



THE ROLE OF CENTRAL BANKS IN STABILIZING FINANCIAL MARKETS

DR. P.S.LAKSHMI

LECTURER IN ECONOMICS

GOVERNMENT DEGREE COLLEGE, (A), ANANTHAPURAMU

ABSTRACT

The roles of central banks in the advanced economies have expanded and multiplied since the beginning of the crisis. The conventional monetary policy roles - setting interest rates in the pursuit of macroeconomic stability and acting as lender of last resort and market maker of last resort to provide funding liquidity and market liquidity to illiquid but insolvent counterparties - have both been transformed. With official policy rates near or at the effective lower bound, the size of the central bank's balance sheet and the composition of its assets and liabilities have become the new, 'poor man's', monetary policy instruments. The LLR and MMLR roles have expanded to include solvency support for SIFIs and, in the euro area, the provision of liquidity support and solvency support for sovereigns also. Concentrating too many financial stability responsibilities, including macroprudential and micro-prudential regulation, in the central bank risks undermining the independence of the central bank where it is likely to be useful -- the conventional monetary policy roles. The non-inflationary loss-absorption capacity (NILAC) of the leading central banks is vast. For the ECB/Eurosystem we estimate it at no less than EUR3.2 trillion, for the Fed at over \$7 trillion. This is tax payers' money that is not under the effective control of the fiscal authorities. The central banks have used their balance sheets and their NILACs to engage in quasi-fiscal actions that have been essential to prevent even greater financial turmoil and possible disaster, but that also have important distributional impacts between sectors, financial institutions, individuals and nations. The ECB was forced into this illegitimate role by the fiscal vacuum at the heart of the euro area; the Fed by the fiscal paralysis of the US Federal government institutions.

Keywords: *accountability, central banks, financial stability and non-inflationary loss absorption capacity*

INTRODUCTION

A long time ago, in a galaxy far, far away, most academic monetary economists working on advanced economies and quite a few central bankers believed that the sum total of central banking was captured by an operationally independent central bank setting short term interest rates to pursue a one- or two-dimensional macroeconomic stability objective. The macroeconomic stability objective is often just price stability, typically defined as the pursuit of some target rate of inflation for some broadly defined index of goods and services. Some countries have dual objectives, involving both price stability and some real activity objective, like employment, unemployment or output. The Fed has a triple macroeconomic stability mandate, involving maximum employment, stable prices and moderate long-term interest rates. An exchange rate objective sometimes substitutes for or complements the price stability objective. When the

north-Atlantic financial crisis erupted in August 2007, the economics profession in the advanced economies and some central bankers rediscovered financial stability. Those working in and on emerging markets and developing countries of course never fell victim to the 'central bank independence and (flexible) inflation targeting' blind spot. The lesson has been sharp: there can be little doubt that, for any central bank faced with a potential conflict between price stability (or macroeconomic stability) on the one hand and systemic financial stability on the other, financial stability, the primary of financial stability has been rediscovered with a vengeance. Systemic financial stability trumps price stability or macroeconomic stability every time - anywhere. This has been true even for the European Central Bank (ECB). I expect that, by the time the European sovereign and banking crises are over, the financial stability role of the ECB will have been enhanced to a scale not seen elsewhere since the crisis started in 2011. If it is not, there will at most be a rump euro area (EA), consisting essentially of a 'greater Deutschmark zone', when the dust of history settles on the EA crises.

Financial stability

view policies to promote financial stability as having four dimensions The first is the prevention and/or mitigation of asset and credit booms, bubbles and busts. There is a long-standing debate, often referred to as lean vs. clean, between the BIS, led by William White (2006a,b) and most of the rest of the economics profession, led by Alan Greenspan by Ben Bernanke and Mark Gertler. The BIS favours using interest rates to lean against the wind in asset and credit markets, raising rates when booms or bubbles threaten, even when the general price level and the level of economic activity are on target. The Greenspan-Bernanke school favours letting credit and asset booms and bubbles run their course and using monetary policy aggressively after a bubble bursts to minimize the damage caused by these financial upheavals. The second dimension of financial stability policy is the prevention and/or mitigation of funding liquidity crises for systemically important financial institutions (SIFIs) and for the sovereign. This is the lender of last resort (LLR) role of central banks. A lender of last resort provides liquidity to solvent but illiquid counterparties. In the classic Bagehot approach, this liquidity is provided against good collateral and at a penalty rate (Bagehot (1873)). The Bagehot approach is, however, too restrictive and I shall use the term lender of last resort role just in the sense of lending to solvent but illiquid counterparties. I recognise, of course, that illiquidity is almost always the product of fear of insolvency.

Central bank

The notion of central banks as a separate category from other banks has emerged gradually, and only fully coalesced in the 20th century. In the aftermath of World War I, leading central bankers of the United Kingdom and the United States respectively, Montagu Norman and Benjamin Strong, agreed on a definition of central banks that was both positive and normative. 4-5 Since that time, central banks have been generally distinguishable from other financial institutions, except under Communism in so-called single-tier banking systems such as Hungary's between 1950 and 1987, where the Hungarian National Bank operated alongside three other major state-owned banks. For earlier periods, what institutions do or do not count as central banks is often not univocal.

Correlatively, different scholars have held different views about the timeline of emergence of the first central banks. A widely held view in the second half of the 20th century has been that, as the original issuer of banknotes, counted as the oldest central bank, and that consequently its successor the Sveriges

Riksbank was the oldest central bank in continuous operation, with the Bank of England as second-oldest and direct or indirect model for all subsequent central banks. That view has persisted in some early-21st-century publications. In more recent scholarship, however, the issuance of banknotes has often been viewed as just one of several techniques to provide central bank money, defined as financial money (in contrast to commodity money) of the highest quality. Under that definition, municipal banks of the late medieval and early modern periods, such as the Taula de canvi de Barcelona (est. 1401) or Bank of Amsterdam (est. 1609), issued central bank money and count as early central banks.

Early municipal central banks

The Taula de canvi de Barcelona, established in 1401, is the first example of municipal, mostly public banks which pioneered central banking on a limited scale. It was soon emulated by the Bank of Saint George in the Republic of Genoa, first established in 1407, and significantly later by the Banco del Giro in the Republic of Venice and by a network of institutions in Naples that later consolidated into Banco di Napoli. Notable municipal central banks were established in the early 17th century in leading northwestern European commercial centers, namely the Bank of Amsterdam in 1609 and the Hamburger Bank in 1619.

Early national central banks

The Swedish central bank, known since 1866 as Sveriges Riksbank, was founded in Stockholm in 1664 from the remains of the failed Stockholms Banco and answered to the Riksdag of the Estates, Sweden's early modern parliament. One role of the Swedish central bank was lending money to the government.

The establishment of the Bank of England was devised by Charles Montagu, 1st Earl of Halifax, following a 1691 proposal by William Paterson. A royal charter was granted on 27 July 1694 through the passage of the Tonnage Act. The bank was given exclusive possession of the government's balances, and was the only limited-liability corporation allowed to issue banknotes. The early modern Bank of England, however, did not have all the functions of a today's central banks, e.g. to regulate the value of the national currency, to finance the government, to be the sole authorized distributor of banknotes, or to function as a lender of last resort to banks suffering a liquidity crisis.

OBJECTIVE

1. to study on The Role of Central Banks in Stabilizing Financial Markets
2. to study on Present Discounted Value of future seigniorage in the euro area ($\alpha=0.8$; $\beta=2.9$)

METHOD

The ECB thus far has refused to disclose, even after the passing of an appropriate time interval, exactly what securities it has bought outright under the SMP programme and at what prices. It has also refused to make public either the valuation methods it uses to price illiquid financial instruments it is offered as collateral, or the actual valuations assigned to the illiquid instruments it has accepted as collateral. The haircuts applied to these valuations are supposed to be in the public domain, but many market observers believe that the

actual haircuts imposed on Greek banks offering Greek sovereign debt as collateral at the Greek central bank are higher than the posted official haircuts. The identities of the counterparties in the Eurosystem's and ELAs' transactions is also not revealed, even after the passing of a suitable period of time. This complete lack of openness, transparency and accountability for the ECB's and NCBs' use of public resources – ultimately resources belonging to the tax payers and other citizens of the euro area - is extraordinary. With a Eurosystem balance sheet of around €2.1 trillion and a non-inflationary loss absorption capacity (NILAC) of at least €3.2 trillion, one would have hoped that the European Parliament, to which the ECB is formally accountable (mainly through the quarterly hearings with its Committee on Monetary and Economic Affairs (ECON)), would have insisted on a full accounting for the quasi-fiscal activities of the ECB/Eurosystem. Thus far, however, the ECON has been something of a toothless paper tiger.

RESULT

Table 1 presents the estimates for the value of Eurosystem seigniorage based on these benchmark assumptions as well as a number of alternative assumptions for growth rates and interest rates. As the table indicates, the resulting value would be just over €2trn at a 1% average real growth rate and with a discount rate of 4%. Raising the average growth rate of real GDP to 1.5% almost doubles the estimate of the value of seigniorage. Note that the relevant growth rate here is the average growth rate in the future, with the horizon being very long (infinite, actually).

Table 1 Present Discounted Value of future seigniorage in the euro area ($\alpha=0.8$; $\beta=2.9$)

EUR(bn)	Real Growth Rate(γ)	3.5%	Interest/Discount Rate(i)		5.0%	5.5%
			4.0%	4.5%		
0.5%		€1,886	€1,273	€956	€763	€632
1.0%		€3,717	€2,065	€1,421	€1,078	€865
1.5%		€13,090	€3,817	€2,216	€1,553	€1,189
2.0%		Infinite	€10,966	€3,888	€2,345	1,670

Note: α represents the long run income elasticity of the money demand function, and β the corresponding interest rate semi-elasticity.

Above, we noted that the output elasticity of currency demand is estimated extremely precisely and robustly, including across different samples, different statistical methodologies, and different countries. There is therefore little need to dwell on the impact of different assumptions about this elasticity. The interest rate semi-elasticity is less precisely estimated. However, the quantitative impact of different values for this elasticity are rather limited, reducing the estimated value of seigniorage in our benchmark case (for a real growth rate of 1% and a nominal interest rate of 4%) by 3% if the elasticity is 4 rather than 3 and raising it by 3% if the elasticity is 2.

The corresponding estimates and calculation for US dollar, Sterling and Yen currency demand are given in Table 2, 3 and 4, respectively.

Table 2 Present Discounted Value of future seigniorage in the United States ($\alpha=0.8$; $\beta=7.2$)

USD(bn) RealGrowthRate(g)	3.5%	Interest/Discount Rat		e(i)	
		4.0%	4.5%	5.0%	5.5%
0.5%	\$1,727	\$1,150	\$849	\$664	\$540
1.0%	\$3,186	\$1,795	\$1,226	\$918	\$724
1.5%	\$8,669	\$3,096	\$1,839	\$1,285	\$974
2.0%	Infinite	\$7,077	\$3,005	\$1,864	\$1,329

Table 3 Present Discounted Value of future seigniorage in the United Kingdom ($\alpha=0.8$; $\beta=1.7$)

GBP(bn) RealGrowthRate(g)	3.5%	Interes t/Di		(i)	
		4.0%	4.5%	5.0%	5.5%

0.5%	£98	£67	£51	£41	£34
1.0%	£182	£105	£74	£56	£46
1.5%	£514	£183	£111	£79	£62
2.0%	Infinite	£432	£183	£116	£85

Table 4 Present Discounted Value of future seigniorage in Japan ($\alpha=0.7$; $\beta=12.1$)

Yen(trn)			Interest/DiscountRate(i)		
RealGrowthRate(γ)	3.5%	4.0%	4.5%	5.0%	5.5%
0.5%	¥136	¥90	¥65	¥50	¥40
1.0%	¥225	¥131	¥89	¥66	¥51
1.5%	¥457	¥203	¥125	¥88	¥66
2.0%	¥2,438	¥360	¥185	¥120	¥86

By any standards, these estimates of the NPV of non-inflationary seigniorage are large numbers. For the euro area, at 2 percent inflation, 1 percent real GDP growth and a 4 percent nominal interest rate, it comes to more than €2 trillion (see Table 1). For the US, with 2 percent inflation, real GDP growth at 2 percent and a 4 percent nominal discount rate, the NPV of future non-inflationary seigniorage is more than \$7 trillion.

These numbers underestimate the non-inflationary loss-absorbing capacity or NILAC of the central bank for a number of reasons. First, it ignores required reserves or assumes they are paid the market opportunity cost and therefore don't represent a source of profit to the central bank. Even if this were correct currently, it is at the discretion of the central bank, which sets both the reserve requirement and the rate of remuneration on required reserves. The required reserve ratio for the euro area was recently lowered to 1 percent of eligible deposits from 2 percent. Second, it ignores excess reserves or assumes they too are paid their market opportunity cost. Again, their remuneration rate, as well as the remuneration rate on all the central bank's non-monetary liabilities are instruments of the central bank, although the availability of private and

other sovereign substitutes limits the ability of the central bank to extract rents from these liabilities. Third, it ignores the conventional loss-absorption capacity of central banks. In the case of the Eurosystem – about €81 bn of capital plus reserves plus probably around €320 bn of gold and foreign exchange revaluation gains. Finally, as shown in Buitert (2007b), the intangible asset that has to be added to the conventional balance sheet of the central bank to obtain its non-inflationary loss absorption capacity due to the monopoly of currency issuance is not just the NPV of future currency issuance but the sum of the NPV of future currency issuance and the initial stock of base money, about €875bn for the euro area. This means that the non-inflationary loss-absorption capacity of the Eurosystem with $\gamma = 1\%$, $\pi = 2\%$ and $i = 4\%$: is at least €3.2 trillion – enough to get excited about. These resources are, of course, tax payers' resources and should be accounted for properly.

CONCLUSION

The roles of central banks in the advanced economies have expanded and multiplied since the beginning of the crisis. The conventional monetary policy roles - setting interest rates in the pursuit of macroeconomic stability and acting as lender of last resort (LLR) and market maker of last resort (MMLR) to provide funding liquidity and market liquidity to illiquid but insolvent counterparties - have both been transformed. With official policy rates near or at the effective lower bound, the size of the central bank's balance sheet and the composition of its assets and liabilities have become the new, 'poor man's', monetary policy instruments. The lender of last resort and market maker of last resort roles have expanded to include solvency support for systemically important private financial institutions and, in the euro area, the provision of liquidity support and solvency support for sovereigns also. Concentrating too many financial stability responsibilities, including macro-prudential and micro-prudential regulation, in the central bank risks undermining the independence of the central bank where it is likely to be useful – setting interest rates and the LLR and MMLR functions. The non-inflationary loss-absorption capacity (NILAC) of the leading central banks is vast. For the ECB/Eurosystem we estimate it at no less than €3.2 trillion, for the Fed at over \$7 trillion. This is tax payers' money that is not under the effective control of the fiscal authorities. The central banks have used their balance sheets and their NILACs to engage in quasi-fiscal actions that have been essential to prevent even greater financial turmoil and possible disaster, but that also have important distributional impacts between sectors, financial institutions, individuals and nations. The ECB was forced into this illegitimate role by the fiscal vacuum at the heart of the euro area; the Fed by the fiscal paralysis of the US Federal government institutions.

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