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journal homepage: www.elsevier.com/locate/jieInternational credit supply shocks[☆]Ambrogio Cesa-Bianchi^{a, b}, Andrea Ferrero^{b, c}, Alessandro Rebucci^{d, e, *}^a Bank of England, United Kingdom^b CFM, United Kingdom^c University of Oxford, United Kingdom^d Johns Hopkins University Carey Business School, United States^e NBER, United States

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ABSTRACT

House prices and exchange rates can potentially amplify the expansionary effect of capital inflows. We first set up a model of collateralized borrowing in domestic and foreign currency with international financial intermediation in which a change in leverage of global intermediaries leads to an international credit supply increase. In this environment, we illustrate how house price increases and exchange rates appreciations contribute to fueling the boom by inflating the value of collateral. We then document empirically, in a Panel VAR model for 50 advanced and emerging countries estimated with quarterly data from 1985 to 2012, that an increase in the leverage of US Broker-Dealers also leads to an increase in cross-border credit flows, a house price and consumption boom, a real exchange rate appreciation and a current account deterioration consistent with the transmission in the model. Finally, we study the sensitivity of the consumption and asset price response to such a shock, and show that country differences are associated with the level of the maximum loan-to-value ratio and the share of foreign currency denominated credit.

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1. Introduction

Capital inflows are expansionary and pose difficult challenges for policy makers—see, for instance, Rey (2013, 2016).¹ Historically, however, some economies have been more sensitive than others to the volatility of capital inflows, with emerging market economies standing out as particularly vulnerable (e.g. Chari et al., 2017).

What are the mechanisms through which capital inflows lead to macroeconomic booms? And what are the characteristics that account for the differences in sensitivity across countries? In this paper, we explore the role of asset price inflation and credit market characteristics. Our main finding is that the currency denomination of credit flows and loan-to-value ratios are associated with the strength of the consumption response to international credit supply shocks.

¹ This observation provides a challenge for some theories. See, for example, Blanchard et al. (2015) on the Mundell-Fleming model and Chari et al. (2005) on sudden stops in the neoclassical growth model.

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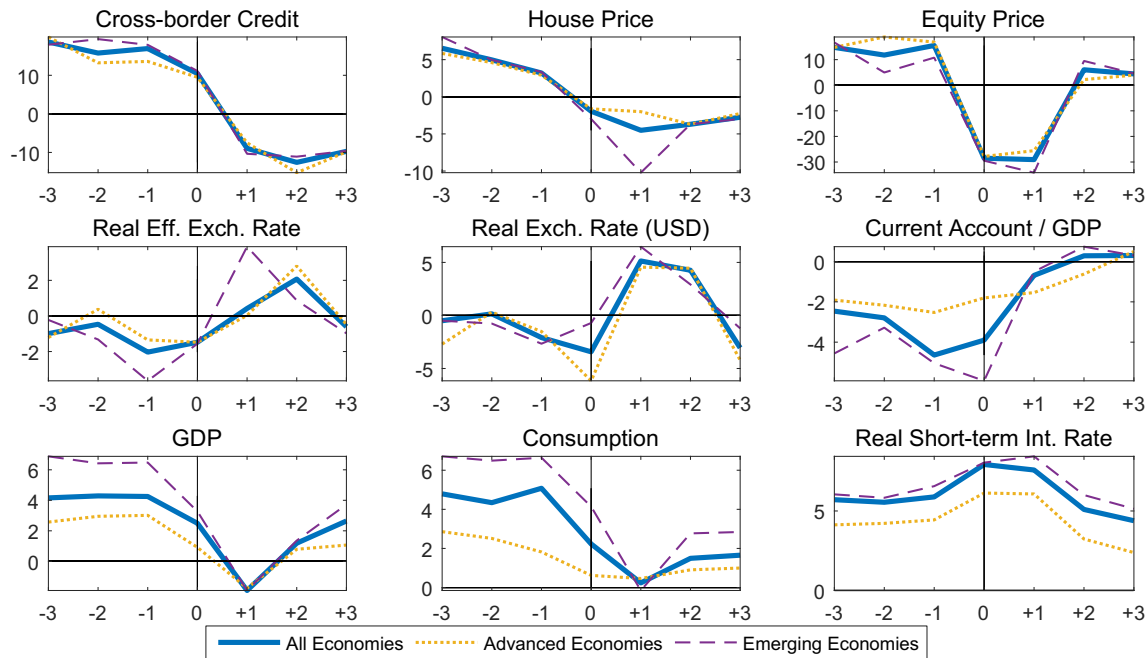


Fig. 1. Boom-bust episodes in capital flows. Note. The solid line plots the median pattern in whole cross section of countries in our sample, together with the median for advanced and emerging markets (dotted and dashed lines, respectively) across a set of boom-bust episodes in BIS cross-border claims, using a 6-year window, from three year before the peak to three years after the peak. In each panel, time 0 is the peak of the boom-bust cycle in cross-border bank claims (i.e., the last period of a boom in which cross-border bank claims display a positive growth rate), which is also depicted with a vertical line. All variables are expressed in percent. See Appendix A and B for more details of the identification of the episodes, including summary statistics, and the definition and data sources of the variables considered.

Fig. 1 shows that capital inflows are expansionary and associated with large swings in asset prices.² During a boom, cross-border banking claims and equity prices grow more than 10% per year in real terms. GDP, consumption, and house prices grow by about 4–5% per year. The current account balance deteriorates significantly before reverting during the last year of the expansion. The real exchange rate appreciates during the last two years of the boom phase (both in real effective terms and vis-a-vis the US dollar), while the economy starts to slow down. Short-term real interest rates are high throughout the boom phase and increase further during the last year.

During the bust phase, these dynamics partially revert. Cross-border claims and house prices fall as fast as they grew during the boom phase for three years in a row. Equity prices drop very sharply for two consecutive years and, once they rebound, grow about half as fast as during the boom. GDP growth declines sharply and then resumes, but only at about a third of the pace exhibited during the boom years. Consumption slows down and then remains depressed. The current account deficit closes quickly and remains in a small surplus position. The real exchange rate depreciates sharply, and short-term real interest rates decline, though remaining elevated.

Not all countries behave alike. Fig. 1 shows that emerging economies experience much larger and more persistent boom-bust cycles than advanced ones (dashed and dotted lines, respectively). This characterization of heterogeneity is still an over-simplification, as countries differ in ways that cannot always be reduced to the emerging market and advanced economies divide. For example, Fig. 2 focuses on a few selected characteristics of credit markets. While emerging markets (lighter, yellow bars) tend to have shallower mortgage markets and higher shares of foreign currency debt than advanced economies (darker, blue bars), maximum LTV limits and home ownerships are distributed much more evenly. More generally,

countries that are now member of the OECD, like South Korea and Mexico, in the past experienced some of the wildest capital flow gyrations. At the same time, more advanced economies like Ireland and other South European countries experienced deeper and longer-lasting financial crises than most emerging market economies during the global financial crisis.

In this paper, therefore, we will primarily study differences in experiences with capital inflows at the country level based on specific characteristics, as opposed to comparing country-groupings formed from the outset, focusing on variables that have a counterpart in a fully specified model of international borrowing and lending to help the interpretation of the empirical findings.

Traditionally, the analysis of capital flows and their impact on the macroeconomy distinguished between “push” and “pull” factors (Calvo et al., 1996). The former are best thought as shocks that originate abroad and lead capital to flow in or out of individual countries. The latter are domestic shocks that attract foreign capital from the rest of the world. In this paper, we focus on one particular push shock—a shock to the international supply of credit. Focusing on a specific shock facilitates isolating causal effects in the empirical analysis. It also allows us to explore both the transmission mechanism and the cross-country heterogeneity in more detail from a theoretical point of view.

We proceed in three main steps. First, we set up a theoretical model of international financial intermediation and collateralized borrowing in domestic and foreign currency. Second, we identify an international credit supply shock in the data and document its transmission and relative importance. Third, we study the differential incidence of this shock across countries considering country characteristics that affect its transmission in the model.

Both house prices and the exchange rate can have an amplification effect, by inflating the value of collateral and expanding the borrowing capacity of the economy. These channels of amplification may be more relevant depending on the characteristics of the credit

² See Appendix A and B for details on this event study and the underlying data.

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