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The impact of monetary policy on financial markets in small open economies: More or less effective during the global financial crisis?[☆]

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ABSTRACT

This paper estimates the impact of monetary policy on exchange rates and stock prices of eight small open economies: Australia, Canada, the Republic of Korea, New Zealand, the United Kingdom, Indonesia, Malaysia, and Thailand. On average across these countries in the full sample, a one percentage point surprise rise in official interest rates leads to a 1% appreciation of the exchange rate and a 0.5–1% fall in stock prices, with somewhat stronger effects in OECD countries than non-OECD countries (though differences are sometimes not significant). We find little robust evidence of a change in the effect of monetary policy surprises during the recent financial crisis.

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1. Introduction

How monetary policy affects the economy is of key interest to policymakers and academics during normal times, and even more so during times of crisis. There is a growing theoretical literature which argues that the response of the economy to shocks varies greatly whether the economy is in a normal regime near the steady state, or far away from the steady state in a financial crisis (Brunnermeir and Sannikov, 2014; Mendoza, 2010). In these models, financial constraints do not bind in normal times. But when a crisis hits, dynamics are governed by binding debt constraints such that a fall in asset prices forces agents to sell assets to reduce borrowing, which further reduces asset prices (the "financial accelerator"). Brunnermeier and

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Pederson (2009) present a similar mechanism in a financial market context with forced sales during times of crisis ("liquidity spirals").[1]

Motivated by this literature, we test whether the effect of monetary policy shocks on financial markets (exchange rates and stock prices) might differ during the recent financial crisis. To generate a large enough sample of monetary policy shocks during the crisis we (i) focus on transmission to financial variables (which respond almost immediately)—rather than on transmission to real variables which have "long and variable lags", and (ii) widen the sample to eight countries (Australia, Canada, New Zealand (NZ), the United Kingdom (UK), the Republic of Korea (Korea), Indonesia, Malaysia and Thailand).

We follow an event study approach which uses a short window around a monetary policy announcement to isolate causality from monetary policy surprises to financial variables. In general, the policy rate responds to the same economic data and financial conditions as other financial variables, leading to a simultaneity problem. However, if policymakers do not respond to new information on the day of the policy announcement, then the change in the policy rate *on that day* is relatively exogenous to movements in financial variables on the same day. As implied by theory, anticipated changes in the policy rate have no impact on financial variables, and so we focus on monetary policy surprises, identified by the change in 1-month market interbank interest rate in each country on the day of the announcement.[2] Though the event study methodology is fairly standard,[3] the financial crisis application is relatively novel, especially for our selection of countries.[4] To our knowledge, we are one of the first to attempt to estimate the effect of domestic monetary policy shocks on financial markets in this sample of non-OECD Asian countries.

In general, we expect an unanticipated rate hike to (i) appreciate the exchange rate via uncovered interest parity and (ii) lead to a fall in stock prices by reducing expected future dividends, increasing the risk-free rate or raising equity risk premia (Bernanke and Kuttner, 2005). For the full sample, this is what we find: a one percentage point surprise rise in official interest rates leads to around a 1% appreciation of the exchange rate and a 0.5–1% fall in stock prices (on average). We also expect possibly larger effects in OECD countries than non-OECD countries, with the former tending to have more liquid financial markets and a more developed monetary policy regime. There is some evidence that monetary policy shock have a larger effect in OECD countries, though this is not robust across specifications.

To estimate the differential effects of the crisis we split the sample into "crisis" and "non-crisis" periods and estimate the effect of monetary surprises separately during those two regimes. As the definition of the "crisis period" is open to debate, we use two methods. The first is based on a narrative of economic events, while the second tests for a break in parameters when the spread of corporate bonds to treasuries—a common measure of financial distress (Bernanke et al., 1999)—passes a certain estimated threshold.

We find little robust evidence of a change in the effect of monetary policy on financial markets during the recent crisis. The estimated effect of monetary policy surprises during crisis is not significantly different from that during non-crisis periods across all specifications, although point estimates suggest, if anything, weaker effects of monetary policy shocks on exchange rates during crisis periods.

2. Methodology

This paper analyzes the instantaneous impact of an unanticipated change in monetary policy on exchange rates and stock prices. This section describes (i) how a policy change can be separated into anticipated and unanticipated components and (ii) how the surprise component can be approximated by a change in market (interbank) rates. Sections 2.1 and 2.2 present the estimated regressions.

A policy interest rate, typically an overnight rate, is set for a month or more, until the next policy meeting. This means that the day before the announcement, the expected return on the sequence of overnight loans for one month will reflect the expected policy rate over the coming month ($E_{t-1d} i^P_{1m,t}$; where d denotes days and m denotes months). Clearly after the announcement, the expected policy rate is equal to the actual policy rate ($E_{t-1d} i^P_{1m,t} = i^P_{1m,t}$). Hence, a change in the policy rate can be written as follows:

$$\Delta i^P_1 \equiv i^P_{1m,t} - i^P_{1m,t-1d} = (E_{t-1d} i^P_{1m,t} - i^P_{1m,t-1d}) + (i^P_{1m,t} - E_{t-1d} i^P_{1m,t}) = \Delta i^a_t + \Delta i^{un}_t, \quad (1)$$

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[1] There is some evidence that the effects of macroeconomic news on US stock prices varies with the business cycle (McQueen and Roley, 1993).

[2] Interbank loans, bank bills and bankers' acceptances are traded in many more countries than futures or other derivatives commonly used to identify monetary policy surprises. In using these instruments, this paper is able to examine the effect of monetary policy in countries that have been overlooked by the literature. A concern is that interbank-overnight index swap (OIS) spreads were elevated during the crisis and that rate cuts reduced these spreads (Ait-Sahalia et al., 2012). Online Appendix B investigates this issue and finds similar estimates (on a common sample) using either the change in OIS rates or the change in interbank rates as the monetary policy surprise measure.

[3] For the US, Bernanke and Kuttner (2005) find a large effect of monetary surprises on stock prices using an event study approach, and Rigobon and Sack (2003) argue that monetary policy also responds to US stock prices (though over a longer period). Outside the US, there are relatively few papers estimating the effect of domestic monetary policy shocks on stock markets for the countries we consider, though Zettelmeyer (2004) and Kearns and Manners (2005) estimate the effect of monetary surprises on exchange rates for a subset of countries in our sample.

[4] There is a literature on the effect of monetary policy interventions during the crisis, though it mainly focuses on large countries outside our sample (like the US) and/or unconventional measures (Ait-Sahalia et al., 2012; Needy, 2013; Gagnon et al., 2010; Joyce et al., 2011; Abassi and Linzert, 2012). Because few of the countries in our sample were involved in quantitative easing (with the UK being a notable exception), we focus on conventional monetary policy.

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