

# **Monetary Policy Rules and Emergency Lending**

Perry Mehrling

“Automation, i.e. being strictly rule-based, requires having achieved a high level of understanding of the economic relationships at stake. Discretion may sometimes be unavoidable, but often actually reflects inability on the side of the central bank to understand well and “pre-program” its interaction with the market.” (Bindseil 2016, 12)

The central question confronting monetary economics today concerns the channels of transmission of monetary policy in the modern highly financialized and highly integrated global economy. If the global financial crisis has taught us anything, it is that our level of understanding of the economic relationships at stake in this matter is not anywhere near as high as we had thought, and certainly not as high as we’d like.

Before the crisis, we thought that if we followed an appropriate interest rate rule, we could stabilize consumer price inflation, and in doing so stabilize also the larger financial system and the economy more generally. In support of that thinking, we had both a large corpus of economic theory and also the empirical evidence of what came to be called the Great Moderation.

But the crisis came anyway. The nice properties of our models of the world turned out not to be properties of the actual world in which we were living.

In the early stages of the crisis, the first instinct was to lower rates, initially from 5% to 2% and then, after the collapse of Bear Stearns, to zero. Subsequently, the so-called Zero

Lower Bound made it impossible to follow standard interest rate rules—the rule favored by Fed Chair Janet Yellen would have required reducing the rate to -9% (Yellen 2016, fn. 8). So that was the end of the rule, and the beginning of discretion, which took the form of so-called Quantitative Easing and Forward Guidance. Even today, the official line at the Fed emphasizes the adequacy of these two new tools in the face of potential recessionary shock (Reifschneider 2016).

Given the continuing low rate environment, such discretion is clearly unavoidable. But, as the words of Bindseil remind us, it also reflects the inability of the central bank to understand well and “pre-program” its interaction with the market. What we thought we knew is just not so, but we don’t yet have anything else to replace it with.

One response to this moment of intellectual challenge has been renewed interest in alternative frameworks and the alternative rules they imply, for example money growth rules rather than interest rate rules, and nominal GDP targeting rather than inflation targeting. Such a response is understandable, but to my mind does not go nearly far enough. These alternative rules, like the rules they propose to replace, all emerge from the intellectual framework I have called Monetary Walrasianism (Mehrling 1997) that has defined the limits of legitimate monetary debate in economics for most of the post World War II period. It is this intellectual legacy, held in common by everyone, that the crisis has called into question.

James Tobin, in his seminal “General Equilibrium Approach to Monetary Theory” (1969), presciently put his finger on the potential weakness of the approach he was then advocating: “If the interest rate on money, as well as the rates on all other financial assets, were flexible and endogenous, then .... there would be no room for monetary policy to affect aggregate demand”

(p. 26). In 1969, this weakness was purely hypothetical. In the years that followed, however, it became ever more real. Financial deregulation, financial globalization, and the integration of global capital markets with global money markets created the present world of flexible and endogenous rates that for Tobin was only an abstract possibility. To understand the channels of transmission of monetary policy in this present world, we must go back to basics, bringing into analytical focus fundamental features of the system from which Tobin (along with everyone else) abstracted.

In my view, two features are central: banking as a payments system and banking as a market-making system.

First, understanding banking as a payments system helps to bring into focus the source of a central bank's leverage over the system, even in a world of flexible and endogenous rates. Even in such a world, everyone faces a settlement constraint, and the central bank has the ability to relax or tighten that constraint by controlling the price of the ultimate means of settlement, its own monetary liabilities. The overnight rate of interest is the price of delaying the day of reckoning by one day, and the central bank can control that price because its own liabilities are the ultimate means of settlement.

Second, understanding banking as a market-making system helps to bring into focus the transmission mechanism through which central bank policy affects asset prices and so ultimately the real economy, even in a world of flexible and endogenous rates. Profit-seeking dealers make markets both in term funding (money markets) and in securities (capital markets), and it is by influencing their behavior that central banks influence the economy more generally. Central banks set the overnight rate, and profit-seeking dealers set term rates and asset prices;

these are the economic relationships we need to understand as a prerequisite for any future monetary rule.

By contrast, the world that Tobin knew and theorized was a world of “monetary” liquidity. For the most part, deficit agents settled with surplus agents using hoards of government-issued debt and money. But even before 1969, change was already in the air. Wholesale money markets, in particular Fed Funds and repo markets (Minsky 1957), were already creating a world of “funding” liquidity, in which deficit agents settled not with owned reserves but with borrowed reserves, indeed reserves borrowed from the very surplus agents they were settling with. Instability of measured money demand, the so-called “Case of Missing Money” (Goldfeld 1976), was the result. But that was just the beginning.

Subsequently, the rise of offshore Eurodollar funding markets provided the environment for the emergence of the market-based credit system, and the present world of “market liquidity” in which deficit agents settle using collateral. This is the world of so-called “shadow banking”, money market funding of capital market lending, a form of banking suited to the emerging world of financial globalization (Mehrling et al 2014). In this world instability of measured money supply became the most visible symptom of growing disjuncture between received theory and institutional reality (Friedman and Kuttner 2010, Carpenter and Demiralp 2010).

The global financial crisis of 2007-2009 was fundamentally a crisis of this global market-based credit system, and understanding the economic relationships at stake in this system is

therefore the central question confronting us today. As a first step toward that end, Figure 1 offers an abstract visualization of the key elements of the new system.

"Shadow Bank"		Money Dealer		Asset Manager	
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
RMBS	MM Funding	MM funding	"deposits"	"deposits"	Capital
CDS					CDS
IRS					IRS
FXS		Reserves			FXS

Risk Dealer	
Assets	Liabilities
CDS	CDS
IRS	IRS
FXS	FXS
Reserves	

**Figure 1: The Market-based Credit System**

The "shadow bank" is shown holding Residential Mortgage Backed Securities, stripping out all the risk using derivatives (Credit Default Swaps, Interest Rate Swaps, and Foreign Exchange Swaps), and funding what's left by borrowing in wholesale money markets, using RMBS as collateral. The ultimate funder and holder of all the risk is the Asset Manager, but the Figure shows the central importance of the Money Dealer and the Risk Dealer, who stand in between the Shadow Bank and the Asset Manager, and operate as market-makers. It is the activity of these two kinds of dealers that establishes the price of funding and the price of risk, and hence the price of the capital assets that are being used as collateral for raising funding.

During the crisis, once it became clear that standard interest rate policy was inadequate to the task, the Fed intervened to provide liquidity backstop to both Money Dealers and Risk Dealers, and ultimately to serve itself as dealer of last resort in both dimensions. This was a new thing for the Fed, but it worked to stem the crisis. Today, in the aftermath of the crisis, we are living in a time analogous to 1873, when Bagehot formulated his famous rule for emergency lending—“lend freely at a high interest rate”—but not yet any of the elaborate apparatus of bank rate management that would follow in subsequent years (most notably Hawtrey 1923). The experience of emergency lending in 2007-2009 has left us with sufficient understanding that it is possible to formulate an updated Bagehot’s Rule, but not yet an updated apparatus of bank rate management.

In a certain sense, what the Fed did during the crisis was just a version of the everyday operation of the dealer system in absorbing mismatched order flow onto its own balance sheet. If wealthholders decide they would rather hold money than securities, then dealers absorb the excess securities into their inventory, financing the lot by borrowing from banks, who create new money balances for the purpose. This kind of thing goes on every day, most frequently being reversed before the end of the day, so that it never shows up in end-of-day balance sheet accounting; the dealer system supplies market liquidity for a price.

Central bank involvement in this everyday system arises only when the order flow imbalance is larger, or longer, than the private dealer system is willing or able to absorb on its own. Classic “lender of last resort” involves the central bank lending, or promising to lend, to banks in order to support the funding of private dealer inventories, or perhaps to dealers themselves as the Fed did after Bear Stearns. What was new in the most recent financial crisis

is what I have called “dealer of last resort”, in which the Fed used its own balance sheet directly to make markets, not only money markets but also crucial segments of the capital market (Mehrling 2011). Ultimately, the Fed did its own money market funding of capital market lending, acquiring residential mortgage backed securities by expanding its own reserve liabilities.

With regard to emergency lending, it seems to me that we have a high level of understanding of the economics at stake, sufficiently high to memorialize in a set of rules:

1. Markets, not institutions
2. Outside spread, not inside spread
3. Core, not periphery
4. Liquidity, not solvency

In a market-based credit system, the role of the central bank is to backstop the dealer system that makes markets, both money and capital markets. The central bank is not so much lender of last resort as it is dealer of last resort, standing ready to step in to make markets when private dealers hit their position limits and market liquidity disappears.

These rules for emergency do not immediately translate into rules for monetary policy in normal times. But they do provide a lens through which it is possible critically to view the discretionary actions of the Fed subsequent to the crisis. Quantitative Easing, for example, appears clearly as a form of public shadow banking, but with the assets deliberately mispriced. Forward Guidance similarly appears as a kind of public profit guarantee for private dealers willing to fund security holdings with short term borrowing, hence a deliberate mispricing of



liquidity risk. And Negative Interest Rate Policy appears as a policy of rewarding delay of the day of reckoning, a deliberate mispricing of settlement risk.

Arguably, these discretionary interventions made some sense in the aftermath of crisis, as acts of innovative discretion in a desperate time. But, viewed through the lens of rule-based emergency lending, the same interventions seem unlikely to survive as core elements of central bank operation in the emerging new normal. New rules will emerge only from a new understanding of the role of central banking in a market-based credit system.

In this regard, perhaps the greatest intellectual challenge in reconceptualizing central banking for the modern world is not so much adapting to the new world of market-based credit but rather adapting to the new world of financial globalization. In 1969, Tobin was very much thinking about monetary policy as a matter for each separate nation state, each having in mind its own economic conditions and paying little attention to conditions elsewhere, even when that national state was the United States. In 2016, such a frame is no longer relevant. The modern economy is a global system, most especially so in its monetary and financial dimension.

From this point of view, the establishment in October 2013 of permanent and unlimited liquidity swap lines between the major six central banks appears as a first step in constructing a more robust international monetary system, a system more able to absorb temporary financial imbalances than the pre-crisis system. These swap lines can be understood essentially as rules for emergency lending between central banks, and the rules established in these formal agreements are very much in line with the four rules that emerge as lessons from the financial crisis. In essence, the swap lines create an outside spread, 50 basis points on either side of covered interest parity, to support the core private foreign exchange markets in the world. Here

we see the four principles of an updated Bagehot Rule at work: markets not institutions, outside not inside spread, core not periphery, and liquidity not solvency.

Rules for emergency lending are thus in place. Now begins the process of developing appropriate rules for monetary policy in the modern highly financialized and highly integrated global economy.

## References

Bindseil, Ulrich. 2016. "Evaluating Monetary Policy Operational Frameworks."

<https://www.kansascityfed.org/~media/files/publicat/sympos/2016/econsymposium-bindseil-paper.pdf?la=en>

Carpenter, Seth B. and Selva Demiralp. 2010. "Money, Reserves, and the Transmission of Monetary Policy: Does the Money Multiplier Exist?" Finance and Economics Discussion Series 2010-41. Washington, DC: Board of Governors of the Federal Reserve Board,.

Friedman, Benjamin M. and Kenneth N. Kuttner. 2010. "Implementation of Monetary Policy: How Do Central Banks Set Interest Rates?" NBER Working Paper No. 16165 (July)

Goldfeld, Stephen M. 1976. "The Case of the Missing Money." Brookings Papers on Economic Activity No. 3, 683-730.

Hawtrey, Ralph G. 1923. Currency and Credit, 2<sup>nd</sup> ed. London: Longmans, Green and Co.

Mehrling, Perry. 1997. The Money Interest and the Public Interest: American Monetary Thought, 1920-1970. Harvard Economic Studies #162. Cambridge: Harvard University Press.

Mehrling, Perry. 2011. The New Lombard Street, How the Fed Became the Dealer of Last Resort. Princeton, NJ: Princeton Press.

Mehrling, Perry, Zoltan Pozsar, James Sweeney, Daniel Nielson. 2014. "Bagehot was a Shadow Banker: Shadow Banking, Central Banking, and the Future of Global Finance". In Shadow Banking Within and Across Borders, edited by Stijn Claessens, Douglas Evanoff, George Kaufman, and Luc Laeven. World Scientific Publishing.

Minsky, Hyman. 1957. "Central Banking and Money Market Changes." Quarterly Journal of Economics 71 No. 2 (May), 171-187.

Reifschneider, David. 2016. "Gauging the Ability of the FOMC to Respond to Future Recessions." Finance and Economics Discussion Series 2016-068. Washington: Board of Governors of the Federal Reserve System, <http://dx.doi.org/10.17016/FEDS.2016.068>.

Tobin, James. 1969. "A General Equilibrium Approach to Monetary Economics." Journal of Money, Credit and Banking 1 No. 1 (February): 15-29.

Yellen, Janet. 2016. "The Federal Reserve's Monetary Policy Toolkit: Past, Present, and Future." <https://www.federalreserve.gov/newsevents/speech/yellen20160826a.htm>