



The effects of the saving and banking glut on the U.S. economy



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ABSTRACT

We use a quantitative equilibrium model with houses, collateralized debt and foreign borrowing to study the impact of global imbalances on the U.S. economy in the 2000s. Our results suggest that the dynamics of foreign capital flows account for between one fourth and one third of the increase in U.S. house prices and household debt that preceded the financial crisis. The key to these findings is that the model generates the sustained low level of interest rates observed over that period.

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1. Introduction

Before the financial crisis of 2007–08, most observers saw the growing international imbalances in the trade of goods and assets as the main source of vulnerability for the U.S. and the world economy (e.g. Roubini and Setser, 2005; Obstfeld and Rogoff, 2007; Krugman, 2007). As shown in Fig. 1.1, the U.S. trade deficit had been growing since the mid-1990s, reaching 6% of GDP at its peak in 2006, mostly financed by emerging Asia (especially China) and the oil-exporting countries. In a very influential speech, then Fed Governor Ben Bernanke (2005) attributed these imbalances to a “Global Saving Glut” (SG), which he described as an excess of saving in developing countries primarily directed towards riskless assets in the United States. Given these lopsided patterns of international exchange, many feared that a sudden loss of appetite for U.S. assets by international investors might precipitate an abrupt adjustment of its current account deficit, with serious repercussions for the world economy.

Although a catastrophic financial crisis did eventually occur, its epicenter was the American housing market, rather than the international market for assets and goods. As a consequence, most of the early literature on the causes and consequences of the crisis focused on the features of U.S. financial markets—regulation, risk-management, securitization,

funding models—that contributed to the credit and housing boom of the first half of the 2000s, whose reversal was the proximate cause of the crisis.¹

A more recent strand of literature, however, has brought back into focus the connection between the global imbalances that preceded the crisis and the credit and housing boom that precipitated it.² On the empirical side, this literature points to the depressing effect of capital inflows on U.S. interest rates and spreads, whose low levels contributed to the boom in mortgage debt and house prices before the crisis (Bernanke et al., 2011; Bertaut et al., 2011; Warnock and Warnock, 2009). Bertaut et al. (2011), for instance, estimate that the purchases of Treasury and Agency debt by the SG countries over the period 2003 to 2007, amounting to roughly 1 trillion dollars, lowered long-term interest rates in the U.S. by between 110 and 140 basis points.

Moreover, careful detective work by Bertaut et al. (2011) in tracking the flows of capital to and from the United States has uncovered another channel through which international capital flows might have contributed to easier financial conditions in the U.S. before the crisis. Indeed these authors document that after 2003, European banks played an increasing role in the market for safe U.S. assets, especially the AAA tranches of

¹ See Brunnermeier (2009) for an early overview. Demyanyk and van Hemert (2011), Ashcraft and Schuermann (2008), Adrian and Shin (2010), Pozsar et al. (2010), Gorton (2009), and Mian and Sufi (2009), among many others, provide more detailed accounts of the events of the crisis and of some of the important mechanisms at play, with a special focus on subprime mortgages and their securitization. In fact, in this early phase, this sequence of events was most often described as the “subprime crisis.”

² Obstfeld and Rogoff (2009) is one of the first papers forcefully arguing that global imbalances and the financial crisis are intimately related.

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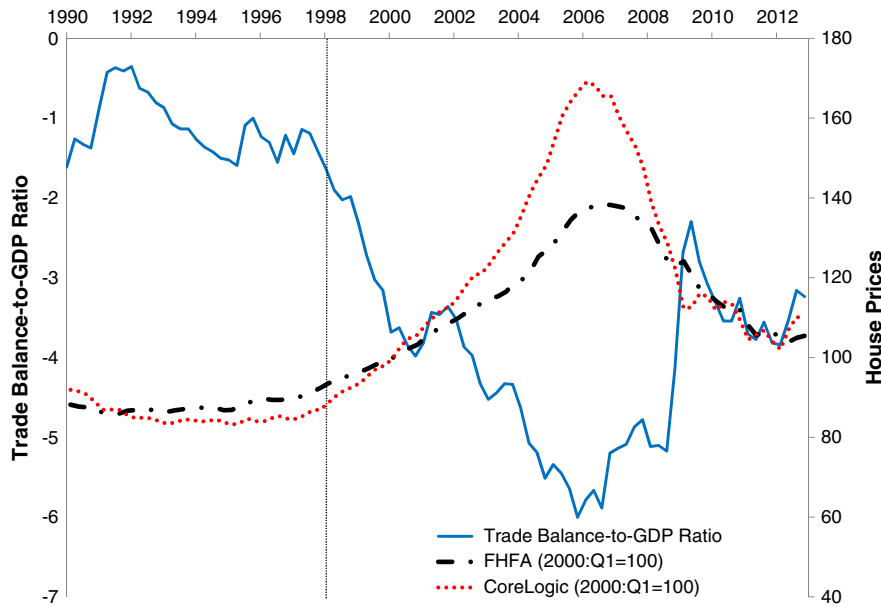


Fig. 1.1. U.S. trade balance-to-GDP ratio (left axis) and real house prices (right axis). The two measures of house prices are the FHFA (formerly OFHEO) all transactions house price index and the CoreLogic repeated-sales index. Source: Haver.

private label asset-backed securities (ABS) that turned out to be far from riskless in the crisis. Since Europe's current account vis-a-vis the U.S. was roughly balanced, these gross positions of European banks in ABS were funded by direct borrowing in the dollar wholesale credit market. As a result, these financial institutions became an integral part of the financial intermediation sector in the U.S., in direct competition with domestic financial institutions, as also pointed out by *Acharya and Schnabl (2009)*.

Shin (2012) refers to these gross flows from international banks into mortgage products, even in the absence of corresponding net imbalances, as the "Global Banking Glut" (BG), in juxtaposition to the Global Saving Glut associated with the U.S. current account deficit. According to his analysis, the flow of funds associated with the BG played an important role in easing financial conditions in the United States during the boom, comparable in magnitude to that of the purchases of Government debt by the SG countries.

In *Shin's (2012)* model of global banking, spreads are negatively related to the total amount of funds intermediated by the financial system. When risk recedes, banks expand their balance sheet and spreads fall. This motivates *Shin's* claim that higher total intermediation generated by European banks lowered the spreads between safe funding rates and the returns on ABS, and therefore ultimately on mortgages. Consistent with this view, *Bertaut et al. (2011)* estimate that the increase in the demand for ABS and similar instruments by European banks over the period 2003–2007 contributed to a decline in their yield of between 60 and 160 basis points, depending on the instruments and the methodology.³ When the boom turned to bust, and the market for private-label ABS in which European banks were most active disappeared, the mechanism worked in reverse, contributing to the propagation of the U.S. financial crises around the world (*Obstfeld, 2012; Acharya and Schnabl, 2009*).

Despite the growing empirical evidence on the effects of net and gross capital flows on U.S. credit markets and interest rates, only a handful of papers have addressed quantitatively the impact of the global saving and banking gluts on the U.S. macroeconomy in general, and on the credit and house-price boom of the 2000s more specifically. In this paper, we

tackle this question using a quantitative dynamic equilibrium model, which includes most of the ingredients of typical medium-scale DSGEs inspired by *Christiano et al. (2005)* and *Smets and Wouters (2007)*. In addition, our model features borrowing and lending among heterogeneous households, as well as from abroad, with houses serving as collateral (*Iacoviello, 2005*). Therefore, in our framework house prices play a key role in determining the amount of household debt. Thanks to these features, the model is a useful laboratory to study the macroeconomic effects of the SG and BG on the U.S. economy, including their contribution to the credit and real estate boom of the 2000s.

To analyze the impact of the SG, we take the observed U.S. trade deficit, and the associated capital inflows, as exogenous: a given amount of goods and services that domestic households must consume today, received from the rest of the world in exchange for a promise of goods and services in the future. This exogenous flow of resources tilts the intertemporal consumption profile of domestic agents towards the present, which can be optimal only if interest rates decline. The rest of the adjustment in the domestic economy follows from this fall in the domestic rate of return. In brief, lower interest rates stimulate the demand for non-durable consumption, investment and housing by the lenders, who are on their Euler equation. The resulting upward pressure on house prices then relaxes the collateral constraint of the borrowers, who can thus consume more. Finally, preferences parametrized to deliver a small wealth effect prevent this expansion in consumption from implying a sharp fall in hours worked. This chain of events is what we refer to as the Global Saving Glut channel. Quantitatively, the SG has fairly large effects on the macroeconomy. Consumption and investment increase by roughly 5% and 12% above the balanced growth path, while the effect on GDP is more muted because of the deterioration of the trade balance. Furthermore, at the peak the ratio of household debt to GDP is 8% higher, while house prices increase by 13%.

In addition to quantifying the SG's impact, we attempt to capture *Shin's (2012)* Global Banking Glut. We model the BG as a reduction in the spread between the interest rate paid by (mortgage) borrowers and the funding rates of the shadow banking system, which are tied in turn to the interest rate earned by savers. In our model, this spread between borrowing and lending rates reflects the market power of financial intermediaries, which channel funds to the impatient households from both the domestic patient ones and the rest of the world. More competition

³ These estimates represent an upper bound on the effect of the BG on U.S. rates, since they do not account for the endogenous response in the supply of ABS and similar assets. The production of these assets rose dramatically during this period, in part to satisfy the increase in demand by U.S. and foreign investors.

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