Journal of Urban Economics 66 (2009) 75–89

Contents lists available at ScienceDirect

Journal of Urban Economics

www.elsevier.com/locate/jue

Current account patterns and national real estate markets ☆

Joshua Aizenman [a,*], Yothin Jinjarak [b]

[a] UCSC and the NBER, Economics Department, E2, UCSC, Santa Cruz, CA 95060, USA
[b] NTU, Division of Economics, Nanyang Avenue 639798, Singapore

ARTICLE INFO

Article history:
Received 28 September 2008
Revised 18 May 2009
Available online 27 May 2009

JEL classification:
F15
F21
F32
R21
R31

Keywords:
Current account
Real estate
Appreciation
Financial depth

ABSTRACT

This paper studies the association between current account and real estate valuation across countries. We find a robust and strong positive association between current account deficits and the appreciation of the real estate prices/(GDP deflator). Controlling for lagged GDP/capita growth, inflation, financial depth, institution, urban population growth and the real interest rate; a one standard deviation increase of the lagged current account deficits is associated with an appreciation of the real estate prices by 10%. This real appreciation is magnified by financial depth, and mitigated by the quality of institutions. Intriguingly, the economic importance of current account variations in accounting for the real estate valuation exceeds that of the other variables, including the real interest rate and inflation. Among the OECD countries, we find evidence of a decline over time in the cross country variation of the real estate/(GDP deflator), consistent with the growing globalization of national real estate markets. Weaker patterns apply to the non-OECD countries in the aftermath of the East Asian crisis.

1. Introduction and overview

The financial liberalization wave in emerging markets during the 1990s has frequently led to boom–bust cycles, particularly when the initial boom been followed by a financial crisis. A significant literature has focused on the dynamics of financial liberalization in emerging markets, where financial liberalization has led to large inflows of capital, which bankroll growing current account deficits and magnifying economic booms. Frequently, these booms were manifested in sizable real estate and real exchange rate appreciations, and in the buildup of balance sheet vulnerabilities, leading ultimately to financial crises. Observers noted that the real estate market played a key role in the propagation of the boom and bust cycle, magnifying the welfare costs of preexisting distortions (like moral hazard).[1]

The literature concerned with boom–bust cycles induced by financial inflows dealt mostly with East Asia and Latin America, implicitly presuming that the US and Europe are less exposed to the vulnerabilities that come with such cycles. The ability of OECD countries to borrow in their currency, the greater reliance on flexible exchange rate regimes, and the presumption of better institutions suggests that the potential volatility induced by real estate boom/bust cycles is indeed larger in developing countries. Yet, there is little evidence regarding the degree to which countries share similar qualitative links between current account patterns and national real estate markets. The purpose of our paper is to provide evidence on the robustness of the current account/real estate channel across availability wide spectrum of countries. Our

☆ Financial support from the College of Humanities, Arts, and Social Sciences at NTU is gratefully acknowledged. We thank Jess Moyer (Investment Property Databank), Ong Qiyan, Francis Ng, and Jiang Zhimin for their helps with real estate data. We would like to thank Marty Feldstein, Steve Sheffrin, and two anonymous referees for very useful comments. Any errors are ours.

* Corresponding author.
E-mail addresses: jaizen@ucsc.edu (J. Aizenman), yjinjarak@ntu.edu.sg (Y. Jinjarak).

[1] See McKinnon and Pill (1996). Further discussion of the association between capital inflows, asset valuation and financial fragility can be found in Calvo et al. (1996), Krugman (1998), Edison et al. (1998), Quigley (2001), and Kim and Lee (2002). See Aizenman (2004) for an overview of the policy challenges facing financial opening, and the magnification of domestic distortions associated with capital inflows. See Debelle and Galati (2007), Edwards (2004), Chinn and Ito (2005), Freund (2005) and Faruqee and Lee (2008) for overviews of current account patterns in recent decades. See Kiyotaki and Moore (1997) and Aghion et al. (2004) for models of credit cycles in the closed and open economy, respectively.

0094-1190/$ - see front matter © 2009 Elsevier Inc. All rights reserved.
doi:10.1016/j.jue.2009.05.002

main finding is that, indeed, this channel is potent across all countries, subject to interactions with other domestic variables.

Another recent literature has focused on the volatility of real estate prices relative to the observable changes in fundamentals. These studies frequently used the variation in the experience of municipalities in the USA, studying the factors accounting for the incidence of boom–bust cycles over time. Glaeser et al. (2008) pointed out the role of the supply side in accounting for recent boom–bust cycles. Other studies focused on the impact of the nature of financing [see the papers in the September 2008 JUE symposium on Mortgages and the Housing Crash]. An issue deserving further investigation is the degree to which international factors affect the patterns of the boom–bust cycles across countries and time. For example, the US, the UK, Spain and Ireland have shared similar trends in recent years – all running sizable current account deficits and experiencing prolonged spells of real estate appreciation. These patterns are consistent with the notion that international factors, including financial integration and financial flows, are among the factors accounting for the real estate boom–bust cycles in the OECD. We examine these assertions, assessing the impact of the cross country variation in current account patterns on the real estate valuation.

In this paper, we take the view that current real estate valuation has a sizable dependence on lagged macroeconomic variables. This is consistent with the notion that adjustment to changing macro conditions is more protracted in real estate markets than in stock markets [see Glaeser and Gyourko (2007) and Case and Shiller (1989)].[2] We provide evidence consistent with the view that the price adjustment of equities (assets traded in well organized liquid markets, subject to low trading costs) is faster than that of real estate (less liquid assets, subject to high trading costs).

We analyze regressions that account for the real appreciation of the housing stock, controlling for lagged variables, including GDP per capita, real interest rate, inflation, and the current account. We find that lagged current account patterns are important in accounting for the real appreciation of the real estate market. In addition, the current account changes interacting with other macro variables are important in accounting for future real valuation of housing. Specifically, a one standard deviation increase of the lagged current account deficits [by 4% in our sample] is associated with real appreciation of real estate prices by about 10%. This real appreciation is magnified by financial depth [about 2%], and mitigated by the quality of institutions [about 3%]. Intriguingly, the economic importance of current account variations in accounting for the real appreciation of real estate prices exceeds that of the other variables. This includes the real interest rate – a one standard deviation drop of the lagged real interest rate [by 2.5% in our sample] is associated with real appreciation of real estate prices by about 7%. Among the OECD we find evidence of decline over time in the cross country variation of the relative real estate prices, consistent with the deeper globalization of national real estate markets. Weaker patterns apply to the non-OECD countries in the aftermath of the East Asian crisis. Finally, we subject our analysis to various robustness checks.

Sections 2 and 3 review the methodology and the data, respectively. The estimation and results are summarized in Section 4. Section 5 offers concluding remarks.

2. Methodology

The possibility that financial flows are a contributing factor explaining real estate dynamics have been discussed recently by Reinhart and Rogoff (2008):

> "... a large chunk of money has effectively been recycled to a developing economy that exists within the United States' own borders. Over a trillion dollars was channeled into the subprime mortgage market, which is comprised of the poorest and least credit worth borrowers within the United States. ...we note that although this paper has concentrated on the United States, many of the same parallels hold for other countries that began experiencing housing price duress during the 2007, including Spain, the United Kingdom and Ireland."

The purpose of our paper is to investigate empirically the merits of the linkages between capital inflows and real estate valuation in all countries for which data is available. Our empirical analysis is inspired by models that focused on credit market imperfections, including Kiyotaki and Moore (1997) in a closed economy, and Aghion et al. (2004) in the open economy. Specifically, agency and moral hazard considerations imply that agents can borrow today up to a fraction μ of their wealth, W. This fraction may depend negatively on the real interest rate, r. Assuming lags in processing mortgages and closing transactions in the housing market, housing prices today P_H would reflect the lagged borrowing capacity μW_{-1}, and the lagged foreign demand for domestic houses, $H^{*,d}_{-1}$. The supply of housing, H^s, impacts negatively the equilibrium housing prices. In the Appendix we outline an inter-temporal model of the housing market in the open economy. This leads to a reduced form equation where the demand for housing depends on scale variables like wealth (W), income (Y) and demography (the number of households, N), and negatively on the rental rate. The rental rate increases with the interest rate r, and the risk premium (ϕ) associated with housing financing. Inflows of foreign capital (equivalently, current account deficits), S^f, tend to induce the appreciation of the real estate by several channels. First, it tends to increase liquidity and the pool of aggregate savings financing the investment in the economy, thereby reducing the interest rate and the housing risk premium. Next, inflows of foreign capital may target domestic real estate as a means of diversification. Due to a multitude of reasons, we presume that real estate price adjustment is protracted.[3] All these considerations suggests a specification where the real estate relative price is

$$P_H = P_H\left[\begin{matrix}+ & + & - & - & + & + & + & - & - \\ W_{-1}, & Y_{-1}, & r_{-1}, & \varphi_{-1}, & S^f_{-1}, & N_{-1}; & H^{*,d}_{-1}; & H^s_{-1}, & \mu_{-1}\end{matrix}\right].$$

Consequently, our empirical specification aims at explaining the real estate relative price by lagged variables including income growth, population, inflation, financial depth, the real interest rate, and capital inflows. Other variables that may impact collateral constraints (like quality of institutions, loan to value, etc.) are used in the robustness checks.

The above methodology presumes that the short/intermediate run dynamics of real estate prices differs from that of stocks. These dynamics may reflect differential adjustment and financing costs, the greater heterogeneity of real estate, and the different market structure underlying the housing and stock market. In the next

[2] Adjustments in the real estate markets are subject to significant transaction costs on behalf of consumers, and time consuming installation costs on behalf of producers. These features imply that demand-side factors play important and persistent roles in explaining protracted adjustment in the real estate market. See Brock (1988) for an open economy analysis of these issues. For empirical studies of the determinants of the real estate prices see Englund and Ioannides (1997), Case et al. (2000), Case et al. (2005), da Mata et al. (2007), and Shiller (2007).

[3] Housing transactions occur through time consuming bilateral negotiations associated with heterogonous assets; the liquidity of the housing market is constrained because of the existence of high transaction costs and agency considerations; borrowers rely heavily on external finance; real estate is widely used as collateral; and the supply of houses is adjusting slowly to market conditions. All these factors suggest that the adjustment of real estate valuations to shocks is much more time consuming than that of equity valuations.