

5. A Post Keynesian Framework for Monetary Policy: Why Interest Rate Operating Procedures are Not Enough

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INTRODUCTION

A recent symposium in the *Journal of Post Keynesian Economics* (2002) explored the implications of the theory of endogenous money for monetary policy. This development is to be welcomed. For too long, Post Keynesians have been bogged down in contentious debate surrounding the microeconomic details of the mechanisms of endogenous money. As a result, the macroeconomic and policy consequences of endogenous money have received inadequate attention. This is ironic given that combating the monetarist policy challenge was a major motivation for Kaldor's (1970, 1982) initial formulation of endogenous money.

The current paper lays out a suggested Post Keynesian framework for monetary policy, at the core of which stands the endogeneity of money and finance. Laying out this framework, and distinguishing it from mainstream recommendations, is a difficult exercise for two reasons. First, in several instances, despite significant theoretical differences, Post Keynesian policy recommendations are observationally equivalent to those of the mainstream. Second, the Post Keynesian literature on monetary policy is actually quite thin. Whereas much has been written on why monetary authorities are compelled to adopt interest rate operating procedures, there is little on how interest rates should be set given the adoption of these procedures.

The paper maintains that the defining observable difference between the mainstream and the suggested Post Keynesian approach to monetary policy is the quantitative regulation of financial intermediary balance sheets. Effective monetary policy requires capacity to attend to both the real economy and financial markets. It therefore confronts two targets, and needs at least two instruments. This is a key difference from current mainstream perspectives (Bernanke, 2002; Bernanke and Gertler, 2000), which maintain that financial market effects work through the funnel of aggregate demand (*AD*), and all that is therefore needed is a single instrument to control the flow of *AD*.

The structure of the paper is as follows. Section II examines the mainstream case for interest rate operating procedures, and shows that mainstream analysis can generate a logically coherent case for such procedures. This means that recommendation of interest rate operating procedures is not enough to distinguish mainstream and Post Keynesian monetary policy analysis. Section III then examines the Post Keynesian case for interest rate operating procedures. Whereas the mainstream justification is constructed in terms of Poole's (1970) IS-LM analysis, the Post Keynesian justification rests on the theory of endogenous money.

Sections IV and V then address the question of how interest rate policy should be set. The mainstream literature on this issue is extensive, and mainstream thinking has evolved from one of NAIRU targeting to inflation targeting. Contrastingly, there is almost no Post Keynesian literature on this important matter. The paper therefore breaks new ground by presenting a Post Keynesian framework for interest rate policy that also rests on inflation targeting. Though many Post Keynesians are likely opposed to inflation targeting, the paper maintains that inflation targeting is in fact consistent with Post Keynesian analysis. However, once again this entails a policy observational equivalence with the mainstream.

Sections VI, VII, and VIII then explore why inflation targeting is insufficient, and why it must be supplemented by regulation of financial intermediary balance sheets to guard against the emergence of damaging balance sheet disorders. This need for quantitative regulation distinguishes Post Keynesian monetary policy from that of the mainstream. Section IX concludes the paper. The bottom line is that Post Keynesian monetary policy has important observational equivalences with mainstream policy recommendations, but behind these equivalences are significant theoretical differences. The major observational policy difference is the identification of need for quantitative financial regulation.

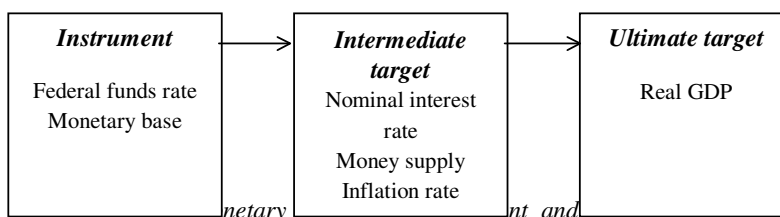
THE MAINSTREAM CASE FOR INTEREST RATE OPERATING PROCEDURES

A core element of the Post Keynesian approach to monetary policy is an emphasis on interest rate operating procedures. Yet, mainstream monetary policy economists also now recommend such an approach, and most central banks have adopted it (Blinder, 1998; Friedman, 2000; Goodhart, 1989). This raises the question of what distinguishes the Post Keynesian justification of interest rate operating procedures from a mainstream neo-classical justification.

This section examines the mainstream rationalization of interest rate operating procedures. Paradoxically, within the canonical mainstream IS-LM

model, the shift to interest rate operating procedures generates a form of endogenous money supply, which can be termed ‘central bank endogeneity’ (see Palley, 2002a, pp. 159-60). However, it is a conception of endogeneity that is fundamentally different from the Post Keynesian conception, which is rooted in the credit nature of money.

The shift by central bankers to interest rate operating procedures is fully consistent with the exogenous money models that have historically dominated macroeconomics. This shift can be understood through the literature on instruments, intermediate targets, and ultimate targets that was initiated by Poole (1970).¹ The underlying problem confronting the monetary authority is illustrated in Figure 5.1. The monetary authority’s ultimate target is the level of real GDP. To hit this ultimate target it must select an intermediate target of the money supply, the nominal interest rate, or inflation.² Finally, to hit this intermediate target the monetary authority must choose whether to use the interest rate or the supply of monetary base as its instrument.



choice problem

In the standard IS-LM model (Poole, 1970) the instrument choice problem is simplified, and it is assumed that the monetary authority can directly control the money supply. This leads to the simple policy recommendation that if the IS is more variable than the LM, the monetary authority should target the money supply. The economic logic is that money supply targeting results in less than full accommodation of IS shocks, whereas interest rate targeting fully accommodates IS shocks. Conversely, if the LM is more variable than the IS, the monetary authority should target the interest rate. Now, the economic logic is that interest rate targeting insulates the real sector against LM (financial sector) shocks, whereas money supply targeting does not.³

Analytically, the important implication is that the non-Post Keynesian ISLM model with exogenous money can also explain why central banks adopt interest rate operating procedures. Consequently, the adoption of such procedures is consistent with a non-Post Keynesian approach to monetary

policy. All that is required is that central banks believe that disturbances originate predominantly in the financial sector. And in fact, the shift by central banks to interest rate operating procedures is usually discussed in exactly these terms, as evidenced in the extensive econometric literature on the instability of money demand.⁴

Nor is it the assumption of an exogenous money supply that is critical to Poole's (1970) analysis. Friedman (1975) extended the optimal monetary policy instrument target choice problem to include a distinction between intermediate targets and instruments. In this more refined framework GDP is still the ultimate target, but now there is recognition that the money supply is endogenous and the monetary authority only controls the monetary base. This gives rise to an endogenous money supply given by

$$M^s = m(i, y, u_M)H^s = M(i, y, u_M) \quad M_i > 0, M_y > 0 \quad (1)$$

where M^s = money supply, $m(\cdot)$ = money multiplier, i = nominal interest rate, y = real income, u_M = random shock with mean of zero and finite variance, and H^s = supply of monetary base. This particular form of money supply endogeneity can be labelled 'money multiplier–portfolio endogeneity' (see Palley, 2002a, pp. 161-2). Within this framework the monetary authority can either target the interest rate, or it can target the money supply using either the interest rate or the monetary base as its instrument. The conclusion remains similar to that of Poole (1970). If the money multiplier is highly variable, thereby making the LM highly variable, the monetary authority should target interest rates. Conversely, if the money multiplier and LM are stable, but the IS is highly variable, the monetary authority should target the monetary base.

Finally, the IS-LM model uses a Keynesian aggregate demand closure of the goods market. Sargent and Wallace (1975) extended Poole's (1970) monetary policy instrument choice problem to a rational expectations – new classical macroeconomic framework in which equilibrium GDP (y^*) is supply-side determined. In this case monetary policy cannot impact expected GDP, but it can impact the variance of GDP and it is desirable to minimize that variance. The policy choice problem is identical to that analyzed by Poole (1970). If the IS is highly variable and the LM is not, the monetary authority should target the money supply to minimize temporary deviations from equilibrium. Conversely, if the IS is fixed and the LM is highly variable, the monetary authority should target the interest rate to insulate the real economy and minimize temporary deviations of output. The economic logic remains identical to that of Poole (1970), the only difference being that the monetary authority cannot permanently influence the level of equilibrium output. Thus, even with rational expectations, a new classical supply-side closure to goods markets, and an exogenous money supply, the monetary

authority may still choose an interest rate operating procedure. The bottom line is that interest rate based operating procedures are fully consistent with conventional monetary theory. This raises the question of what is different about the Post Keynesian justification for interest rate operating procedures.

THE POST KEYNESIAN CASE FOR INTEREST RATE OPERATING PROCEDURES

The best way to understand the Post Keynesian approach to interest rate targeting is through the debate over money supply targets. This debate was spurred by the emergence of monetarism in the 1960s as an alternative macroeconomic paradigm. Whereas Keynesians tended to advocate interest rate targeting, monetarists advocated money supply targets.⁵ Their argument was that the business cycle was principally driven by money supply fluctuations caused by central banks, and central banks should therefore aim to grow the money supply in a steady predictable fashion (Friedman and Schwarz, 1963a, 1963b).

Today, aside from a few diehards at the Bundesbank and the European Central Bank, most central banks pay little heed to the evolution of money supply aggregates and interest rates have become the dominant instrument of monetary control. Within the mainstream and central banking community this shift from money supply targeting has been driven by a combination of pragmatic and theoretical considerations. At the pragmatic level, the interest rate volatility associated with the Thatcher - Volker monetarist experiments of late 1970s and early 1980s made for tremendous interest rate volatility that negatively impacted the business investment environment. In addition, the significance of monetary aggregates became increasingly unclear owing to a progressive breakdown in empirical relations between monetary aggregates, real economic activity, and inflation. This breakdown was rationalized by Charles Goodhart in Goodhart's law, which states that every time a monetary authority tries to target a particular monetary aggregate, previously stable empirical relationships between that aggregate and economic activity will break down.

At the theoretical level, the mainstream constructed its retreat from money supply targeting in terms of the volatility of money demand.⁶ Here, the argument was that money demand became increasingly volatile and unpredictable, thereby making monetary targets inappropriate. Such a story fit with Poole's (1970) seminal stochastic IS-LM model in which money demand volatility is best dealt with by targeting interest rates.⁷

However, from a Post Keynesian standpoint, the above justification for shifting to interest rate targeting represents a case of reaching a correct policy

conclusion on the basis of wrong reasoning. Money is an IOU, and the private sector has always been capable of creating IOUs (see Wray, 1998). Moreover, this capacity has been dramatically enhanced by financial innovation and deregulation. Money supply targeting represents an attempt by central banks to control private sector IOU creation through control over either short-term interest rates or the monetary base. However, such targeting is bound to fail since controlling one type of IOU (eg. *MI*) merely induces a shift into creation of other types.⁸ This process of substitution generates interest rate volatility, and it also causes existing empirical money – output relations to breakdown.

Viewed from a Post Keynesian perspective, the logic of monetarism and money supply targets was always flawed, and the financial innovation and deregulation of the last two decades have further exposed the flaws. The non-viability of money supply targets is an inevitable consequence of the endogeneity of finance.⁹ Equally important, an endogenous money perspective also provides a clear theoretical explanation of Goodhart's law and the well-documented breakdown of empirical relationships between monetary aggregates and economic activity. Finally, a Post Keynesian account of the failure of money supply targeting also encompasses the conventional money demand story. Financial innovation and deregulation increase the elasticity of private production of money, enabling the financial system to escape even more easily and quickly quantitative monetary constraints that central banks may try to impose through money supply targets. Money demand must also then change because financial markets clear. However, rather than being causal, the shift in money demand is an equilibrating response to underlying changes in the financial sector's production of liabilities.

In sum, the above analysis shows how different perspectives may agree on the dominance of interest rate operating procedures, albeit for analytically different reasons. For Post Keynesians, the case for interest rate policy is rooted in the endogenous nature of credit money. For neo-Classicals and neo-Keynesians it rests on the volatility of the LM schedule. Paradoxically, within the neo-Classical and neo-Keynesians framework, adoption of interest rate targeting results in endogenous money.

HOW SHOULD INTEREST RATE POLICY BE GUIDED: THE MAINSTREAM CASE FOR INFLATION TARGETING

The recognition that monetary policy should operate through interest rates rather than money supply targets leaves open the question of how interest rates should be set. Whereas the mainstream literature on this subject is

extensive, Post Keynesians have had little to say formally. This section briefly investigates the mainstream approach to interest rate policy, and then goes on to develop a Post Keynesian alternative. Once again, despite significant theoretical differences, there turns out to be observational equivalence in policy recommendations.

For much of the last twenty five years mainstream monetary policy analysis has focused on targeting the NAIRU. However, recently the NAIRU has receded as a concept for guiding policy, being increasingly replaced by the notion of 'inflation targeting'. As with the retreat from money supply targets, the retreat from NAIRU based policy has also been driven by pragmatic factors. One problem is that empirical estimates of NAIRU have proven to be extremely volatile (Staiger, Stock, and Watson, 1997; Setterfield et al., 1992), thereby undermining the NAIRU's practical usefulness for policy. A second problem is that empirical estimates of the NAIRU tend to track the actual unemployment, thereby risking a 'structural unemployment policy trap' (Palley, 1999a).¹⁰ Such a trap emerges because policy makers are led to misinterpret cyclical jumps in unemployment as jumps in the NAIRU. Lack of a counter-cyclical policy response can then become self-validating to the extent that prolonged unemployment and demand weakness destroy human, physical, and organizational capital, thereby transforming cyclical unemployment into structural unemployment.

The flawed nature of NAIRU as a policy framework has prompted many central bankers – especially in the U.S. – to quietly abandon it for purposes of guiding interest rate policy. Side-by-side, mainstream economists have increasingly advocated a new policy framework of inflation targeting. Rather than focusing on labour markets and the unemployment rate, monetary authorities should adopt 'forward looking inflation targets' that are accompanied by 'significant discretion'.¹¹

This new policy has been justified in a number of ways. One justification rests on pragmatic empiricism. Here, the argument is that inflation targeting has resulted in good economic outcomes in those countries where central banks have adopted it as their policy framework (Mishkin and Posen, 1997; Bernanke et al, 1999). However, this pragmatic approach leaves open the theoretical explanation regarding why inflation targeting works, and it also leaves open what the target should be.

A second pragmatic justification is that inflation targeting represents a shift away from 'quantity' driven policy to 'price' based policy, with the latter being easier to implement and more efficient. Within the NAIRU framework, inflation can be thought of as a summary statistic of economic conditions. If inflation is increasing, this suggests excess demand conditions: if it is falling, this suggests excess supply conditions. Inflation movements can therefore provide a valuable signal for policy. Viewed in this light, earlier

NAIRU based policy can be thought of taking its cue from quantity signals (i.e real economic condition), whereas inflation targeting can be thought of as taking its cue from price signals.

A third theoretical justification is in terms of information and institutions. This justification derives from the game-theoretic ‘rules versus discretion’ approach to policy initiated by Kydland and Presscott (1977), and applied to monetary policy by Barro and Gordon (1983). The game theoretic approach persists with a NAIRU construction of the real economy whereby monetary policy cannot systematically impact the equilibrium rate of unemployment, but in addition it represents monetary policy in terms of a non-cooperative game between an opportunistic monetary authority and the general public.¹² In this non-cooperative game-theoretic framework monetary policy can still impact welfare and real outcomes if (1) it increases the variability of inflation, or (2) inflation enters as a negative argument in agents’ utility functions. Given these conditions, the rules approach suggests adoption of transparent, credible monetary institutions and policy arrangements that serve to bind the monetary authority and discourage it from adopting high, variable, and uncertain inflation. Inflation targeting can be viewed as such a policy arrangement, and hence the calls for transparent accountable inflation targeting (Posen, 2002).

Before turning to a Post Keynesian approach to interest rate policy, it is worth pointing out some internal logical consistency flaws in the mainstream’s inflation targeting model. The first and most critical flaw is that the mainstream approach to inflation targeting is rationalized in terms of a macroeconomic framework that is based on the idea of NAIRU. Though the mainstream may have rejected NAIRU for purposes of guiding monetary policy, it remains attached to NAIRU as a theoretical concept. This attachment has important consequences since it means that mainstream models can provide no guidance as to what the inflation target should be. Analytically, inflation is irrelevant in these models as inflation has no real effects. Instead, what matters is the ‘change’ in the rate of inflation. Consequently, policy makers should ignore inflation and focus on the change in inflation, which is the true signal as to whether there is excess demand or supply.

Moreover, if dis-inflation is costly, the mainstream model suggests that the inflation target should be the current inflation rate. Finally, if there are disutility costs to inflation, the mainstream model suggests that the inflation target should be zero inflation (i.e. price stability). However, in practice central banks and academic advocates of inflation targeting have emphasized a ‘low level’ of inflation as their target. Thus, the mainstream monetary policy community has settled on low inflation targeting as the framework for guiding interest rate policy, yet it is unable to justify this policy recommendation in terms of its own theoretical framework. This suggests

that either their policy recommendation is wrong or their framework is wrong.

A POST KEYNESIAN APPROACH TO INFLATION TARGETING: THE MINIMUM UNEMPLOYMENT RATE OF INFLATION (MURI)

Though the mainstream has discarded the NAIRU as a policy target, the new policy of inflation targeting is still situated within a NAIRU-based macroeconomic model. For Post Keynesians, this is highly problematic since NAIRU is a supply-side theory of macroeconomics in which the level of unemployment depends on the institutions and operation of labor markets. This is fundamentally at odds with the Post Keynesian conception of macroeconomics which emphasizes aggregate demand considerations. Consequently, from a Post Keynesian perspective, existing justifications of inflation targeting are theoretically flawed.

This leaves open the question of what should guide the Post Keynesian interest rate policy. One possibility is full employment. However, this raises the question of what is full employment. Indeed, NAIRU can itself be argued to be a particular definition of full employment. A second possibility is that interest rate policy should aim at minimizing the potential output gap. However, application of Okun's law reveals that potential output is just the GDP equivalent of full employment or NAIRU. A third possibility is that interest rate policy should be targeted on potential output growth. However, this is an unobservable variable. Moreover, it also carries the risk that if the economy is initially below full employment, targeting the potential growth rate will result in a permanent future of less than full employment since the economy never grows fast enough to absorb currently unemployed resources.

This section argues that there is a Post Keynesian justification for inflation targeting. Thus, just as it was possible to justify interest rate operating procedures within both a new classical and Post Keynesian macroeconomic framework, so too inflation targeting can be similarly justified.

Traditional Keynesian Phillips curve theory argues for the existence of a permanent policy-exploitable trade-off between inflation and unemployment. This trade-off allows policymakers to buy lasting reductions in the unemployment rate at the cost of higher inflation. However, within the Keynesian model the issue of what constitutes the optimal inflation rate is left hanging on policy maker preferences.¹³ Recently Akerlof et al. (2000) have suggested that the Phillips curve may be backward bending if workers have near-rationality about inflation that leads them to ignore it at low levels. Their model and reasoning is similar to that of Rowthorn (1977) who argues

for a backward bending Phillips curve because workers ignore very low inflation. Palley (2003) provides a different explanation of the backward bending Phillips curve that has Post Keynesian microeconomic wage setting foundations.¹⁴ In this model workers in depressed industries and firms are willing to accept inflation induced real wage reductions to increase employment, but they do so only as long as the reductions are not too severe. Once inflation rises above a threshold level, workers resist real wage reduction, causing inflation to lose its labor market grease effect. The backward bending Phillips curve is shown in Figure 5.2, and it generates a Minimum Unemployment Rate of Inflation (MURI) denoted by P^* , which is associated with an unemployment rate of U^* . From a Post Keynesian perspective, the monetary authority should set the MURI as its inflation target, and interest rate policy should be managed to hit this target.

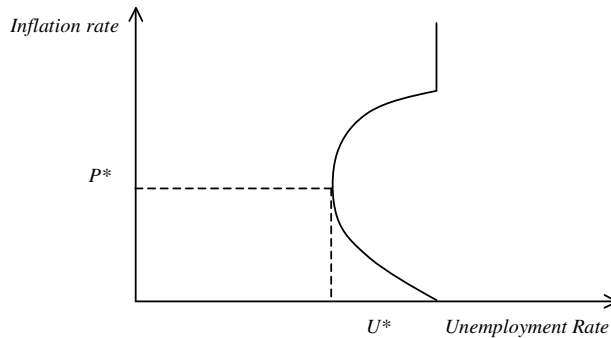


Figure 5.2 The backward bending Phillips curve showing the Minimum Inflation Rate of Unemployment (MURI)

It is worth comparing the difference between a MURI approach to inflation and a NAIRU approach. In the NAIRU framework inflation is an outcome ‘summary statistic’ that describes the state of economic balance. If inflation is increasing, this indicates that the economy is over-heating (below the NAIRU), and the monetary authority should tighten. The reverse holds if inflation is falling. Contrastingly, in a MURI framework inflation is an ‘adjustment mechanism (grease)’ that facilitates labour market adjustment. If inflation is below the MURI, an increase in inflation will lower the equilibrium unemployment rate. If it is above, it will raise it. Inflation is therefore an adjustment mechanism that can be calibrated optimally to minimize unemployment.

Just as the NAIRU is an unobservable concept, so too is the MURI. My own hunch is that within the U.S. the MURI lies in a 2 - 5% range, which should serve as the range for guiding inflation targeting.¹⁵ Such targeting

should be forward looking, and capable of adjusting to temporary supply side shocks. This is where discretion enters. The target should also be public and credible, and all of the arguments discussed above for a transparent credible inflation targeting regime continue to apply in principle within a MURI framework. Monetary policy should avoid creating inflation uncertainty, which only generates additional risk premia in financial markets. A last advantage of the MURI is that it steers clear of the deflation trap and provides an inflation margin that allows for negative real interest rates should the nominal interest rate ever get pushed to zero (Summers, 1991).

Finally, the MURI model of inflation targeting should be distinguished from conflict or cost-push inflations. The MURI model applies in situations where the mark-up is in equilibrium, so that income claims are reconciled. In the event of conflict inflation, inflation targeting stands to validate the claim of the second mover in the wage – price setting game, and this is usually viewed to be business. Interestingly, Post Keynesians often assume that most inflation is conflict induced, yet the empirical evidence for the U.S. shows little evidence of this.¹⁶

WHY INFLATION TARGETING IS INSUFFICIENT: THE PROBLEM OF ASSET PRICE AND DEBT BUBBLES

The concept of the MURI provides an alternative Post Keynesian justification for inflation targeting based interest rate policy. However, this section argues that a Post Keynesian analysis leads to the conclusion that inflation targeting is an insufficient framework for monetary policy, and must be supplemented by financial intermediary balance sheet regulation that can help ensure an orderly process of credit creation and allocation. This is a policy recommendation that is observationally distinct from the mainstream.

The reasons for the insufficiency of inflation targets connect with the earlier discussion regarding the failure of monetarist money supply targeting. Such targeting proved unworkable because of the private sectors capacity to circumvent quantitative financial constraints by changing the mix of its financial assets and liabilities. This ability to endogenously create assets and liabilities is also at the root of why inflation targeting is insufficient.

The basic argument is that inflation is an insufficient guide for monetary policy because economies can incur significant balance-sheet disorders that build without any immediate effect on inflation. These balance-sheet disorders can inflict huge employment and output costs when they ultimately come to be resolved, and hence policy needs to guard against their emergence.¹⁷ Moreover, such disorders are more likely in today's environment of innovative deregulated financial markets because innovation

and deregulation have increased the elasticity of production of private money. This enables rapid large changes in balance sheets and debt positions, the sustainability of which only becomes clear later.

The problem for policy is that balance sheet disorders are likely to be over-looked if inflation is the sole target or indicator. However, if interest rate policy is directed toward asset market and balance sheet management, then it is akin to using a policy blunderbuss that inflicts significant collateral damage on the rest of economy. Moreover, there are also significant distributional asymmetries regarding who benefits from asset price bubbles and who bears the cost of higher interest rates.

There are a number of reasons why the build-up of balance sheet and asset price disorders may have little impact on inflation, thereby rendering inflation indicators an inadequate guide for policy. First, asset prices are not counted as part of inflation measures, and the CPI includes neither equity nor home prices. This can be corrected by adding these prices to the CPI, but it would in turn complicate the process of wage setting and inflation indexation for purposes of real income protection.¹⁸ Second, in a globalized economic environment, increased spending generated by asset price and debt bubbles can be accommodated via the trade deficit. Consequently, there may be no impact on the domestic price level, and instead private agents may incur debts to banks who in turn borrow from foreign lenders. Third, the economic dangers of asset price bubbles may be unrelated to aggregate demand and inflation. For instance, increased asset values may be applied as collateral to incur debt, which is used to purchase additional assets, thereby pushing asset prices even higher. In this case, the result may be an unsustainable debt pyramid that pulls down the entire financial transactions system when it crashes. Fourth, the negative spending impacts of asset price bubbles may be compositional rather than aggregate. Thus, asset price bubbles may spur investment spending booms that are founded on distorted perceptions, and when these investments fail there may be significant negative blow-back into the financial system that negatively impacts overall economic activity.

Moreover, not only does inflation targeting fail to address the problem of emergent balance sheet disorders, it also risks creating policy moral hazard in asset markets. The underlying cause of the moral hazard is that asset prices may rise considerably during periods of expansion without necessarily inducing inflation and a tightening response from the monetary authority. However, once the expansion comes to an end, asset prices stand exposed. At this stage a significant downward correction of asset prices risks significant negative consequences. First, falling asset prices could freeze markets to the extent that they create negative net equity positions that make it impossible for debt-burdened asset holders to sell. Second, by reducing collateral values, falling asset prices also make it harder to get new loans. Third, falling asset prices make it harder to assess the value of new investment projects,

particularly those in areas such as construction. Fourth, falling asset prices may strike at consumer confidence just when maintaining confidence is critical to aggregate demand.

All of these considerations suggest that the monetary authority will have an interest in actively preventing asset prices from falling. Thus, whereas the monetary authority may pay little heed during the upturn, it steps in to protect values during the downturn. Indeed, this may well characterize Federal Reserve policy during 2001. *Prima facie*, the mildness of the recession and the relative stability of inflation did not call for as rapid and dramatic interest rate reductions as actually happened, suggesting that the Fed may have been guided by a desire to maintain asset prices and avoid an equity market meltdown.

The Fed was almost certainly right to pursue this policy, since under the existing system the Fed needs to keep asset prices up in a downturn. However, it is suggestive of the ultimate expression of ‘too big to fail’, and the moral hazard is clear. Under inflation targeting the Fed may have no cause to actively prevent asset price inflation on the way up, but then find itself compelled to limit asset price declines on the way down. The message to investors is take advantage of this asymmetric policy posture and hold flex-price assets, which sets the stage for bigger future asset price bubbles.

ASSET BASED RESERVE REQUIREMENTS: A SOLUTION TO THE ASSET AND DEBT BUBBLE PROBLEM

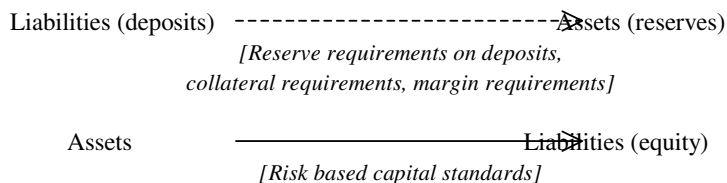
The above considerations point to the need for additional policy instruments that enable the monetary authority to target asset markets while leaving interest rates free to target inflation. This need arises because of the endogeneity of finance which is the well-spring of financial instability, and which in turn necessitates balance sheet regulation. This is a uniquely Post Keynesian concern, and it is here that Post Keynesian policy is observationally distinct from other policy schools.

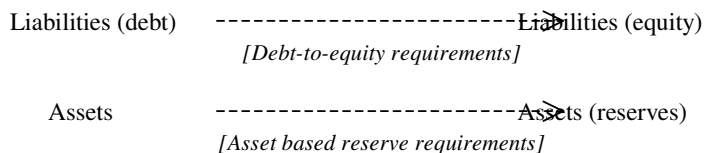
Asset based reserve requirements (ABRR) provide an intellectually coherent framework for implementing such regulation.¹⁹ The main features of such a system are: (1) FIs would be required to hold reserve requirements against all assets, though some asset categories could be zero-rated; (2) reserve requirement ratios would be adjustable at the discretion of the central

bank; and (3) requirements would be applied across all FIs, reflecting the fact that earlier business line distinctions have now largely disappeared as a result of deregulation and competitive convergence in financial markets. In this new environment, functional rather than sectoral regulation is called for, with regulation being conducted on the basis of what companies do rather than what they are called. This is needed to ensure a level playing field and avoid having regulation confer unfair competitive advantages.

Before going into the merits of the proposal, it is worth exploring how the structure of ABRR compares with other forms of balance sheet regulation. This comparison is described in Figure 5.3. The traditional form of reserve requirement - such as applied to bank deposit accounts - is a liabilities based system in which the composition of liabilities determines the level of required reserve holdings. Causation therefore runs from the liabilities side of the balance sheet to the asset side. Collateral requirements, such as margin requirements, are another example of a liabilities based system with the level of debt determining asset holdings.²⁰ Risk based capital standards reverse the direction of causation, and have the composition of assets determine the amount of equity (a liability) that firms must hold. Debt-to-equity requirements are a liability-to-liability form of regulation, and they have the level of debt determining a minimum level of equity holding. Finally, ABRR are a form of asset-to-asset regulation. Under the current proposed scheme FIs would be obliged to hold liabilities of the central bank as reserves, but in principle qualifying reserve assets could be broadened to include other high quality liquid assets.

There are a number of merits to the proposed system of ABRR. First, having the reserve requirement ratio vary by asset category would enable the monetary authority to change the relative cost of holding different asset categories by adjusting relative requirements, and this could be done without changing general level of interest rates. For instance, if the monetary authority wanted to discourage equity holdings, it could do so by increasing reserve requirements on equity holdings. Likewise, if it wanted to discourage commercial mortgage borrowing, it could do so by raising the reserve requirement on new commercial mortgages. In effect, the monetary authority would gain $n-1$ additional policy instruments, where n is the number of asset classes.²¹





Note: Arrows represent direction of causation.

Figure 5.3 Different structures of balance sheet regulation

A second merit is that ABRR can be used to promote flows of funds to areas deemed to be socially deserving (Pollin, 1993; Thurow, 1972). Thus, a lower reserve requirement on a particular asset category, such as community development loans, would increase their relative return and attract more funding.

Third, ABRR have good automatic counter-cyclical properties. When asset prices and bank lending increase in booms, this will increase the demand for reserves which will automatically engender monetary tightening. Analogously, when asset prices and bank lending fall in slumps, this automatically releases reserves and contributes to monetary expansion. Moreover, to the extent that modern financial business cycles are driven by expansion and contractions of the asset side of balance sheets, this automatic property attaches directly to the most salient part of the financial transmission mechanism.

Fourth, ABRR promises to yield significant seignorage benefits. Fifth, and finally, ABRR promise to strengthen monetary policy predicated upon open market operations by re-building the demand for reserves. Recently, Friedman (1999) has speculated that monetary policy could become irrelevant because of diminished demand for reserves, and because lack of a connection between the demand for reserves and economic activity. ABRR can re-establish a robust and strong link between the demand for reserves and economic activity because expansion of financial asset values and quantities is the central financial component of today's economic environment.

ABRR VERSUS RISK BASED CAPITAL REQUIREMENTS

Proposing an alternative system of financial regulation invites comparison with the current system of risk based capital standards (RBCS). As noted earlier, a principal difference concerns the way in which balance sheet components link. RBCS rely on an asset-to-liability link, while ABRR work through an asset-to-asset link.

The first advantage of ABRR is that they are counter-cyclical. Contrastingly, RBCS tend to be pro-cyclical. Thus, the quality of assets tends to improve with the cycle which can free up equity capital, and it tends to deteriorate with downturns. This means banks have to find more capital in downturns, which is exactly when it is most difficult to raise capital. This gives FIs an incentive not to make risky loans in recessions, which can contribute to credit crunches. Moreover, when an asset is written-off under ABRR, this releases reserves and is expansionary. And the reverse holds if an asset is written-back. Contrastingly, under RBCS writing-off an asset eliminates equity, and forces banks to find more equity or cut back on risky asset holdings.

A second disadvantage of RBCS is that they are not useful as a tool of discretionary monetary stabilization policy. This is because equity holdings cannot be adjusted with easy flexibility since equity capital is difficult and costly to raise. A third disadvantage is that RCBS yield no seignorage benefits, and nor do they improve the efficacy of monetary policy by strengthening the robustness and economic connectedness of the demand for reserves.

In sum, ABRR dominate RBCS as a form of quantitative regulation capable of reining in the increased elasticity of private production of money. The new financial landscape calls for more policy instruments that can support interest rate policy focused on managing the general level of economic activity. ABRR can supply these instruments, providing the monetary authority with specific instruments for dealing with asset and debt bubble problems. These new instruments can of course be supplemented with existing instruments. Thus, margin requirements can continue to be of use for purposes of controlling equity markets. Finally, capital standards can also have a place to the extent that moral hazard is viewed as the predominant problem. However, such standards are not appropriate as an instrument of stabilization policy.²²

CONCLUSION

This paper presented a comprehensive Post Keynesian framework for monetary policy. This framework involves three elements: (1) interest rate operating procedures, (2) inflation targeting aimed at the MURI, and (3) financial intermediary balance sheet regulation predicated on asset based reserve requirements.

The paper began by observing that interest rate operating procedures, which are a hallmark of the Post Keynesian Paradigm, are also consistent with an exogenous money paradigm. Next, it turned to the question of how interest rate policy should be managed and argued for inflation targeting

based on the MURI. This represents an alternative more intellectually coherent argument for inflation targeting than the existing NAIRU-based paradigm. Finally, the paper argued that inflation targeting is an insufficient basis for monetary policy, and needs to be supplemented by regulation of financial intermediary balance sheets. In this connection, the paper recommends the adoption of asset based reserve requirements as an encompassing regulatory framework.

The recommendations of interest rate operating procedures and inflation targeting result in a policy observational equivalence with conventional monetary policy thinking, though in both cases the analytical reasoning is significantly different. The recommendation of balance sheet regulation is unique to Post Keynesian monetary analysis. The key analytical insight is the endogeneity of money. This makes effective control of the money supply impossible, rendering interest rate targeting the only reliable operating procedure. It also means that the financial system can generate destabilizing balance sheet disorders, and with interest rates targeted on real economic conditions, the monetary authority needs additional policy instruments. Hence, the need for asset based reserve requirements.

NOTES

- 1 This extensive literature is comprehensively reviewed in Friedman (1990).
2. The issue of inflation targeting is a recent addition to the literature. For reasons of space and simplicity it is not addressed in the current paper. Palley (2002b) explores this issue, and shows that new classical models with a natural rate of unemployment cannot justify inflation targeting. Instead, they can only justify a policy of minimizing the variability of inflation. This is ironic given the mainstream's embrace of low inflation targeting.
3. Under money supply targeting accommodation is restricted to the interest sensitivity of money, and the willingness of agents to reduce liquidity demands to make space for increased economic activity.
4. The locus classicus for this empirical literature is Goldfeld's (1976) classic paper, *Case of the Missing Money*.
5. For reviews of this debate see Palley (1993) and De Long (2000).
6. The canonical paper in this line of explanation is Goldfeld (1976).
7. Poole's (1970) paper spawned a cottage industry on the optimal conduct of monetary policy. This literature distinguishes between ultimate targets, intermediate targets, and policy instruments. In a sense, it consists of two literatures. The first explores these issues in the context of Keynesian styled IS-LM models, while the second explores them in the context of New Classical macroeconomic models with *ex-ante* labor market clearing and rational expectations. This literature is comprehensively surveyed in Friedman (1990).
8. These shifts are explained by endogenous money supply models in which the choices and lending activities of profit maximizing banks drive the money supply (Palley, 1987/8, 1994a).
9. To answer Fontana and Palacio-Vera's (2002, p.564) question, endogenous money is a logical necessity rather than a policy choice.
10. The concept of the NAIRU is reviewed in a symposium in the *Journal of Economic Perspectives*, September - October, 1997. Galbraith (1997) is especially critical of the NAIRU as a framework for policy.

11. Mishkin and Posen (1997), Bernanke and Mishkin (1997), and Bernanke et al. (1999) represent early proponent presentations for inflation targeting, and have helped put it on the policy front burner.
12. Palley (1998, chapter 7) discusses the political economy of this construction. The mainstream of the economics profession has focused on the distinction between 'control-theoretic' and 'game-theoretic' approaches to monetary policy. At the base of this distinction is the question of whether the monetary authority is 'benevolent' or 'opportunistic.' An alternative political economy approach emphasizes 'class and sectoral differences of interest.' The balance of political power and institutional arrangements then determine whose interests the monetary authority tilts toward. See also Epstein (1992).
13. The standard neo-Keynesian approach to optimal inflation worked via a public policy welfare function in which lower unemployment and inflation rates are both goods, so that policy makers have convex indifference curves in unemployment rate - inflation space. The optimal inflation rate is then determined by the tangent of the policy maker's indifference curve with the Phillips curve. An alternative Post Keynesian approach has inflation - unemployment rate preferences differing by economic class, so that the optimal inflation rate differs by economic class. Which inflation rate prevails depends on the degree of influence of each class over the central bank.
14. These microeconomic foundations are described in Palley (1990).
15. Given the politicized nature of the monetary policy process, there is no guarantee that the monetary authority will target MURI. For instance, financial and industrial capital interests may find their private interests served by a higher unemployment rate and lower inflation rate (Epstein, 1992; Palley, 1998).
16. A comprehensive discussion of the role of second mover advantage in conflict inflation models is contained in Palley (1996, Chapter 8), while evidence on the prevalence of wage-led conflict inflation is provided in Palley (1999b).
17. Concerns with balance sheet disorders leads to the debt-deflation hypothesis of Irving Fisher (1933) and the financial instability hypothesis of Hyman Minsky (1982).
18. Boyan et al. (2002.) Show that including the impact of asset prices on the CPI would raise the rate of inflation by one-quarter percentage point. Since CPI indexation is often used to protect real incomes (as with Social Security), augmenting the CPI to include asset prices could reward persons twice in that they would benefit from the underlying asset price inflation, and they would then get an income adjustment on top of this. Moreover, this double rewarding would of course be skewed toward the wealthy.
19. The full details of an ABRR system are described in Palley (2000).
20. It is interesting to compare collateral and conventional liability based reserve requirements which have banks holding liabilities of the central bank. The latter have the advantage of providing seignorage, and central bank liabilities are also absolutely liquid and subject to zero price risk. Contrastingly, collateral can be subject to considerable price fluctuation, which can make collateral requirements highly pro-cyclical. Thus, prices may fall in slumps, obliging agents to ante up more collateral which they may be unable to do. This can then trigger default.
21. The asset bubble policy problem can be understood in terms of Tinbergen's (1952) targets and instruments framework. Under the current regime the monetary authority has one instrument and two targets (the real economy and financial markets). ABRR will give the monetary authority additional instruments that can be targeted to financial markets, leaving the interest rate free to target the real economy.
22. Tobin (1998) has also suggested modernizing the Federal Reserve's balance sheet by allowing it to buy and sell corporate equities and bonds. However, this raises concerns about backdoor nationalization and favoring some companies over others in terms of credit access.

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