

# Flexible inflation targeting and financial stability: Is it enough to stabilize inflation and output? <sup>☆</sup>

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## Abstract

We investigate empirically whether a central bank can promote financial stability by stabilizing inflation and output, and whether additional stabilization of asset prices and credit growth would enhance financial stability in particular. We employ an econometric model of the Norwegian economy to investigate the performance of simple interest rate rules that allow a response to asset prices and credit growth, in addition to inflation and output. We find that output stabilization tends to improve financial stability. Additional stabilization of house prices, equity prices and/or credit growth enhances stability in both inflation and output, but has mixed effects on financial stability. In general, financial stability as measured by e.g., asset price volatility improves, while financial stability measured by indicators that depend directly on interest rates deteriorates, mainly because of higher interest rate volatility owing to a more active monetary policy.

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## 1. Introduction

Inflation-targeting central banks are generally entrusted with the responsibility of promoting a stable financial system as well. A stable financial system facilitates a regular and efficient allocation of funds between lenders and borrowers and diversification of risk. It is therefore conducive

to long-term economic growth, stable movements in prices and output and an effective monetary policy. The detrimental effects of financial instability on the macroeconomy are widely acknowledged. Fisher (1933) ascribed the great depression (1929–1933) mainly to over-indebtedness and the resulting deflation due to distress selling of assets. A more recent example of such a debt-deflation phenomenon is the Japanese experience; see e.g., Mishkin (2005) and the references therein. In Norway, and the other Scandinavian countries, high credit growth and booms and busts in the real estate markets contributed to severe banking crises and recessions especially in the early 1990s (e.g., Hoggarth et al., 2002; Grung-Moe et al., 2004).

We investigate empirically to what extent a flexible inflation-targeting central bank can promote financial stability by stabilizing inflation and real output, or as a special case, nominal income (cf., McCallum and Nelson, 1999). A flexible inflation-targeting central bank typically incorporates a concern for output stability when targeting inflation

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(cf., Svensson, 1999). We particularly investigate whether there are gains in terms of financial stability, as well as in terms of inflation and output stability, by additionally stabilizing variables that are commonly linked to financial (in)stability, such as asset prices and credit growth (e.g., Borio and Lowe, 2002).

In the relevant literature, there is as yet no consensus as to whether inflation targeting alone or in combination with output stabilization will ensure financial stability in the normal course of monetary policy making (e.g., Cecchetti et al., 2000; Bordo and Jeanne, 2002; Roubini, 2006; Posen, 2006). A common argument is that stable inflation is conducive to a regular and efficient flow of funds between lenders and borrowers since undue real wealth transfers between them, owing to inflation or deflation, can be largely avoided. In addition, prices can better guide consumption and investment and thereby help avoid over-investment and possible failures to service accrued debt. Stabilization of inflation also helps checking possible deflationary effects of distress selling of assets to pay off debt (cf., Fisher, 1933; Mishkin, 2005). By additionally stabilizing output one can better maintain the debt-servicing capacity of borrowers and thereby avoid debt liquidation. A stable nominal income could be especially effective in maintaining the debt-servicing capacity of borrowers when nominal wages are sticky (cf., Bean, 1983).

However, it has been argued that monetary policy may fail to deal timely and effectively with potential future economic instability implied by unchecked growth in credit and asset prices by just focusing on prices and/or output (e.g., Cecchetti et al., 2000; Bordo and Jeanne, 2002; Borio and Lowe, 2002). It has been pointed out that excessive debt accumulation and over-investment usually occurs in periods of boom in asset prices because of their collateral effects on borrowing and lending (cf., Bernanke et al., 1999). Debt liquidation due to failures to service accrued debt or erosion of collateral values owing to asset price busts can lead to a credit crunch, business failures, unemployment and deflation. Furthermore, stabilization of inflation and output may not be sufficient to induce stable growth in asset prices and credit, and thereby a stable financial sector and real economy, because asset prices are often more or less disconnected from their fundamentals. This may also contribute to disconnecting credit from its sustainable value because asset prices affect collateral values. Such behavior of asset prices and credit may therefore fuel unsustainable growth in consumption and investment and thereby contribute to macroeconomic instability, including financial fragility.

Accordingly, monetary policy can become more effective in reaching its macroeconomic objectives, including financial stability, by stabilizing asset prices and/or credit, in addition to inflation and output. The case for a monetary policy response to misalignments in asset prices, such as real estate and equity prices, has been made by e.g., Cecchetti et al. (2000), Borio and Lowe (2002) and Filardo (2004) and investigated by e.g., Filardo (2000) and Chadha et al.

(2004). A response to misalignments in exchange rates is discussed in *inter alia* Ball (1999b).

Apparently, a tightening (easing) of monetary policy when asset prices rise above (below) sustainable levels may help to smooth fluctuations in credit growth, output and inflation. Such moves may also reduce the possibility of large asset price misalignments arising in the first place. On the other hand, asset prices are quite volatile and sustainable values of asset prices are hard to identify. The end result could therefore be an overactive monetary policy that turns out to destabilize the economy in general. Moreover, a misjudgment of the sustainable values can alternatively lead to an overly stable economy at the expense of efficient resource allocation.

Responding directly to credit growth is another option. It is possible that stable credit growth can contribute to reining in movements in asset prices as well as consumption and investment and thereby promote economic stability in general, and financial stability in particular. Experience from money growth targeting in some countries, including that of the USA in the early 1980s, is not encouraging, however. Accordingly, stabilization of credit growth can also induce excess volatility in interest rates, which may have a destabilizing effect on the real economy and the financial system. Yet, it is possible that the stabilization effect of asset prices and credit growth on inflation and output is of such magnitude that interest rates ultimately become more stable. An empirical investigation can shed light on the merits of responding directly to asset prices and/or credit growth in addition to inflation and output.

We investigate the performance of a large number of simple interest rate rules within the context of a well specified econometric model of a small economy, Norway, where exchange rates tend to play a more important role than in large economies. The model links credit growth and three classes of asset prices, i.e., house prices, equity prices and the nominal exchange rate, and the rest of the economy through several channels. The model is therefore well suited for evaluating the performance of Taylor-type interest rate rules augmented with asset prices and/or credit growth (e.g., Taylor, 1999). The model used is largely an extension of the model in Bårdsen and Nymo (2001) and Bårdsen et al. (2003), and is presented in detail in an earlier version of this paper: Akram and Eitrheim (2006).<sup>1</sup>

In the next section we point out some key properties and mechanisms in the econometric model. We also present a stylized version of the model to easily highlight the role of asset prices and credit growth in the model. Section 3 presents the objective function of a central bank under a flexible inflation-targeting regime, discusses several operational indicators of financial (in)stability and presents a general version of a simple interest rate rule that

<sup>1</sup> See <http://www.norges-bank.no/upload/import/publikasjoner/arbeidsnotater/pdf/arb-2006-07.pdf>.

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