Commentary: Monetary Policy Spillovers to Advanced and Emerging Market Economies

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This is an excellent paper; it is also an extremely rich paper with many sets of results. I will therefore start by summarizing what I believe are its main messages; I will then offer a few comments.

Şebnem Kalemli-Özcan shows that the international transmission of U.S. monetary policy to the rest of the world operates largely through risk spillovers, which are "changes in risk perception". These risk spillovers are higher for emerging markets than for advanced economies; they interact with country risk. In emerging markets, domestic monetary policy has limited pass-through into interest rates due to fluctuations in risk premia which are affected by U.S. monetary policy. For emerging markets, the pass-through of domestic monetary policy is also affected by international capital flows. This makes the case in favour of flexible exchange rates stronger, as flexible exchange rates can, to some extent, smooth out risk shocks. But flexible exchange rates do not perfectly insulate emerging economies: monetary policy in emerging markets cannot fully offset international risk spillovers. Hence, policy makers ought to decrease the risk sensitivity and volatility of capital flows through the build up of better institutions. Policy also ought to aim at decreasing foreign currency debt. I see this set of results and conclusions as the paper's core messages.

There is now a large literature estimating the effects of U.S. monetary policy shocks on the Global Financial Cycle, in particular on global effective risk aversion and on a set of variables such as risk premia, spreads, VIX and other risk indices in the rest of the world. When the US Federal Reserve tightens by 100 bp, there is an appreciation of the Dollar Real Effective Exchange Rate, and an important immediate decline in the global factor in risky asset prices with global risk

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aversion going up as shown in Miranda-Agrippino and Rey (2015) and Stravakeva and Tang (2018) who have interesting results for the quantitative easing period. When the Fed tightens, we also see a decline in the leverage of financial intermediaries, a substantial decrease in gross capital flows and a decrease in credit growth (see Rey (2013) and Bruno and Shin (2015)). One important contribution of Kalemli-Özcan's paper is to study the heterogeneity in transmission of international spillovers in "risk perception" across emerging markets and advanced economies and across exchange rate regimes. This heterogeneity affects policy making in fundamental ways and this is why Kalemli-Özcan's paper is an important one.

Monetary policy responses and interest rate differentials

There are two possible monetary policy responses of emerging and advanced economies to a Fed tightening. One is the "fear of floating" response (Calvo and Reinhart (2002)): countries increase their interest rate in tandem with the Fed in order to avoid too large fluctuations in the exchange rate. The other one, in contrast, is to react to the deterioration in domestic financial conditions induced by the Fed tightening by loosening the domestic policy rate. This is in order to offset risk spillovers into domestic financial markets. One of the core empirical results of the paper, is that an increase in the U.S. policy rate leads to an asymmetric response of interest rate differentials for advanced economies and for emerging markets. In advanced economies, a 100-basis-point tightening leads to a 50 basis points *decrease* in interest-rate differentials, but it leads to a 230 basis points *increase* in interest-rate differentials for emerging markets.

Why does the interest-rate differential increase so much in the case of emerging markets? The interest-rate differential between the US and emerging markets comes from a difference in policy rates and a difference in risk premium—the paper bundles the risk premium and the expected depreciation of the exchange rate. In the case of fear of floating, the emerging market

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tries to stabilize its exchange rate and increases its domestic policy rate. This leads to an increase in the interest-rate differential through an increase in the policy rate and in the risk premium. In the case where the emerging market loosens its policy after a tightening of U.S. monetary policy, we have to conclude that the loosening is not effective enough to offset a worsening of financial conditions; indeed the increase in interest rate differential indicates that the risk premium increases by more than the domestic policy rate decreases. These two types of policy responses are compatible with the empirical findings of the paper: one can find evidence in favour of both types of monetary policy responses in the paper. It would be interesting to study directly the responses of policy rates in the different countries rather than estimating equations in terms of interest-rate differentials in order to distinguish between the two mechanisms. If we looked directly at the policy rates, we could have a more direct characterization of what the mechanisms behind these different responses are and what the key characteristics of countries driving them are: is it being an advanced economy versus an emerging market or is it the exchange rate regime? Obstfeld et al. (2018) and Battarai et al. (2019) have done recently some complementary work documenting heterogeneity of transmission in US shocks.

For advanced economies, Miranda-Agrippino and Rey (2015) shows that the U.K. and the euro area react similarly to a U.S. monetary policy tightening. A 100-basis-points tightening by the Fed has similar effects on the FTSE and the DAX -they both go down; the sterling and the euro depreciates; the German and U.K. corporate spreads increase. Responding to this tightening in financial conditions, domestic monetary policy loosens in the UK and in the Euro area. Gourinchas (2017) has done similar estimates for Chile and also finds a loosening of domestic monetary policy after a Fed tightening. I think it would be of high interest to more fully

characterize the set of policy responses in the panel of countries that Kalemli-Özcan has in her paper.

Spillover in risk perceptions and economic models

What are the consequences of international spillovers in "risk perception"? U.S. tightening leads to a increases in risk premia internationally, which may have some real effects. The paper finds that floating exchange rates can mitigate these effects: there are smaller correlations between interest rate differentials and VIX for floats than for managed floats. This mitigation could be due to the policy response or to the characteristics of the countries having adopted specific exchange rate regimes (endogeneity of exchange rate regimes and of relevant characteristics). For example, fixed exchange rate regimes tend to be associated with larger shares of foreign currency debt, which may amplify shocks. Again, I think it would be interesting if one could pin down more clearly the response of the policy rate, the degree of dollarization and the relevant balance sheet exposures in order to try to disentangle the role of the country characteristics versus the role of the policy responses. This would also illuminate further the findings of the paper on the effects of growth rates of different economies as those appear to be also quite heterogeneous.

But the more fundamental question that we should try to answer is about the nature and origin of what the paper calls "changes in risk perception". International risk spillovers and changes in "risk perception" are the central objects of interest in the paper. In order to discuss policy implications, it is important that we understand more precisely how US monetary policy drives these fluctuations in "risk perception" across countries. Kalemli-Özcan's empirical evidence strongly suggests we need models with non trivial time-varying risk-aversion to perform monetary policy analysis. I think so far there are two types of models that are consistent with the type of evidence she uncovers. The first type are models with financial intermediaries which are

heterogeneous in their risk taking ability due to regulation, supervision or different board cultures. As their relative importance in international financial markets fluctuates depending on their financing costs and asset valuations (affected by monetary policy), aggregate risk aversion fluctuates (see Coimbra and Rey (2017)). A tightening of the Fed decreases leverage of the most risk-taking intermediaries leading to a decline in asset valuations as the marginal pricer of assets becomes more conservative (see di Giovanni et al. (2018) for microeconomic evidence). This type of model has something to say about time-variation in risk premium and transmission of risk across borders. Other models that may be consistent with the empirical evidence uncovered in Kalemli-Özcan's work are the ones with behavioral frictions where the risk premium is time varying because of some deviation from rational expectations (see Gennaioli and Shleifer (2018)). One has then to link fluctuations in risk perceptions to the effect of U.S. monetary policy; studying the ability of the Fed to change the biases of perceptions of investors is an interesting research program. It would be highly desirable to develop these structural models further in order to interpret the results and discuss policy implications more thoroughly.

International capital flows

Understanding the dynamics of gross capital flows, which are shown in the paper to have an impact on the risk premium -in particular for emerging markets - should also be very high on the research agenda. Miranda-Agrippino et al. (2019) shows that a tightening of US monetary policy leads to a decrease of inflows and outflows for the United States. There is a decrease of international financial transactions in and out of the United States. But for emerging markets, the effect is asymmetric. While capital inflows go down, capital outflows go up so that we see capital getting out of emerging markets. In other words, net capital flows behave differently for emerging markets and for the United States conditional on a US monetary policy shock. This may be linked

to the different degree of financial development of emerging markets and in particular to the lack of domestic counterparts or financial intermediaries when foreign investors pull out. If this is the right interpretation there are important policy implications in terms of capital market development in emerging markets.

Policy Implications

The paper makes on the one hand a strong case that exchange rate flexibility helps in smoothing "risk shocks" that come from U.S. monetary policy. On the other hand, since interest-rate differentials between the US and emerging markets go up after a US tightening even when emerging markets loosen domestic monetary policy, clearly floating exchange rates are not enough to provide sufficient insulation from the Global Financial Cycle. This set of findings echoes Rey's (2013) claim that the Mundellian trilemma is really more of dilemma since floating exchange rates, while useful, do not manage to insure monetary and financial independence. Therefore the paper proposes to decrease the sensitivity of economies to capital flows by improving institutions. One key question in particular remains how to limit foreign currency debt. It seems to me that more structural models are necessary in order to make more progress on the policy front. Models with heterogeneous financial intermediaries and endogenous time varying risk premium are probably the right ones to look at these issues and they would give sharp policy implications. In particular, one could use them to calibrate the use of macroprudential instruments proactively, either to dampen risk taking of intermediaries in Global Financial Cycle downturns or to increase effective risk aversion in upturns. This would be particularly valuable at the Effective Lower Bound when monetary olicy is more constrained. To do that, we need a more developed analytical framework for prudential policies than the one we currently have, one in which monetary policy and financial stability can be jointly analysed quantitatively. We should aim to have for macroprudential policies

as sophisticated a framework as the one we currently have for inflation targeting. This also implies that we need detailed and harmonized data on macroprudential measures to evaluate finely their effect on risk-taking; this is still lacking.

To conclude, Kalemli-Özcan's paper provides an excellent and important analysis of the international transmission of US monetary policy via changes in "risk perception". Fleshing out the heterogeneity of this transmission mechanism is an important contribution of the paper. The paper opens up important research questions which still need to be tackled. We need in particular to develop DSGE models generating time varying risk premia consistent with the data and suited to analyse jointly monetary policy and financial stability (see Coimbra and Rey (2017) for a step in that direction). More broadly, we also need to start modelling the important interconnections between the monetary policies of the main central banks. For instance, the People's Bank of China monetary stance has strong effect on emerging markets, via channels which I find to be -in ongoing work (see Miranda-Agrippino et al. (2019))- radically different from the ones of the United States.

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