Asset price bubbles and counter-cyclical monetary policy: Why central banks have been wrong and what should be done

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Central banks have generally opposed targeting asset and credit market excess. This paper argues against that position. Bubbles can impose significant harm through the debt footprint effects they leave behind, and through distortions resulting from using interest rates to mitigate their aggregate demand impacts. Conventional interest rate policy is not well suited to managing bubbles, and the paper argues for adoption of a new system of asset based reserve requirements (ABRR). Not only can ABRR target asset market excess, they also strengthen counter-cyclical monetary policy.

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1. Reconstructing monetary policy after the Great Recession

For the last several years central bank thinking has been dominated by inflation targeting. The US, which was ground-zero for the financial crisis, made inflation its primary focus even though it stopped short of a formal inflation target. Side-by-side with this focus on inflation there was explicit opposition to targeting asset markets and asset price bubbles from both

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former Federal Reserve Chairman Alan Greenspan and current Chairman Ben Bernanke.[1] That policy configuration – a focus on low inflation plus relative neglect of asset markets – failed to prevent the build-up of massive financial fragility and has been proved seriously flawed. Now, the depth and severity of the ›Great Recession‹ provide an opportunity to reconstruct monetary policy.

This paper challenges the conventional wisdom regarding opposition to targeting asset markets and presents a policy framework for reining in asset and credit markets. This framework is based on a system of asset based reserve requirements that can enhance counter-cyclical monetary policy.

The Greenspan-Bernanke opposition to targeting asset bubbles has two components. First, there is a pure pragmatic objection that it is not possible to identify bubbles in advance. Second, there is a theoretical objection against targeting bubbles which is that explicit asset price targeting is not desirable. Part of this latter argument is that even if bubbles could be identified, it would not be possible to safely pop them without exposing the economy to enormous collateral damage. For Bernanke, the problem of asset bubbles should be addressed by regulatory and supervisory measures rather than activist policy (Bernanke 2002: 2).[2]

The current paper argues against this theoretical position, and makes the case for a particular form of activist policy that has general application as part of counter-cyclical monetary policy. The paper begins by presenting a simple macro model that illustrates why monetary authorities should be concerned about asset bubbles, and why conventional policy may be unable to reverse their effects even if implemented rapidly. Not only do asset bubbles distort economic activity when they are inflating, they leave behind damaging effects that can reduce activity long afterward. This provides the policy rationale for actively addressing them.

Thereafter, the paper presents a policy framework based on asset based reserve requirements (ABRR) that permits activist anti-bubble policy interventions, but does not use the tool of interest rates which impose unacceptable collateral damage on the rest of the economy. ABRR give the monetary authority additional new policy instruments that can be specifically targeted on asset prices, thereby avoiding the collateral damage problem and circumventing the main argument against activist anti-bubble policy.

1 Former Federal Reserve Chairman Greenspan opposed formal inflation targeting and targeting asset bubbles (Pearlstein 2002; Greenspan 2002a and 2002b). Current Chairman Ben Bernanke favored formal inflation targets but was against targeting asset bubbles (Bernanke 2002; Bernanke et al. 1999, Bernanke/Mishkin 1997).

2 Former Federal Reserve Governor Mishkin (2008) has made the additional argument that there is no need to target bubbles because their adverse effects can be nipped in the bud (i.e. cleaned up) if conventional interest rate policy is quick to respond when they burst. That is an empirical argument, and there are strong grounds to doubt its validity. The Federal Reserve was quick to lower interest rates in response to the bursting of the US house price bubble, to the extent of earning the ire of one well known economist (Buiter 2008), yet the economy has still tumbled into what has proved the worst economic crisis since the Great Depression.

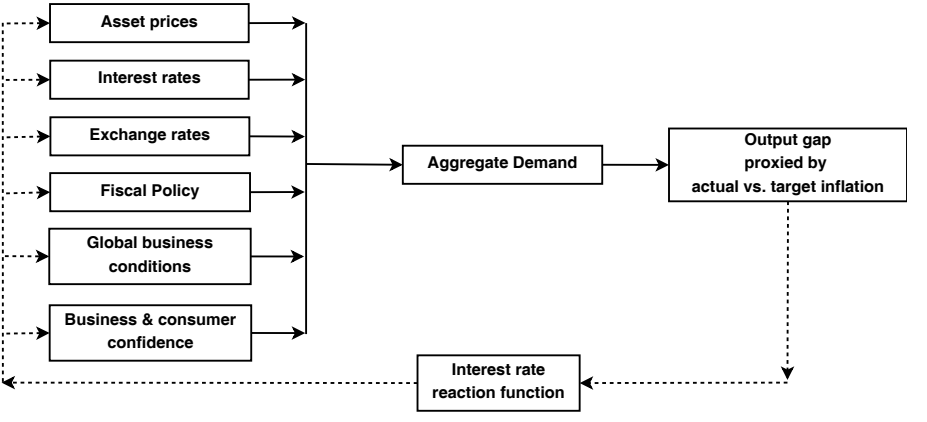
Lastly, the paper does not address the ›bubble identification‹ argument. In this author's opinion, bubbles can be identified. Stock market bubbles can be identified through measures such as cyclically adjusted stock market price/earnings ratios, while house price bubbles can be identified through measures such as house price/income ratios and house price/rental ratios. There are of course difficulties and risks (Type II errors) to bubble identification, but the conduct of monetary policy always involves judgment and risk. This even holds for rule-based policy as the rule needs to be selected and implemented. If monetary authorities can make reasonable judgments about potential output, potential growth, and expected inflation, they can also make reasonable judgments about asset price bubbles.

2. Central bankers' new economic model

Central bankers' opposition to targeting asset price bubbles can be understood in terms of the theoretical framework that also guides their thinking about inflation. This framework has been labeled the »new consensus« macro model (Arestis/Sawyer 2006).

Figure 1 provides a stylized representation of the new consensus model. The core logic is that the level of aggregate demand (AD) drives fluctuations in the output gap, which in turn drive the rate of inflation and its deviation from target (be it explicit or implicit). The monetary authority then responds to these deviations according to its interest rate reaction function – a form of the so-called Taylor rule – and its interest rate response causes an adjustment of AD that brings output and inflation back in line with target.

Figure 1: The Fed's new model



The important feature of the model is that asset prices are viewed as just one of many different factors influencing AD. Thus, in Figure 1 asset prices enter into the funnel of AD along with business and consumer confidence, global economic conditions, fiscal policy, exchange rates, and interest rates. According to this view, asset price bubbles are just one

contributing factor to AD, and are no more worthy of a central bank's specific attention than is the state of business confidence. Just as a central bank would not try to target the state of confidence, nor should it try to target asset prices. Instead, it should manage the overall level of AD.

This view of the economy and the resulting approach to stabilization policy can be captured by the following simple model. Output is determined by the level of AD and is given by

$$y = E\,(y\,,\, i_L\,,\, P_A\,,\, \ldots) \text{ and } E_y > 0\,,\, E_{iL} < 0\,,\, E_{PA} > 0\,, \tag{1}$$

where y = output, E(.) = AD function, i_L = market loan rate, P_A = price of assets. Equation 1 is the conventional Keynesian IS function in which AD depends positively on the level of income, negatively on the loan interest rate, and positively on asset prices.

The market interest rate is determined in the financial sector according to

$$i_L = i_F + m\,, \tag{2}$$

where i_F = the central bank's policy interest rate (which in the US is the federal funds rate), and m = bank interest rate mark-up. Equation 2 replaces the old Keynesian LM schedule and captures the reality of interest rate determination in a world of endogenous credit money in which the central bank sets the short-term money market rate. The mark-up reflects the liquidity preference of financial market institutions, and can be considered a catch all for the state of financial market confidence, and attitudes toward and assessment of risk.

The central bank chooses its target interest rate with the goal of hitting its output target, y^*. This generates a federal funds rate of

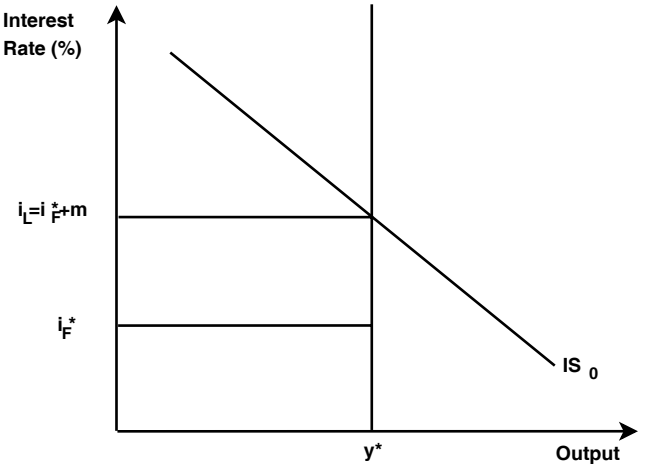
$$i_F^* = E^{-1}(y^*\,,\, m\,,\, P_A\,,\, \ldots) \text{ and } di_F^*/dy^* < 0\,,\, di_F^*/dm < 0\,,\, di_F^*/dP_A > 0\,, \tag{3}$$

The target interest rate is a negative function of the output target (y^*), a negative function of the financial sector's mark-up (m), and a positive function of asset prices (P_A) and other factors positively influencing AD.[3]

The model is illustrated in Figure 2. A higher output target requires a lower target interest rate because the monetary authority must bring down the market interest rate to increase AD. Likewise, a higher financial sector mark-up requires a lower target interest rate. The reason is that to obtain the market interest rate needed to hit the output target, the monetary authority must bring down the base cost of funds.

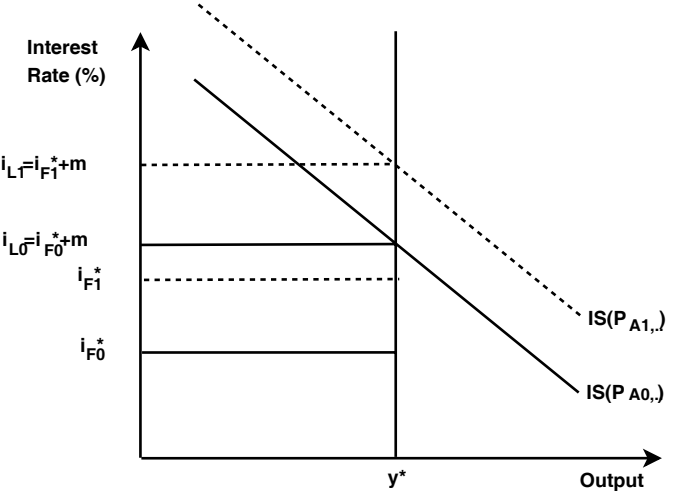
3 The output target can be interpreted as the full employment level of output or the level of output consistent with the monetary authority's inflation target.

Figure 2: The Fed's model



Asset prices affect AD by working through the common funnel described in Figure 1. The effect of an asset price bubble, as understood within the conventional paradigm, is illustrated in Figure 3. A bubble-induced increase in asset prices causes the IS to shift up. That induces the central bank to raise its target interest rate in order to maintain AD at a level consistent with its output target. After the bubble is over the IS shifts back down and the central bank then lowers its target interest rate. The underlying logic is that economic conditions are smoothly reversible. Consequently, after a bubble the central bank can engineer a return to the initial equilibrium conditions.

Figure 3: Asset bubbles and the Fed's model



3. Why the central bankers' model is wrong

There are several major problems with the above bank model describing how central banks currently respond to asset bubbles.

First, the model ignores the fact that bubbles generate economic distortions that have real costs. For instance, the US internet stock market bubble of the 1990s likely distorted investment by making too much capital available at too low a price to internet companies. More recently, the US house price bubble distorted economic activity by driving up house prices, thereby causing excessive residential investment.

Second, the model ignores the fact that there are real costs from using interest rates to combat the inflationary pressures unleashed by bubbles. Such costs can be termed ›blunderbuss‹ effects, and they refer to the adverse impacts that increased interest rates have on sectors other than those affected by asset bubbles. Thus, raising interest rates to counter a bubble can adversely change the composition of output, giving rise to negative long term effects. One problem is that higher interest rates may decrease investment spending, which in turn reduces future productivity and output. A second problem is that higher interest rates may appreciate the exchange rate, adversely impacting the trade balance and manufacturing. If the appreciation is prolonged, that can accelerate de-industrialization and increase the adjustment strains of globalization. Consequently, blunderbuss effects can have both short- and long-run impacts on manufacturing and growth.

Another blunderbuss effect concerns income distribution (Thorbecke 1997). Here, higher interest rates adversely affect borrowers, while benefiting creditors who receive higher interest payments. To the extent that many middle and lower income households are net borrowers, higher interest rates tend to worsen income distribution. That means using the interest rate tool to fight bubbles may compound income inequality because asset price bubbles disproportionately benefit the wealthy, while fighting bubbles with interest rates disproportionately hurts net borrowers – who are generally the less wealthy.

The third and most important omission concerns debt ›footprint‹ effects. These footprint effects refer to financial stock effects that linger after a bubble is over if the bubble has been financed by borrowing. When interest rates come down after the bubble, past borrowing imposes debt burdens that can weigh down the economy. The monetary authority may then be unable to adequately offset the AD effects of these burdens because of the zero nominal interest rate floor.[4]

The working and impact of both debt footprint effects and interest rate blunderbuss effects can be incorporated into a modified version of the above model. Now, the goods market is described by the following IS equation

4 It is worth distinguishing between debt-financed asset bubbles and other asset bubbles. The former are associated with real estate bubbles and are particularly damaging because of the debt footprint they leave behind. The latter are more associated with stock market bubbles and appear to be less damaging and easier to escape. However, they also have real costs associated with distortion of investment decisions and the composition of output.

$$y = E(y , i_L , P_A , B , D_{-1} , \ldots) \text{ and } E_y > 0 , E_{iL} < 0 , E_{PA} > 0 , E_B > 0 , E_D < 0 , \quad (4)$$

where B = this period borrowing, and D_{-1} = last period's debt stock. The current flow of borrowing has a positive impact on AD, while last period's debt stock has a negative impact. It is this debt stock that gives rise to debt footprint effects.

Additionally, aggregate demand is decomposed into consumption, investment, net exports, and government spending as follows:[5]

$$E(.) = C(y , i_L , P_A , B , D_{-1} , \ldots) + I(i_L , e(i_L) , D_{-1} , \ldots) + G + X(e(i_L)) - M(y , e(i_L)) , \quad (5)$$

$$C_y > 0 , C_{iL} < 0, C_{PA} > 0, C_B > 0 , C_D < 0 ,$$
$$I_{iL} < 0 , I_e < 0 , I_D < 0 ,$$
$$X_e < 0 , M_y > 0 , M_e > 0 , e_{iL} > 0$$

where C = consumption, I = investment, G = government spending, X = exports, M = imports, e = exchange rate (foreign exchange/domestic currency), -1 = last period level. Consumption is a positive function of income, asset prices, and borrowing, and a negative function of interest payments and the level of debt. Investment spending is a negative function of the interest rate, the exchange rate, and the level of debt.[6] Likewise, exports are negatively affected by the interest rate, which appreciates the exchange rate and lowers net exports. Imports are positively affected by exchange rate appreciation.

The financial sector is described as follows:

$$i_L = i_F + m(D_{-1} , ...) \text{ and } m_D > 0 , \quad (6)$$
$$D = D_{-1} + B(dP_A , \ldots) \text{ and } B_{dPA} > 0 , \quad (7)$$
$$P_A = P_{A-1} + dP_A , \quad (8)$$

where dP_A = change in asset prices. Equation 6 determines the loan rate as a mark-up over the central bank's target interest rate (which in the US is the federal funds rate), but now the mark-up is a positive function of the debt stock. This reflects the fact that increased indebtedness increases borrower riskiness, resulting in increased credit spreads – a feature that has been clearly visible in the current financial crisis. Equation 7 determines the evolution of the debt stock, which is equal to last period's debt plus this period's borrowing. This pe-

5 For simplicity, the current model does not distinguish between residential and non-residential investment. Such sector distinctions can be introduced by adding separate investment functions, in which case higher asset (house) prices could spur residential investment spending. Additionally, residential investment spending would then be negatively impacted by debt footprint effects.

6 The exchange rate negatively impacts investment by increasing import competition, which reduces profitability (see Blecker 2004). In a more complicated model the level of debt could be decomposed into household and firm debt. The former would impact consumption while the latter would impact investment spending.

riod's borrowing is a positive function of the change in asset prices.[7] Equation 8 determines the evolution of asset prices, with the term dPA capturing the effect of a bubble.

The central bank sets its target interest rate as follows

$$i_F = i_F^* , \tag{9}$$

$$i_F^* = E^{-1}(y^* , P_A , B(dP_A) , D_{-1} , \ldots) \geq 0 , \tag{10}$$

Thus, the policy interest rate is set with an eye to hitting the output target. The policy rate is affected by asset price bubbles through their impact on borrowing and AD. Confronted by a bubble that increases AD, the central bank raises its policy rate to neutralize the bubble's AD impact.

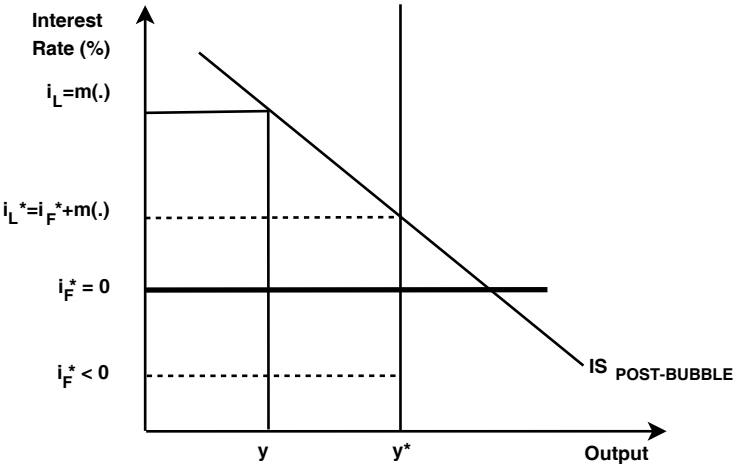
The blunderbuss effect of interest rate policy operates via Equation 5. An asset price bubble increases AD, causing the central bank to raise interest rates. This has a negative impact on investment spending. It also appreciates the exchange rate, which has a negative effect on exports and a positive effect on imports. Such blunderbuss effects were clearly present in the most recent US economic expansion. Thus, as the Fed gradually raised interest rates to try to slow the house price bubble and construction boom, this contributed to a strong dollar, record trade deficits, and weak non-residential investment spending.

The debt footprint effect works through both goods markets and the financial sector. Asset price bubbles increase consumption spending via the wealth effect and via increased borrowing. Increased borrowing raises debt, which then creates a debt footprint effect. The following period, when the bubble is over, the economy is left with a debt footprint that exerts a direct drag on spending in the goods market (Equation 5). Additionally, the increase in debt causes financial institutions to increase their credit mark-up, widening the spread between the policy interest rate and the market loan rate (Equation 6). The net result is AD contracts directly, and the market interest rate rises, yielding a negative indirect effect on AD. Both types of effect have been visible in the wake of the bursting of the US house price bubble.

From a policy perspective the danger is that the economy may get stuck in a post-bubble trap, such as is illustrated in Figure 4. The source of the problem is the zero bound to the nominal policy interest rate. Thus, given post-bubble depressed AD conditions and higher interest rate mark-ups, the monetary authority may not be able to push its policy interest rate to a level sufficiently low to achieve its real output target. In Figure 4, full employment requires a loan rate of i_L^*, which in turn requires a central bank target rate of $i_F^* < 0$. That is not possible because of the zero bound, and instead the central bank must settle for a policy rate of $i_F^* = 0$. As a result the loan rate is $i_L = m(.) > i_L^*$, leaving the economy demand constrained and short of full employment.

7 If debt is decomposed into household and corporate debt this would require introducing separate loan demands for household and corporate debt, as well as introducing separate loan interest rates.

Figure 4: The Post Bubble Trap



This post-bubble trap was evidenced in Japan in the 1990s and it is now being experienced in the US in the wake of the implosion of its house price bubble. The UK also appears to be caught in the same trap.

Furthermore, pushing interest rates down to artificial lows can have reverse blunderbuss effects. Thus, just as raising the interest rate distorted the composition of economic activity, so too can excessively lowering it. In particular, this can produce exchange rate depreciation that causes imported inflation and lowers living standards by worsening the terms of trade. It may also promote unstable inflation expectations that encourage speculation in land and commodities that are sensitive to interest rates.

Lastly, in addition to the post-bubble interest rate trap, there may also be post-bubble capacity effects. One effect already noted is the potential destruction of manufacturing and tradable goods production capacity during the course of the bubble. A second effect, emphasized by Bernanke (1983), is the potential for destruction of financial capacity when the bubble deflates. Thus, deflation of a bubble combined with ensuing income contraction may trigger bankruptcies, which in turn cause banks and financial intermediaries to fail. This process of destruction of financial sector capacity, combined with the destruction of the credit-worthiness of borrowers, may disrupt the normal provision of credit. That can produce an outcome analogous to prolonged credit rationing in which only the only very best and most connected customers get credit. Consequently, both aggregate supply and aggregate demand may contract, leaving the economy stuck far below ›normal‹ potential output.

4. Asset bubbles and the policy instrument problem

The above analysis highlights the policy dilemma asset bubbles pose for policymakers. On the one hand, monetary authorities need to be able to respond to asset price bubbles – especially in real estate which is debt-financed. However, responding with higher interest rates gives rise to blunderbuss effects. This points to need for additional policy instruments to target bubbles.

Such additional instruments can be provided via a system of asset based reserve requirements (ABRR) such as has been suggested by Palley (2000, 2003 and 2004). Under a system of ABRR, financial intermediaries hold reserves against their assets. The reserve requirement for each asset category is adjustable and set at the discretion of the monetary authority, and asset categories can be zero-rated. To prevent regulatory arbitrage and avoid unfair competitive distortions, a system of ABRR should be applied to all financial intermediaries. In effect, financial intermediaries should be regulated on the basis of ›function‹ and not ›form‹, thereby ensuring a level playing field for similar businesses regardless of the form firms choose to take.[8]

Given n different asset categories, such a regulatory system creates n – 1 additional policy instruments. The logic is as follows. Let ij denote the equilibrium interest rate on the j-th asset category. Without a system of ABRR the interest rate on this type of asset is

$$i_j = i_F + m_j(.) \,, \tag{11}$$

where $m_j(.)$ = mark-up required by financial firms for holding assets of type j. Now, suppose assets in the j-th category are subject to a per dollar reserve requirement of k_j. In that event, the required interest rate will adjust to

$$i_j = [1 + k_j]i_F + m_j(.) \text{ and } j = 1 \,, \ldots \,, n \,, \tag{12}$$

The logic is that because financial firms have to hold reserves of k_j they will require a higher return to compensate for the holding cost of those reserves.

More generally, imposing reserve requirements on asset holdings creates a wedge between the interest rate on the asset class and the monetary authority's policy interest rate. The monetary authority can adjust the size of this wedge by varying the reserve requirement, and in doing so can change relative returns across asset classes. That gives it n – 1 extra policy instruments whereby it can change relative interest rates on assets, and thereby influence portfolio and lending allocations.

As with conventional interest rate policy, ABRR work through the interest rate channel. The difference is that conventional interest rate policy raises the general interest rate, thereby affecting all asset classes and sectors simultaneously. That is the source of the blun-

8 The need for uniform regulation of the financial system based on function and not form is emphasized by D'Arista and Schlesinger (1993). They presciently foresaw that the development of an unregulated parallel banking would lead to the type of credit excesses witnessed in the US house price bubble and mortgage crisis.

derbuss collateral damage effect. ABRR avoid this problem by targeting a particular asset class and raising the interest rate for just that class. Consequently, they provide the benefit of conventional policy, without its collateral damage costs.

The comparative logic of ABRR is illustrated in Figure 5, which shows the different economic logic embedded in alternative systems of balance sheet regulation. The first system is liability based reserve requirements (LBRR), which is the conventional way of regulating banking systems. Under LBRR banks hold reserves (an asset) against deposits (a liability), so that the direction of causation flows from the liability side of the balance sheet to the asset side. When banks take on additional deposit liabilities they must hold additional reserves.

Figure 5: Comparison of different forms of balance sheet regulation

(1) Liabilities----------->----------Assets
[LBRR = Reserves on deposits, collateral / margin requirements]

(2) Assets----------->----------Liabilities
[Risk based capital standards]

(3) Liabilities----------->----------Liabilities
[debt-to-equity requirements]

(4) Assets----------->----------Assets
[ABRR]

The second form of balance sheet regulation is risk based capital standards, which is currently the preferred form of regulation. Under this system, assets are categorized by riskiness and banks must hold more equity capital (a balance sheet liability) against more risky assets. Thus, causation runs from the asset side of the balance sheet to the liability side. When banks take on additional risky assets they must hold more equity capital.

The third form of balance sheet regulation is debt-to-equity standards. Both debt and equity are balance sheet liabilities so that causation runs between liability categories. If financial firms take on more debt, they must hold more equity.

The fourth and final form of balance sheet regulation is asset based reserve requirements. Under this system firms must hold reserves (an asset) against other assets. Thus, if firms expand the assets they hold, they must also increase their reserve holdings. Causation is therefore contained within the asset side of the balance sheet and runs from assets to assets.

Lastly, ABRR have some similarities with stock market margin requirements and they can therefore be easily misunderstood as equivalent. That is wrong and there are significant differences. One difference is that ABRR would be levied against lenders, whereas stock market margin requirements are levied against borrowers who borrow to buy stock. A second key difference is that ABRR are counter-cyclical, whereas margin requirements can be pro-cyclical and create instability. Thus, if asset prices fall, margin requirements generate margin calls that oblige lenders to post additional collateral. That demand further stresses the system at a time it is already

stressed, and if borrowers are unable to meet the call, their holdings may be sold which further depresses asset prices. In contrast, under a system of ABRR the decline in asset prices will free up reserves because required reserve holdings are based on the market value of the asset. That will loosen monetary conditions as needed.

5. Advantages of ABRR

A system of ABRR has numerous advantages. First, ABRR enable the monetary authority to affect the relative cost of different asset categories while holding the policy interest rate constant. That provides monetary authorities with a precision instrument for influencing portfolio and lending allocations. For instance, if a monetary authority wanted to dampen a property bubble, it could impose reserve requirements on new mortgages. That would raise the cost of mortgages without raising the general level of interest rates, thereby targeting the bubble without imposing interest rate blunderbuss effects on the rest of the economy.

Second, as identified by Thurow (1972) and Pollin (1993), ABRR can be used to direct investment finance to neglected, socially deserving areas. For instance, if policymakers want to address problems of inner-city decline, they could impose negative reserve requirements on loans made for purposes of inner-city development. In effect, the central bank would subsidize such loans by lending reserves interest free to banks making such socially approved loans.

Third, ABRR have good counter-cyclical properties that render them a form of automatic stabilizer. The reserves held against an asset are calculated on the basis of the asset's value. That means when asset prices increase, as they do in booms, financial firms need to increase their reserve holdings, thereby exercising a brake on the boom. The reverse holds for economic contractions. Thus, when asset prices fall as has been happening recently in the mortgage-backed securities market, this automatically frees up reserves and liquidity.

A fourth benefit is the seignorage that accrues to the central bank as a result of financial firms holding non-interest reserves issued by the central bank. A fifth and related benefit, is that ABRR re-build the demand for reserves issued by the central bank. This stands to strengthen the monetary policy transmission mechanism that has been eroded in recent years by the relative decline of banks compared to other financial intermediaries (Friedman 1999).

Of particular interest are the relative merits of ABRR compared to risk based capital standards (RBCS), which is the system of regulation currently advocated by central banks. A first important strength of ABRR is that they promote counter-cyclical adjustment, whereas RBCS are pro-cyclical. In financial downturns ABRR release reserves as asset prices fall, and they increase demand for reserves as asset prices rise. In contrast, RBCS force firms to raise more equity as assets deteriorate in quality, and that can be difficult during downturns. Consequently, RBCS can exacerbate credit crises.

A second advantage of ABRR is that it can be used as a tool of discretionary monetary policy, since the monetary authority can easily adjust reserve requirements in accordance

with market conditions. That gives the monetary authority a tool for targeting particular asset categories that may be subject to asset price bubbles. Additionally, ABRR can serve some of the same functions as RBCS to the extent that the discretionary reserve requirement takes into account the riskiness of asset classes. Thus, if the monetary authority wants to discourage holdings of a particularly risky asset class, it can raise the reserve requirement on that class. RBCS are less suitable for this type of discretionary policy since it is costly for firms to raise equity capital, and it can be especially costly and difficult to do so in economic downturns and times of financial stress.

A third advantage of ABRR relative to RBCS is that the former confer seignorage benefits, whereas RBCS do not. Additionally, ABRR strengthen the monetary policy transmission mechanism by increasing demand for the liabilities of the central bank, while RBCS do not.

This said, in principle, the two systems of regulation can even be combined. Thus, RBCS can be used to discourage excessive risk-taking by ensuring that financial firms have ›some skin in the game‹, while ABRR can be used to assist monetary policy and target specific asset market problems.

6. ABRR and counter-cyclical capital requirements

Recently, Goodhart and Persaud (2008) have suggested the adoption of counter-cyclical capital standards to combat asset price bubbles. In their scheme, capital standards would rise with asset prices to prevent over-expansion of financial intermediary balance sheets in booms, and would fall in busts to facilitate continued provision of credit.[9]

Counter-cyclical capital standards have similar objectives to ABRR, and in principle the two types of regulatory arrangement can be combined. However, once again there are several additional advantages to ABRR. One advantage, noted above, is that ABRR have seignorage benefits, and they also serve to tighten the monetary transmission mechanism by rebuilding the demand for reserves.

A second advantage concerns the precision of ABRR. A firm that is required to raise more capital will find that its overall cost of capital rises, which will impact all of its activities and not just the activity that is bubble connected.

A third advantage of ABRR is they can easily be implemented on a discretionary national basis, which is very important because national conditions determine the need for counter-cyclical stabilization policy. Risk based capital standards have been introduced as a means of governing the global banking system to ensure banks are adequately capitalized. Such regulation is needed because banks are extremely inter-dependent for their stability, and it is also needed to prevent unfair competition and a regulatory race to the bottom be-

9 As with ABRR, counter-cyclical capital standards also rely on policy discretion and the need to be able to identify bubbles. If these issues are obstacles to ABRR, then they are equally obstacles to counter-cyclical capital standards.

tween countries. Given international mobility of finance, banks with lower capital requirements would have a cost advantage, thereby encouraging a shift of activity to a jurisdiction with lower capital standards. However, the need for global capital standards makes counter-cyclical capital standards difficult to implement because cyclical economic conditions will differ across countries.

In effect, counter-cyclical capital standards will place the needs of national stabilization policy in conflict with the needs of international financial governance. This problem does not apply to ABRR because countries can unilaterally lower reserve requirements when the cycle turns down without undermining the agreed upon system of international financial governance.

Lastly, ABRR have the additional advantage of being a form of reserve requirement, and reserve requirements have a long history of use in financial regulation. They are easy to adjust, their effects are well understood, and both bankers and central bankers are familiar with them.

7. Government bonds as the reserve asset?

The reserve asset in a system of ABRR is usually thought to be the liabilities of the central bank. However, another possibility is to allow banks to use government bonds as the reserve asset. This has both advantages and disadvantages.

Bonds are flex-price financial assets whose price adjusts in response to changes in market interest rate conditions. Higher interest rates reduce the value of bond holdings, and if the value of firms' other assets are unchanged, that would require firms to hold additional bonds. The reverse would hold when market interest rates fall.

On the advantage side, this relationship between bond prices and interest rates creates an additional automatic stabilizer. Thus, when an economy starts to boom or when inflation increases, interest rates would tend to rise and bond prices fall. This would automatically oblige financial firms to allocate resources to buying additional bonds to top up their bond holdings, thereby limiting their financial funds available for other activities.[10]

On the disadvantage side, fluctuations in interest rates would tend to create uncertainty for financial firms. Additionally, to the extent that bond market interest rates move perversely or do not respond to the business cycle, this would limit the automatic stabilizer property.

Finally, with regard to public finances, using government bonds as the reserve asset would increase demand for bonds, which would facilitate budget deficit financing and lower debt servicing costs. Balanced against this, the central bank would lose the seignorage that would come with having its liabilities serve as the reserve asset.

10 Purchasing additional bonds would tend to drive up bond prices, which would mitigate the automatic stabilizer effect, but the net effect would still be stabilizing.

8. ABRR and the euro zone

ABRR have particular relevance for the euro zone and the European Central bank (ECB). The establishment of the euro represents an important step in the creation of an integrated European economy. Over time it should yield dividends as increased competition and lower transaction costs generate increased efficiency. However, member countries have had to give up their own exchange rates and interest rates, and that has created problems for economic management by reducing the number of policy instruments. In particular, the ECB must wrestle with how to set interest rates when some countries are booming while others suffer high unemployment.

ABRR can help fill this policy instrument gap. This is because the ABRR can be implemented on a national basis. For instance, real estate lending, which has been a major concern, is particularly suited to this. Thus, when Spain and Ireland were suffering excessive house price inflation, the Spanish and Irish central banks could have raised reserve requirements on mortgage loans secured by property in those countries. That would have raised Spanish and Irish mortgage loan rates without affecting rates in the rest of the eurozone. Conversely, now that Ireland and Spain are suffering house price deflation, they would be able to lower reserve requirements on mortgages.

Nationally contingent ABRR will create incentives to shop for credit across countries. That means ABRR with a geographically specific dimension will work best when linked to geographically specific assets that cannot escape. This includes mortgage lending that is secured by collateralized property, and shares for which legal title is registered where companies are incorporated. For instance, mortgage loans are secured against specific real property, which determines the jurisdiction in which the loan falls and makes it difficult to escape compliance.

More generally, jurisdictional shopping involves transaction costs. Those transaction costs provide a wedge that allows ABRR to create cross-country interest rate differentials for wide categories of assets. Lastly, jurisdictional shopping would tend to promote cross-country financial integration, which is a long-term goal of the euro project. So even here there is an upside.

One possible problem with a system of ABRR is that it could raise political conflicts between the ECB and member countries. That suggests a two-tier system of ABRR, which would operate at both the eurozone and national levels. Eurozone ABRR policy would be controlled by the ECB, and the ECB would have the power to set ABRR across the euro zone with common requirements in all countries. National central banks would have the right to set country specific asset reserve requirement ratios, subject to the proviso that those requirements be no lower than the requirement ratio set by the ECB. This would give countries the power to set monetary policy that was tighter than that set by the ECB, but not looser. Such a system puts in place a floor to monetary policy that is needed to protect the integrity of the euro, but it gives individual countries the ability to pursue independent, tighter monetary policy if deemed necessary.

9. Conclusion

In recent years there has been debate over whether monetary policy should target asset price bubbles. That debate has become even more significant in light of the destruction being caused by the implosion of the US house price bubble.

Both former Federal Reserve Chairman Alan Greenspan and current Federal Reserve Chairman Ben Bernanke are on record as being against targeting bubbles. This paper has argued an opposing position. Asset price bubbles can be extremely harmful. That was shown by the earlier deflation of Japan's real estate bubble, and it is being shown again with the deflation of the US house price bubble.

That said, the paper argues against using interest rates to target bubbles because interest rate policy imposes unacceptable collateral damage. Instead, the paper recommends adopting a system of ABRR that can provide additional policy instruments that enable targeting asset and credit market excess without raising the general level of interest rates. Such a system would also strengthen counter-cyclical monetary policy.

References

Arestis, P., Sawyer, M. (2006): Interest rates and the real economy, in: Gnos, C., Rochon, L.P. (eds.), *Post Keynesian Principles of Economic Policy*, Cheltenham, UK: Edward Elgar, 3 – 21.

Bernanke, B.S. (1983): Nonmonetary effects of the financial collapse in the propagation of the Great Depression, in: *American Economic Review*, 73, 257 – 276.

Bernanke, B.S. (2002): Asset price bubbles and monetary policy, Remarks before the New York Chapter of the National Association for Business Economics, New York, New York, October 15.

Bernanke, B.S., Laubach, T., Mishkin, F.S., Posen, A.S. (1999): *Inflation Targeting: Lessons from the International Experience*, Princeton: Princeton University Press.

Bernanke, B.S., Mishkin, F.S. (1997): Inflation targeting: A new framework for monetary policy?, in: *Journal of Economic Perspectives*, 11, 97 – 116.

Blecker, R.A. (2004): The economic consequences of dollar appreciation for US manufacturing profits and investment: A time series analysis, Paper presented at the Post Keynesian Conference, University of Missouri, Kansas City, June 26 – 29.

Buiter, W. (2008): The Bernanke put: Buttock-clenching monetary policymaking at the Fed, FinancialTimes.com, January 22.

D'Arista, J.W., Schlesinger, T. (1993): The parallel banking system, EPI Briefing Paper, Economic Policy Institute, Washington DC.

Friedman, B.M. (1999): The future of monetary policy: The central bank as an army with only a signal corps?, in: *International Finance*, 2, 321 – 338.

Goodhart, C., Persaud, A. (2008): A proposal for how to avoid the next crash, in: *Financial Times*, January 31.

Greenspan, A. (2002b): Issues for monetary policy, Remarks before the Economic Club of New York, New York City, December 19.

Greenspan, A. (2002a): Economic volatility, Remarks at a symposium sponsored by the Federal Reserve Bank of Kansas City in Jackson Hole, Wyoming, August 30.

Mishkin, F.S. (2008): How should we respond to asset price bubbles? Speech at the Wharton Financial Institutions Center and Oliver Wyman Institute's Annual Financial Risk Roundtable, Philadelphia, Pennsylvania, May 15.

Palley, T.I. (2004): Asset based reserve requirements: Reasserting domestic monetary control in an era of financial innovation and instability, in: *Review of Political Economy*, 16, 43 – 58.

Palley, T.I. (2003) Asset price bubbles and the case for asset based reserve requirements, in: *Challenge*, 46, 53 – 72.

Palley, T.I. (2000) Stabilizing finance: The case for asset based reserve requirements, Financial markets and society, The Financial Markets Center, Philomont, VA, August.

Pearlstein, S. (2002): Fed defends stock bubble performance: Greenspan attempts to restore his image, in: *The Washington Post*, December 22.

Pollin, R., (1993): Public credit allocation through the Federal Reserve: Why it is needed; How it should be done, in: Dymski, G.A., Epstein, G., Pollin, R., (eds.), *Transforming the US Financial System: Equity and Efficiency for the 21st Century*, Armonk, New York: M.E. Sharpe, 321 – 354.

Thorbecke, W. (1997): Who pays for disinflation? Public Policy Brief 38A, The Jerome Levy Economics Institute of Bard College, Annandale-on-Hudson, New York, December.

Thurow, L. (1972): Proposals for re-channeling funds to meet social priorities, Policies for a more competitive financial system, Conference Proceedings for Federal Reserve Bank of Boston, June, 179 –189.