Journal of Financial Stability 6 (2010) 145–155

Contents lists available at ScienceDirect

Journal of Financial Stability

journal homepage: www.elsevier.com/locate/jfstabil

Inflation targeting, asset prices, and financial imbalances: Contextualizing the debate

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ARTICLE INFO

Article history:
Received 1 December 2007
Received in revised form 23 May 2008
Accepted 21 May 2009
Available online 29 May 2009

JEL classification:
E42
E44
E52
E58

Keywords:
Inflation targeting
Monetary policy
Asset prices
Financial imbalances

ABSTRACT

This paper casts the debate regarding the role of asset prices and financial imbalances in the formulation of monetary policy from the perspective of theoretically optimal policy responses. Within the context of a standard model of the transmission mechanism, several possible motivations for responding to financial imbalances are highlighted. However, preventative policy actions against the build-up of financial imbalances cannot be easily understood within such a framework without fundamental modification to the underlying model. It is argued that a more practical way to evaluate such actions is through the inclusion of concerns for financial imbalances explicitly in the central bank's objective function.

1. Introduction

The ongoing debate on what role asset prices and financial imbalances more generally should play in the setting of monetary policy is structured on two distinctly opposed views. One is that monetary policy should react to financial imbalances only insofar as they impact on inflation and output, the primary goals of central banks. The other calls for the central bank to take actions against imbalances as they build-up, even when the outlook for inflation and growth in the near term appears sound, as the unwinding of such imbalances can be swift and costly to the real economy. In the context of inflation targeting, as reflected in Bean (2003), there appears to be a shift to the middle ground with the debate centering more not on whether considerations of asset prices and financial imbalances are consistent with such a framework, but rather how to operationally utilize and respond to the information content of these variables. That said, many of the key issues remain unresolved with the discussion often hindered by the lack of a consistent framework within which the various arguments can be judged.[1]

This paper attempts to address this shortcoming by casting the debate from the perspective of optimal monetary policy and a more precise characterization of inflation targeting than that often used in the literature. In doing so, the underlying sources of tensions become clearer. While much of literature, as typified by Bernanke and Gertler (1999) and Cecchetti et al. (2000), is based on comparing outcomes conditioned on monetary policy following some variant of the Taylor rule, this paper takes one step back and derives the optimal policy response explicitly. It is shown that within the context of a standard model of the transmission mechanism, the basis for initiating a policy response to financial imbalances must be motivated through their impact on the final goal variables as specified in the underlying loss function of the central bank. When the latter includes only output and inflation, as in conventional specifications, a response to financial imbalances motivated by a desire to preempt the risks associated with their implosion cannot be accommodated in the framework, since their impact cannot be

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[1] Extensive references to the literature can be found in Borio (2006), Borio et al. (2003), Bean (2003), Filardo (2003), Detken and Smets (2004), and Borio and White (2004).

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doi:10.1016/j.jfs.2009.05.003

readily cast in terms of impact on inflation and output. Instead, such policy actions can be more easily understood with an operational framework where an explicit consideration of financial imbalances is embedded in the central bank's objective function.

While the central aim is not to evaluate the relative merits of each view, the discussion sheds light on some of the practical difficulties that are likely to be associated with a more proactive monetary policy. Most directly, the analysis highlights the intensive information requirements that such an approach is likely to entail. More generally, a concern for financial imbalances is shown to imply a slower speed with which inflation is returned to target. An emphasis on such concerns may thus require a degree of compromise on the central bank's macroeconomic goals which could potentially cloud public perception of the core objectives of monetary policy. Finally, when a concern for financial imbalances is identified with a modification of policymakers' operational objectives, it can be argued that central banks that are known to be influenced by such considerations some of the time are likely to be less transparent and impart greater uncertainty to the public since the basis for policy actions is less clear.

The paper also analyzes in more detail proposals for modification of inflation targeting to better incorporate the risks posed by financial imbalances, namely (i) a lengthening of the policy horizon; and (ii) greater emphasis on 'balance of risk' considerations. These modifications have been suggested somewhat loosely and when viewed through the lens of the model in this paper, they can be more intuitively seen as criticisms against either the underlying model that may be used to formulate policy and/or the communication strategy that has been adopted in practice. Finally, it should be stressed at the outset that while much of the discussion set out in this paper is set in the context of a particular model, the latter is intended only as a heuristic device and not a yardstick against which actual policy should necessarily be judged.

The paper is organized as follows. Section 2 provides a formal characterization of inflation targeting and sets out the model that will be used as a basis for the discussions. Section 3 contextualizes the debate on the appropriate role of asset prices and financial imbalances in monetary policy from the perspective of theoretically optimal reaction functions where policymaker's judgments are incorporated. The case for preventative policy actions against the risks posed by financial imbalances are evaluated in Section 4. Section 5 concludes and some technical details are collected in an appendix.

2. Flexible inflation targeting

In its true essence, inflation targeting involves the formulation of clear objectives for monetary policy and the establishment of an institutional commitment to achieving those objectives. Typically, the primary objective is an explicit commitment to a numerical rate of inflation, π^*, to be achieved over some horizon. The way that this goal should be accomplished is not uniquely specified – indeed, the manner in which inflation targeting is implemented in practice differs substantially across countries – although an emphasis on a high degree of transparency with respect to how policy decisions are formulated is always a key element. To facilitate the analysis, it will be useful to introduce some formalism to the monetary policymaking procedure. While any theoretical characterization of such complex decision-making process must necessarily involve substantial simplifications, it will be assumed throughout this paper that an inflation targeting central bank, to a first approximation, can be operationally characterized by a 'targeting rule', as described in detail by Svensson (2003a) and Woodford (2004).

In this respect, the targets are operational goal variables that enter the loss function of the central bank whose deviations from prescribed values are to be minimized. A central bank committed to a general targeting rule explicitly specifies only the operational objectives and the loss function to be minimized. Such a characterization of policy formulation is quite general and is consistent with a broad range of response functions whose 'optimality' is determined by the underlying model of the economy and policymakers' judgments when the decision is made. It is a much less restrictive description of monetary policy than an instrument rule – a reduced form relation between the central bank's instrument and a set of macro variables that are deemed relevant for policy as typified, for example, by the Taylor-rule – and captures the significant degree of flexibility endowed to central banks in practice.

The first step is to specify the operational objectives of the central bank bearing in mind that a commitment to long-run price stability, of course, does not preclude consideration of other objectives in the short-run, most importantly that of output stabilization. This is the sense in which inflation targeting is characterized as 'flexible' and represents a description of inflation targeting which is reflective of the way they are actually implemented in practice. More concretely, let the central bank's loss function in period t be given by

$$L_t = \frac{1}{2}\left[(\pi_t - \pi^*)^2 + u_x x_t^2\right] \tag{2.1}$$

where π_t is the inflation rate at time t, x_t the output gap (log deviations), and $u_x > 0$ the weight on output gap stabilization relative to inflation stabilization.[2]

A general targeting rule then commits the monetary authorities to choosing at time t a sequence of short-term interest rates, $\{i_{t+s}\}_{s=0}^{\infty}$, to minimize the expected sum of discounted current and future losses,

$$E_t \sum_{i=0}^{\infty} \delta^i L_{t+i} \tag{2.2}$$

where $0 < \delta < 1$ is the discount factor, subject to a model of the transmission mechanism. Operationally, the central bank undertakes optimization each period conditional on its most reliable model of the economy and all relevant available information. While the resulting prescription for the instrument will be consistent with a particular form of the reaction function that can be quite complex, the latter need not be made explicit nor followed mechanically. In this way, such a characterization of inflation targeting is closer to actual practice and considerably more robust. That said, the benchmark for optimal policy from the perspective of targeting rules depends, in essence, on the structural model over which optimization is carried out as well as the loss function adopted. Their level of generality, therefore, is limited by the particular specification chosen. These issues are discussed further below.

2.1. The central bank's model economy

To aid in the conceptualization of the key issues, it will be useful to couch the discussion on the basis of a very simply model that can nevertheless capture much of the intuition contained in more elaborate settings. The basic setup is consistent with that used in Svensson (1997, 2003a) and Ball (1999), extended to incorporate a role for asset prices in the transmission mechanism. The fact that a similar setup has been utilized to analyze the interplay between monetary policy and asset prices also facilitates comparison of the results to the existing literature.[3]

[2] When $u_x = 0$, the regime is commonly termed as 'strict inflation targeting'.

[3] See, for example, Filardo (2001, 2003) as well as Gruen et al. (2005) although these papers are based on simulation results rather than closed-form solutions.