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Contents

Tables continued

Abstract

The central objective of this paper is to empirically assess how global imbalances have evolved since the global financial crisis of 2008/09. More specifically, we examine how the security investment positions of major East Asian economies in United States (US) financial markets—equities, bonds, and bank lending—changed after the crisis. Our econometric analysis, which is based on the gravity model to identify the determinants of foreign portfolio investment in the US, finds that the "overinvestment" of most East Asian economies in the US has remained substantial after the global financial crisis, especially in long-term bonds. That is, even after the crisis, most East Asian economies continue to hold excessive amounts of US securities, but the degree of overinvestment appears to have declined for some economies such as the PRC. However, the PRC still has the largest excessive holdings of US securities. We also find that East Asian economies over-invest in US financial markets largely due to excessive savings and foreign exchange reserves.

Keywords: Global financial crisis, global imbalances, US, East Asia, portfolio investment

JEL Classification: F21, F32, F34, F42

1. Introduction

In the wake of the global financial crisis that erupted in 2008, the phenomenon of global imbalances, characterized by large United States (US) current account deficits funded primarily by East Asian economies and oil-producing countries, has been center stage in the debate about the causes of the crisis and the needed reform of the international financial architecture.[1]

Figure 1 shows that since the late 1990s the US current account deficit has grown continuously, exceeding 5% of US gross domestic product (GDP) in 2003 and peaking in 2006 at over 6%. The counterparts to the US current account deficits are the large surpluses of [the People's Republic of] China (PRC), Japan, and members of the Organization of the Petroleum Exporting Countries (OPEC). The PRC's relative contribution to US current account deficits has grown remarkably rapidly over the past decade.

Figure 2 provides another overview of global imbalances since the late 1990s. Between 2000 and 2008, US current account deficits regularly exceeded 1% of world GDP, peaking at more than 1.5% in 2005 and 2006. The US current account deficit fell below 1% of world GDP only after the global financial crisis in 2009. Meanwhile, The PRC's current account surplus increased remarkably fast until 2008, and Japan's surplus continues to be large. Furthermore, the current account surpluses of other East Asian economies are not negligible. Hence, global imbalances have been viewed as a source of conflict between the US and The PRC, specifically, and the US and East Asia more generally.

Understanding the factors behind global imbalances matters for assessing how they may evolve in the future. It also matters for assessing the potential threat that imbalances pose to future global financial and economic stability, along with the measures that policy makers must take to "rebalance" the global economy. Academics and policy analysts have offered various conflicting views on the roots and sustainability of global imbalances. Following Serven and Nguyen (2010), we can group these views into two camps. The first view considers global imbalances as an unsustainable phenomenon whose impending correction must entail a US current account adjustment and a sharp depreciation of the US dollar, coupled with a sudden curtailment of capital flows into the US (Roubini 2008; Roubini and Mihm 2010). The second view takes the opposite (more benign) perspective: global imbalances represent an equilibrium situation that, absent changes in the underlying determinants, can be self-sustaining. In other words, this view explains global imbalances as the result of fundamentals and/or policies adopted by other countries that have led to a steady accumulation of US assets by the rest of the world. Thus, without changes in such fundamentals and policy choices, global imbalances can and will persist.

[1] See Chin and Ito (2008); Bernanke (2009); Blanchard and Milesi-Ferretti (2009); Council of Economic Advisers (2009); Krugman (2009); Adams and Park (2009); Obstfeld and Rogoff (2009); Chin (2010); Kohn (2010); Roubini and Mihm (2010); Serven and Nguyen (2010); and Borio and Disyatat (2011). Even before the global financial crisis, some authors like Bernanke (2005, 2007) and Warnock (2006) raised concerns about the potential threats of global imbalances to global economic stability.

Proponents of both views agree that the global imbalances of the last decade have been accompanied by massive capital flows from East Asian economies to the US. Using US Treasury International Capital (TIC) data on foreign holdings of US securities—in the form of equities, bonds, and bank lending—during the period 2001–07, Lee (2011) finds that most East Asian economies have invested more in the US than the optimal level suggested by the gravity model. Such overinvestment is more evident in long-term bonds than in equities or bank lending. These results confirm the existence of sizable imbalances between East Asian economies and the US which, in turn, contribute substantially to global imbalances. Lee and Byun (2013) further find that major East Asian economies continued to over-invest in US financial markets even after the global financial crisis.

In a similar vein to Lee and Byun (2013), this paper aims to assess whether global imbalances have undergone any fundamental structural changes since the global financial crisis of 2008/09. In particular, we aim to assess whether excessive savings, partly due to the underdevelopment of social safety nets and the accumulation of large foreign exchange reserves, have contributed to the excessive investment positions of The PRC and other East Asian economies in US financial markets.

The rest of the paper is organized as follows. Section 2 describes data on and the magnitude of bilateral holdings of US assets among East Asian economies. Section 3 introduces a simple theoretical framework to generate testable gravity equations for cross-border asset holdings. In this section, we propose three different empirical specifications to test the determinants of bilateral holdings. In Section 4, we report and discuss our main empirical findings. Finally, Section 5 brings the paper to a close with some further discussion and concluding remarks.

2. East Asian Holdings of US Financial Assets

The data used in this study are drawn from the US TIC online system, which provides data on cross-border portfolio investment positions between US residents and foreign residents. Since 2002, surveys on foreign portfolio holdings of US securities have been conducted annually to measure foreign holdings of US short- and long-term securities as of end-June each year. Meanwhile, US portfolio holdings of foreign securities are reported annually as of end-December. Securities are broken down into equities and debt, which is further broken down into Treasury bonds, agency bonds, and corporate bonds.

Table 1 reports US securities held by East Asian economies and foreign securities held by US residents as of 2001/02, 2007/08, and 2012. The total value of US securities held by East Asian economies increased from $1,153 billion in 2001/02 to $3,149 billion in 2007/08. During the same period, foreign securities held by US residents increased from $334 billion to $1,167 billion. Thus, the net security investment positions of East Asian economies in the US increased from $820 billion in 2001/02 to $1,981 billion in 2007/08, demonstrating that the global imbalances of the last decade have been accompanied by massive capital flows from East Asian economies to the US. In particular, The PRC's net investment position of all securities increased from $178 billion in 2001/02 to

$1,108 billion in 2007/08. For comparison, Japan's net investment position in the US increased from $428 to $661 billion over the same period.

On the eve of the global financial crisis in 2008, the collective net investment of East Asian economies in the US reached nearly $2 trillion, representing 63.8% of the $3.1 trillion of global net investment in the US. Put differently, imbalances between the US and East Asia accounted for a significant share (nearly two-thirds) of imbalances between the US and the rest of the world. In addition, US imbalances with The PRC and Japan made up a substantial share of these trans-Pacific imbalances.

Even after the global financial crisis, East Asian involvement in the US economy continued to grow, with total portfolio investment reaching $4.5 trillion in June 2012. In contrast, US investment in East Asia was $1.3 trillion, up only slightly from immediately before the crisis. Therefore, as of June 2012, East Asia had a $3.2 trillion net portfolio investment surplus with the US, which was equivalent to about 57.3% of the world's net portfolio investment surplus with the US. While this marks a decline from a 63.8% share in 2007/08, East Asia's investments in the US still account for a substantial share of global imbalances. Furthermore, total global portfolio investment in the US rose from $10.3 trillion in 2008 to $13.0 trillion in 2012, while East Asian investment rose from $3.1 trillion to $4.5 trillion. As such, East Asia's share rose from 30.5% to 34.8% over this period.

Table 2 shows the equity investment positions of East Asian economies. In 2001/02, only The PRC, Singapore, and Viet Nam had small net surpluses. East Asia as a whole had a net deficit of around $90 billion. The region's deficit position persisted in 2007/08, ballooning to $620 billion. In contrast to the other types of securities, equity investments help to reduce trans-Pacific imbalances. By June 2012, East Asia's equity investment deficit with the US had declined to $230 billion; thus, even though the magnitude was smaller, US equity investment in East Asia still substantially exceeds East Asian investment in the US. Among East Asian economies, only The PRC and Singapore had a surplus with the US in 2012, with all other countries having deficits.

On the other hand, the pattern for long-term bond investment is the polar opposite of the pattern for equity investment (Table 3). More precisely, in 2001/02 East Asia had a net surplus of $911 billion with the US. In fact, all individual Asian countries had surpluses. In 2007/08, when the global crisis erupted, East Asia's long-term bond investment position showed a net surplus of $2.5 trillion, marking an increase of 270% from 2001/02. The PRC, in particular, recorded a net surplus of $1.1 trillion in 2007/08, which represented a staggering six-fold increase from the 2001/02 level of $180 billion. Japan, which had a net surplus of $926 billion in 2007/08, the next highest level after The PRC, experienced a 190% increase since 2000/01. All other East Asian economies had a surplus vis-à-vis the US, but the magnitude of each was much smaller than that of The PRC or Japan. In fact, in 2007/08 these two countries accounted for 81% of East Asia's collective net surplus with the US in long-term bond investments. For comparison, the next largest surplus in 2007/08 belonged to the Republic of Korea at about $100 billion, or just over 4% of the East Asian total. Even after the global crisis, the long-term bond investments of most East Asian economies in the US continued to grow. The PRC reached a surplus of $1.37 trillion in 2012, which marked an increase since 2007/2008, and was quite close

to Japan's surplus of $1.44 trillion. Therefore, The PRC and Japan jointly accounted for 77% of East Asia's collective surplus of $3.63 trillion in US long-term bond investments in 2012, down slightly from 81% in 2007/08.

Taking all of the above into account, in 2007/08, East Asian economies experienced a relatively small deficit with the US in equity investments but a much larger surplus in long-term bond investments. Therefore, we can see that trans-Pacific imbalances were caused by bond, rather than equity, investments. This tendency persisted, and even intensified, after the global crisis.

Figures 3, 4, and 5 reconfirm these patterns.[2] Figure 3 shows that The PRC's net portfolio investment vis-à-vis the US expanded rapidly, and The PRC overtook Japan to become the largest investor in the US. Figures 4 and 5 show that bond, rather than equity, investments drove the rapid expansion of East Asia's portfolio investments in the US. Both trends persisted after the global crisis.

Table 4 shows the bank lending positions of East Asian economies vis-à-vis the US. In 2007/08, East Asia's bank lending to the US exceeded bank borrowing from the US, but the magnitude was much smaller than that of bond investments. In September 2012, in Hong Kong, China; Japan; and the Republic of Korea, bank borrowing from the US exceeded bank lending to the US. As a result, East Asia's bank lending position vis-à-vis the US is now roughly in balance. Figure 6 shows that East Asia's net bank lending position has declined since 2009/10.

3. Empirical Specifications

As noted in the introduction, we use the gravity equation to assess whether the global financial crisis has changed the "excessive" investment behavior of East Asian economies in US financial markets. Since Tinbergen (1962) and Pöyhönen (1963), the simple gravity equation, in which the volume of trade between two countries is proportional to the product of their masses (GDPs) and inversely related to the distance between them, has proved highly successful empirically. Recently, with renewed interest among economists in geography, the model has again become widely used in the literature. Indeed, many researchers have shown that the gravity equation can be derived from many different models of international trade.[3]

Portes and Rey (2005) is one of the first papers using gravity models to analyze the determinants of cross-border portfolio investment. Using a sample of 14 developed economies in 1989–96, they find that market sizes and distance are key determinants of cross-border portfolio investment. Dahlquist et al. (2003) use US data and confirm the importance of distance in cross-border portfolio investment. Using the gravity model, Lee (2008) focuses on East Asia and finds that financial integration in equities and debt

[2] In Figures 3, 4, and 5, NIEs refers to the newly industrialized economies of Hong Kong, China; The Republic of Korea; Singapore; and Taipei,China.

[3] For example, see Helpman and Krugman (1985); Bergstrand (1989); Deardorff (1998); Evenett and Keller (1998); and Eaton and Kortum (2002).

securities among East Asian economies is relatively lower than in Europe. Lane and Milesi-Ferretti (2008) also provide a systematic analysis of the bilateral factors driving portfolio equity holdings across countries and find that bilateral equity holdings are strongly correlated with bilateral trade in goods and services. Kim et al. (2005); Garcia-Herrero et al. (2009); Lee et al. (2012); and Lee et al. (2013) also use the gravity model and confirm that East Asian economies are less integrated in financial assets. Lee et al. (2012) also use the gravity model to assess intra-regional financial asset trade among Asia–Pacific Economic Cooperation (APEC) members.[4]

3.1 Benchmark Specification

Though the gravity model in the form of the log-linearized equation is commonly used in estimating the pattern of international trade, this might lead to biases when the presence of heteroskedacity is severe, as has been argued in Santos Silva and Tenreyro (2006). As an alternative, Santos Silva and Tenreyro (2006) suggest that the gravity model be estimated in its multiplicative form and use a Poisson pseudo-maximum likelihood (PPML) estimator that is usually used for count data. Therefore, using the PPML estimator, we estimate a multiplicative form model (i.e., without taking the log of the value of assets as the dependent variable). As there is only one home country, the US, we use the following reduced form gravity equation as a benchmark specification:

$$Asset_{it} = \alpha+\beta_1 \ln POP_{it}+\beta_2 \ln PCGDP_{it}+\beta_3 \ln \tau_{it} + \beta_4 EASIAi + u_t + e_{it}$$

$$\ln \tau_i = Dist_i \cdot \exp(\delta_1 Finlib_{it} + \delta_2 OFC_i + \delta_3 Comlang_i + \delta_4 Contig_i + \delta_{35} Colony_i) \quad (1)$$

where

$Asset_{it}$ = value of the holdings of US securities (equities, long- term bonds, or bank loans) held by the residents of economy i;

$\ln POP_{it}$ = natural logarithm of population of economy i;

$\ln PCGDP_{it}$ = natural logarithm of GDP per capita of economy i;

$\ln \tau_i$ = natural logarithm of transaction costs between the US and economy i;

$Dist_i$ = bilateral geographic distance between the US and economy i;

$Finlib_{it}$ = degree of financial market liberalization (ranging between 0 and 1);

OFC_i = offshore financial center dummy (1 if economy i is an offshore financial center and 0 otherwise);[5]

[4] Lee et al. (2012) and Lee et al. (2013) build on the financial gravity equation, developed by Martin and Rey (2004); Aviat and Courdacier (2007); and Courdacier and Martin (2006).

[5] We include OFC to control for partner economies that are offshore financial centers that offer very

$Comlang_i$ = common language dummy (1 if economy i uses English as an official language and 0 otherwise);

$Contig_i$ = common border dummy (1 if economy i is Canada or Mexico and otherwise zero);

$Colony_i$ = economy i and the US share former colonial ties;

$EASIA_i$ = East Asia dummy (1 if the source economy is an East Asian economy and otherwise zero);[6]

u_t = year dummy; and

e_{it} = error term

Equation (1) will be estimated using holdings of equities, long-term bonds, and bank loans alternatively as the dependent variable. Among the explanatory variables, GDP in 2005 US dollars is taken from the World Bank's World Development Indicators (WDI) online database, except for Taipei,China.[7] Geographic distance is taken from Centre d'Etudes Prospectives et d'Informations Internationales' (CEPII) website. The distances are weighted distances, which use city-level data to assess the geographic distribution of a population inside each economy. The variables indicating whether the economies share a geographic border or a common language, or are former colonies of the same country, are also taken from CEPII's website.

Finlib is proxied by the capital control intensity index (average of Columns 4Di and 4Dii) of the Economic Freedom of the World Index published annually by the Fraser Institute.[8] This index measures capital controls and restrictions on foreign investment and ownership, taking a value between 0 and 1. The higher the value, the lower the restrictions on foreign investment and capital controls, and hence the more liberalized the capital market.

As explained in the previous section, holdings of securities are measured annually in June, with the most recent values as of end-June 2012. Therefore, to allow for some time lag, the dependent variable is matched with the previous year's values of explanatory variables.

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favorable fiscal treatment. Following *The Economist*, offshore financial centers in our sample are Bahrain; Barbados; Bermuda; Costa Rica; Cyprus; Hong Kong, China; Ireland; Luxembourg; Malta; and Panama.

6 There are 11 East Asian economies in our sample: [the People's Republic of] China; Hong Kong, China; Indonesia; Japan; the Republic of Korea; Malaysia; the Philippines; Singapore; Thailand; Taipei,China; and Viet Nam.

7 GDP for Taipei,China obtained from pseudo.

8 4Di – Foreign ownership and investment restrictions; 4Dii – Capital controls.

As we aim to assess whether the global financial crisis prompted changes in East Asian economies' portfolio investment and bank lending in US financial markets, Equation (1) is estimated for the two sub-periods: pre-crisis (2004–08) and post-crisis (2009–12).

3.2 An Extended Specification with Year-Specific Effects

It is reasonable to ask whether the excessive holdings of US securities by East Asian economies built up gradually before the crisis and then declined gradually after the crisis. Therefore, with the inclusion of eight interaction dummy variables of East Asia dummy and eight year dummy variables, we will also run the following equation:

$$Asset_{it} = \alpha+\beta_1 \log POP_{it}+\beta_2 \log PCGDP_{it}+\beta_3 \log \tau_{it} + \beta_4 EASIA\_2005 + ... + \beta_{11} EASIA\_2012 + u_t + e_{it} \quad (2)$$

where

$EASIA\_2005$ = 1 if economy *i* is an East Asian economy at year 2005
= 0 otherwise
(i.e., East Asia dummy * Year 2005 dummy)

$EASIA\_2012$ = 1 if economy *j* is an East Asian economy at year 2012
= 0 otherwise
(i.e., East Asia dummy * Year 2012 dummy)

3.3 An Extended Specification with Economy-Specific Effects

It also seems reasonable to ask whether our results are dominated by any particular Asian economy. Thus, in order to compare how different East Asian economies behave in their holdings of US securities, we will replace the East Asia dummy in Equation (1) with 11 East Asian economy dummies:

$$Asset_{it} = \alpha+\beta_1 \ln POP_{it}+\beta_2 \log PCGDP_{it}+\beta_3 \log \tau_{it} + \beta_4 CH + \beta_5 HK + \beta_6 ID + \beta_7 JP + \beta_8 KR + \beta_9 MY + \beta_{11} PH + \beta_{11} SG + \beta_{12} TH + \beta_{13} TP + \beta_{14} VN + u_t + e_{it} \quad (3)$$

where CH (People's Republic of China); HK (Hong Kong, China); ID (Indonesia); JP (Japan); KR (the Republic of Korea); MY (Malaysia); PH (the Philippines); SG (Singapore); TH (Thailand); TP (Taipei,China); and VN (Viet Nam) are dummy variables for each of the East Asian economies.

4. Empirical Results

4.1 Benchmark Results

Regression results obtained estimating Equation (1) by the PPML model are reported in Table 5. Columns (1) – (3) are for the period before the global financial crisis (2004–08) and columns (4) – (6) are for the period after the crisis (2009–12). The gravity model works well for all equations, as indicated by the large size of pseudo R^2. US securities are held more by residents of economies that are larger in terms of population, richer, and closer geographically to the US. US securities are also held more by residents of economies with a greater degree of financial market freedom and residents of offshore financial centers. In contrast, residents of economies that share common borders and colonial experiences with the US do not appear to hold a greater amount of US securities such as equities and long-term bonds.

Above and beyond these effects, do the residents of the 11 East Asian economies tend to hold more-than-expected levels of securities issued by the US? The answer is "yes." The coefficients of 0.895, 1.391, and 0.932 for the East Asia dummy illustrate that the 11 East Asian economies held 145%, 302%, and 254% more US equities, long-term bonds, and bank credits, respectively, than non-East Asian economies.[9] Thus, we have evidence that the East Asian economies held relatively excessive amounts of US securities before the global financial crisis, which might contribute to the global imbalances between the US and East Asian economies.

Looking at columns (4) – (6), the estimated coefficients for the East Asia dummy do not seem to be noticeably different during the period after the global financial crisis, thus indicating that East Asian economies still held excessive amounts of US securities even after the crisis. In addition, the equation for the long-term bond holdings continues to yield the largest estimate for the East Asian dummy, suggesting that among the three types of cross-border capital investment, long-term bonds are the most excessively held securities among East Asian economies.

As a comparison, Table 6 reports the results with the random effects model in which the dependent variable is in the form of a natural logarithm.[10] In general, the results obtained from the random effect model are qualitatively similar to the results from the PPML model, but the sizes of the estimated coefficients for the East Asian dummies are larger in all equations except for the equation for bank lending after the crisis. Specifically, before the crisis, the coefficients were 1.709, 2.365, and 1.117 for the equations of equities, long-term bonds, and bank lending, respectively. This suggests that the 11 East Asian economies held 452%, 964%, and 206% more US equities, long-term bonds, and bank credits, respectively, than non-East Asian economies.[11] Even though the size becomes larger in the random effects model, the two major findings of

[9] 145% = (exp(0.895)-1)*100; 302% = (exp(1.391)-1)*100; and 154% = (exp(0.932)-1)*100.

[10] Note that we do not employ the ordinary least squares (OLS) estimator because with the economy fixed effects, we are unable to estimate the coefficient for the East Asia dummy, the key variable of our interest.

[11] 452% = (exp(1.527)-1)*100; 964% = (exp(2.365)-1)*100; and 206% = (exp(1.117)-1)*100.

the PPML model continue to hold in the post-crisis period: (i) the excessive holdings of US securities by the residents of East Asian economies persists, and (ii) the equation for long-term bond holdings yields the largest estimate for the East Asian dummy.

Table 7 reports the results when the long-term bonds are split into Treasury bonds, agency bonds, and corporate bonds. In all three equations, the East Asia dummy variable carries the positive and significant coefficients, suggesting that compared with non-East Asian economies, East Asian economies held excessive amounts of US bonds in the post-crisis period. The size of the coefficient for the East Asia dummy appears to become smaller in the equations for Treasury and corporate bonds, while it becomes larger in the equation for agency bonds. Thus, the East Asia effect is the largest in the equation for agency bonds after the global financial crisis.

4.2 Year-Specific East Asian Effects

Here, we seek to investigate whether the East Asia effect gradually strengthened or weakened before and after the global financial crisis of 2008/09. The PPML results obtained by running Equation (3) are reported in Table 8. Note that for the sake of brevity the estimated coefficients for other control variables are not shown.

As can be seen in the table, the magnitude of the estimated coefficients of the East Asia dummy in the equation for equities increased gradually from 0.615 in 2005 to 1.346 in 2009, while the estimated coefficients for long-term debt and bank loans do not seem to show an increasing trend. After the crisis, the estimated coefficients for the East Asia dummy in the equities and long-term bonds equations gradually decreased, suggesting that the excessiveness of East Asia's holdings of US securities gradually weakened after the global financial crisis.

Among the three types of securities, the coefficient for long-term debt remains the largest until 2011, before becoming insignificant in 2012. When the long-term bond coefficient is split into Treasury bonds, agency bonds, and corporate bonds, agency bonds yield the largest coefficients throughout the entire period. Indeed, the coefficient for the East Asia dummy in the equation for agency bonds appears to have gradually increased until 2010.

4.3 Economy-Specific Effects

Having found that East Asian economies as a whole hold excessive amounts of US securities, we seek to assess any economy-specific effects. Table 9 reports the results for the economy-specific East Asia effects obtained from regressing Equation (3). Note that for the sake of brevity the estimated coefficients for other control variables are not shown.

Before the global financial crisis, most East Asian economies—except for Hong Kong, China; the Republic of Korea (equities); and the Philippines (bank loans)—appeared to have held excessive amount of US securities, irrespective of security type. In particular, the excessiveness was the largest for The PRC for equities and long-term bonds. After the crisis, most East Asian economies continued to hold excessive amounts of US

equities, but the degree of excessiveness appears to have declined for some economies, including The PRC for all three types of financial assets. However, The PRC still has the largest excessive holdings of US securities.

Table 10 reports the results for the three different types of long-term bonds before and after the crisis. Focusing on columns (4) – (6) for the period after the global financial crisis, among the three types of long-term bonds, it is agency bonds that yield the largest coefficient for many East Asian economies including The PRC; Hong Kong, China; Indonesia; Japan; the Republic of Korea; Malaysia; Singapore; and Taipei,China. It is interesting to note that the size of the coefficients for these individual economy dummies in the equation for agency bonds became larger after the crisis; in the equations for Treasury bonds and corporate bonds, the coefficients became smaller after the crisis for some East Asian economies.

5. Discussion and Concluding Remarks

In this paper, we assess whether there have been structural changes in global imbalances since the global financial crisis. In particular, we look at whether the very large investments of The PRC, Japan, the Republic of Korea, and other East Asian economies in US equities, bonds, and bank lending have declined since the global crisis.

Our econometric analysis, based on the gravity model to identify the determinants of foreign portfolio investment in the US, finds that with the exception of Hong Kong, China, the overinvestment in the US by most East Asian economies has remained substantial since the global crisis, especially with respect to long-term bonds. That is, even after the crisis, most East Asian economies continue to hold excessive amounts of US securities, but the degree of excessiveness appears to have declined for some economies, including The PRC for all three types of financial assets. However, The PRC still has the largest excessive holdings of US securities.

Our results raise the possibility that the imbalances are an equilibrium state conditional on the various fundamentals underlying financial markets. Therefore, at a broader level, our results can be interpreted to support the prospect of the present imbalances persisting unless the fundamentals are addressed. For example, the underdevelopment of social safety nets in East Asia (Caroll and Jeanne 2009), especially in The PRC, combined with the underdevelopment of the region's financial markets (Caballero et al. 2008; Mendoza et al. 2009) may have driven enormous amounts of East Asian savings into financially developed advanced economies, especially the US. Our results are also consistent with the continuing accumulation of foreign exchange reserves by East Asian economies since relatively safe assets such as US government bonds account for a substantial part of reserves.

In order to assess the validity of these arguments, we re-estimate Equation (1) with two additional explanatory variables: the domestic savings–investment ratio (*savings–investment ratio*) and the log of foreign exchange reserves ($\mathrm{Log}Reserves$). The results of the re-estimation are reported in Table 11. As expected, the savings–investment ratio has positive and significant coefficients for equities, long-term debt, and bank loans.

Therefore, countries with more domestic savings relative to domestic investment tend to hold larger amounts of US securities, irrespective of security type. One thing to note here is that the size of the coefficients for the savings–investment ratio become smaller after the global financial crisis, suggesting that the global savings glut still matters but to a lesser degree. The reason for this merits further investigation in future research.

In contrast, before the crisis the log of foreign exchange reserves carries a significant and positive coefficient only for bank lending, while it carries a negative and significant coefficient for long-term debt. After the crisis, however, its coefficient becomes positive and significant for all three types of securities. This finding also merits further investigation in future research.

Table 12 reports the results when long-term debt is split into Treasury bonds, agency bonds, and corporate bonds. Before the crisis, the log of foreign exchange reserves has a significant and positive coefficient for Treasury bonds, but a significant and negative coefficient for corporate bonds. In terms of absolute size and the significance level, foreign exchange reserves have a stronger effect on corporate bonds, leading to the significant and negative coefficient for the overall longer-term debt equation shown in Table 11. After the crisis, the positive effect of foreign exchange reserves became stronger and more significant on Treasury bonds and agency bonds.

Comparing Tables 5 and 10 with Tables 6 and 11, yields some interesting insights. With the inclusion of the savings–investment ratio and foreign exchange reserves, the estimated coefficients for the East Asian economy dummy variable become smaller for all securities, except corporate bonds. This suggests that East Asian economies hold excessive amounts of US securities largely due to their excessive savings and foreign exchange reserves.

Therefore, there is a need for The PRC and other East Asian economies to strengthen their social safety nets in order to curtail excessive savings and nurture healthy consumption. Furthermore, East Asia should strive to refrain from disproportionate foreign exchange reserves accumulation and shift toward a growth paradigm in which domestic demand plays a larger role. In the long-run, the region should strive for broader, deeper, and more liquid and sophisticated financial markets. In this respect, it is necessary to further expand and strengthen the Chiang Mai Initiative, which emerged as a regional response to the 1997/98 Asian financial crisis, and the Asian Bond Market Initiative.[12]

[12] Please refer to Park and Wyplosz (2008) and, in particular, to Kim and Yang (2011) for Asian regional financial cooperation in the context of the global financial crisis and global imbalances.

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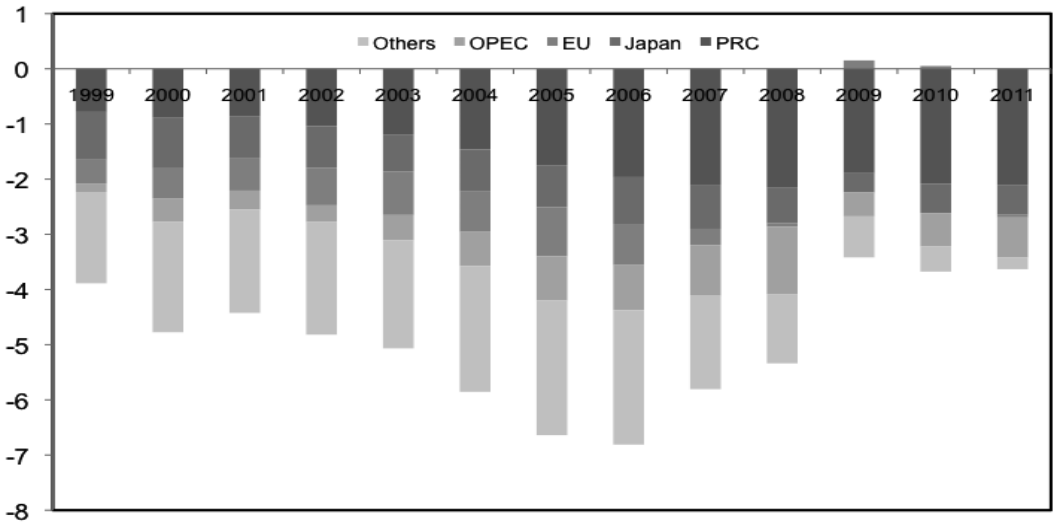
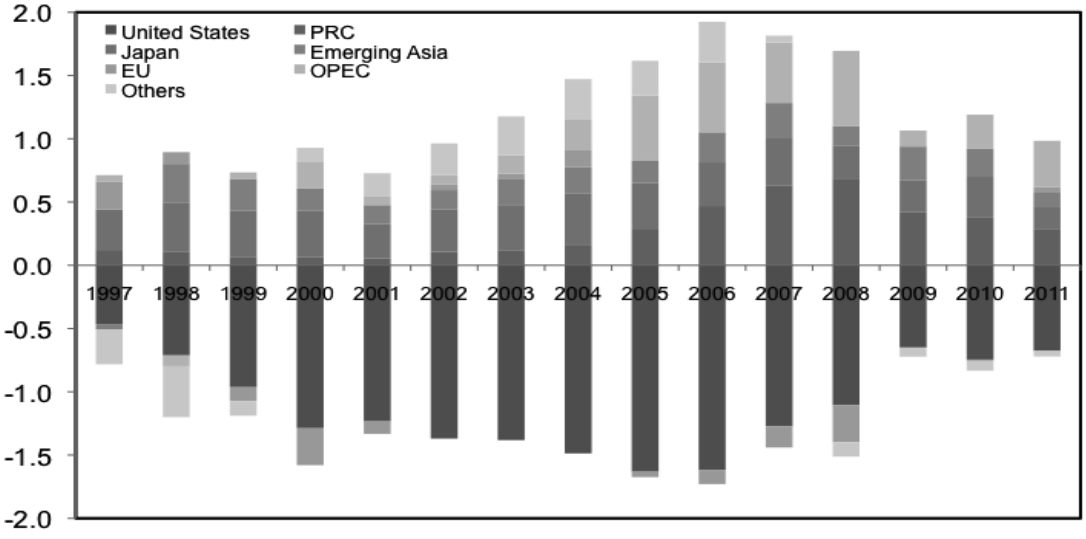
Figure 1: US Bilateral Current Account Balances
(% of GDP)



EU = European Union, OPEC = Organization of the Petroleum Exporting Countries, PRC = the People's Republic of China. GDP = gross domestic product.

Source: World Bank's World Development Indicators.

Figure 2: Current Account Imbalances
(% of World GDP)

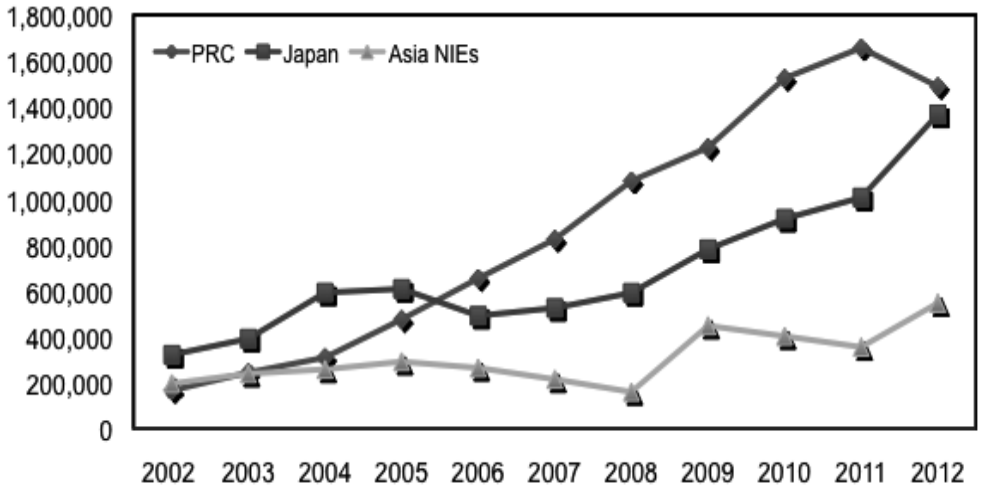


EU = European Union, OPEC = Organization of the Petroleum Exporting Countries, PRC = the People's Republic of China. GDP = gross domestic product.

Note: Emerging Asia includes Hong Kong, China, Indonesia, the Republic of Korea, Malaysia, the Philippines, Singapore, Thailand, and Viet Nam.

Source: US Bureau of Economic Analysis.

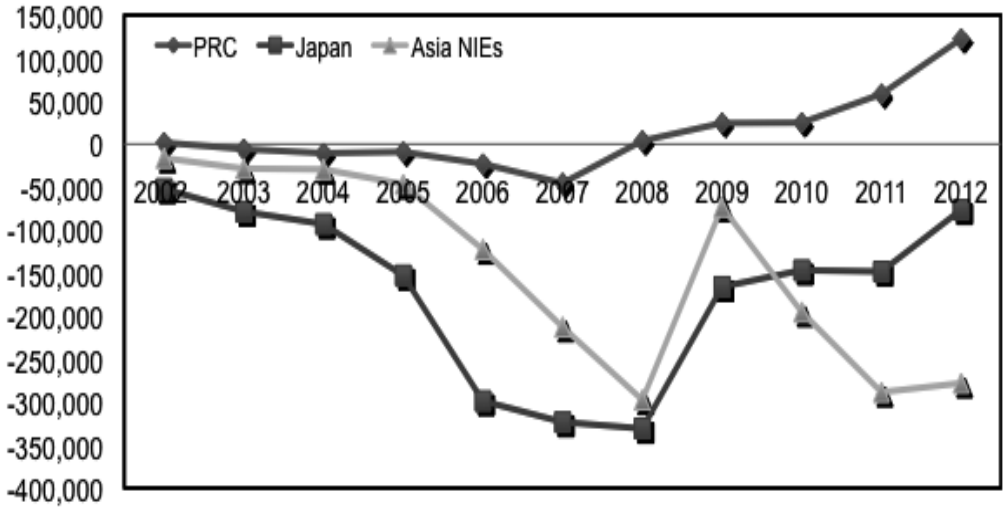
Figure 3: Trend of Net Portfolio Investment Positions of East Asian Countries in the US ($ million)



NIEs = Newly Industrialized Economies, PRC = People's Republic of China.

Source: Authors' calculations using the IMF's Consolidated Portfolio Investment Survey (CPIS) database.

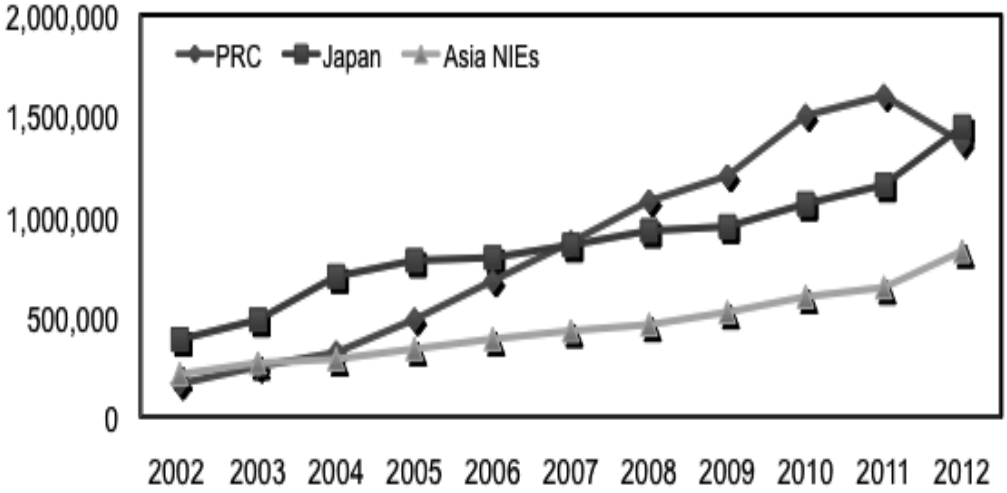
Figure 4: Trend of Net Equity Investment Positions of East Asian Countries in the US ($ million)



NIEs = Newly Industrialized Economies, PRC = People's Republic of China.

Source: Authors' calculations using the IMF's Consolidated Portfolio Investment Survey (CPIS) database.

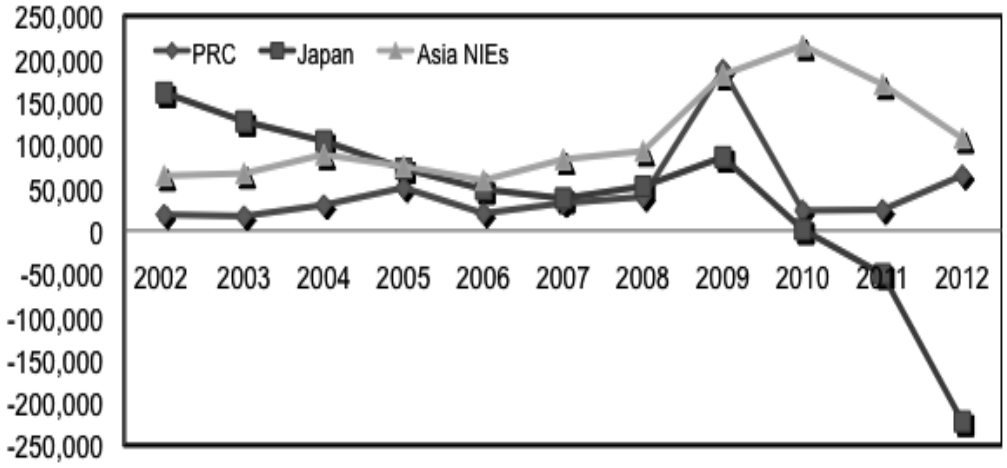
Figure 5: Trend of Net Long-Term Bond Positions of East Asian Countries in the US ($ million)



NIEs = Newly Industrialized Economies, PRC = People's Republic of China.

Source: Authors' calculations using the IMF's Consolidated Portfolio Investment Survey (CPIS) database.

Figure 6: Trend of Net Bank Lending Positions of East Asian Countries in the US ($ million)



NIEs = Newly Industrialized Economies, PRC = People's Republic of China.

Source: Authors' calculations using the IMF's Consolidated Portfolio Investment Survey (CPIS) database.

Table 1: Portfolio Holdings of All Securities
($ million)

Economy	To US (Jun 2002)	From US (Dec 2001)	Net	To US (Jun 2008)	From US (Dec 2007)	Net	To US (Jun 2012)	From US (Jun 2012)	Net
People's Republic of China	181,478	3,004	178,474	1,205,080	97,159	1,107,921	1,600,427	112049	1,488,378
Hong Kong, China	84,164	32,047	52,117	147,380	121,322	26,058	263069	125792	137,277
Indonesia	16,712	1,841	14,871	12,376	18,355	-5,979	27892	43686	-15,794
Japan	636,940	208,469	428,471	1,250,415	589,756	660,659	1829313	462420	1,366,893
Republic of Korea	43,937	34,475	9,462	130,692	139,131	-8,439	145801	164470	-18,669
Malaysia	9,645	4,258	5,387	34,515	24,061	10,454	46220	34053	12,167
Philippines	7,172	4,015	3,157	14,729	14,470	259	37857	164470	-126,613
Singapore	83,614	22,818	60,796	160,489	64,667	95,822	250615	68476	182,139
Taipei,China	70,035	19,860	50,175	149,715	81,202	68,513	297510	84877	212,633
Thailand	18,082	2,698	15,384	32,235	16,833	15,402	22470	32486	-10,016
Viet Nam	1,228	21	1,207	10,945	248	10,697	7226	1453	5,773
East Asia Total	**1,153,007**	**333,506**	**819,501**	**3,148,571**	**1,167,204**	**1,981,367**	**4,528,400**	**1,294,232**	**3,234,168**
World Total	**4,338,049**	**2,316,595**	**2,021,454**	**10,321,749**	**7,219,707**	**3,102,042**	**13,019,600**	**7,379,339**	**5,640,261**

US= United States.
Note: "To US" are US securities held by foreign residents, "From US" are foreign securities held by US residents, and "Net" represents net US securities held by foreigners.

Source: Calculated by the authors using US Department of the Treasury's Treasury International Capital System (TIC) Home Page (accessed on 7 February 2013).

Table 2: Portfolio Holdings of Equities
($ million)

Economy	To US (Jun 2002)	From US (Dec 2001)	Net	To US (Jun 2008)	From US (Dec 2007)	Net	To US (Jun 2012)	From US (Jun 2012)	Net
People's Republic of China	4,034	2,370	1,664	99,548	95,693	3,855	233,320	110,922	122,398
Hong Kong, China	15,329	30,154	-14,825	29,322	119,583	-90,261	46,479	123,050	-76,571
Indonesia	401	1,526	-1,125	440	15,079	-14,639	329	29,492	-29,163
Japan	118,590	170,714	-52,124	198,645	529,431	-330,786	322,285	398,644	-76,359
Republic of Korea	483	29,537	-29,054	7,993	129,272	-121,279	28,960	134,308	-105,348
Malaysia	372	2,578	-2,206	1,672	17,674	-16,002	7,352	23,159	-15,807
Philippines	701	1,344	-643	1,768	9,910	-8,142	1,116	12,738	-11,622
Singapore	44,786	21,376	23,410	93,923	55,598	38,325	110,013	59,086	50,927
Taipei,China	4,748	19,607	-14,859	10,908	81,034	-70,126	21,633	84,670	-63,037
Thailand	224	1,916	-1,692	648	15,998	-15,350	2,902	29,556	-26,654
Viet Nam	8	0	8	20	11	9	19	738	-719
East Asia Total	**189,676**	**281,122**	**-91,446**	**444,887**	**1,069,283**	**-624,396**	**774,408**	**1,006,363**	**-231,955**
World Total	**1,395,402**	**1,612,673**	**-217,271**	**2,969,288**	**5,252,941**	**-2,283,653**	**4,477,655**	**5,133,062**	**-655,407**

US = United States.
Note: "To US" are US securities held by foreign residents, "From US" are foreign securities held by US residents, and "Net" represents net US securities held by foreigners.

Source: Calculated by the authors using US Department of the Treasury's Treasury International Capital System (TIC) Home Page (accessed on 7 February 2013).

Table 3: Portfolio Holdings of Long-Term Bonds
($ million)

Economy	To US (Jun 2002)	From US (Dec 2001)	Net	To US (Jun 2008)	From US (Dec 2007)	Net	To US (Jun 2012)	From US (Jun 2012)	Net
People's Republic of China	177,444	634	176,810	1,075,250	1,466	1,073,784	1,367,107	1,127	1,365,980
Hong Kong, China	68,835	1,893	66,942	101,232	1,739	99,493	216,590	2,742	213,848
Indonesia	16,311	315	15,996	10,069	3,276	6,793	27,563	14,194	13,369
Japan	518,350	37,755	480,595	986,168	60,325	925,843	1,507,028	63,776	1,443,252
Republic of Korea	43,454	4,938	38,516	112,891	9,859	103,032	116,841	30,162	86,679
Malaysia	9,273	1,680	7,593	32,427	6,387	26,040	38,868	10,894	27,974
Philippines	6,471	2,671	3,800	12,417	4,560	7,857	36,741	7,166	29,575
Singapore	38,828	1,442	37,386	62,030	9,069	52,961	140,602	9,390	131,212
Taipei,China	65,287	253	65,034	136,482	168	136,314	275,877	207	275,670
Thailand	17,859	782	17,077	15,818	835	14,983	42,038	2,930	39,108
Viet Nam	1,220	21	1,199	10,922	237	10,685	7,207	715	6,492
East Asia Total	**963,332**	**52,384**	**910,948**	**2,555,706**	**97,921**	**2,457,785**	**3,776,462**	**143,303**	**3,633,159**
World Total	**2,530,517**	**557,062**	**1,973,455**	**6,494,031**	**1,609,803**	**4,884,228**	**7,731,300**	**2,246,277**	**5,485,023**

US = United States.
Note: "To US" are US securities held by foreign residents, "From US" are foreign securities held by US residents, and "Net" represents net US securities held by foreigners.

Source: Calculated by the authors using US Department of the Treasury's Treasury International Capital System (TIC) Home Page (accessed on 7 February 2013).

Table 4: Banking Liabilities and Claims
($ million)

Economy	To US (Jun 2002)	From US (Dec 2001)	Net	To US (Jun 2008)	From US (Dec 2007)	Net	To US (Jun 2012)	From US (Jun 2012)	Net
People's Republic of China	10,498	2,138	8360	94,369	19,359	75,010	85,042	20,748	64,294
Hong Kong, China	26,706	10,405	16301	47,133	10,263	36,870	81,210	67,756	13,454
Indonesia	12,424	1,795	10629	5,223	1,030	4,193	11,915	2,236	9,679
Japan	173,640	40,047	133593	190,122	97,856	92,266	182,614	404,900	-222,286
Republic of Korea	9,035	10,786	-1751	35,215	28,247	6,968	17,718	24,973	-7,255
Malaysia	1,299	731	568	2,852	1,989	863	4,987	5,527	-540
Philippines	1,777	2,598	-821	4,927	1,271	3,656	12,107	1,755	10,352
Singapore	16,872	3,513	13359	38,704	6,662	32,042	39,517	30,532	8,985
Taipei,China	17,657	4,599	13058	25,952	1,641	24,311	27,902	3,899	24,003
Thailand	4,757	2,544	2213	14,189	5,978	8,211	49,395	548	48,847
Viet Nam	.	.	.	.	.	.			.
East Asia Total	**274,665**	**79,156**	**195,509**	**458,686**	**174,296**	**284,390**	**512,407**	**562,874**	**-50,467**
World Total	**1,709,780**	**1,351,599**	**358181**	**4,706,310**	**3,814,308**	**892,002**	**4,611,120**	**3,900,163**	**710,957**

US = United States.
Note: "'To US" represents total foreign banking liabilities of US residents, "From US" represents total foreign banking claims of US residents, and "Net" represents net banking liabilities of US residents and foreigners.

Source: Calculated by the authors using US Department of the Treasury's Treasury International Capital System (TIC) Home Page (accessed on 7 February 2013).

Table 5: Determinants of Foreigners' Holdings of US Securities —PPML Model

	2004 - 2008			2009 - 2012		
	Equities	Long-Term Debt	Bank Loans	Equities	Long-Term Debt	Bank Loans
	(1)	(2)	(3)	(4)	(5)	(6)
log*POP*	0.458***	0.859***	0.790***	0.635***	0.924***	0.821***
	(0.057)	(0.083)	(0.063)	(0.091)	(0.086)	(0.062)
log*PCGDP*	2.220***	0.936***	0.914***	1.697***	1.019***	0.920***
	(0.342)	(0.081)	(0.056)	(0.190)	(0.116)	(0.082)
log*Dist*	-0.250	-1.110**	-1.967***	-1.014***	-1.184**	-1.809***
	(0.418)	(0.516)	(0.296)	(0.379)	(0.556)	(0.332)
Finlib	0.285***	0.144	0.179*	0.258***	0.238**	0.222***
	(0.074)	(0.112)	(0.103)	(0.098)	(0.100)	(0.076)
OFC	0.105	1.722***	0.607**	0.668	1.594**	0.890***
	(0.281)	(0.619)	(0.303)	(0.420)	(0.620)	(0.283)
Comlang	0.365**	-0.349	1.247***	0.499*	-0.018	1.301***
	(0.183)	(0.487)	(0.240)	(0.260)	(0.437)	(0.234)
Contig	0.882	-1.398	-2.957***	-0.398	-1.464	-2.517***
	(0.729)	(0.855)	(0.611)	(0.720)	(0.953)	(0.642)
Colony	0.363	-0.226	0.519**	0.376	-0.141	0.643***
	(0.229)	(0.310)	(0.216)	(0.285)	(0.310)	(0.216)
EASIA	0.895***	1.391***	0.932***	0.914***	1.276***	0.889***
	(0.174)	(0.259)	(0.211)	(0.234)	(0.322)	(0.190)
Constant	-20.595***	-4.506	3.718	-10.545***	-6.045	1.226
	(6.731)	(4.759)	(2.340)	(3.872)	(4.859)	(2.661)
# OBS	222	222	207	232	233	216
Pseudo R^2	0.809	0.674	0.816	0.734	0.650	0.808

Notes:

1. Estimates are made with Poisson pseudo-maximum likelihood (PPML) estimator.
2. Year dummies are included but not shown here for brevity.
3. Shown in parentheses are robust standard errors.
4. ***, **, and * denote 1%, 5%, and 10% level of significance, respectively.

Source: Authors' calculations.

Table 6: Determinants of Foreigners' Holdings of US Securities —Random Effects Model

	2004 - 2008			2009 - 2012		
	Equities	Long-Term Debt	Bank Loans	Equities	Long-Term Debt	Bank Loans
	(1)	(2)	(3)	(4)	(5)	(6)
log*POP*	0.823***	1.268***	0.966***	0.503***	0.983***	0.662***
	(0.238)	(0.152)	(0.117)	(0.186)	(0.187)	(0.157)
log*PCGDP*	1.787***	1.566***	1.010***	0.883***	0.750***	0.431*
	(0.166)	(0.199)	(0.152)	(0.234)	(0.276)	(0.224)
log*Dist*	-2.325***	-1.582**	-1.496***	-2.047**	-1.389*	-0.989
	(0.685)	(0.787)	(0.543)	(0.825)	(0.808)	(0.605)
Finlib	0.117**	-0.000	0.028	0.140*	0.128	0.017
	(0.051)	(0.045)	(0.044)	(0.072)	(0.090)	(0.081)
OFC	0.848	1.497**	1.631***	0.219	1.339*	1.444**
	(0.684)	(0.665)	(0.522)	(0.760)	(0.754)	(0.613)
Comlang	1.795***	0.528	0.914***	1.291***	0.789	0.939**
	(0.394)	(0.470)	(0.349)	(0.499)	(0.483)	(0.374)
Contig	-1.756	-1.754	-1.444*	-0.653	-1.102	-0.125
	(1.091)	(1.167)	(0.875)	(1.442)	(1.364)	(0.983)
Colony	0.058	-0.796**	0.095	0.658	-0.099	0.462
	(0.677)	(0.401)	(0.350)	(0.717)	(0.550)	(0.565)
EASIA	1.709**	2.365***	1.117***	1.392	1.756**	0.865*
	(0.745)	(0.557)	(0.406)	(0.857)	(0.774)	(0.450)
Constant	-3.245	-12.998*	(dropped)	8.431	-2.549	2.266
	(7.142)	(7.625)		(7.088)	(6.968)	(5.917)
# OBS	222	222	207	232	233	216
R^2	0.758	0.709	0.634	0.532	0.545	0.492

Notes:

1. Estimates are made with Random effects model.
2. Year dummies are included but not shown here for brevity.
3. Shown in parentheses are robust standard errors.
4. ***, **, and * denote 1%, 5%, and 10% level of significance, respectively.

Source: Authors' calculations.

Table 7: Determinants of Foreigners' Holdings of US Long-Term Bonds —PPML Model

	2004 - 2008			2009 - 2012		
	Treasury	**Agency**	**Corporate**	**Treasury**	**Agency**	**Corporate**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
log*POP*	1.021***	0.997***	0.453***	1.004***	1.013***	0.553***
	(0.055)	(0.078)	(0.069)	(0.069)	(0.082)	(0.082)
log*PCGDP*	0.926***	0.794***	1.795***	0.871***	0.934***	1.943***
	(0.045)	(0.076)	(0.214)	(0.090)	(0.109)	(0.200)
log*Dist*	-0.718**	-0.662	-2.268***	-0.714*	-1.313***	-2.402***
	(0.332)	(0.505)	(0.534)	(0.378)	(0.496)	(0.539)
Finlib	0.039	0.026	0.576***	-0.027	0.317***	0.613***
	(0.043)	(0.087)	(0.147)	(0.080)	(0.112)	(0.154)
OFC	1.578***	2.240***	0.631	1.575***	2.710***	0.902**
	(0.510)	(0.573)	(0.416)	(0.504)	(0.395)	(0.443)
Comlang	-0.281	-0.825*	-0.252	-0.057	-0.912**	-0.019
	(0.357)	(0.440)	(0.233)	(0.296)	(0.357)	(0.304)
Contig	-0.934*	-0.530	-2.321***	-1.366**	-0.449	-2.684***
	(0.518)	(0.677)	(0.827)	(0.618)	(0.734)	(0.903)
Colony	-0.732***	-0.781**	0.189	-0.629**	-0.802**	0.741**
	(0.222)	(0.330)	(0.303)	(0.255)	(0.345)	(0.323)
EASIA	1.788***	1.552***	1.296***	1.354***	2.778***	1.168***
	(0.247)	(0.319)	(0.321)	(0.263)	(0.316)	(0.392)
Constant	-10.936***	-9.984**	0.101	-9.352**	-9.427**	-2.342
	(3.304)	(4.836)	(5.055)	(3.659)	(4.510)	(5.097)
# OBS	220	219	215	232	229	232
Pseudo R^2	0.888	0.785	0.660	0.808	0.864	0.664

Notes:

1. Estimates are made with Poisson pseudo-maximum likelihood (PPML) estimator.
2. Year dummies are included but not shown here for brevity.
3. Shown in parentheses are robust standard errors.
4. ***, **, and * denote 1%, 5%, and 10% level of significance, respectively.

Source: Authors' calculations.

Table 8: Year-Specific East Asian Effects as Determinants of Foreigners' Holdings of US Securities—PPML Model

	Equities	Long-Term Debt	Bank Loans	Treasury	Agency	Corporate
	(1)	(2)	(3)	(4)	(5)	(6)
*EASIA * 2005*	0.615*	1.406***	0.888***	1.815***	1.469***	0.975**
	(0.365)	(0.405)	(0.241)	(0.231)	(0.408)	(0.406)
*EASIA * 2006*	0.803**	1.559***	0.858***	1.813***	1.632***	1.677***
	(0.370)	(0.393)	(0.248)	(0.254)	(0.391)	(0.544)
*EASIA * 2007*	0.843***	1.339***	0.977***	1.717***	1.681***	1.166***
	(0.327)	(0.378)	(0.268)	(0.256)	(0.406)	(0.438)
*EASIA * 2008*	1.139***	1.496***	1.005***	1.618***	2.133***	1.460***
	(0.350)	(0.372)	(0.222)	(0.303)	(0.388)	(0.526)
*EASIA * 2009*	1.346***	1.616***	0.946***	1.784***	2.482***	1.585***
	(0.315)	(0.341)	(0.251)	(0.255)	(0.325)	(0.486)
*EASIA * 2010*	1.169***	1.586***	1.138***	1.652***	2.527***	1.232***
	(0.325)	(0.349)	(0.226)	(0.277)	(0.280)	(0.440)
*EASIA * 2011*	0.991***	1.424***	0.633**	1.390***	2.362***	1.111**
	(0.310)	(0.332)	(0.264)	(0.276)	(0.332)	(0.493)
*EASIA * 2012*	0.481	0.545	0.863***	0.718	1.708***	0.275
	(0.620)	(0.554)	(0.210)	(0.473)	(0.533)	(0.648)
Constant	-12.053***	-4.474	2.427	-9.979***	-10.135***	-0.876
	(3.256)	(3.483)	(1.810)	(2.702)	(3.517)	(3.545)
# OBS	454	455	423	452	448	447
Pseudo R^2	0.772	0.663	0.809	0.847	0.814	0.657

Notes:

1. Estimates are made with Poisson pseudo -maximum likelihood (PPML) estimator.
2. Control variables and year dummies are included but not shown here for brevity.
3. Shown in parentheses are robust standard errors.
4. ***, **, and * denote 1%, 5%, and 10% level of significance, respectively.

Source: Authors' calculations.

Table 9: Country-Specific Effects as Determinants of Foreigners' Holdings of US Securities—PPML Model

	2004 - 2008			2009 - 2012		
	Equities	Long-Term Debt	Bank Loans	Equities	Long-Term Debt	Bank Loans
	(1)	(2)	(3)	(4)	(5)	(6)
[People's Republic of] China	5.702***	4.147***	1.108**	4.411***	3.333***	0.924**
	(0.710)	(0.529)	(0.495)	(0.533)	(0.435)	(0.465)
Hong Kong, China	-0.408	-0.476	0.263	-0.638*	-0.293	0.277
	(0.266)	(0.354)	(0.489)	(0.357)	(0.394)	(0.445)
Indonesia	2.631***	1.284**	1.564***	-0.228	0.250	1.254***
	(0.594)	(0.520)	(0.559)	(0.627)	(0.368)	(0.436)
Japan	0.893***	1.740***	1.097***	1.132***	1.364***	1.322***
	(0.284)	(0.281)	(0.289)	(0.417)	(0.509)	(0.254)
Korea, Rep. of	-0.624*	1.128***	0.682**	0.590***	0.827***	0.132
	(0.330)	(0.258)	(0.313)	(0.209)	(0.218)	(0.221)
Malaysia	0.995***	1.168***	0.508	1.206***	1.158***	0.344
	(0.383)	(0.317)	(0.372)	(0.390)	(0.273)	(0.395)
Philippines	4.113***	1.706***	-0.579	1.292**	1.652***	-1.230***
	(0.697)	(0.509)	(0.440)	(0.572)	(0.479)	(0.465)
Singapore	1.389***	1.035***	1.182***	0.993***	0.925***	0.843**
	(0.220)	(0.214)	(0.323)	(0.252)	(0.302)	(0.331)
Thailand	1.900***	1.288***	2.186***	1.522***	0.818***	2.264***
	(0.480)	(0.398)	(0.417)	(0.443)	(0.299)	(0.345)
Taipei,China	0.716***	1.666***	1.382***	1.062***	2.109***	1.492***
	(0.177)	(0.235)	(0.253)	(0.203)	(0.207)	(0.270)
Viet Nam	2.483***	2.454***		-0.629	1.485***	
	(0.773)	(0.543)		(0.605)	(0.488)	
Constant	-28.774***	-9.496**	3.025	-18.273***	-11.071**	1.014
	(4.548)	(4.121)	(2.727)	(3.576)	(4.448)	(3.279)
# OBS	222	222	207	232	233	216
Pseudo R^2	0.869	0.801	0.827	0.836	0.763	0.832

Notes:

1. Estimates are made with Poisson pseudo -maximum likelihood (PPML) estimator.
2. Control variables and year dummies are included but not shown here for brevity.
3. Shown in parentheses are robust standard errors.
4. ***, **, and * denote 1%, 5%, and 10% level of significance, respectively.

Source: Authors' calculations.

Table 10: Country-Specific Effects as Determinants of Foreigners' Holdings of US Long-Term Bonds—PPML Model

	2004 - 2008			2009 - 2012		
	Treasury	Agency	Corporate	Treasury	Agency	Corporate
	(1)	(2)	(3)	(4)	(5)	(6)
[People's Republic of] China	1.953*** (0.486)	3.206*** (0.649)	6.110*** (0.686)	1.812*** (0.373)	4.287*** (0.424)	3.274*** (0.639)
Hong Kong, China	0.275 (0.450)	-0.612* (0.335)	-0.402 (0.391)	0.301 (0.428)	1.478*** (0.392)	-1.478*** (0.517)
Indonesia	-0.192 (0.399)	-0.727 (0.797)	2.482*** (0.759)	-0.399 (0.386)	0.025 (0.717)	-0.324 (0.734)
Japan	1.833*** (0.270)	1.393*** (0.401)	1.678*** (0.416)	1.121*** (0.405)	2.857*** (0.416)	2.049*** (0.486)
Korea, Rep. of	0.889*** (0.263)	1.390*** (0.308)	1.134*** (0.292)	-0.057 (0.203)	3.155*** (0.211)	0.913** (0.368)
Malaysia	0.480 (0.302)	1.053** (0.425)	1.713*** (0.455)	0.320 (0.303)	3.004*** (0.365)	1.574*** (0.452)
Philippines	1.685*** (0.377)	-0.411 (0.697)	3.191*** (0.653)	1.834*** (0.475)	-1.271** (0.561)	1.267** (0.563)
Singapore	2.494*** (0.342)	0.635* (0.360)	0.960*** (0.300)	2.122*** (0.340)	0.880** (0.386)	0.399 (0.314)
Thailand	0.762** (0.297)	-3.994*** (0.475)	1.750*** (0.590)	0.186 (0.267)	-2.436*** (0.467)	1.417*** (0.503)
Taipei,China	1.682*** (0.248)	1.927*** (0.259)	1.473*** (0.338)	2.142*** (0.234)	3.391*** (0.221)	2.112*** (0.350)
Viet Nam	1.172*** (0.385)	-3.918*** (0.906)	2.885*** (1.027)	0.371 (0.407)	-17.516*** (1.126)	0.226 (0.915)
Constant	-18.016*** (3.935)	-19.587*** (4.857)	-5.782 (6.445)	-13.947*** (4.034)	-19.808*** (4.350)	-10.345* (5.788)
# OBS	220	219	215	232	229	232
Pseudo R^2	0.921	0.876	0.725	0.861	0.923	0.702

Notes:

1. Estimates are made with Poisson pseudo -maximum likelihood (PPML) estimator.
2. Control variables and year dummies are included but not shown here for brevity.
3. Shown in parentheses are robust standard errors.
4. ***, **, and * denote 1%, 5%, and 10% level of significance, respectively.

Source: Authors' calculations.

Table 11: Effects of Domestic Savings and Foreign Exchange Reserves on Foreigners' Holdings of US Securities

	2004 - 2008			2009 - 2012		
	Equities	Long-term debt	Bank loan	Equities	Long-term debt	Bank loan
	(1)	(2)	(3)	(4)	(5)	(6)
log*POP*	0.747***	1.151***	0.861***	0.590***	0.816***	0.635***
	(0.105)	(0.106)	(0.079)	(0.105)	(0.082)	(0.087)
log*PCGDP*	1.941***	1.079***	0.910***	1.666***	0.955***	0.734***
	(0.247)	(0.079)	(0.071)	(0.195)	(0.081)	(0.123)
log*Dist*	-0.680	-1.798***	-2.105***	-0.745	-1.534***	-1.756***
	(0.474)	(0.373)	(0.264)	(0.641)	(0.524)	(0.397)
Finlib	0.128*	0.055	0.098	0.198**	0.231**	0.175**
	(0.076)	(0.087)	(0.079)	(0.099)	(0.091)	(0.079)
OFC	-0.111	1.158***	1.057***	0.664*	1.607***	1.094***
	(0.302)	(0.380)	(0.284)	(0.401)	(0.498)	(0.263)
Comlang	0.711***	-0.006	1.315***	0.272	-0.418	1.134***
	(0.133)	(0.243)	(0.207)	(0.291)	(0.470)	(0.274)
Contig	0.025	-2.073***	-3.021***	0.482	-1.710*	-2.081***
	(0.670)	(0.575)	(0.582)	(0.949)	(0.921)	(0.735)
Colony	0.490**	0.140	1.075***	0.945***	0.539	1.204***
	(0.190)	(0.337)	(0.239)	(0.301)	(0.461)	(0.300)
EASIA	0.592*	1.938***	0.092	0.140	0.869***	0.062
	(0.355)	(0.263)	(0.304)	(0.308)	(0.209)	(0.274)
Savings-investment ratio	1.521***	1.780***	1.650***	1.140***	1.267***	0.804***
	(0.241)	(0.306)	(0.312)	(0.228)	(0.309)	(0.197)
log*Reserves*	-0.051	-0.180**	0.205**	0.369***	0.388***	0.346***
	(0.090)	(0.070)	(0.088)	(0.072)	(0.091)	(0.077)
Constant	-17.769***	-1.613	-2.600	-21.941***	-11.636**	-3.327
	(6.102)	(4.311)	(2.544)	(6.702)	(5.297)	(3.336)
# OBS	218	218	203	169	169	157
Pseudo R^2	0.861	0.755	0.865	0.821	0.795	0.817

Notes:

1. Estimates are made with Poisson pseudo -maximum likelihood (PPML) estimator.
2. Year dummies are included but not shown here for brevity.
3. Shown in parentheses are robust standard errors.
4. ***, **, and * denote 1%, 5%, and 10% level of significance, respectively.

Source: Authors' calculations.

Table 12: Effects of Domestic Savings and Foreign Exchange Reserves on Foreigners' Holdings of US Long-term Bonds

	2004 - 2008			2009 - 2012		
	Treasury	Agency	Corporate	Treasury	Agency	Corporate
	(1)	(2)	(3)	(4)	(5)	(6)
log*POP*	0.978***	1.142***	0.771***	0.770***	0.886***	0.572***
	(0.099)	(0.105)	(0.106)	(0.070)	(0.096)	(0.102)
log*PCGDP*	0.929***	0.909***	1.694***	0.816***	0.951***	1.943***
	(0.085)	(0.084)	(0.204)	(0.077)	(0.098)	(0.203)
log*Dist*	-0.924***	-1.269***	-3.010***	-1.105***	-2.261***	-2.708***
	(0.265)	(0.476)	(0.600)	(0.369)	(0.535)	(0.839)
Finlib	0.003	-0.051	0.457***	-0.005	0.468***	0.761***
	(0.041)	(0.062)	(0.165)	(0.053)	(0.121)	(0.235)
OFC	1.618***	2.111***	-0.916	1.471***	2.592***	0.686
	(0.368)	(0.370)	(0.568)	(0.428)	(0.323)	(0.499)
Comlang	-0.354	-0.602**	0.300	-0.160	-1.338***	-0.330
	(0.261)	(0.295)	(0.229)	(0.334)	(0.285)	(0.399)
Contig	-1.004**	-0.987	-3.528***	-1.472**	-1.220**	-2.722**
	(0.433)	(0.606)	(0.821)	(0.620)	(0.613)	(1.167)
Colony	-0.243	-0.282	0.188	0.139	0.005	0.926**
	(0.248)	(0.378)	(0.314)	(0.312)	(0.448)	(0.440)
EASIA	1.373***	1.488***	2.615***	0.539***	2.594***	1.358**
	(0.300)	(0.329)	(0.562)	(0.201)	(0.336)	(0.603)
Savings-investment ratio	1.165***	1.748***	1.117***	1.235***	1.275***	0.422
	(0.330)	(0.273)	(0.376)	(0.218)	(0.206)	(0.344)
log*Reserves*	0.191*	0.043	-0.419***	0.590***	0.426***	0.121
	(0.102)	(0.089)	(0.098)	(0.071)	(0.101)	(0.107)
Constant	-14.167***	-10.817**	11.986*	-17.456***	-12.088**	-4.638
	(2.964)	(4.666)	(6.474)	(4.107)	(4.871)	(8.426)
# OBS	216	215	211	169	166	169
Pseudo R^2	0.913	0.835	0.706	0.935	0.938	0.678

Notes:

1. Estimates are made with Poisson pseudo -maximum likelihood (PPML) estimator.
2. Year dummies are included but not shown here for brevity.
3. Shown in parentheses are robust standard errors.
4. ***, **, and * denote 1%, 5%, and 10% level of significance, respectively.

Source: Authors' calculations.

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The Financial Role of East Asian Economies in Global Imbalances
An Econometric Assessment of Developments after the Global Financial Crisis

The central objective of this paper is to empirically assess the evolution of global imbalances since the global financial crisis of 2008/09. To do so, Lee and Park examine how the security investment positions of major East Asian economies in United States (US) financial markets—equities, bonds, and bank lending—changed after the crisis. Their econometric analysis finds that the "overinvestment" of most East Asian economies in the US remained substantial after the global crisis.

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