On the optimality of a permanent zero central-bank rate: Why were central banks created?

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Paper presented at 12th Conference of the Research Network Macroeconomics and Macroeconomic Policies, October 2008

Abstract

There has been a large amount of discussion surrounding interest-rate rules, and opinions differ depending on what is seen as the proper goal of a central bank—distribution, inflation, or growth. The paper argues that manipulating interest rates for the previous purposes is ineffective, uncertain, and can have perverse effects. Central banks were created to deal with financial matters (government finance or financial stability), not to fine-tune the economy, and should focus their attention on these problems. As a consequence, an interest rate rule that sets the policy rate at zero permanently is argued to be optimal. Central banks should concentrate their efforts on managing the financial system by direct interventions in the credit and financial policies of financial institutions. This would be the optimal way central banks could promote full employment and price stability.

JEL code: E52, E58

After the fall of Monetarism central bankers were left with no coherent means to conduct monetary policy. Corrigan's remark at one of the FOMC meeting illustrates well the state of affairs in the mid-1980s: "We've advanced from pragmatic monetarism to full-blown eclecticism" (Corrigan, FOMC meeting, October 1985). Hybrid monetary aggregate targeting[1] had been expected to provide a good means to control inflation, and returning to pure interest rate targeting was seen as theoretically weak and practically dangerous. Thus, from the early 1980s to the mid 1990s, several central banks entered a period of operational uncertainty. For example, even though FOMC members were now targeting the level of federal funds rate, they were unwillingly to disclose this to the public and were deeply dissatisfied with this policy:

> No, I would say that we have a specific operational problem that we have to find a way of resolving. Just to be locked in on the federal funds rate is to me simplistic monetary policy: it doesn't work.
>
> (Greenspan, FOMC meeting, October 1990)

> As a practical matter we are on a fed funds targeting regime now. We have chosen not to say that to the world. I think it's bad public relations, basically, to say that that is what we are doing, and I think it's right not to; but internally we all recognize that that's what we are doing.
>
> (Melzer, FOMC transcripts, March 1991)

With the progressive switch to the Fisherian analytical framework in academia, and because reality forced the hands of central bankers, interest-rate targeting ultimately gained their favor. Consequently, economists have spent lots of time debating about the way central banks should set their policy interest rates. Most of them have concluded that even if a rule is not followed perfectly at least "constrained discretion" should apply, i.e. central bankers should take the rule as a point of reference and should justify their decisions in relation to the rule, while being flexible when circumstances require; this is the current Inflation-Targeting framework (Bernanke and Mishkin 1997). Subsequently, lots of research has been devoted to figuring out what rule is optimal and how to implement it most effectively: should inflation or output weigh more? Should other variable besides growth and inflation be included in the rule? How should one measure the equilibrium real interest rate? The paper focuses on this debate, which is heavily influenced by what is assumed to be the proper goal of a central bank.

The first part of this paper reviews some of the debates that took place in the literature regarding the proper interest-rate rule that should be followed by central banks. The second part of the paper critiques those rules and the goal they try to achieve. Finally, some arguments are put forward for a rule that sets nominal policy rate at zero permanently.

[1] Central bankers never abandon completely interest-rate targeting, the Monetarist experience consisted in targeting a range (more or less wide) rather than a specific interest-rate level.

1. Debates over the proper interest rate rules

Several debates have taken place in relation to interest-rate rules. A first debate concerns the weight that should be given to economic growth and inflation in the rule, a second debate concerns the role that should be given to financial concerns when setting the central bank rate, a third debate focuses on the distributive impact of monetary policy, finally a last debate concerns the compatibility of interest rate rules with a willingness to smooth interest rates strategy and with the need to maintain financial stability.

A majority of economists view the central bank as a major player in the management of inflation and/or economic growth. By moving its policy rate, the central bank can influence the cost of borrowing and so spending decisions, economic growth and inflation. The usual starting point is the Taylor rule (Taylor 1993):

$$i_t^{cb} = r^* + \pi_t + w_1 x_t + w_2(\pi_t - \pi^T)$$

with r^* the equilibrium real interest rate,[2] $x_t \equiv (q_t - q_n)/q_n$ where q_n is the natural growth rate of the economy, π^T is the targeted inflation rate, and w_i are the weight attached to economic growth and inflation. The choice of the weight depends on the authors view regarding the most appropriate goal of the central bank. Authors of the New Consensus think that inflation should be the main goal of a central bank; therefore, most of the weight should be put on inflation because this is supposed to be the best way to promote, not only price stability, but also sustainable long-term economic growth. The central bank should be aggressive in its management of actual and expected inflation, that is the total weight on inflation ($\pi(1 + w_2)$) should be superior to one (Clarida, Gali and Gertler 1999; Walsh 2002). An extreme version of the rule, called the Schwartz hypothesis, argues that focusing exclusively on price stability is the best way economic growth and financial stability. Thus central banks should have $w_1 = 0$ and $w_2 \geq 1$, which has been endorsed by some authors (e.g. Bernanke and Gertler 1999, 2001) and is a central point of agreement among FOMC members:

> I think it certainly has been the general view of the Committee, as evidenced by the nature of our discussions, that long-term price stability is our objective. It's unambiguous, unequivocal, and I would say held pretty much by everyone around this table. The only operative question is whether it is statutory or not. And were we to try to make it statutory, I suspect we'd run into some very significant resistance.
>
> (Chairman Greenspan, FOMC meeting, December 2000)

This strong emphasis on price stability has been critiqued as being undemocratic, theoretically weak, and empirically unfounded (Bain, Arestis and Howells 1996; Pressman 1996; Grabel 1998, 2000; Bain 1998; Cornwall and Cornwall 1998; Haslag 1997; Levine and Zervos 1993; Stanners 1993). In addition, Fair (2005) shows empirically that a total weight on inflation inferior to one

[2] The measurement of the natural rate of interest is difficult and results differ widely, which leads some authors to doubt the relevance of this notion for policy practice (Weber, Lemke and Worms 2008; Cuaresma and Gnan 2007; Weber 2006; Ferguson 2004; Orphanides and Williams 2002).

($(w_2 + 1) < 1$) is stabilizing. Those critiques are especially strong among Post Keynesian economists who favor the active use of monetary policy, but who argue that most of the emphasis should be put on growth when setting interest rates because the influence of the central bank on inflation is relatively weak (Dalziel 1999, 2002; Palacio-Vera 2005; Fontana and Palacio-Vera 2003, 2007; Arestis and Sawyer 2004a, 2004b, 2006; Palley 2006; Setterfield 2006; Atesoglu 2007):

> The central bank might seek to encourage growth (expansionism) by reducing its base interest rate, while at the same time announcing a strict commitment to raising interest rates again if inflationary pressures should emerge (*cautious* expansionism).
>
> (Dalziel 2001: 121)

In addition, the central should make sure "to keep real interest rate [stable] as long as inflation remains below a certain upper threshold" (Palacio-Vera 2005: 764); that is, the central bank should target a rate of inflation but should not react as long as price growth stays within a range of this target. When inflation is on target or within range, Fontana and Palacio Vera (2007: 291) argue that the central bank should lower its real interest rate target. Indeed, demand and supply forces are interdependent, which is best expressed by the concept of effective demand. As a consequence, there is no given natural rate of growth of the economy and Greenspan made the point toward the end of 1999:

> Let me just say very simply—this is really a repetition of what I've been saying in the past—that we have all been brought up to a greater or lesser extent on the presumption that the supply side is a very stable force. […] In my judgment our models fail to account appropriately for the interaction between the supply side and the demand side largely because historically it has not been necessary for them to do so.
>
> (Greenspan, FOMC meeting, October 1999)

By lowering its real interest rate target when inflation is on target, and by not raising interest rates immediately with inflationary pressures, the central bank will allow the expansion to continue and so will allow time for potential output to rise, which will indirectly decrease inflationary pressures. In addition, Atesoglu (2007) propose to use the neural rate of interest as an anchor rather than an equilibrium real rate.

In a second debate, some economists wonder if, and how, asset prices and financial imbalances should impact the way central banks set its interest rate. Some economists, following Schwartz, assume that price stability guarantees financial stability so the central bank should focus its attention on maintaining a low and stable inflation rate. Thus, financial considerations have no place in the setting of policy rates (Schwartz 1988, 1998; Bordo, Dueker, and Wheelock 2002; Bordo and Wheelock 1998; Bernanke and Gertler 1999, 2001; Bullard and Schaling 2000; Fuhrer and Moore 1992). However, Alchian and Klein (1973) argued early that asset prices are relevant to improve the measurement of expected output-price inflation. Schinasi (1994), Goodhart (1992, 1993, 1999, 2001) and Goodhart and Hofmann (2000, 2001), the International Monetary Funds (2000), Christoffersen and Schinasi (2003) argue that there is a positive correlation between asset prices and CPI, and that the former, especially housing prices, help to

predict inflation. Because asset prices would be included in the measure of inflation, it would be redundant to include asset prices directly in the reaction function. However, another group of economists (Smets 1997; Cecchetti et al., 2000; Cecchetti 2003; Cecchetti et al., 2003) wants to go further, and argues that asset prices have their own place in the reaction function. They agree with the preceding group that asset prices help to predict inflation (Bryan, Cecchetti, and O'Sullivan 2001) but they argue that inflation targeting is improved by reacting directly to asset-price misalignments. They also recognize that the calculation of misalignments is difficult, but they consider that they are not harder to calculate than, for example, potential output. In this context, the central bank should react to all asset prices if they are misaligned (Cecchetti et al. 2000: 59). This does not mean that the central bank should target asset prices or should try to burst asset bubbles; it only means that the central bank should automatically move its interest rates to respond to asset-price misalignments in order to reduce the variability of inflation and output (Cecchetti et al. 2000: 35). However, a central bank should not respond to changes in asset prices if they reflect changes in fundamentals. These authors then study how the Fed's reaction function would look like if it took into account asset prices. In order to do so they estimate the following Taylor rule:

$$i_t^{cb} - \pi_t = r^* + w_1(q_t - q_n) + w_2(\pi_t - \pi^T) + w_3 s_{t-1}$$

with the following value $r^* = 2.5$, $\pi^T = 2$, $w_1 = 0.5$, $w_2 = 2.5$, and $w_3 = 0.05$, chosen to match the actual fed funds rate, and s_t the size of the stock bubble measured as a percentage deviation of the inverse of the current equity-risk premium from a 20-year lagged moving average. Cecchetti and others conclude that "the Bernanke-Gertler rulers […] are outperformed, and usually by a substantial amount" (Cecchetti et al. 2000, 35), i.e. by reacting to asset prices, central banks reduce the variability of inflation and output growth (their respective variance is smaller). Filardo (2001, 2004), Dupor (2002, 2005), Roubini (2006), and Berger, Kiβmer and Wagner (2007) have complemented this view by showing that, once the weight put on asset prices is derived from an optimization strategy, and not randomly like in Bernanke and Gertler (1999, 2001) or Cecchetti et al. (2000), the loss is always minimized by reacting to asset-price misalignments. Contrary to Cechetti (2003), they show that this holds true even if the central bank cannot distinguish between fundamental and non-fundamental components of a bubble, and if asset prices are volatile. In those cases, the weight will be lower but, usually, it will not be zero. However, a third group of economists (Borio and Lowe 2002, 2003; Mussa 2003; Filardo 2004) argues that the level of asset prices does not matter or is an inappropriate target. "Financial imbalances" are what matters and are measured independently of the measurement of a bubble. According to those authors, these imbalances can be checked by looking at the growth of credit, the growth of investment, and the growth of asset prices. To these different measures, it is possible to attribute thresholds, based on historical values, that will detect if there is an unsustainable boom in the economy. The role of a central bank should be to respond to both inflation forecasts and financial imbalances.

A third debate related to interest-rate rules exists among authors who think that neither growth nor inflation should be the main preoccupation of central banks. Instead, the latter should focus on the distributive consequences of their interest-rate policy. For Smithin, the central-bank rate should be fixed at a level that is consistent with inflation expectations so that a small positive expected real rate of interest is targeted (and optimally this expected rate should be zero) (Smithin 2004: 64-65):

$$i_t^{cb} \approx E_t(\pi) \quad \text{with} \quad i_t^{cb} \geq E_t(\pi)$$

However, others prefer to follow Pasinetti (1981: 167) and have an interest-rate rule that is related to the fair rate (Lavoie 1996, 1997):

$$i_t^{cb} = g_{APt} + E_t(\pi)$$

With g_{AP} the rate of growth of average multifactor productivity. By following on these rules, the central bank will provide a fair reward to credit suppliers, who are essential to the economic process, while at the same time preventing the real interest rate to go too high relative to zero (Smithin 2006) or relative to labor productivity growth (Lavoie and Seccareccia 1988; Lavoie 1999) because these situations are major causes of recession.

A fourth debate concerns interest-rate smoothing. Fisher argued that:

> The human race should forget its primitive notions about interest. One of the greatest of all economic reforms would be, on the one hand, to get rid of the popular prejudice against raising, promptly and drastically, rates of interest when conditions justify; and, on the hand, to get rid of the inertia which keeps rates high when conditions call for reduction.
>
> (Fisher 1932: 127)

Recently Goodhart and Greenspan reiterated this position:

> Monetary authorities need to be brave in the face of uncertainty, and be prepared to vary interest rates earlier and more violently than their natural caution would normally entertain.
>
> (Goodhart 1992 (1995): 227)

> If we believe that monetary policy can stabilize the economy when confronted with the types of forces we are seeing, the implication is a highly volatile federal funds rate that moves against those forces on the upside and in the other direction on the downside.
>
> (Greenspan, FOMC meeting, June 2001)

Consistent with this idea, Fair (2005) finds that there is a strong trade-off between interest-rate variability and inflation variability. However, Goodfriend (2001) note that the capacity of central banks to affect long-term rates rests on a relative inertia of its policy, and Filardo (2001) notes that a central bank that cares about interest-rate smoothing may not include asset-price inflation in the reaction function. Other economists (Wray 1995, 2003; Kregel 1984; Davidson 1968, 2006; Kahn 1959) argue that the proper role of a central bank is not to maintain price stability or to fine-tune the economy, but to promote full employment by promoting financial stability. In this context "the official rate of interest should be treated as an 'anchor' rather than a 'battle-ax'" (De-Juan 2007: 664) and other tools, that more directly influence the production and financial sides of the economy, should be used. The main influence of a central bank is on the price of existing financial assets and on the liquidity of financial positions, not the production and

distribution of income. Given this Mosler and Forstater (2004) and Wray (2004, 2007) have proposed that central banks following a flexible exchange-rate regime set permanently at zero the overnight rates on their advances:

$$i_t^{cb} = 0 \ \forall t$$

Rochon and Setterfield compared the performance of some of the previous interest-rate rules. They show that a permanent zero central-bank rate "always yields the highest rate of growth and the lowest rate of inflation" (Rochon and Setterfield 2007a: 25). This result is reached in the context of a real economy, without any reference to the financial implications of interest rates. One may argue that taking into account the financial side of the economy would reinforce this result (Tymoigne 2008).

2. A Critique of activist interest-rate policy rules

Fine-tuning the economy by using interest rates

Economist who give an essential role to the central bank in the fine tuning of aggregate demand assume that there is an inverse relationship between interest rates and loan demand, and so between interest rates and aggregate spending:

> The essence of monetary policy is through the interest rate-cost of capital channel. In the Goldman Sachs financial conditions index this interest rate channel gets 90 percent of the weighting. In the FRB/US model its weighting ranges from 76 percent to 90 percent, depending on whether one takes one-quarter impacts or long-run impacts. […] I will agree with the critics that there are both theoretical and empirical questions about some of the other ways that monetary policy allegedly stimulates the economy.
>
> (Gramlich, FOMC meeting, November 2001, page 63)

The relevance of this channel can be critiqued from two different perspectives. First, one may question the relative strength of the relationship between interest rates and spending, and, second, the relationship between interest rate and loan demand is not as straightforward as one may assume.

In terms of its relative strength, temporary variations in the policy interest rate, even though they may have a slight inverse impact on spending behaviors (Arestis and Sawyer 2004a), may not be the best way to fine-tune aggregate demand. Indeed, the more temporary the change in short-term rates, the smaller the impact long-term rate (Roley and Sellon 1995) and so the smaller the impact on spending. Moreover, an expected temporary increase in long-term rates means that refinancing will be possible at lower cost in the future and so spending will proceed as planned even if interest rates are going up today (Kaldor 1958). Aside of the duration and strength of the interest-rate adjustment, interest rates are not a variable that plays a major role determining spending, especially investment (Keynes 1936: 145; Fazzari et al. 1988; Fazzari

1993; Glyn 1997; Arestis and Sawyer 2004b). Therefore, fiscal policy may be a preferred means to affect spending.[3] One may illustrate this point by referring to Kalecki equation of profit:

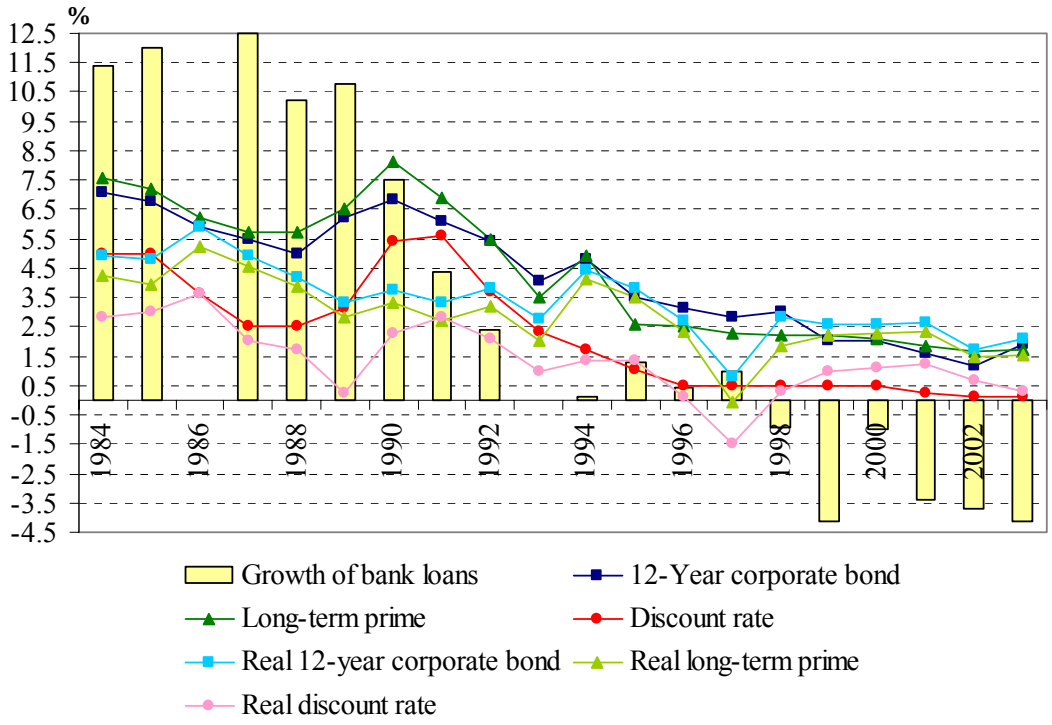
$$\Pi_{nD} = C_{\Pi} - S_H + I + DEF + NX$$

with Π_{nD} the net profit of firms after tax and distribution, C_{Π} the consumption of firms, S_H the saving of wage earners and rentiers, I nominal investment, DEF the government deficit, and NX net exports. Changes in interest rates affect aggregate profitability only indirectly through their impact on investment and consumption behaviors. On the contrary, government spending and taxing, through its direct impact on profitability, has a much stronger effect on investment than changes in short-term interest rates.

Aside of the relative impact of changes in interest rates on spending, one may wonder if it is appropriate to assume that demand for loans and interest rates are inversely related; indeed, one may find such assumption problematic from three points of view. First, and related to the previous point, by emphasizing the inverse relationship, economists may focus on the wrong variable to influence and put too much faith in the effectiveness of monetary policy. As Figure 1 shows, the recent Japanese experience provides a good illustration of this point. From 1991 to 2003, nominal and real interest rates had been decreasing below 3%. However, despite very low interest rates, the central bank failed to restore robust economic expansion, and the rate of growth of loans has been negative since 1998. Unemployment continuously grew after 1991 from 2.1% to 5.4% in 2003 and the GDP oscillated between positive and negative growth. In 2004, banks were filled with excess reserves and government bonds, but bank loans were low because there was no demand for loans. The problem was not a problem of demand elasticity; there were no bank loans because there were no profitable activities to implement. This positive relationship between interest rate and credit growth, illustrates the inapplicability the *ceteris paribus* condition in Japan during this period. The decline in the state of expectation dominated the effect of lower interest rate on the demand for loans. This relative higher strength of the state of expectations suggests, again, that monetary policy is probably not the best means to manage economic activity.

Figure 1 Real and Nominal Interest Rates and Growth of Bank Loans in Japan: 1984-2003

[3] The way this fiscal policy should be implemented should differ greatly from the 1960s "Keynesianism." (Tymoigne 2009).



Source: Bank of Japan.

Notes: Real rates of interest are calculated by subtracting by the CPI inflation. Data for bank loans by domestically licensed banks are not available for 1986 and 1993.

Another problem with the *ceteris paribus* condition is that it downplays the implications of the financing and refinancing processes:

> Thus when an investment boom takes place in the context of an enlarged need to refinance maturing debt, the demand "curve" for short-term debt increases (shifts to the right) and becomes steeper (less elastic).
>
> (Minsky 1982: 10)

Firms have to meet their financial commitments whatever the level of interest rates, in order to avoid default and its consequences (higher risk category, loss of reputation, and ultimately bankruptcy). In addition, besides shifting the demand curve for loans, financial commitments may create a positive relationship between interest rates and the demand for loans. Indeed, higher interest rates mean higher financial commitments, which create a potential need to borrow more money to meet those commitments (Wray 1993; Hannsgen 2006a: 217). Thus, an aggressive monetary policy to fight inflation may promote financial instability; this is especially the case when a large proportion of refinancing operations is needed to sustain economic activity.

Third, if one is interested in asset-price inflation, some economists (Rousseas 1994; Toporowski 2000; Posen 2006; Galbraith 1961; Bernanke 2002; European Central Bank 2005) have argued that a central bank may be ineffective in managing this type of inflation because, not only it may not have monetary origins, but also central banks must compensate for high expectations of capital gains. Therefore, central banks may have to increase policy rates to levels that are harmful for economic activity, which is not an effective way to break speculation. One may suggest to set the central bank rate at a low but positive interest rate in order to minimize the effect on the real economy and to constrain speculation:

$$i_t^{cb} = a > 0$$

However, low interest rates are not necessarily a cause of speculation (Japan, again, is the most recent counter-example). In addition, even if the central-bank rate is low, other rates are higher and already discourage the emergence of speculative behaviors based on borrowed funds. One may argue that a zero overnight rate would give the incentive to banks to borrow indefinitely in order to place massively in a non-zero-return assets. Several counterarguments can be brought forward here. First, this assumes that non-zero assets are non-risky assets. As long as placement in positive-return assets entails a risk, so that a negative return may be recorded, a positive yield curve is not a source of infinite borrowing. Second, "riding-along-the-curve" placement strategies will occur for any policy rate level as long as other rates are positive. In a zero-policy rate-environment, however, the additional reward provided by positive policy rate would be eliminated. Third, if the central bank moves its interest rates (even infrequently) a positive central bank rate is much more prone to speculative behaviors in fixed-income markets than a zero policy rate. Indeed, expected declines in policy rate lead to expectation of capital gains, whereas low policy rate put the odd toward rising policy rate. This last point will be developed further below.

In addition to putting a lot of faith in the *ceteris paribus* relation (both in terms of its relevance and in terms of its sign), fine-tuning-oriented interest rate rule ignore the perverse effect that interest rate may have on inflation. Indeed, higher interest rates may raise inflation through cost and demand channels. If one starts with national accounting identity, one has:

$$PQ \equiv W + \Pi \equiv W + Z + \Pi_{nD} + T_{\Pi} \Rightarrow P \equiv w/\mathrm{AP}_L + Z/Q + \Pi_{nD}/Q + T_{\Pi}/Q$$

With, Π gross profit of firms, Π_n the disposable net profit of firms (i.e. profit after accounting for corporate income tax, distribution, and subsidies), their "retained earnings," W employees' compensations, Z the gross non-wage incomes paid by firms (dividends, interests, rental income), and T_{Π} corporate income tax. Knowing that d is a linear operator and extracting the growth rate $g_X = dX/X$, we have:

$$\pi \equiv g_{w/\mathrm{AP}_L} \times s_W + g_{Z/Q} \times s_Z + g_{\Pi_{nD}/Q} \times s_{\Pi_{nD}} + g_{T_{\Pi}/Q} \times s_{T_{\Pi}}$$

Where s_W, s_Z, s_{Π_n} and $s_{T_{\Pi}}$ are respectively the national income shares of wages, other incomes, retained earnings and, corporate income tax. One can go a little further by decomposing the rate of growth of each ratio into the growth rate of each of its components:

$$\pi \equiv \frac{g_w - g_{\mathrm{AP}_L}}{1+g_{\mathrm{AP}_L}} \times s_W + \frac{g_Z - g_Q}{1+g_Q} \times s_Z + \frac{g_{\Pi_{nD}} - g_Q}{1+g_Q} \times s_{\Pi_{nD}} + \frac{g_{T_\Pi} - g_Q}{1+g_Q} \times s_{T_\Pi}$$

This identity can be used to develop a theory of inflation by explaining by using a conflict-claim theory to explain g_w, by using the liquidity preference theory to explain g_Z, by using Kalecki equation of profit to explain $g_{\Pi_{nD}}$, by using the theory of effective demand to explain g_Q. g_{AP_L} can be assumed to behave differently depending on the nature of the labor market (very flexible in sluggish labor market, close to constant in a free-market labor market). For the sake of argument shares can be assumed constant but could also be explained by using distribution theory. Thus, an increase in g_Z due to rising interest rate generated by continuously tightening monetary policy and, or higher liquidity preference may lead to higher inflation through the impact on costs. It may also affect $g_{\Pi_{nD}}$ upward by increasing the income received by interest-income earners (Lavoie 1995; Bell and Wray 2006, Tauheed and Wray 2006). Tymoigne (2008) and Tillman (2008) empirically find that the Federal Reserve contributes to inflation by raising its interest rate.

In all the previous cases, emphasizing the inverse relationship between interest rate and loan demand will give too much credit to the efficiency of monetary policy. Most economists like to draw on this relationship because it gives some importance to interest-rate policy, which is assumed to be the main countercyclical management tool that a central bank has. Unfortunately, interest-rate policies are rather ineffective and uncertain in their effects on demand and inflation, and there are more direct and effective ways to intervene in the long-term affairs of the economic system by directly influencing the financial positions of economic agents. In addition, one may wonder if fine-tuning is really what the government should be doing to secure full employment and price stability (Wray 1994; Robinson 1945):

> If successful capitalism requires government to be a large part of the economy, then it is important that government spending play a constructive role in the development of resources: government cannot be restricted to the financing of consumption.
>
> (Minsky 1995: 12)

A socialization of investment would be much more effective at achieving full employment and price stability. This would imply fixing the reward received by entrepreneurs, and allocating resources toward the most the socially needed economic activities, without necessarily overseeing their construction nor removing ownership from the private sector (Keynes 1936: 378ff.). Establishing an employer of last resort would further enhance the control of spending (Minsky 1986; Wray 1998).

Using monetary policy for distribution purposes

If instead of focusing on the fine-tuning of the economy one thinks that distribution should be the main goal of a central bank, several problems occur. The most obvious one is that interest rates and inflation are not independent variables, so a positive feedback effect may emerge from these types of policy rules. This is all the more the case that a lot of weight is put on inflation (Hannsgen 2004, 2006b). A second problem is that this type of policies has to determine the relevant period that should be used for inflation expectations. This may lead

central bankers to become paranoid about the possible emergence of inflation, and to try to justify an increase in interest rates when there is actually no sign of any potential increase in price. Greenspan's policy of preemptively raising the policy rates is a perfect example of this, and a perfect example of how this promotes low growth and unstable financial markets (Papadimitriou and Wray 1994; Wray 1997; Tymoigne 2008).

A third problem, which is also shared by fine-tuning oriented rules, is that distribution-oriented rules ignore the financial impact of maintaining a stable real interest rate. First, these rules assume a relatively stable rate of inflation and rate of growth of productivity over time. If this is not the case, a central bank may have to move its interest rates widely, promoting financial instability in financial markets and the indebted economic sectors.

Second maintaining a low real rate of interest promotes financial instability if high, or even moderate, nominal interest rates have to be maintained. Indeed, it is the nominal interest rates that matters for the compounding process, not the real rate. Gale shows if interest rates are raise in order to protect purchasing power, Ponzi situations will emerge for firms even if inflation is perfectly anticipated by them and is included immediately in the price of their output. Indeed, because of the $rE(\pi)$ component of the Fisherian condition of indifference, the interest rate must adjust by more than inflation in order to maintain a certain real interest rate. As a consequence, firms still need to borrow to pay the additional interest servicing (Gale 1982: 153-158). Ultimately, this also goes against the interests of rentiers because bankruptcies reduce the amount of income payment they receive.

Third, distribution oriented rules ignore the capital side of rentiers' financial positions. Most of the time, rentiers do not care only about interest income, usually the total rate of return is more important for placement strategies. If they are not prepared for high volatility, rentiers want stability and/or predictability in terms of nominal interest rates, not real interest rates; this is all the more the case if they are fund-manager rentiers and that gentlemen-rentiers ("widow", fixed-income earners) represent a small portion of financial markets.[4] In this case, rentiers may be against a policy that consists in constantly moving nominal interest rates in order to preserve real interest income. Keynes's "square rule" (Kregel 1985, 1998a) is a good way to get the point. Indeed, say that an individual bought a perpetual bond and decided to sell it after one coupon period. The nominal return obtained is:

$$R = C + \Delta V$$

Which is approximately equal to:

$$R \approx C - (C/i^2)\cdot di$$

Consistent with Keynes's liquidity preference theory in which money "rules the roost," one placement strategy involves determining what change in the nominal market rate is expected to lead to a nil nominal return ($E(R) = 0$):

[4] However, even gentlemen rentiers usually care about the market value of their assets, either because they may have to liquidate their position in the future (expectedly or unexpectedly) or because net worth provides a collateral to obtain loans.

$$C - (C/i^2)\cdot E(di) = 0 \Rightarrow E(di) = i^2$$

Thus, for a consol, the short-term breakeven point (corresponding to one coupon period) is reached when the level of the rate of interest expected to vary by its square (i.e. when it grows by the level of itself).

Keynes called the case $E(di) > i^2$ a liquidity trap, that is a situation for which the central bank loses its capacity to influence nominal long-term rates, and stated that this kind of condition is rare, if ever observed (Keynes 1936: 207; Kregel 2003). However, the previous condition was obtained by assuming that the targeted money return was zero and by only looking at placement strategies over one coupon period. If one of these strict conditions is removed, the liquidity trap has much more chance to appear. Indeed, it is highly probable that financial-market participants have a positive rate of return in mind that makes them indifferent. At minimum, this positive return will be related to the rate they could get on saving deposits but stakeholders will be more demanding. Let us say that a person, at time 0, could sell a bond he holds for a sum of money S_0. In addition, let us assume that this person has a targeted nominal sum of money, S_T, that he would like to receive after one coupon period. His targeted yield over the coupon period is $\bar{i} = S_T/S_0 - 1$, which generates a targeted nominal return of $\bar{i}\, S_0$ over the coupon period. A person, therefore, will be indifferent between bond and money if:

$$C - (C/i^2)\cdot E(di) = \bar{i}\, S_0$$

Thus, the expected change in the market rate that leaves the person indifferent is:

$$E(di) = i^2\,(1 - \bar{i}\, S_0/C)$$

The higher the targeted sum, the smaller the change in interest rates tolerated will be before parting with bonds. Given that S_0 is the current fair price V (the person holds only one bond) and that M is the par value of a bond so that $C = cM$, and c is the coupon rate, we have the following indifference condition for consols ($v = V/M$):

$$E(di) = i^2 \times \left(1 - \frac{\bar{i}}{c} v\right)$$

This generalized square rule shows that the higher the targeted return relative to the coupon rate, and the higher the fair price relative to its par value, the smaller the change in interest rate tolerated by actual and potential financial-market participants, and the more the liquidity trap has a chance to emerge. For a high enough targeted yield, an expected decline in the interest rate is necessary not to affect adversely financial positions, and not to generate a massive liquidation of positions. All this helps to understand why gradualism and transparency is crucial when a central bank wants to use interest rates to manage the economy, and why it is easier to lower interest rates at a faster pace. Note that this condition of indifference may include preoccupations about real interest rate, i.e. the targeted yield may include inflation expectations. However, contrary to Fisher, it is not enough to maintain purchasing power, one must in addition care about maintaining the liquidity of a financial position because realizing an expected total return may entail selling the position.

In the end, therefore, distribution-oriented rules, and any rule that tries to target a specific real interest rate, are bad rules because they create instability in terms of nominal interest rates and because they focus on the wrong method to assess if monetary policy is tight. Economic agents care about nominal values in terms of total return and net cash flow, and instability in the latter two creates financial instability. In addition, nominal interest rates, when compared to the marginal efficiencies of assets, provide a better measure of interest-rate tightness than the real interest rate alone. Stated alternatively, interest-rate tightness can be checked by looking at the inflow effects (for lenders) and outflow effects (for borrowers) of interest rates compared to their respective effects on outflows and inflows.

3. Arguments for a Permanent Zero Rate on Overnight Central Bank Advances

Mosler and Forstater (2004), Wray (2004, 2007) and Tymoigne (2008) have proposed that the central bank sets permanently at zero the overnight rate on its advances. Recent reviews by Rochon and Setterfield (2007b), Palley (2007), and Smithin (2007) argue that such a policy would lead to instability because destabilizing inflationary forces would be allowed to "continue forever, and at an accelerating rate" (Smithin 2007: 109). Other arguments against a zero policy rate might be that it would generate speculation in the financial markets (asset-price inflation rather than output-price inflation), or that it would be unfair to the rentier class.

Several counter-critiques to those positions can be brought forward. First, one should note that a zero overnight policy rate does not mean that all other rates would be zero. Private agents would still set retail and wholesale rates based on their expectations of the future regarding default risk, uncertainty, long-term rates and short-term rates, inflation, and any other factors that they wish to take into consideration while setting interest rates. The additional return granted by a positive overnight central-bank rate, however, would be removed. Indeed, the policy rate and its expected value tend to put a floor on the value of all other rates and strongly influence their trend (Tymoigne 2008). If authorities are not satisfied with the way long-term rates behave, the zero-policy-rate policy could be complemented by a slightly positive targeted rate on long-term Treasuries to reward market risk, so that the government provides an anchor for, but in no way determines, the whole interest-rate structure.[5] All this is consistent with a broader strategy of socialization of investment. The goal is to remove the scarcity of capital equipment so that the marginal efficiency of capital, "apart from any allowance for risk and the like" tends toward zero (Keynes 1936: 221). That is, "the return from [capital equipment] would have to cover little more than their exhaustion by wastage and obsolescence together with some margin to cover risk and the exercise of skill and judgment" (Keynes 1936: 375) so that $q - c \approx 0$ (where q is the yield before risk allowance). Pure interest rates should be nil, which means that the central-bank rate should be zero (Keynes 1936: 208, 221; Wray 2007).

[5] Note however, that a positive reward on T-bond in an environment where $i^{cb} = 0$ makes sense only if the targeting of the T-bonds price is not perfect. In this case, a slightly positive return would be necessary to reward the market risk, which would depend on the volatility of the T-bond price around its targeted value. If the targeting is perfect, however, then there are no risks for T-bond holders (no credit risk, no market risk) and so the yield to maturity on T-bonds would also be driven to zero. The Treasury could still pay a positive coupon but it would not be economically justified especially if the market is perfectly liquid (so that it is possible to get one's money back at will); safe alternatives for rentiers would be saving account and money market mutual funds.

As a result of such policy, a peculiar economic phenomenon may occur: nominal interest rate may go negative on some tradable financial instruments. For example, the bid price of newly issued short-term US Treasuries slightly exceeded par during some weeks in the 1930s and the 1940s (Board of Governors of the Federal Reserve System 1943: 460, 462; Clouse et al. 2000), which resulted in very small negative yields (averaging -0.05% (Cechetti 1988)). Similarly in 1998, Japanese short-term treasuries had a slightly negative yield and in 2003 some RPs deals in the US occurred at slightly negative rates (Fleming and Garbade 2004). In addition, yields to maturity on Treasury bonds with less than a year to maturity reached a magnitude as low as -1.7% and "from mid-1932 through mid-1942, the vast majority of coupon-bearing U.S. government securities bore negative nominal yields as they neared maturity" (Cechetti 1988: 1112). Those peculiar cases can all be explained relatively simply by technical aspects specific to those securities and/or the circumstances of the moment.[6]

Some economists may argue that negative interest rates on loans will lead to limitless speculation and borrowing as people are paid to borrow. However, first one may note that negative nominal interest rates are not as uncommon as one may think. Implicit negative interest rates have prevailed for decades and one does not have to go too far back to remember times when checks cleared at a discount and one had to pay a fee on demand deposits that provided zero interest rate. Depositors were willing to pay a fee for the settlement and safety benefits of demand deposits. Second, as stated earlier and as experience has shown, a positively slopped yield curve does not lead to speculation by itself. Indeed, there are risks involved in riding the curve (leading to decreasing risk taking and expensive regulatory compliance costs like capital requirements) and the rate of return achievable on default-free assets is usually too low to meet the demand of stakeholders or to be profitable. Moreover, explicit negative nominal rates seem to occur more often in periods where individuals run to safety, not in periods of optimism.

Second, a zero policy rate in no way promotes accelerating inflation in output or asset markets, whereas fluctuations in interest rates may create price instability and financial instability. In terms of output-price inflation, as already noted, both inflationary processes do not have mainly monetary origins and are not managed effectively through an interest-rate policy. Bringing the overnight rate to zero may promote a one-time increase in spending but not a limitless increase spending desires, both because there are many other (and more influencing) variables than just the interest rate that affect spending and because it is risky to borrow and engage in economic activity. To manage inflationary forces, other structural permanent institutions should be created. Permanent (and not temporary like in the 1970s) income policies should be put in place to fight output-price inflation (Davidson 2006). These policies would take into account distributional issues related to rentiers and would be much more effective in dealing with them than the indirect and remote influence of the short-term policy rate. As Kaldor noted:

> The essential prerequisite of a successful wage policy lies in the recognition of the fact that while wages *in general* should increase in proportion to the rise in productivity *in*

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6 Fleming and Garbade 2004: 4). The case of Treasury bonds and notes in the 1940s is more complicated but basically rests on the way the Treasury issued its coupon securities (Cecchetti 1988).

> *general*, this does not mean that the changes in wage-rates in particular industries should be governed by the rise in productivity in those industries. Increases in productivity in particular industries which are not the result of a more intense effort by the workers but of new techniques or more efficient management should, in general, be passed on to the community as a whole in the form of lower prices rather than retained by those in the industry in the form of higher wages and profits. Such price reductions are an essential component of a successful full employment policy.
>
> (Kaldor 1950 (1964): 114-115)

Income policies should be complemented with buffer stock policies and an employer of last resort policy. Ultimately, a zero-rate policy alone is not what would be optimal, a complete institutional reform would be necessary to make it work best.

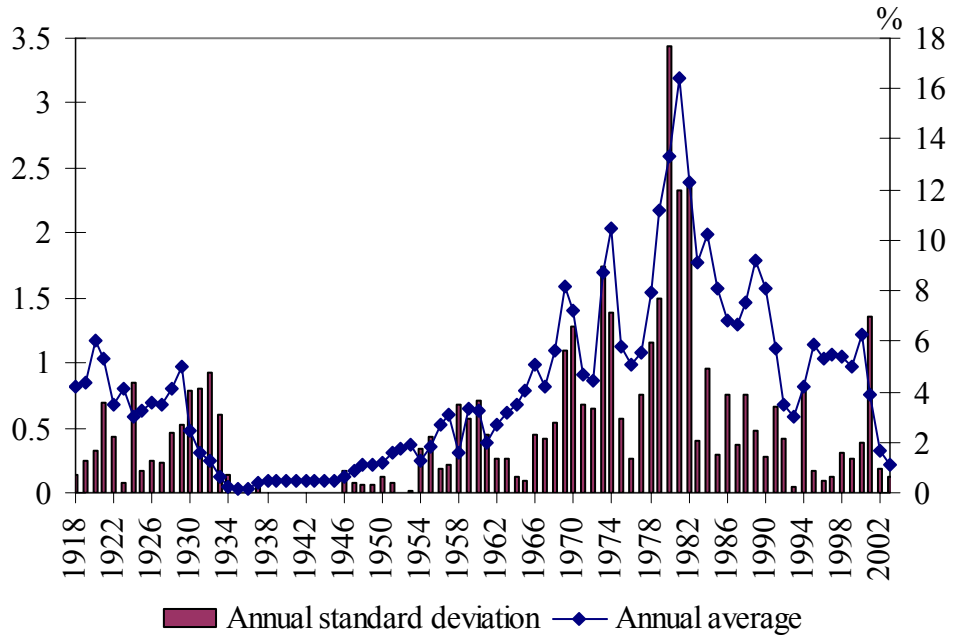
Third, arguments about active monetary policies are always made in compact models in which the financial side is extremely poorly developed or even absent. As Goodhart and Tsomocos noted:

> Most mainstream macro and monetary analysis makes the assumption that no economic agent ever defaults.
>
> (Goodhart and Tsomocos 2007: 19)

The same critique applies to many Post Keynesian models. The importance of liquidity and solvency for individuals is thought to be secondary and much more emphasis is put on purchasing power. In a monetary economy, the primary concerns are liquidity and solvency, not purchasing power; and the latter is included in the former two (Tymoigne 2008). Fazzari and Caskey (1989) provide a straightforward illustration of how dramatically different macroeconomic effects are when considerations about liquidity and solvency are added to a simple AS-AD model. Fluctuations in interest rates create financial instability by negatively affecting liquidity and solvency through the impact on nominal cash commitments and asset prices.

However, fluctuations in policy rates create financial instability in deeper and more dangerous ways (Kaldor 1958 (1964): 135-137). A first way is by making it dangerous and costly for financial institutions to hold assets that pay a regular fixed income. This creates a disincentive for financial institutions to play their role of loan officer, and increases the opaqueness of the financial system by limiting the incentive to keep on balance sheet long-term commitments that are interest-rate sensitive. The switch from a "commitment" (or "partnership") model of banking to an "originate-and-distribute" model, can be explained by the growing use of interest rates by the central bank since the 1950s and by the increased interest-rate variability that followed.

Figure 2 Average Variability and Level of the Federal Funds Rate



This led financial institutions to protect themselves against such variability by more and more sophisticated means, and the deregulation of the 1980s led to the emergence of full fledged risk-management strategies and a promotion of their use by regulatory bodies at the end of the 1980s. The second way by which financial instability is promoted by interest-rate manipulations, is through the promotion of speculative behaviors by financial institutions. The risk-management tools and derivative instruments developed to hedge against interest-rate fluctuations have allowed an enormous increase in financial gambling. Today financial-market participants have integrated interest-rate variability in their portfolio strategies and thrive upon it, and a large amount of financial resources, brainpower and time is diverted toward anticipating, interpreting and analyzing every comment, policy move, and speech of central bankers. Thus, not only do wide policy-rate fluctuations create a disincentive to perform loan officer tasks, they create an incentive to concentrate on speculative activities.

Finally, an interest rate on central bank advance that is permanently set at zero is consistent with the *raison d'être* of central banks. Central banks have been created to take care of government finances and/or maintain financial stability, not price stabilization or the fine-tuning of economic activity, and it is only recently that their role has changed dramatically (Goodhart 1988). For example, as the preamble of the 1914 Federal Reserve Act states, the Federal Reserve System was set up mainly to maintain financial stability through "an elastic currency" and an "effective supervision" of the banking system. Other economic preoccupations were secondary and characterized as "other purposes." In fact, one has to wait a 1977 amendment of the Federal Reserve Act with section 2A to find a clear statement that justifies the involvement of the Federal Reserve in the management inflation, employment and economic growth. A zero policy rate would provide a cheap and reliable refinancing source for financial institutions in need.

4. Conclusion

Overall, the manipulation of short-term interest rates is a highly indirect and ineffective means to manage financial stability, inflation, economic growth and income distribution. If one focuses on the fine-tuning of the economy, economic growth is much more directly and strongly affected by government spending and taxing, and experience shows that temporary short-term hikes in interest rates do not have much influence on spending. In addition, perverse positive feedbacks may emerge between loan demand and interest rate if there is a high proportion of refinancing loans. The same type of conclusion applies to inflation. If one focuses on distribution, targeting a certain real interest rate is dangerous because it may create a positive feedback loop between interest rate and inflation, and because it promotes financial instability. The central bank operations primarily affect the financial side of the economy, not the production side. Thus, central banks should focus on the former and leave the management of the latter to other structural institutions that are better able to cope directly with questions of output-price inflation, economic growth, and income distribution. One way through which the central bank can promote financial stability is by providing easy access to a low cost refinancing channel, and having low and stable policy rate is central to this goal. Rather than manipulating interest rate, central banks should focus their attention on supervision and regulation.

Inflation, economic growth and income distribution are important goals to manage but there are more effective ways to do that than by manipulating interest rates. A form of fiscal policy that involves permanent government programs like socialization of investment, employer of last resort, and income policy would be much more appropriate to solve those problems. This fiscal activism would have nothing to do with the "Keynesianism" of the 1960s and, in addition to be more consistent with Keynes's thought, it would avoid all the problems that the Neoclassical Synthesis faced in the 1970s in terms of lags, credibility, and others (Tymoigne 2009).

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