



# Monetary shocks, macroprudential shocks and financial stability<sup>☆</sup>



Matthew Greenwood-Nimmo<sup>a,\*</sup>, Artur Tarassow<sup>b,1</sup>

<sup>a</sup>Department of Economics, University of Melbourne, Australia

<sup>b</sup>Faculty of Economics and Social Sciences, Department of Socioeconomics, University of Hamburg, Germany

## ARTICLE INFO

### Article history:

Received 19 November 2014

Received in revised form 29 February 2016

Accepted 3 March 2016

Available online 2 April 2016

### JEL classification:

C32

C51

C54

### Keywords:

Financial stability

Monetary policy

Macroprudential policy

Sign restrictions

## ABSTRACT

This paper examines the implications of monetary shocks and macroprudential shocks for aggregate financial fragility using a sign restricted VAR model estimated with US data spanning the period 1960Q1–2007Q4. Contractionary monetary shocks are found to exacerbate financial fragility, increasing both the credit to GDP ratio and the ‘financial ratio’, which is the ratio of firms’ debts to their internal funds. By contrast, when interest rates are fixed, credit-constraining macroprudential shocks may be able to reduce the credit to GDP ratio in the short run but are not able to reduce the financial ratio. However, when the interest rate is free to accommodate the macroprudential shock, both the credit to GDP ratio and the financial ratio decline, indicating a reduction of financial fragility and suggesting that there may be gains from a coordinated approach to macroeconomic management.

© 2016 Elsevier B.V. All rights reserved.

*“In these latter days, since the downfall, I know that there will be much talk of corruption and dishonesty. But I can testify that our trouble was not that. Rather, we were undone by our own extravagant folly, and our delusions of grandeur. The gods were waiting to destroy us, and first they infected us with a peculiar and virulent sort of madness.”*

[Anonymous (1933)]

## 1. Introduction

Economic history has seen repeated booms and busts in the asset markets which seem neither predictable nor avoidable *ex ante*. A crude generalisation is that investors undertake progressively

more risky positions as rising speculative profits fuel an increasingly bullish outlook until confidence in the sustainability of asset prices eventually fails and the bubble collapses. Subsequently, many commentators are left wondering how so many investors, seasoned and novice alike, were swept up in an *ex-post* unsustainable clamour to realise speculative gains based largely on market euphoria.

The historical inability of market participants to prevent the growth and subsequent collapse of bubbles has been well documented. This led to a lively debate in the years before the Global Financial Crisis (GFC) as to whether the central bank should – and indeed could – formulate monetary policy to intervene in financial markets (e.g. Cecchetti et al., 2000; Nickell, 2005; Posen, 2006; Roubini, 2006). The dominant view was that a sufficiently aggressive inflation-targeting policy could stabilise both output and inflation in the face of asset price volatility driven either by bubbles or by technology shocks or a combination of the two (Bernanke and Gertler, 2001). Consequently, it was generally believed that monetary policy should only respond to asset prices indirectly via their influence on the optimal inflation forecast. Rather than adjusting interest rates in the hope of preemptively deflating a nascent bubble, the central bank should act to ‘mitigate the fallout’ *ex post* in the event that the bubble were to burst (Greenspan, 2002). The primary responsibility of the central bank was therefore to maintain price stability which was, in turn, believed to beget financial stability (Schwartz, 1998).

<sup>☆</sup> We are grateful for the constructive comments of the Editor and four anonymous referees and for the helpful discussion of Ulrich Fritsche, Ingrid Gröbl, Viet Hoang Nguyen, Yongcheol Shin and Tomasz Woźniak. Our estimation routines employ Ambrogio Cesa-Bianchi’s VAR Toolbox for Matlab. Any errors or omissions are our own.

\* Corresponding author at: 3.12 Faculty of Business & Economics, University of Melbourne, 111 Barry Street, Carlton, VIC3053, Australia. Tel.: +61 3 8344 5354.

E-mail addresses: [matthew.greenwood@unimelb.edu.au](mailto:matthew.greenwood@unimelb.edu.au) (M. Greenwood-Nimmo), [artur.tarassow@wiso.uni-hamburg.de](mailto:artur.tarassow@wiso.uni-hamburg.de) (A. Tarassow).

<sup>1</sup> Tel.: +49 40 42838 8683.

Consequently, financial shocks were not a primary concern of central banks and financial regulation mainly operated at the firm level rather than the systemic level.

This consensus has largely dissolved following the GFC and the unprecedented macroeconomic policy response that it instigated. Constrained by the zero lower bound (ZLB), policymakers in many countries employed a mix of countercyclical fiscal policy and unconventional monetary policy. The Federal Reserve was quick to undertake large-scale asset purchases, manipulating its balance sheet as an implement of unconventional monetary policy (Jawadi et al., in press). Forward guidance also emerged as a prominent tool for guiding interest rate expectations in the anticipation of an eventual normalisation of interest rates.

Interest rate normalisation will not, however, entail a simple return to prior policy arrangements. The policy framework which emerges must adapt to reflect Blanchard et al.'s (2010) observation that the maintenance of price stability is necessary but not sufficient to deliver macroeconomic stability. Indeed, Christiano et al. (2010) show that narrow inflation-targeting may actually exacerbate financial cycles. Their argument is predicated on the observation that asset market booms are not typically associated with high inflation as one would expect under the logic of Bernanke and Gertler (2001). Rather, over the last 200 years, asset booms in the US have been overwhelmingly associated with low inflation. In this environment, narrow inflation-targeting policies may deliver undesirably low interest rates, fueling the boom.

It is well established that interest rate policy is non-neutral with respect to financial stability. For example, the credit channel literature stresses that transaction costs, informational asymmetries between borrowers and lenders and creditors' risk aversion against insolvency may collectively generate financial frictions in imperfect capital markets (Bernanke and Gertler, 1995). An interest rate hike is likely to reduce loan supply and thereby initiate a flight-to-quality which will constrain the borrowing power of smaller firms (Gertler and Gilchrist, 1994; Kashyap and Stein, 1997). In addition, Christiano et al. (1996) show that a monetary contraction will typically reduce both aggregate demand and aggregate cash-inflows, thereby undermining the net worth of the representative borrower and increasing the probability of default, a combined effect that will generate an increased external financing premium (Bernanke et al., 1996). Consequently, both the cost of credit and the conditions governing its supply move in accordance with monetary policy, with the result that the contractionary influence of a rate hike will be concentrated disproportionately among smaller and more informationally opaque firms.

Minsky's (1982) financial instability hypothesis goes a step further, stressing that the effects of a monetary tightening are not felt only at the idiosyncratic level but also at the systemic level.<sup>2</sup> Empirical evidence consistent with this view has been provided by Mallick and Sousa (2013), who document a strongly positive association between monetary tightenings and financial stress. Minsky holds that the link between monetary policy and financial fragility arises because as the central bank changes the interest rate in accordance with its policy objectives, it also changes the cash-commitments of leveraged firms in an imperfectly predictable manner. In an uncertain world, firms faced with long-lived and irreversible investment

decisions engage in forward planning based on optimal forecasts of future conditions which, owing to this very uncertainty, must be heavily conditioned on recent historic experience.

A key decision facing firms is the choice of financing structure, with firms undertaking either hedge, speculative or Ponzi financing (Minsky, 1986). Following Sordi and Vercelli (2006) and Vercelli (2011), these financing structures can be defined with reference to the current and intertemporal financial ratios,  $k_{it}$  and  $k_{it}^*$ :

$$k_{it} = \frac{e_{it}}{z_{it}} \quad \text{and} \quad k_{it}^* = \frac{\sum_{n=0}^h \{(1 + \rho)^{-n} e_{it+n}^*\}}{\sum_{n=0}^h \{(1 + \rho)^{-n} z_{it+n}^*\}}$$

where  $e_{it}$  represents cash-outflows,  $z_{it}$  denotes cash-inflows, an asterisk signifies an expected value,  $\rho$  is the discount rate and the subscripts  $i = 1, 2, \dots, N$  and  $t = 1, 2, \dots, T$  identify firms and time periods, respectively. For any horizon,  $h$ , the  $i$ th firm is hedge financing if  $k_{it} < 1$  for  $t = 0$  and  $k_{it}^* < 1$  for  $1 \leq t \leq h$ . It is engaged in speculative financing if  $k_{it} > 1$  for  $t = 0$  and  $k_{it}^* > 1$  for  $t \in [1, \dots, s]$  provided that  $s < h$  is a relatively short horizon and  $k_{it}^* < 1$  for  $t \in [s + 1, \dots, h]$ . Finally, it is Ponzi financing if  $k_{it} > 1$  for  $t = 0$  and  $k_{it}^* > 1$  for  $1 \leq t \leq h - 1$  under the expectation that  $k_{it}^* \ll 1$  in period  $t = h$ . Hedge financing is the most prudent strategy when faced with unanticipated shocks, while Ponzi financing involves a considerable risk of insolvency. An unforeseen interest rate hike is likely to raise cash-outflows (by raising the cost of debt-servicing) while simultaneously reducing cash-inflows (by reducing aggregate activity), resulting in a rightward shift through the hedge-speculative-Ponzi spectrum and increasing financial fragility at the aggregate level.

Acknowledging the financial stability implications of monetary policy, several commentators have broken with the prior consensus that asset prices should not enter the interest rate rule. For example, in light of their observation that a narrow inflation targeting policy is likely to deliver undesirably low interest rates during the growth phase of an asset market boom, Christiano et al. (2010) suggest that credit growth should be assigned an independent role in the interest rate rule beyond its influence on the inflation forecast. Similar reasoning underlies a fast-growing literature, both theoretical and empirical, which has sought to augment both monetary and fiscal policy reaction functions with a variety of asset price and wealth indicators (e.g. Agnello et al., 2012; Castro and Sousa, 2012; Mendicino and Punzi, 2014).

In addition to reconsidering the use of existing policy tools, the literature is increasingly emphasising alternative instruments in light of the remarkable broadening of the policy mix brought about by the GFC. With the gradual withdrawal of quantitative easing, macroprudential policies aimed at limiting excessive credit growth and restraining asset price inflation are set to play a key role in mitigating the emergence of financial fragility in the future (Elliott et al., 2013). Macroprudential policies to curtail excessive credit creation and to maintain the creditworthiness of borrowers may be directed at either lenders, borrowers or both (Claessens et al., 2014). On the lenders' side, countercyclical capital requirements of the type proposed in the Basel III Accord can curtail unsafe lending and protect the portfolios of financial institutions from large corrections in the value of collateral assets. Meanwhile, on the borrowers' side, capping the loan-to-value and/or debt-to-income ratios can limit the potential for the emergence of Ponzi financing and strengthen borrowers' incentives to manage funds responsibly by increasing their own stake in debt-funded projects, while also reducing bank losses in the event of default.

Federal Reserve Chair Janet Yellen (2014) has indicated in a recent lecture at the International Monetary Fund that a judicious mix

<sup>2</sup> The financial instability hypothesis offers a number of insights into the emergence of financial fragility, yet references to Minsky's work are scarce in the current debate. This may, in part, reflect the absence of a canonical Minskyan model, a lacuna which has led to the establishment of several different interpretations of Minsky's work. Our discussion is similar to that of Fazzari et al. (2008), who assert that a central bank may actually precipitate financial crises by pursuing active monetary policy. We are grateful to an anonymous referee for pointing out that alternative interpretations variously emphasise the role of commercial bank behaviour and of asset prices as drivers of cyclical behaviour (Ryoo, 2013; Skott, 1995).

Download English Version:

<https://daneshyari.com/en/article/5053322>

Download Persian Version:

<https://daneshyari.com/article/5053322>

[Daneshyari.com](https://daneshyari.com)