International bank lending channel of monetary policy

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Since the 90s, the rapid financial integration has stimulated a sharp increase in international bank lending. In this context, should we expect a monetary policy tightening in systemic countries to increase cross-border bank lending or to trigger a sudden reversal of capital flows? Using a panel of nine systemic countries of origin and 46 recipient countries, we find that a tightening of domestic monetary policy decreases international bank lending, due to an increase in funding costs or a rise in risk-aversion.

INTERNATIONAL BANK LENDING AND MONETARY POLICY

The rapid increase in financial integration since the 90s has stimulated a sharp rise of gross cross-border banking flows. In such financially interconnected context, banks can play an important role in transmitting monetary policy changes from major advanced economies to the rest of the world. The transmission goes mainly through three channels. First, a monetary policy tightening, such as an increase in the official interest rate, translates into higher financing costs for banks operating globally. In turn, this decreases domestic and foreign bank lending, negatively affecting global activity (bank lending channel). Second, a monetary policy contraction implies a higher remuneration of safer assets, which discourages banks to invest in riskier, higher return assets, reducing global credit supply (risk-taking channel). Third, a domestic monetary policy tightening may increase cross-border bank lending by eroding the net worth and collateral value of domestic borrowers and thus leading to a reallocation of lending toward relatively safer borrowers abroad (international portfolio rebalancing channel). Therefore, domestic monetary policy could have a negative as well as positive effect on international bank lending depending on which transmission mechanism prevails.

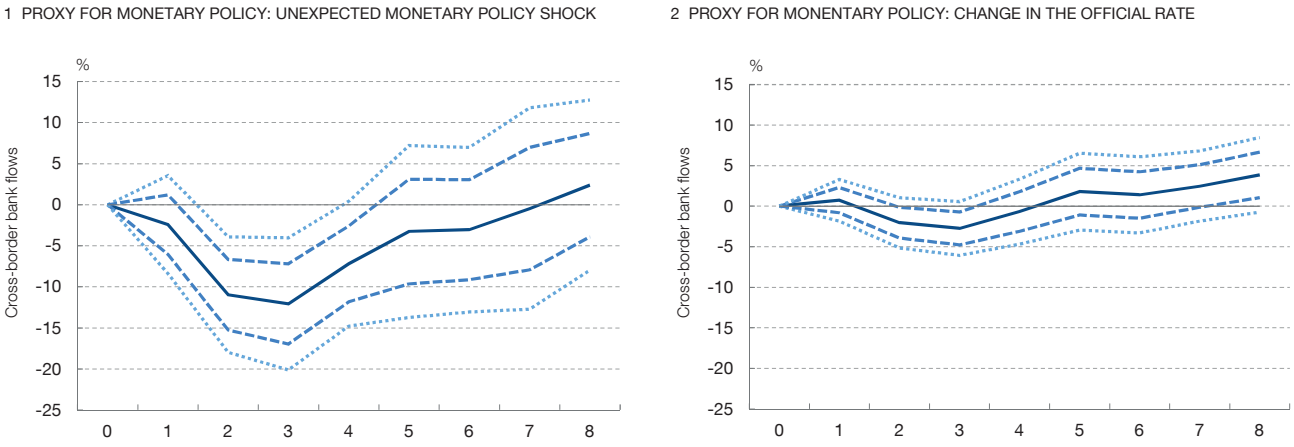
Empirical work has not reached a consensus on the prevailing sign of these effects. Bruno and Shin (2015), Bräuning and Ivashina (2019), Morais *et al.* (2019), among others, find empirical support for the banking lending channel. Miranda-Agrippino and Rey (2019) provide evidence of the existence of the global financial cycle since they show that a tightening of the monetary policy of the United States causes a rapid increase in risk aversion and, consequently, a decline in international credit flows, particularly in the banking sector. On the contrary, Cerutti *et al.* (2017), Correa *et al.* (2017) and Avdjiev *et al.* (2018), Argimón *et al.* (2019) obtain evidence in support of the portfolio rebalancing channel (positive effect).

This article shows that this lack of empirical consensus is mainly a consequence of how previous contribution has identified monetary policy shocks. Since monetary policy usually responds systematically to economic conditions as if guided by a rule, it is difficult, in practice, to isolate the causal relationship that goes from monetary policy actions to economic activity. For example, a central bank could reduce interest rates due to an expected worsening of the future economic situation in the future. If this systematic behavior – call it the monetary policy rule – is not taken into account, the direction of causality would be misinterpreted and we could wrongly conclude that the economic slowdown has been caused by a monetary expansion. As Ramey (2016) argues, in order to identify the causal effect of monetary policy, it is necessary to consider unexpected deviations from the monetary rule. However, most of the mentioned studies use changes in the official interest rate as proxy for monetary policy, and such measure incorporates both unexpected changes as well as systematic responses of monetary policy to the underlying economic conditions.

MONETARY POLICY SURPRISES

We consider nine source countries (Canada, Germany, Italy, Japan, the Netherlands, Spain, Sweden, United Kingdom and the Unites States) and 46 recipient countries distributed worldwide over the period 1990 to 2012. To identify monetary policy surprises in the United States, we use Romer and Romer (2004) series of unexpected changes in monetary policy extended by Coibion (2012). The quarterly

Figure 1
EFFECT OF US MONETARY POLICY ON INTERNATIONAL BANK LENDING



NOTE: The figures show the response of cross-border bank lending to a 100 bp U.S. monetary policy shock (left-hand side panel) and to a 100 bp change in Fed Funds rate (right-hand side panel) and their 68% and 90% confidence bands. Horizon h = 0 captures th.

series of unexpected shocks are constructed as changes of the Federal Reserve's objective interest rate at each meeting of the Federal Open Market Committee (FOMC) purged of the systematic variations due to macroeconomic conditions as captured by the Fed macroeconomic projections. For the rest of the systemic economies considered, including the European ones, we use a similar methodology base on Furceri *et al.* (2018). As a robustness test for the US, we also use the identification strategy by Gertler and Karadi (2015) based on the high-frequency variation in interest rate futures contracts within a 30 minute window around policy announcements.

THE EFFECT ON INTERNATIONAL BANK LENDING

Based on the Locational Banking Statistics of the Bank for International Settlements, we find that an unexpected tightening of monetary policy in a systemic country generates a significant and economically relevant decrease in cross-border bank lending. Figure 1 present the results for the US case. The left-hand side panel shows the effect of a monetary policy tightening on international bank lending over an horizon of 8 quarters using Coibion´s unexpected changes. An unexpected tightening of monetary policy equivalent to 100 basis points generates, on average, a reduction in cross-border bank flows by over 10%, with a peak-effect of 12% during the third quarter. These results differ considerably from the evidence presented in previous works using similar banking data but different proxy for monetary policy shocks, i.e. levels or changes in the official interest rates (Correa *et al.*, 2017; Avdjiev *et al.*, 2018; Argimón *et al.*, 2019, among others). To compare our results with previous literature, the right-hand side panel of Figure 1 reports the results using the official rate as measure of monetary policy and shows a null or slightly positive effect. In the case of the other systemic economies considered (i.e. Canada, Germany, Italy, Japan, the Netherlands, Spain, Sweden, United Kingdom), the effect of un unexpected change in monetary policy has a negative effect on international lending, although smaller and delayed compared to the case of the United States.

Finally, we find that the effect is weakened during periods of high uncertainty but do not vary according to the degree of risk of the borrower country, further weakening support for the international portfolio rebalancing channel.

CONCLUSION

Our paper shows that a monetary policy tightening in economically important countries reduces international bank lending which may have local real consequences. These findings suggest that the increase in funding costs or the rise in risk-aversion induced by monetary policy unexpected changes prevail over the portfolio rebalancing needs of domestic banks.

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