to distinguish between currency that is used in payments and that which is held as a store of value.

An indicator of payments-based demand for currency is provided by the share, in value terms, of cash in retail payments. Humphrey, Kaloudis, and Owre (2000) find that the share of cash used at point-of-sale in Norway declined from 91 percent in 1981 to 50 percent in 1999. Total consumer cash use at point-of-sale (POS) started to decline in absolute terms from 1993 onward and had fallen by almost one-fifth from peak usage by 1999, the final year of their sample. In contrast, the value of POS payments made by payment cards increased sixfold between 1993 and 1999. Paunonen and Jyrkonen (2002) examined data from Finland using this method and found that the cash share of POS payments declined steadily from about 80 percent in 1984 to 54 percent in 2000. The amount

[6]In a similar vein, the monetary base has increased sharply in the United States and other countries in recent years, reflecting mainly a rise in excess reserves. This seems to be attributable not to a greater demand for base money for payment purposes but rather by a desire by the public to hoard cash as a store of value and by central banks choosing to engage in quantitative easing. This recent increase in the monetary base then does not reflect any abrupt change in the demand for base money for payment purposes.

of cash used in POS payments decreased steadily in the second half of the 1990s, declining by over 10 percent between 1995 and 2000. An application of the Humphrey, Kaloudis, and Owre method to data from the Netherlands shows not only the share of retail sales paid for by debit cards exceeding that made by cash from 2002 onward but also the total value of cash sales being in secular decline from the late 1990s (De Nederlandsche Bank 2006, Jonker and Keitenis 2007).

Cash usage in payments can also be gauged by analyzing how the composition of the currency stock is evolving over time. Bauer and Littman (2007) find that the demand for small-denomination U.S. dollar notes (those with face values of between $1 and $20), which are those most heavily used in exchange, has fallen since 1980. This indicates to them fewer cash transactions occurring within the U.S. economy. They note that the pace of decline has quickened since 2000. Bauer and Littman also examine Federal Reserve System data on the destruction of notes returned to its member banks. Notes will become unfit for use and are destroyed the more they are used in transactions. Thus, a decline in the amount of returned notes would suggest that cash is being used less in payment activity. The data indicate that the destruction of both small-denomination notes and total notes in the United States peaked in the mid-1990s, which the authors interpret as signifying that the number of cash transactions in the economy hit its high point at that time as well.

Cash then seems to be in decline as a payment medium in many Western economies. Some recent forecasting exercises point to this trend continuing into the future. De Nederlandsche Bank (2006), for example, estimates that cash's share of payments by value will decline from 43 percent in 2005 to 20 percent in 2015 in the Netherlands. Such forecasts, based on historical data, however, might understate the degree of substitution that will occur in the years ahead. For example, Jonker and Kettenis (2007) refer to various studies that show the take-up of debit cards and e-purses being impacted by the age of users. In particular, older people are less inclined to use these and other new electronic payment methods. This source of inertia can be expected to ease as time passes, as older citizens pass away and younger generations see electronic devices as standard payment instruments. This will reinforce further the future take-up of electronic payment technologies.

The Demand for Base Money in the Interbank Market

The second component of the base money stock is reserves held with the central bank by commercial banks. As an exchange medium, those balances' main use is in settling payments between banks. Major changes, however, have been occurring over the past decade or so in how such payments are being settled. First of all, there was a move away from employing deferred net settlement procedures to a widespread adoption of real-time gross settlement (RTGS) in the late 1990s. The former involves large-value payments being netted off against one another with outstanding balances being settled by a transfer of balances with the central bank periodically (usually at the end of the trading day), while the latter sees payments each being settled individually in real time. This shift eliminates credit risk but increases the demand for settlement balances held with the central bank.

That said, there are other factors that point to the demand for central bank settlement balances falling in RTGS systems. Computer technology is now being used by commercial banks to reduce the amount of reserve balances needed to settle payments. The technological basis for this is offsetting algorithms, often referred to as liquidity-saving mechanisms (LSMs), which allow finality of settlement to occur in real time without any, or at most a minimal amount of, funds being required (see Martin and McAndrews 2008, Norman 2010). Such mechanisms rely on managing the queue of payments for settlement. LSMs condition the release of queued outgoing payments on the arrival of offsetting incoming payments with the computer algorithms searching payments queues to match off payments. The offsetting of payments reduces the amount of funds required for settlement compared to an uncoordinated gross settlement procedure and in that way is liquidity saving.[7]

Just as queuing can be used at system level to reduce liquidity needs, it can also operate at bank level, with individual institutions sequencing their own incoming and outgoing transfers. This allows them to control intraday payment flows by arranging the timing of

[7]Each payment is still, in legal terms, considered to be settled with finality individually, so that real-time gross settlement prevails notwithstanding the use of the offsetting mechanism.

outgoing payments according to the amount of funds received from incoming payments. A successful sequencing of payment flows can substantially reduce the amount of funds required for payments for the bank in question and so reinforce the decline in the demand for central bank settlement media. Splitting payments into smaller parts is also helping banks to coordinate better their incoming and outgoing payment flows, resulting in less demand for settlement balances.

Norman (2010) reports that substantial liquidity savings are being observed in RTGS payment systems where offsetting mechanisms have been adopted. Examples are the Bank of Korea's BOK-Wire+ payment system, where liquidity savings on the order of 20 percent were achieved within one month of its replacing the BOK-Wire RTGS system, and the Japanese RTGS system, BOJ-Net, which has seen a reduction in liquidity requirements of nearly 15 percent. Further savings are expected to arise in the BOJ-Net system when market conditions return to normal circumstances after the recent global banking crisis.

Additional declines in the demand for central bank settlement media are reported by Ercevik and Jackson (2009), who quantify the impact of a particular type of LSM—a centralized receipt-reactive queue—on the settlement funds requirements of banks in a large-value payment system using UK CHAPS payment system data.[8] They find that liquidity savings can average 20 to 30 percent using this particular LSM, without any noteworthy impingement on the smooth functioning of the settlement system. Also using CHAPS data, Denbee and Norman (2010) find that splitting payments in the absence of other LSMs requires 5 percent less liquidity to settle all payments in that particular payment system on an average day, although reductions of close to 10 percent were achievable on some days.

Another development in interbank settlements is the increasing use of commercial bank money, as opposed to central bank money, to settle payments in some payment systems. Such a shift has been apparent with some time. Henckel, Ize, and Kovanen (1999: 1) note "the rapidly declining demand for central bank

[8]A centralized receipt-reactive queue sees centrally queued payments' release for settlement being dependent on the arrival of offsetting payments.

reserves and their gradual replacement in wholesale payments by alternative forms of money—clearing house money and treasury money."

Within Europe, security settlement systems in Germany, Luxembourg, and Cyprus are using commercial bank money in settling security transactions. This form of money is also being used by banks to settle foreign exchange transactions. Euroclear Bank, for example, provides settlement in multiple currencies in commercial bank money. Hervo (2008) points out that their large size allows corresponding and custodian banks to settle transactions between their customers' accounts internally—that is, without going through payment and settlement systems. He also indicates that interbank intraday liquidity markets seem to be starting to emerge in relation to correspondent banking.

In a recent worldwide survey of payment systems, the World Bank (2008) notes that the use of accounts in commercial banks to settle net obligations relating to payment card transactions is quite common, with only about one-half of the payment card systems surveyed settling their obligations in central bank money. The use of commercial bank money for this settlement purpose is particularly important in the East Asia and Pacific, Latin America and Caribbean, and South Asia regions.

Given the relative newness of LSM technologies and private enterprise initiatives in the area of correspondent banking, it seems highly likely that there are substantial further economies to be achieved in the use of reserve balances at the central bank for settling payments and, indeed, one could well envisage that central bank reserves for settlement purposes might disappear. Such rationalization, to the point where there is little or no demand for settlement balances at the central bank, has already been envisaged by Friedman (1999). He suggests that within a quarter-century or so (of his writing), it is readily conceivable that private clearing mechanisms may erode banks' need to hold settlement balances at the central bank. Jordan and Stevens (1997), King (1999), and Cronin and Dowd (2001) take a similar view. King (1999: 48), for example, sees "no reason, in principle, why final settlements could not be carried out by the private sector without the need for clearing through the central bank." Bilateral exchange could involve financial assets being used in settlement and need not involve any recourse to the central bank.

Conclusion

The payment data and studies referred to in the last two sections point to the transactions demand for government base money now being in decline. The view, taken by critics of monetary separation, that a demand for base money will remain in place and maintain the existing non-separation monetary standard can then be called into doubt. A sustained decline in the demand for government base money, particularly for reserves, would also call into question the ability of the central bank to exercise monetary policy and influence over the payment and banking system.[9]

In a way there is nothing new or profound about the shift away from currency and central bank reserve balances to electronic, commercial bank payment alternatives now apparent. As Palley (2002) writes, what he calls the "e-money revolution" fits into the conjectural history of money told by Austrian economists like Menger. This approach sees money evolving endogenously over time in response to technological improvements and market forces and so it should not be surprising, for example, that relatively new payment technologies, such as debit cards, prepaid cards, and Internet banking and commerce, are being embraced by consumers.

If the history of monetary arrangements, as Cesarano (1995) puts it, is essentially a search for less costly ways to settle transactions, then this shift away from government base money must be motivated by the same desire for better and more economical ways to transact and represents the latest step in monetary development. There seems little reason why this transition process should not continue as, for example, computer algorithms become more powerful in managing the settlement of payments at the interbank settlement level.

The bottom line is that we should not presume that there will be an indefinite transactions demand for central bank base money. Several options could be considered for addressing a sustained decline in demand for this money. The most obvious would be the restoration of a commodity standard. An NME payment system, such as the BFH system, could also be considered.

[9]Selgin (1997), however, contends that as e-money takes the place of paper currency, the Fed would have tighter control over base money and it would be easier to substitute a simple monetary rule for discretion.

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