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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.

KEYWORDS: Monetary policy effectiveness; Exchange rates; Stock prices; Crisis; Asian economies

I. 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"). Brunnermeir and Pederson (2008) 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

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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 evidence that rate cuts reduced these spreads (Ait-Sahalia et al. 2012).

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 "noncrisis" 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.

II. 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. Section 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 ($E_{t-1d}i_1{}^P{}_{m,t}$; where d denotes days and m denotes months). Clearly after the announcement, the expected policy rate is equal to the actual policy rate ($E_{t-1d}i_1{}^P{}_{m,} = i_1{}^P{}_{m,t}$). Hence, a change in the policy rate can be written as follows:

$$\Delta i_1^P \equiv i_{1m,t}^P - i_{1m,t-1d}^P = \left(E_{t-1d} i_{1m,t}^P - i_{1m,t-1d}^P\right) + \left(i_{1m,t}^P - E_{t-1d} i_{1m,t}^P\right) = \Delta i_t^a + \Delta i_t^{un}, \quad (1)$$

where $\Delta i_t{}^a$ is the anticipated component of the monetary policy change, which should not affect financial markets on the announcement day, and $\Delta i_t{}^{un}$ is the unanticipated (surprise) element of the policy change on the day of policy announcement, which affects financial markets on the day of announcement. As investors must be indifferent between holding this sequence of overnight loans for one month and investing at the 1-month market rate ($i_{1m,t}^{IB}$), the

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.

expectations hypothesis suggests that 1-month market rate must equal the expected policy rate over the coming month ($E_t i_1{}^P{}_{m,t}$), plus a constant term premium (TP), that is, $i_1{}^{IB}{}_{m,t} = E_t i_1{}^P{}_{m,t} + TP$.[5] Therefore, the surprise element of monetary policy change can be represented by the following relationship:

$$\Delta i_t^{un} \equiv i_{1m,t}^P - E_{t-1d} i_{1m,t}^P = \left(E_t i_{1m,t}^P + TP\right) - \left(E_{t-1d} i_{1m,t}^P + TP\right) \approx \Delta i_t^{IB} \quad (2)$$

2.1 Baseline Specification

Our baseline model (Equation 3), tests whether the unanticipated change in the monetary policy (Δi_t^{un}) on the day of the policy announcement affects the financial variable (Δf_t) of interest: the exchange rate, er, or the stock market index, st:

$$\Delta f_{i,t} = \alpha + \beta \Delta i_{i,t}^{un} + \boldsymbol{\delta}' \boldsymbol{X}_{i,t} + \varepsilon_{i,t};\ f = er, st. \quad (3)$$

where $\boldsymbol{X}_{i,t}$ is vector of controls including (i) a dummy for non-OECD countries,[6] (ii) a measure of the financial crisis, such as the spread between US corporate bonds and treasuries (more on this below), (iii) contemporaneous daily changes in the US/Euro exchange rate and the S&P 500. Although the small window around monetary policy announcement minimizes omitted variable bias, in small samples other developments can be influential. [7]

Before investigating the effect of the financial crisis, we first separately estimate the effect of monetary policy in non-OECD countries with the addition of an interaction term between the interest rate surprise $\Delta i_{i,t}^{un}$ and a non-OECD dummy variable $d_{nonOECD,i}$ (Equation 4). The effect of monetary policy shocks in non-OECD countries will now be $\beta + \varphi$, and we can test the hypothesis that the effect of monetary surprises is different in OECD from non-OECD countries $\varphi \neq 0$.

$$\Delta f_{i,t} = \alpha + \beta \Delta i_{i,t}^{un} + \varphi \Delta i_{i,t}^{un} d_{nonOECD,i} + \boldsymbol{\delta}' \boldsymbol{X}_{i,t} + \varepsilon_{i,t};\ f = er, st. \quad (4)$$

2.2 Crisis Specification

To test if policy changes have a different effect during the global financial crisis (defined by a narrative approach in Section 2.4), we extend the baseline specification by including a term interacting the unexpected change in monetary policy and the crisis dummy variable ($d_{crisis,t}$) taking a value of one during the crisis and 0 otherwise (Equation 5). If monetary policy has a different effect on financial markets during the crisis, then $\gamma \neq 0$. Note that the total effect of policy surprises during the crisis is $\beta + \gamma$.[8]

$$\Delta f_{i,t} = \alpha + \beta \Delta i_{i,t}^{un} + \gamma \Delta i_{i,t}^{un} d_{crisis,t} + \boldsymbol{\delta}' \boldsymbol{X}_{i,t} + \varepsilon_{i,t};\ f = er, st. \quad (5)$$

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[5] These conditions can be derived by taking logs of the actual compounded return and applying the approximation $\ln(1+i)^n \approx ni$ where n=periods. Trading-day and compounding rules complicate the derivation but they do not materially affect the expression.

[6] Individual country dummies—equivalent to fixed effects—yielded similar results.

[7] These controls (i) enable more precise estimates (by reducing the error variance) and (ii) control for news released overnight which might affect financial markets. By our identification strategy, the monetary policy surprise should be uncorrelated with the contemporaneous news releases in large samples, though news releases could be influential in small samples. One day changes in the S&P 500 and US/Euro dollar exchange rate are taken from Bloomberg (series SPX Index and EUR Curncy respectively). Because the countries in the sample are in different time zones, the trading period of stock markets/exchange rates usually differs from that of the S&P 500 and US/Euro dollar exchange rate controls. In this case we use the definition of the "day" that allows the dependent variable to respond to news on opening.

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An alternative to narrative-based crisis definitions is to split the sample based on a measure of financial distress. Following Bernanke et al (1999), our preferred measure is the spread between US corporate bonds and treasury bills.[9] Specifically, if the spread is less than some cut-off value $\bar{s}$, we estimate Equation 6a representing the "normal" regime. If spread>$\bar{s}$ then we are in the crisis regime, and we Estimate 6b. Note that unlike Equation 5, Equation 6 allows the coefficient on all variables (including controls) to vary by regime.

III. DATA

Policy rates, market interest rates, exchange rates and stock price data are collected for eight countries: Australia, Canada, Indonesia, Korea, NZ, Malaysia, Thailand, and the UK. Appendix Table A1 lists the policy rates and their sample sizes with each observation being a monetary policy decision, not necessarily a policy change (as in some other studies).[10] For each country, the sample size is quite small in the crisis period so we pool across all countries to estimate the effect of policy surprises during the crisis.[11]

The market interest rate used to measure surprises is the 1-month interbank rate (from Bloomberg, Datastream or central bank websites) in each country and the stock price is the main index in each country (data from Bloomberg). The exchange rates are defined as US dollar per local currency, such that an increase reflects of an appreciation of the local currency, and are taken from Bloomberg (except for NZ, which is from the Reserve Bank of New Zealand). Details of the data collected, sources and timing of the policy changes are reported in the Online Appendix A.

Great care needs to be taken with timing. For example, in Malaysia the policy announcement is at 6 pm local time, after markets have closed. This means the one-day change in the interbank rate, exchange rate and stock index need to be calculated the following day. In Canada, a 9 am announcement time means no lags are needed. For most countries, the timing is clear from the data source. However, for Korea, interbank rates are sampled at around the same time as the policy announcement, and so we choose the timing based on when interbank rates seem to move in response to interest rate changes.[12] Note that this timing method says nothing about the response of dependent variables (stock prices or exchange rates) to monetary policy surprises, as it is just identifying the surprise itself.

3.1 Descriptive statistics/plots

Figure 1 shows the policy change on announcement dates for each country, and the change in the market interest rate—the monetary surprise measure (the difference between the actual change and the surprise is the anticipated policy change). For all countries (except Malaysia) the movement in the monetary surprise measure is noticeably smaller than the policy change, indicating that most of the policy changes are anticipated (see the Online Appendix for other descriptive statistics).[13] The average monetary policy surprise is quite small (around 5-10 basis points (bps)) which means that even with a large estimated βcoefficient the predicted change in stock markets or exchange rates will also be small.

3.2 *Influential observations*

The most prominent feature of these graphs is the large rate cuts in late 2008-09, which for most countries were unprecedented in recent history. Moreover, the magnitude of the cuts mostly were unanticipated by markets, leading to very large monetary surprises. For example, on 6 November 2008 the Bank of England cut rates by 1.5 percentage points, of which around a percentage point was unexpected.

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[10] As the non-OECD countries in the sample adopted inflation targeting after the OECD countries, their sample sizes are smaller than that of the OECD countries. As such, all-country pooled results are often closer to the results of the OECD countries.

[11] These pooled estimates reflect an average effect across all countries in the sample. In Online Appendix C we test the extent to which the estimates of individual countries vary from the pooled average. We find that while there is some heterogeneity in point estimates, individual country estimates are less precisely estimated— there is no robust evidence of a significant differential response in any individual country.

[12] Until March 2006, the interbank rate in Korea seemed to respond more strongly to policy changes with a one day lag. We were unable to find any information on whether the procedures of the Korean Federation of Banks, which collects the data, had changed around this period.

[13] Among non-OECD countries monetary policy operated somewhat differently. In Malaysia, there were few changes in monetary policy, which were mostly unexpected. Bank Indonesia changed rates more often, but most of these also were unanticipated. In contrast, most rate changes were at least partially anticipated in Thailand.

Unfortunately, if there are extreme movements in stock prices and/or the exchange rates on the same day as these large unanticipated rate cuts (as is likely during a crisis), then individual observations can become extremely influential in a small sample. On the day of the 6 November 2008 rate cut, the UK stock market fell around 5.7%, which makes this observation extremely influential (three times as influential as the cut off used by Bernanke and Kuttner 2005).[14] By coincidence there was a lot going on 6 November 2008: Japanese and US stock markets fell sharply, other central banks cut interest rates and the IMF released a report worsening the forecast for world growth – all unrelated to the UK monetary policy decision.[15] Because of this, we exclude this observation from all ordinary least squares (OLS) stock price regressions (the data point is not influential for exchange rates).

There are several other observations that are also regarded as influential by Bernanke and Kuttner's cutoff (and other widely used measures of influence such a Cook's distance). Instead of going through these individually, we use a robust regression algorithm to downweight influential observations.[16]

IV. RESULTS

4.1 Baseline results and differential effects in non-OECD countries

Before investigating the effect of monetary policy during the crisis, we first present pooled results over the full sample, allowing for a differential effect of monetary policy in our three non-OECD countries. The results are shown in Table 1.

Across the whole sample, a 100 bps surprise rate rise appreciates the exchange rate by around 1 percentage point (Column 1 OLS and Column 3 robust regression) with little variation across specifications (significant at the 5% level). The same 100 bps monetary surprise causes stock prices to fall by around 0.5-1 percentage points (significant at 5-10%) with a stronger response for OLS (Column 5) than the robust regression (Column 7).[17]

Table 1 also adds an interaction term between a non-OECD dummy and the size of the monetary policy shock: the effect of monetary policy shocks is β in OECD countries and $\beta + \varphi$ in non-OECD countries. We find some evidence of weaker effect of monetary policy shocks in non-OECD countries—a smaller appreciation of the exchange rate (Columns 2 and 4) and a smaller fall (or even a small rise) in stock prices (Columns 6 and 8)—although the results are not robust across all specifications.[18] In Online Appendix C, we show that while there is some heterogeneity in estimates across individual countries, it is generally not statistically significant.

Table 1

The general effects of monetary policy surprises and their differential effect in non-OECD countries

Dep. Variable	Exchange rate				Stock Price			
	OLS		RREG		OLS#		RREG	
	Eq. 3	Eq. 4	Eq. 3	Eq. 4	Eq. 3	Eq. 4	Eq. 3	Eq. 4
$\beta[\Delta i^{un}]$	0.84**	1.10*	0.94***	1.33***	-1.02**	-1.58***	-0.56*	-1.34***
	(2.20)	(1.90)	(5.12)	(5.95)	(-2.25)	(-2.82)	(-1.72)	(-3.46)
φ $[\Delta iundnonOECD]$		-0.72		-0.76**		1.38*		1.86***

[14] Specifically, Bernanke and Kuttner's influence statistic is $\Delta\mathbf{b}'\sum^{-1}\Delta\mathbf{b}$, where $\Delta\mathbf{b}$ is the change in the estimated coefficient vector when a particular observation is excluded from the regression, and $\sum$ is the estimated variance-covariance matrix of the original regression on the full sample. For our sample, these are calculated using Equation 3 without controls. Dropping 6 Nov 2008 more than triples the t-statistic on monetary shocks from Equation 3.

[15] See "IMF cuts economic growth forecast" BBC News 2008/11/06; "US stocks plummet on grim economic outlook" FT.com 2008/11/06 and "European markets extend losses" FT.com 2008/11/06.

[16] This is done via Stata's *rreg* command. The algorithm initially screens for outliers using Cook's distance greater than one as a threshold. It then uses two iterative procedures to downweight influential observations (Li 1985). Monte Carlo simulations by Hamilton (1991) suggest that this robust regression is almost (95%) as efficient as OLS with ideal data (normal errors, fixed **X**), but more than twice as efficient with fat tailed errors and random **X** which would best describe the data used here. Note that heteroskedasticity robust standard errors cannot be used with *rreg* (as the observations have already been reweighted)

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		(-0.96)		(-2.13)		(1.85)		(2.96)
Controls								
$\Delta S\&P500$ (ppt)	0.03	0.02	0.03*	0.02	0.35***	0.36***	0.33***	0.34***
	(0.96)	(0.71)	(1.73)	(1.36)	(7.96)	(8.21)	(13.23)	(13.44)
Δ *US/Euro* (ppt)	0.42***	0.42***	0.35***	0.34***	0.04	0.06	0.11**	0.12**
	(7.32)	(7.14)	(11.11)	(10.92)	(0.55)	(0.70)	(1.99)	(2.20)
$SpreadA$ (ppt)	0.05	0.05	0.01	0.01	-0.11**	-0.11**	-0.09***	-0.09***
	(1.38)	(1.39)	(0.74)	(0.62)	(-2.12)	(-2.12)	(-3.04)	(-3.04)
$dnonOECD$	0.03	0.00	0.03	0.02	-0.09	-0.05	0.05	0.11
	(0.48)	(0.06)	(0.72)	(0.34)	(-0.84)	(-0.45)	(0.63)	(1.27)
Constant	-0.08	-0.07	-0.02	-0.01	0.10	0.09	0.08	0.07
	(-1.48)	(-1.40)	(-0.50)	(-0.30)	(1.37)	(1.26)	(1.30)	(1.15)
n	695	695	695	695	694	694	695	695
R^2	0.15	0.15	0.19	0.20	0.20	0.20	0.24	0.24

A 100 bps rate surprise for the OECD group is estimated to appreciate the exchange rate by about 1.2% and is similar to estimates reported elsewhere in the literature. For example, Kearns and Manners (2005) report an average coefficient of 1.45 for a similar group of countries (and 1-month rates) and Faust et al (2007) report a coefficient of 0.66-1.23 for the US.[19] For stock prices, our estimated coefficients of around -1.5 (OECD sample) are smaller than those of Bernanke and Kuttner's (2005) estimate of -2.55 for the US, although the estimates are not significantly different.[20] A smaller coefficient for our sample is not surprising as US monetary policy shocks affect world stock markets (Hausman and Wongswan 2011) and also affect risk premia/expected returns (Bernanke and Kuttner 2005) in a way that monetary policy.

V. ASYMMETRIES

Following Bernanke and Kuttner (2005) we test for asymmetries by adding an additional term $\vartheta \Delta i_{i,t}^{un} \mathbf{1}(\Delta i_{i,t}^{un} < 0)$ to Equation 3 (a negative surprise dummy $\mathbf{1}(\Delta i_{i,t}^{un} < 0)$ interacted with the monetary surprise variable $\Delta i_{i,t}^{un}$). The response to a positive/contractionary monetary policy surprise is β and to a negative/expansionary surprise (the cut in rates is larger than expected) is $\beta + \vartheta$. Over the full sample, ϑ is generally significant and the opposite sign to β, indicating that negative/expansionary surprises (unexpected rate cuts) have much less effect than positive/contractionary surprises (Table 4, Columns 1-4). However, the effect is entirely due to the large unanticipated rate cuts during the crisis: for a sample ending in 2007, there is little evidence of asymmetries (Table 4, Columns 5-8).[21] Therefore we conclude that that there is little robust evidence of asymmetries, but if anything, surprise rate cuts have weaker effects.

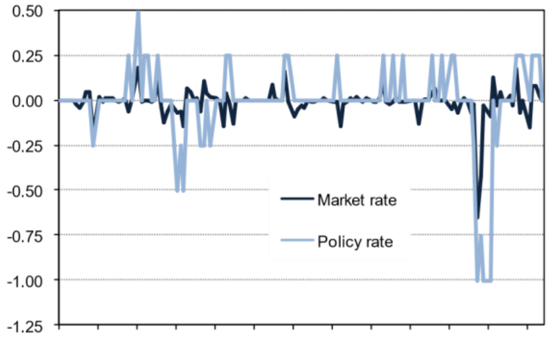
For the US, the literature finds either no evidence of asymmetries (Bernanke and Kuttner 2005 for stock prices), or that contractionary monetary policy shocks have larger effects on output (Cover 1992). Our mixed results (depending on the subsample) are consistent with either result. Theoretically, the mechanism of occasionally binding financial constraints discussed in the introduction predicts potential asymmetry by financial regime (crisis or normal) rather than the direction of the monetary policy shock within each regime.[22]

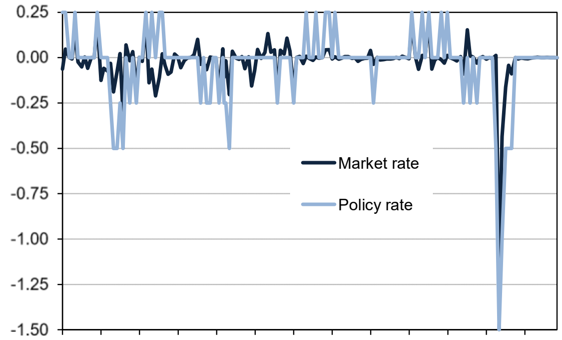
VI. CONCLUSIONS

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. Recent theoretical work has suggested that agents might respond differently to shocks during crisis periods because financial constraints become binding. This paper uses an event study approach to compare the effect of monetary policy shocks on financial markets (stock prices and exchange rates) before and during the recent financial crisis for eight small open OECD and Asian nonOECD economies. To the knowledge of the authors, this is first paper that uses this approach to investigate the effect of monetary policy shocks in Asia, and one of few papers which try to estimate the effect of domestic monetary policy during crises outside the US.

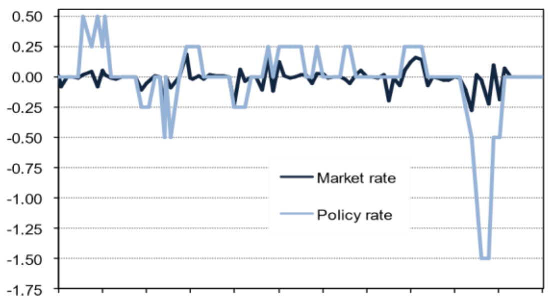
Overall, an unanticipated 100 bps increase in the policy rate appreciates the exchange rate by about 1%, and causes a 0.5-1% fall in stock prices. The effects are weaker for non-OECD countries (although the differences are sometimes insignificant) which could be driven by less liquid financial markets or more noisy measurement of monetary policy surprises. We find little robust evidence of differential effects of monetary policy on financial markets during the crisis, although point estimates suggest that, if anything, the effect of monetary policy shocks might be weaker for exchange rates during the crisis.

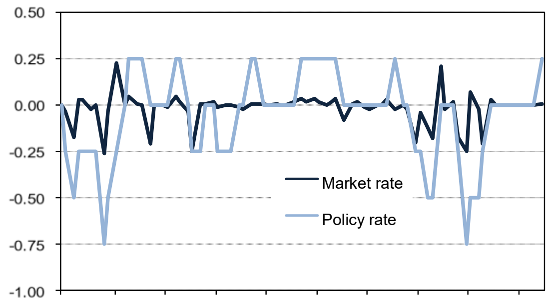
There are many reasons why the effect of monetary policy shocks on financial markets could be the same, or weaker, during a crisis. First, the average monetary surprises is around five times larger during the crisis than normal times, which would imply large movements in financial markets with a constant β-coefficient. There could be some sort of non-linearity with respect to the size of the surprise, although unfortunately our sample size is not large enough to estimate non-linear effects during the crisis. Second, it could be that the direction of the change is important—almost all of the large surprises during the crisis were negative—although again we do not have the sample size to test this hypothesis during the crisis. These non-linearity's are interesting areas for future research. Finally, it is worth noting that the models with occasionally binding constraints referenced earlier have not been applied to our specific setting. If constrained borrowers tended to be in the non-financial sector, or the marginal trader is always debt-constrained, then there might be no reason for expect a stronger response to monetary policy shocks during the crisis. A proper theoretical investigation is needed to further explore these channels.





'98 '99 '00'01**Panel A: Australia**'02 '03 '04 '05'06 '07 '08 '09 '10 '97 '98 '99 '00'01 **Panel B: UK**'02'03'04 '05 '06'07'08 '09





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'03 '04 '05 '06 '07 '08 '09 '10

Panel C: New Zealand **Panel D: Canada**

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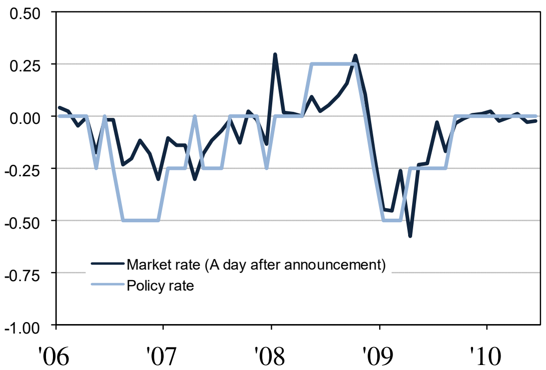
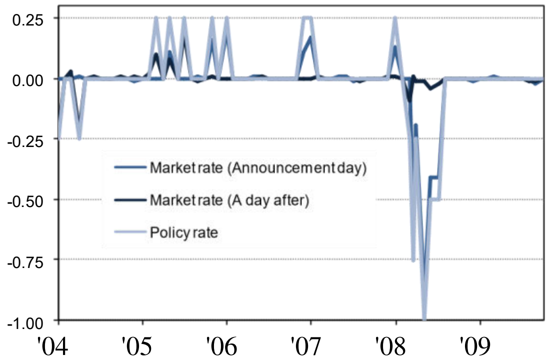
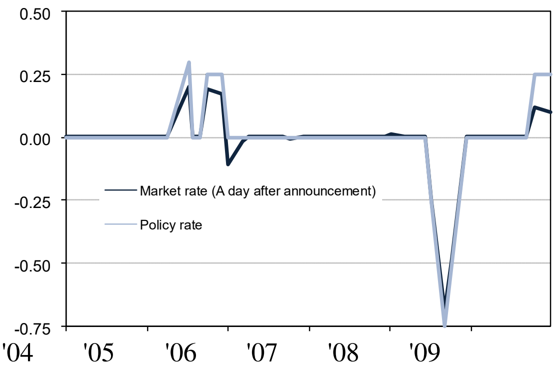


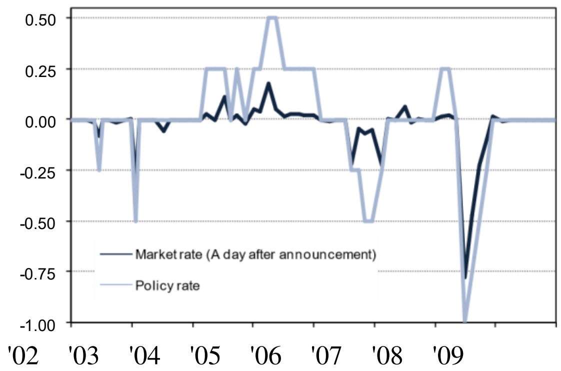
Panel E: Indonesia



Panel F: Korea



Panel G: Malaysia



Panel H: Thailand

Fig. 1. Changes in policy rate and market interest rate (percentage points). *Notes:* Rate changes based on policy announcement day. Sources (respectively): Reserve Bank of Australia; Bank of England and Datastream; Reserve Bank of New Zealand; Bank of Canada; Bank Indonesia and Bloomberg; Bank of Korea and Datastream; Bank Negara Malaysia and Bloomberg; Bank of Thailand and Bloomberg.

REFERENCES

1. Abassi P., Linzert, T., 2012. The effectiveness of monetary policy in steering money market rates during the financial crisis. Journal of Macroeconomics 34, 945-954
2. Ait-Sahalia Y., Andritzky, J. Jobst A., Nowak, S., Tamirisa, N., 2012. Market response to policy initiatives during global financial crisis. Journal of International Economics 87, 162-177.
3. Bernanke B., Gertler, M., Gilchrist, S., 1999. The financial accelerator in a quantitative business cycle framework. In Taylor, J.B., Woodford, M. (Eds.), Handbook of Macroeconomics 1 (1), 1341-1393.
4. Bernanke, B., Kuttner, K., 2005. What explains the stock market's reaction to Federal Reserve policy? Journal of Finance 60 (3), 1221–1257.
5. Bank for International Settlements, 2009. 79th Annual report 2008/09. Basel, Switzerland.
6. Brunnermeier, M., Pederson, L. 2009. Market Liquidity and Funding Liquidity. The Review of Financial Studies 22, 2201-2238.
7. Brunnermeir M., Sannikov Y. 2014, A Macroeconomic Model with a Financial Sector." American Economic Review 104 (2), 379-421.
8. Cover, J. 1992. Asymmetric Effects of Positive and Negative Money-Supply Shocks. The Quarterly Journal of Economics, 107 (4), 1261-1282.
9. Faust, J., Rogers, J., Wang, S., Wright, J., 2007. The high frequency response of exchange rates and interest rates to macroeconomic announcements, Journal of Monetary Economics 52, 1051-1068

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