Robert M.
La Follette School of Public Affairs

at the University of Wisconsin-Madison

Global Current Account Imbalances: American Fiscal Policy versus East Asian Savings

Menzie D. Chinn
Professor, La Follette School of Public Affairs and Department of Economics
at the University of Wisconsin-Madison; and the National Bureau of Economic Research

mchinn@lafollette.wisc.edu

Hiro Ito
Portland State University

THE UNIVERSITY *of*
WISCONSIN
MADISON

Global Current Account Imbalances
American Fiscal Policy versus East Asian Savings

By

Menzie D. Chinn*
University of Wisconsin and NBER

And

Hiro Ito**
Portland State University

February 15, 2007

Abstract

We consider the origins of global current account imbalances. We first discuss how the expansion of the U.S. current account deficit and the decrease in global real interest rates can be reconciled with the widespread view that American expansionary fiscal policy is partly the source of current trends. We then investigate empirically the medium-term determinants of the current account using a model that controls for factors related to institutional development. In addition to the conventional macroeconomic factors, we examine a series of environmental factors, including the degree of financial openness and the extent of legal development. We find that for industrial countries, the government budget balance is an important determinant of the current account balance; the budget balance coefficient is 0.10 to 0.49 depending on model specifications. These varying estimates lead us to conclude that fiscal factors might be as important as excess savings arising from East Asia.

Keywords: Current account; net foreign assets; saving glut; investment drought; panel regressions; capital controls, institutional development.

JEL Classification Nos.: F32, F41

* Chinn: Robert M. La Follette School of Public Affairs; and Department of Economics, University of Wisconsin, 1180 Observatory Drive, Madison, WI 53711. Email: mchinn@lafollette.wisc.edu

** Ito: Department of Economics, Portland State University, 1721 SW Broadway, Portland, OR 97201. Email: ito@pdx.edu

1. Introduction

The enormous and rapidly widening U.S. current account deficit, displayed in Figure 1, has been the source of intense debate in academic and policy circles. The deficit-to-GDP ratio of 6.4 percentage points recorded in the first three quarters of 2006 is high by historical standards, and high in comparison to other developed economies (Edwards, 2005).

A number of explanations have been forwarded for the recent widening of the U.S. current account deficit. Roughly speaking, the arguments can be categorized as either domestic or international in nature. Some argue that the main reason for the increase in U.S. current account imbalances is the decline in U.S. savings, especially public sector savings, since 2002. In this "twin deficits" argument, the current administration's expansionary fiscal policy bears the greatest blame. Greenspan (2005a,b), Ferguson (2004) and others have, on the other hand, argued that the impact of fiscal policy on the current account balance is small.

The "global saving glut" explanation, most closely associated with Bernanke (2005), views excess saving from Asian emerging market countries, driven by rising savings and collapsing investment in the aftermath of the financial crisis, as the cause of the U.S. current account deficit (although the current account surpluses of the oil exporting countries have taken on a heightened prominence in recent years). From Bernanke's perspective, the U.S. current account deficit is a caused by forces abroad, and amenable to a solution only in the longer term, as better developed financial systems mitigate this excess savings problem. Low real interest rates are consistent with this excess saving view.

For two reasons, we believe that the Bernanke thesis demands closer examination, despite the surface appeal of the argument. First, in a counterpoint to his previous argument, Bernanke recently testified that one way to reduce the U.S. current account deficit is by increasing public

sector saving.[1] Second, as shown in Figure 1, the current account deficit remains entrenched at

about 6.4 percentage points despite the upward movement in real ten year interest rates.[2]

  In this paper, we analyze the determinants of current account balances for industrial and

developing countries, while empirically controlling for differences in institutional environment

across countries. The data set we employ covers a large and heterogeneous group of countries (19

industrial, 69 developing) over a relatively long time span (1971-2004). Our empirical approach

follows Chinn and Prasad (2003). Their study provided a broad empirical characterization of the

medium-term determinants of current account balances for a sample of industrial and developing

countries from the perspective of longer-run saving-investment balances.

  This paper updates and extends the work of Chinn and Prasad in several important respects.

First, we focus on a potentially important factor identified by Bernanke (2005), namely the effect of

financial development in the context of the legal system and institutions. Second, we allow for

nonlinearities via interaction terms. Third, we analyze the determinants of the current account

components, namely saving and investment.[3]

  Whether one takes the twin deficits or global saving glut argument, the effect of legal and

institutional development cannot be dismissed a priori, although it clearly matters more in the latter

case. In addition to macroeconomic attributes such as the stage of development, demographic

profile, and the government budget balance, the legal environment and the level of institutional

development should be important control variables. After all, the extent of private saving and

---

[1] Lanman and Torres (2007).
[2] Ten year interest rates (constant maturity) minus the 10 year expected inflation rate as proxied by Blue Chip forecasts up to 1991q1, and by the Society of Professional Forecasters median forecasts thereafter. Inflation indexed yields over the past eight years are consistent with this pattern.
[3] Roughly contemporaneously with us, Gruber and Kamin (2005) have written a paper closely related to ours. However, they rely upon financial crises and country dummies to soak up variation in current account balances. Also, they do not include financial development and financial openness variables which are key to assessing the Bernanke conjecture. Moreover, they do not examine the dynamics of current account balances from the perspective of saving and investment determination as we do in this paper.

investment should depend upon how the returns from those activities are protected by these factors.

The extent of institutional development should enhance the effectiveness of financial development and other policy measures such as financial opening. Hence, this paper also devotes special attention to the effect of financial development and examines whether the "financial deepening" argument (Edwards, 1996) or the saving glut argument is applicable for sample countries' saving behavior. In this regard, we estimate a model that controls for financial deepening and interacts it with other variables such as institutional development and financial openness. The focus on financial development is also motivated by the argument that "the U.S. current account is …, in part, a reflection of a global excess of saving relative to profitable investment opportunities in the post-bubble world." (Clarida, 2005a).

The main findings are as follows. The budget balance is an important determinant of the current account balance for industrial countries; the coefficient for the budget balance variable is 0.15 in a model controlling for institutional variables. A series of robustness checks yield the finding that a one percent point increase in the ratio of budget balance to GDP relative to the weighted world average should lead to a 0.10 to 0.49 percentage point increase in the current account to GDP ratio. We also find that institutional development is an important determinant for the current account balance mainly for higher income countries, although it is important for both saving and investment determination in all country groupings. More importantly, our empirical findings are *not* consistent with the argument that the more developed financial markets are, the less saving a country undertakes. Especially for most of the East Asian emerging market countries, we find that more financial development leads to *higher* saving. Furthermore, there is no evidence of East Asian "excess domestic saving". Rather, countries of this region have experienced depressed investment during the post-crisis period. For the United States, our analysis confirms the view that it

is a saving drought – not investment boom – that is driving to the enlargement of the current account deficit, although there is some evidence of anomalous behaviour in the latest four year period.

2. Competing Views on the Sources of the Global Imbalances

As noted above, several commentators have argued that the large current account surpluses in the rest of the world, specifically in East Asia, and more recently the oil exporting countries, are at the heart of the pattern of global imbalances. In this view, these current account surpluses have to be offset somewhere, and that somewhere is in the United States, largely because of the greater attractiveness of American assets. It is a line of reasoning that leads to the conclusion that the current account deficit will continue as long as the phenomenon of excess savings in the rest of the world persists. And, in one interpretation, the end could be years away. Dooley, Folkerts-Landau, and Garber (2003, forthcoming) view the U.S. current account deficit as the outcome of concerted mercantilist efforts by East Asian state actors. In this context, the financing of America's trade (and budget) deficit is an explicit *quid pro quo* for continued access to American markets.[4]

While the saving glut view has a seed of truth to it, particularly for the last couple of years or so, there are some problems with the story. First, the argument that fiscal policy cannot really have an impact on the current account deficit is subject to debate. Federal Reserve Board research indicating that one dollar's worth of budget-deficit reduction will only induce a twenty-cent decrease in the trade deficit has been cited in support of this perspective;[5] However, these results are based upon calibrated model simulations. The IMF's calibrated model yields estimates closer to

---

[4] Most problematic for this approach is the mysterious aspect of timing: East Asian savings began flowing to the United States in 2003. Why not earlier, if the mercantilist impetus had been there all along? (And why not devalue the renminbi in 1997?) For a thorough critique, see Prasad and Wei (2005).

[5] See Erceg et al. (2005). The effect of tax reductions arises from the rule-of-thumb consumers imbedded in a model otherwise characterized by Ricardian equivalence.

50 cents on the dollar (Faruqee, et al., 2005). Furthermore, it is important to realize that there is some disagreement on the econometrically measured size of the effect. The OECD's macroeconometric model implies something around a forty-cent impact on the current account for each dollar's worth of fiscal consolidation (OECD, 2005); this larger point estimate is not atypical of macroeconometric models.

Second, it is somewhat odd to think of the East Asian countries driving United States to consumption and saving behavior, especially when the U.S. economy is approximately three times the size of developing and industrializing East Asia. The conventional wisdom is more plausible: there is a saving *scarcity* in the United States, driven largely by the Federal budget deficit, and it is this saving drought in the United States that has been sucking in excess savings from the rest of the world for most of the past five years.

The strongest point in favor of the saving glut hypothesis is the observation of a widening current account deficit in the United States, combined with low real world interest rates. However, the saving glut versus twin deficits view is not an either-or proposition. Figure 2 depicts how it is possible for both motivations to coexist. Two regions are graphed – East Asia and the United States. The National Savings (NS) schedules are functions of fiscal policy, demographics, and the real interest rate. The Investment schedules (I) are functions of the interest rate and many other factors. In this model, the real interest rate is assumed to be equalized, such that international capital markets would clear, i.e., the current account imbalances between the two economies balance out each other.[6]

---

[6] In practice, the real interest rate is not necessarily equalized; capital controls, risk premia and expected real depreciation would be expected to drive a wedge between real rates of different countries.

In period 0, the world interest rate is r_0, and the U.S. runs a current account deficit, while East Asia runs a corresponding current account surplus.[7] In period 1, the U.S. undertakes an expansionary fiscal policy that pulls in the NS schedule. At the same time, the investment schedule shifts inward in East Asia (e.g., as a result of a financial crisis). This confluence of events drives down the real world interest rate to r_1. Thus, using a simple open macro model, we can explain the recent rise in U.S. current account deficits, East Asian current account surpluses, and the recent fall in global interest rates by both deficit spending by the U.S. and investment draught in East Asia. However, also note that the in the absence of a change in fiscal policy, the U.S. current account imbalance would have been much smaller.

In other words, as macroeconomics has moved beyond simple bivariate analyses, so more sophisticated assessments are necessary. We seek to inform the debate by measuring the relationship between fiscal variables and current account balance, conditioning on a series of other variables we think are of importance.

3. Measuring the Fiscal Effect

3.1 Specification

We base the choice of macroeconomic variables for this exercise on the discussion in Chinn and Prasad (2003).

$$cagdp_t = \beta_0 + \beta_1 busgdp_t + \beta_2 nfa_{t-1} + X_t \Gamma + Z_t \Xi + \varepsilon_t$$

where *CAGDP* is the current account balance to GDP ratio, *BUSGDP* is the budget surplus to GDP

---

[7] The "world" in this model can be considered as one small closed economy composed of two large open economies, East Asia and the U.S. Hence, the world real interest rate (R) is the real interest rate that equilibrates cross-border lending and borrowing between the two economies such that the world current account will be in balance. In this model, when shocks arise as they do in the text, the world real interest rate would vary so as to keep the absolute values of the current account balances of the two economies equal to each other. See Obstfeld and Rogoff (1996).

ratio, *NFA* is net foreign assets to GDP ratio, and *X* includes a set of structural and other macroeconomic variables, and *Z* includes institutional and policy factors.

We deal with the two key variables and the macro variables first. A variety of models predict a positive relationship between government budget balances (*BUSGDP*) and current accounts over the medium term. In the absence of a full Ricardian offset via private saving, an increase in the government budget balance could lead to an increase in national saving. In developing economies, where a greater proportion of agents may be liquidity constrained, this relationship might be expected to be more pronounced.

From an intertemporal perspective, the stock of net foreign assets (*NFA*) serves as an important initial condition, given that the current account is the sum of the trade balance and the return on a country's stock of NFA (or payment on its net foreign liabilities position). Alternatively, from a buffer stock savings perspective, higher levels of initial net foreign assets should be associated with subsequent lower current account balances.

Among the macroeconomic variables (included in *X*), we include the variable for relative income levels (to the U.S.; *RELY*) and their square terms in the model specification. The "stages of development" hypothesis for the balance of payments suggests that countries, as they move from a low to an intermediate stage of development, typically import capital and, therefore, run current account deficits. As they reach an advanced stage of development, countries run current account surpluses in order to pay off accumulated external liabilities and also to export capital to less advanced economies.

The literature on the determinants of national saving has pointed to a number of additional "structural" determinants such as demographics (*YOUNG* and *OLD*). Masson et al. (1998) show that the dependency ratio is one of the key determinants of private saving. Terms of trade volatility

(*TOTSD*) is another potential determinant of medium-term fluctuations in current accounts. Agents in economies that face more volatile terms of trade might save more for precautionary reasons in order to smooth their consumption streams in the face of volatile income flows. The degree of openness to international trade (*OPEN*) is also included since it could reflect policy choices, including tariff regimes.[8]

These macro data are drawn from the World Bank's *World Development Indicators*, the IMF's *International Financial Statistics* and the *World Economic Outlook* database. For the measure of net foreign asset, we use the data created by Lane and Milesi-Ferretti (2006). Additional details are contained in the Data Appendix.

One of the innovations in this study is that we focus on potential effects of other factors than conventional macroeconomic variables on the saving and investment determination. These factors are specifically financial development/deepening, financial (capital account) openness, and legal/institutional development, all of which are included in *Z* in the above specification.

"Financial development" or "financial deepening" is often identified as a determinant for saving and investment. While the effect of financial development on investment is unambiguous (i.e., positive), that on saving is not, because higher returns and lower risk of financial investment create effects on saving akin to income and substitution effects. The traditional interpretation of this variable as a measure of the depth and sophistication of the financial system suggests that financial deepening could induce more saving, although a contrasting view holds that more developed financial markets might lessen the need for precautionary saving, and thus have an opposite effect. Bernanke (2005) argues that greater financial development will remedy the global saving glut in the long run by inducing a decline in the savings rate in the emerging Asia. Relatedly, Clarida (2005a,b)

---

[8] Five-year averages of real GDP (*YGRAVG*) are also included to account for changes in productivity levels.

argues that the sophisticated equity markets in the U.S. absorb excess saving from all over the world, leading to higher current account deficits. To measure financial development, we use private credit to GDP (*PCGDP*).[9] The *PCGDP* data are drawn from Beck, Demirgüc-Kunt, and Levine (2001 and subsequent updates).

How open a country is for cross-border financial transactions should also affect capital flows across countries, and thus the current account. According to the global saving glut view, comprehensive financial liberalization policies in East Asia have allowed excess saving to flow into the U.S, and other countries with developed financial markets. Our metric of financial openness is the Chinn-Ito (2005) index (*KAOPEN*). This index is based upon the IMF's categorical enumeration pertaining to cross-border financial transactions reported in *Annual Report on Exchange Arrangements and Exchange Restrictions* (*AREAER*). Higher values of this index indicate greater financial openness.[10]

A society's legal foundations and institutions define the context wherein financial transactions and economic decisions are made. As the expanding literature on finance and growth has emphasized, a society's legal foundations and institutions define the context wherein financial transactions and economic decisions are made. Levine, et al. (2000) find that the cross-country differences in legal and regulatory systems influence the development of the financial intermediary.[11] Consequently the effect of legal and institutional development can have implications along any number of dimensions.

We incorporate the effect of legal and institutional development by inclusion of the

---

[9] One may think of equity market development and its measures. Due to difficulties in distinguishing between market bubbles and true market development, we rely upon this traditional measure.

[10] The data are updated to 2004 and cover more countries (163 countries) than what can be found in Chinn and Ito (2006). The updated data are available at http://www.ssc.wisc.edu/~mchinn/.

[11] For the analysis of legal development on financial development, see Beck and Levine (2004) and Johnson, et al. (2002) among others.

variable *LEGAL*, calculated as the first principal component of law and order (*LAO*), corruption

(*CORRUPT*), and bureaucracy quality (*BQ*).[12] The data series are available for the period of 1984

through 2004, but are included in the regression as the period-average.[13]

3.2 Estimating the Basic Model

The sample for our analysis covers both industrial and developing countries. The underlying

database has annual data for 19 industrial and 69 developing countries covering the period

1971-2004. We examine three variables – the current account balance, and its constituents, national

saving, and investment, all expressed as a ratio to GDP.

One potential problem with developing country data is the possibility of significant

measurement error in annual data. To mitigate these concerns, and to focus our interest in

medium-term rather than short-term variations in current accounts, we construct a panel that

contains non-overlapping 5-year averages of the data for each country.[14] Furthermore, all the

variables, except for net foreign assets to GDP, are converted into the deviations from their

GDP-weighted world mean prior to the calculation of five year averages. The use of demeaned

series controls for rest-of-world effects. In other words, a country's current account balance is

determined by developments at home as well as abroad.

Because the economic environment may affect the way in which financial development

might affect saving and investment we include interaction terms involving these variables.

Interactions between the financial development and legal variables (*PCGDP* times *LEGAL*),

---

[12] Higher values indicate better conditions. The choice of these variables is motivated by the literature on the finance
and growth, as well as the wide coverage afforded by their use.
[13] In other words, the data on legal/institutional development are cross-sectional in nature, *i.e.*, they are time-invariant.
This is primarily due to data availability. The relative shortness of the time series of the ICRG variables makes it
difficult to include these variables as panel data.
[14] The 2001-04 period has been compressed into one observation, and so represents only 4 years instead of the standard
5.

interactions between the financial development and financial openness variables (*PCGDP* times

KAOPEN), and interactions between legal development and financial openness (*LEGAL* times

KAOPEN). The financial and legal interaction effect is motivated by the conjecture that deepening

financial markets might lead to higher saving rates, but the effect might be magnified under

conditions of better developed legal institutions. Alternatively, if greater financial deepening leads

to a lower saving rate or a lower investment rate, that effect could be mitigated when financial

markets are equipped with highly developed legal systems. A similar argument can be applied to the

effect of financial openness on current account balances.

We begin our investigation with a basic specification that excludes institutional variables.

The estimation results are reported in Table 1.[15] One interesting result shown in the table is the

significantly positive relationship between current account and government budget balances found

for the industrialized countries group.[16] This result differs from the results obtained in Chinn and

Prasad (2003), who examined a shorter sample from 1971 to 1995. A one percentage point increase

in the budget balance would lead to a 0.16 percentage point increase in the current account balance

for industrialized countries and 0.24 for less developed countries except for African countries.

While significant, this is substantially less than the estimate obtained by Chinn and Prasad. We

attribute this result partly to the differing sample (the estimate is also lower in the 1971-1995

sample), but also to the difference in behavior of current account balances in recent years.

One more noteworthy aspect of Table 1 relates to the financial deepening variable. Only in

the industrial countries' current account regressions does it exhibit a negative coefficient, though

statistically insignificantly. With these results, one may not be able to conclude that more developed

---

[15] Since these results are sensitive to the inclusion of the African countries, we also report separate sets of results with and without the African countries included, for the developing country sample. We also report separate results for an emerging market group that differs somewhat from the developing country sample.

[16] For the remainder of the paper, statistical significance denotes a *p*-value less than 10%.

financial markets lead to decreased current account balances, as posited by the adherents of the

global saving glut thesis.[17]

As we discussed in a previous section, we also suspect that the omission of other factors

such as institutional infrastructure and legal systems may have induced omitted variable bias. As a

first step toward addressing this issue, we re-estimated the regressions including country and time

fixed effects and dropping those regressors that, by construction, have no time variation – terms of

trade volatility and the openness indicator. Once the fixed effects model is estimated, the null

hypothesis that country fixed effects are joint zero is rejected for all three models and subsamples at

conventional levels of significance.[18]

In this exercise, the most interesting result is the finding that the coefficient on the

government surplus rises to 0.38, and is significant at the 1% marginal significance level. From the

national saving and investment regressions (not reported), the positive impact of budget balances on

current account balances is detected only in industrial and emerging market countries, and comes

mainly from an improvement in the level of national saving.

3.3 The Implications of Institutional Development

Given that fixed effects are difficult to interpret in an economically meaningful way, we return

to the pooled OLS specification, but augment our basic model specification with variables aimed at

capturing institutional factors, namely the legal development variable (*LEGAL*), financial openness

---

[17] In the saving regressions (not reported), all the sample groups except for the industrial country group have significantly *positive* coefficients for the financial deepening variable. This issue will be examined more carefully in a later section.
[18] We also conducted the Hausman test for all regressions and subsamples to examine whether the distribution of the error terms can be systematically explained by country-specific characteristics. A series of tests indicate that the random effects specification is rejected in favor of the fixed effects for all sample groups except for the developed countries (IDC) and emerging market countries (EMG) groups among the current account regressions; for all except for the IDC group (marginally rejected) among the national saving regressions; and for the full sample and the less developed countries group (LDC) among the investment regressions.

(*KAOPEN*), and associated interaction terms (including those with *PCGDP*). Table 2 displays

results from panel OLS regressions with institutional variables. We obtain several notable results.

First, despite inclusion of institutional variables and their interactions, the significantly

positive relationship between current account and government budget balances is detected in almost

all sample groups like in Table 1 from the previous analysis. The point estimate on budget balances

is a statistically significant 0.15 for the industrialized countries group, about the same as in the

previous estimation, implying that the coefficient on the budget balance for the IDC group is robust

to inclusion of institutional variables (Note that a ±2 standard error confidence interval encompasses

values as high as 0.34). The estimated coefficients on budget balances remain close to what we

found in Table 1 the other sample groups.[19]

Using a smaller sample of 71 countries over the 1982-2003 period, Gruber and Kamin

(2005), find that the budget balance has a positive effect on the current account, with a magnitude of

0.09-0.14. Trade openness also exhibits a similar effect as in our estimates. Perhaps most

importantly, they also find that higher values of their governance indicator (the Kaufmann et al.

measure) induce a reduction in the current account balance.[20] These findings suggest that several of

the key effects we have detected are robust.

Second, different components of the institutional variable have different effects. We

re-estimate the same regressions using each of the components of the *LEGAL* variable --

CORRUPT, *BQ*, and *LAO* – in order to isolate which variable drives the results. The test results (not

---

[19] We retain variables with insignificant coefficient estimates in the models for the sake of compatibility with other subsample groups and with models with other dependent variables, national saving and investment (not reported for space concerns). We find that the main results are robust to their exclusion, and generally will strengthen the significance of marginally significant estimates.

[20] In their analysis, they include the change in growth rate, as well as dummy variables for financial (i.e., banking) crises. On the other hand, they omit measures of capital account openness, financial development as well as terms of trade variability. They also exclude interaction effects involving legal development, thus ruling out nonlinearities of this type.

reported) suggest that the inverse corruption index is found to enter the estimation most significantly among the three institutions variables, followed by law and order and the bureaucracy quality index in the order of significance. When the inverse-corruption index is used, the estimated coefficient on the budget balance for the industrial countries group becomes as high as 0.24. Also, the estimated coefficient on the inverse-corruption index is insignificantly negative for the IDC group and significantly negative for the LDC and ex-Africa LCD groups, suggesting that countries with lower degrees of corruption may experience capital inflows (see e.g., Wei, 2000).[21]

Third, financial development has different, and nonlinear, effects on saving and investment. Since the financial development variable (*PCGDP*) is interacted with other institutional variables (*LEGAL* and *KAOPEN*), however, we must be careful about interpretation of the effect of financial development. In Table 3, we examine the nonlinearities implicit in our estimates from Table 2. Each of the sub-tables displays the implied response coefficients for differing levels of financial development and capital account openness. Table 3 shows the total effect of a 10% point increase in the relative *PCGDP* conditional on the levels of *LEGAL* and *KAOPEN* (the latter as of the 1996-2004 period) – whether their levels are low 10 percentile, mean, or high 10 percentile in each subsample, IDC, LDC, and EMG (Panels A, B, and C, respectively).[22]

Panel D of Table 3 categorizes emerging market countries in East Asia depending on the

---

[21] We also tested the models using the time varying institutional variables (i.e., five-year averages of *LEGAL* and other component variables instead of the cross-sectional variables). Although we find qualitatively similar results, we also find less significant results for the estimates on the legal variables and their interactions. This finding is not surprising considering that these institutional variables vary much less widely over time than across the countries. We also tested using the five-year averages of the Economic Freedom of the World index (Gwartney and Lawson, 2006. This is a composite index composed of five subcategories for the size of government; legal structure and intellectual property rights protection; sound monetary management; freer trade; and domestic regulations on credit, labor, and business. We found relatively significant results compared to those with the five-year averages of the *LEGAL* variable. However, it appears that the results are rather driven by components of the index that are not directly related to legal or institutional development.

[22] Between the 1991-95 and 2001-04 time periods, the (five-year average of *relative*) *PCGDP* level – the level of financial deepening above or below the weighted world average – increased by 20.6 percentage points for industrialized countries, 3.7 percentage points for less developed countries, 8.2 percentage points for Asian emerging market countries, and stunning 32.4 percentage points for China.

level of legal development and financial openness. The matrix shows that only Hong Kong and Singapore are categorized as countries with highest tenth percentile legal development and highest tenth percentile financial openness, while many Asian emerging market countries are categorized in the groups with the middle or lower level of legal development and financial openness, and hence likely to exhibit close to zero responsiveness of the current account.[23] Figure 3 reports the total effects of a 10 percentage point increase in *PCGDP* on current account, national savings, and investment for Asian emerging market countries, using specific values for each country's legal development and financial openness measures.[24,25] The chart indicates that Hong Kong and Singapore are the only countries for which financial development will cause a negative impact on national savings. Other countries will experience an *increase* in the ratio of national savings to GDP if financial markets develop further. Interestingly, for all the countries, financial development leads to expansion of investment, presumably because of improved credit conditions and financial intermediation. Furthermore, in terms of the effect on net saving, only Hong Kong and Singapore will experience a substantial deterioration in net savings as a result of further financial deepening because the magnitude of the effect on investment exceeds that on national savings. In the case of Singapore, the current account deteriorates by almost a percentage point in response to a ten

---

[23] It must be noted that most of these Asian emerging market countries comprise top 15 foreign reserves holding countries as of 2004.

[24] For the effects on national saving and investment, we use the estimation results from the regressions that are run using the same set of regressors. To conserve space, we do not report the results. They are available from the authors upon request.

[25] The estimated effects on the national saving and investment regressions do not strictly add up to that on the current account regressions. At least two reasons can be identified for this outcome. First, while the current account regressions account for the covariance of national savings and investment, simply adding two coefficients does not. That is, if some change in the level of financial development (conditional on financial openness and institutional development) affects national saving and investment independently, as long as the changes in national saving and investment do not affect each other, the total effect would be the same as that on current account balances. However, if national saving and investment are highly correlated, as has been found in many studies such as Feldstein and Horioka (1980) and Frankel et al. (1987), simply adding two coefficients does not yield the coefficient in the current account regression. Second, due to differing data conventions (Balance of Payments accounting versus national income accounting definition), the flows may not add up exactly.

percentage point increase in the private credit to GDP ratio. The effect in Korea, Malaysia and Thailand is much more muted, while the China effect is essentially zero.

The Chinese case merits some discussion. China experienced a remarkable 32.4 percentage point increase in private credit creation (net of change in the world weighted average). This financial development *alone* implied a national savings increase of 1.7 percentage points, but also an investment increase of 2.4 percentage points, suggesting a negative effect of financial development on net saving; the directly estimated zero net effect on the current account reflects the uncertainty surrounding these point estimates.

In sum, these results present evidence against part of the argument that emerging market countries, especially those in East Asia, will experience lower rates of saving once these countries achieve higher levels of financial development and better developed legal infrastructure. More open financial markets do not appear to have any impact on current account balances for this group of countries, either. If anything, arguments based upon this thesis have inappropriately extended a characterization applicable to industrialized countries to less developed countries.

Figure 4 reports how well our models predict current account balances in key economies. The actual current account series for these countries fall in the 95 confidence intervals, though the U.S. seems to be falling out of the interval. However, Figure 5, that shows out-of-sample predictions for the 1995-2000 and 2001-04 periods using the estimated coefficients from the regressions – with and without institutional variables – implemented over the 1971-95 time periods, illustrates that recent development in current imbalances were somewhat unexpected for the U.S. and Asian countries. Figure 6 shows prediction errors for the 2000-04 period from the estimations with and without institutional variables. The extent of over-prediction and under-prediction is large for the U.S. and China or ex-China Asian emerging countries, respectively.

Last, let us examine what has contributed to the unexpected changes in current account balances for the U.S. and emerging East Asia. The framework we rely upon allows us to examine the determinants of current account balances from the perspective of saving-investment balances. Figure 7-1 shows the out-of-sample predictions for U.S. national saving and investment using the estimation model with the institutional variables, and Figure 7-2 shows those for emerging East Asia excluding China. The figures for U.S. national saving and investment show that while the U.S. current account deficit is driven by more-than-expected performance in investment in the 1996-2000 period, in contrast the deficit during the 2001-04 period is driven by a "saving drought," rather than "investment boom." Interestingly, however, the under-prediction of Asian emerging market group ex-China current account balances is a result of the collapse of investment in the aftermath of the Asian crisis.[26,27] These observations are consistent with the situation depicted in Figure 2. In sum, we have shown that, from the perspective of the data up to 1995, the larger-than-predicted current account balance East Asia is running is more consistent with an unexpected fall in investment than with the "excess saving" in the region while the current account imbalance for the U.S. is more consistent with a saving drought than with an investment boom.

3.4 Robustness Checks

In our framework, simultaneity is of concern. In particular, government budget balances could involve bi-directional causality with the dependent variables. Furthermore, the budget balance

---

[26] The resulting conclusion that East Asia is undergoing an investment drought is consistent with the findings of Higgins (2005).

[27] When the same exercise is conducted for China, we find (not reported) that, since the 1991-95 period, the country has run much better current account balances than the model predicts, and that the under-prediction of the country's current balances is driven by excess saving. More specifically, both national saving and investment are larger than model predictions, with the extent of the former larger than the latter. Despite these findings, Although we find evidence of excess saving for China, we are unsure of the reliability of the estimates the uncertainty surrounding the country's saving data. For example, GDP was revised upward by 16.8% upward at the beginning of 2006.

variable and other right-hand-side variables may be subject to business cycles effects despite our use of time-averaged data.

Here, we examine the robustness of the estimated coefficient on the budget balance in several ways. First, we implement two stage least squares (2SLS) estimation, instrumenting the budget balance variable with several candidate variables. The instruments we try include a dummy for the left-wing government (*LEFT*); political constraint (democracy) index (*POLCONV*); military spending as a ratio to GDP (*MILEXP*); yearly changes in unemployment rates (*D_U*); and regional dummies.[28]

The estimation results are shown in Table 4, in which we only show estimated coefficients on budget balances for different model specifications and different dependent variables. Rows (1) and (2) show the results from the 2SLS estimation with and without institutional variables. When compared to the results in Table 2, we can see that, for industrialized countries, the estimated coefficients are consistently significant and their magnitudes are higher than those in the previous analysis.[29]

Second, we re-estimate with data sampled at an annual frequency, but use HP-detrended

---

[28] The choice of these instruments is based on past findings in the literature on the determinants of budget balances such as Roubini (1991), Roubini and Sachs (1989a, b), Persson and Tabellini (2001), and Braconier and Holden (2004). The military spending ratio is not included as an instrument in the regressions for industrial countries because it turned out to be insignificant in the first stage regression. The interaction between the left-wing government dummy and the change the unemployment rate is included in the IDC regressions to capture the left-wing government's reaction to change in the unemployment rate. In the LDC and EMG regressions, on the other hand, while the military spending variable is included, neither the unemployment rate change variable nor its interaction with the left-wing government dummy is included due to their statistical insignificance. The definitions and sources of the instruments can be found in Data Appendix. In addition to the variables mentioned in the text, we also tested the dummy for countries with plural political systems; government fragmentation (both from DPI 2004); political constraint, or democracy, index (from Henisz, 2000); and the standard deviation of tax revenues (following Talvi and Vegh, 2005). These variables turned out to be insignificant, and were thereby not included as instruments. We also conduct routine statistical tests on the relevance of instruments such as Anderson's (1984) canonical correlations and Cragg-Donald (1993) weak identification tests as well as those on over-identification of instruments using Sargan (1958) J statistic (for the 2SLS with heteroskedasticity standard errors).

[29] For the 2SLS regressions with statistically significant coefficients on budget balances, both the Anderson canonical correlation statistic and the Cragg-Donald statistic significantly reject the null hypothesis of under-identification of the instruments. Furthermore, the Sargan J test fails to reject the null hypothesis of the orthogonality conditions. Other results of the first stage regressions are available from the authors upon request.

series for the variables that exhibit business cycles variation – namely, the budget balance, net foreign asset, relative income, output growth, and financial deepening (*PCGDP*). While sampling five-year period averages should mitigate the effect of business cycles, that method may not be sufficient to completely remove business cycle effects. We apply pooled OLS and the fixed effects specification to obtain the results displayed in rows (3) and (4) of Table 4, respectively. In order to account for the possibility of serial correlation, we also estimate the model using feasible GLS. Those results, without and with institutional variables and interactions, are reported in rows (5) and (6), respectively.

The magnitude and statistical significance of the estimated coefficients across different subsamples and the three sets of regressions are quite consistent with what we have found in the previous subsections. The congruence with previous results is more evident for the industrial country group. A one percent point increase in the budget balance leads to between a 10 and 49% point increase in the current account balances, and between a 17 and 81% point increase in national saving. With these results, we can safely conclude that an increase in the government budget balance does improve the current account balance in industrialized countries, and that effect is mainly achieved through an improvement in national saving.[30]

4. Concluding remarks

In this paper we have investigated the medium-term determinants of the current account using a model that controls for institutional factors such as financial openness and legal development, in order to inform the recent debate over the source of and solution to the "global

---

[30] The results of other variables of our focus, namely financial deepening, financial opening, institutional development, and these interactions, turned out to be qualitatively consistent, but more statistically significant compared to those in previous analyses. For IDC countries particularly, financial deepening and financial openness appear to contribute negatively to current account balances and national savings.

saving glut" that has thus far lacked empirical content. We focused our study on the behavior of current accounts for the United States and emerging market countries in East Asia.

We find that in an industrial country, a one percentage point increase in the budget balance-GDP ratio raises the current account balance by 0.15-16 percentage point. While smaller than the coefficient implied by some macro models, the standard errors on the point estimate are sufficiently large so that one cannot rule out a coefficient as high as 0.34 at conventional significance levels. Alternative specifications suggest that a one percent point increase in the budget balance should lead to between a 0.10 and 0.49 percentage point increase in the ratio of the current account balance to GDP ratio. We also found evidence for a similar relationship for non-IDC countries. These findings are robust to inclusion of institutional variables, although incorporating financial factors seems to matter more (in a statistical sense) for industrialized countries than for less developed countries. Furthermore, we found evidence that the oft-cited effects of financial and legal development are only applicable to industrial countries. Consequently, policy recommendations made by the adherents of the global saving glut view have only tenuous empirical basis insofar as they relate to East Asia.

Finally, we have determined that saving *per se* is not excessive among the East Asian emerging market countries. Rather, these countries have experienced a shortfall in investment. The United States, on the other hand, is experiencing saving drought, driven in part by public sector dissaving.

Data Appendix

The data used in this paper were drawn from a number of different sources. We provide below a listing of the mnemonics for the variables used in the analysis, descriptions of these variables and the source(s) from which the primary data for constructing these variables were taken. A listing of the countries in the final sample, along with the country groupings used in the analysis, is provided in the working paper version of this paper. For most countries, data were available from 1971 through 2004.

Mnemonic	Source*	Variable description
CAGDP	WDI	Current account to GDP ratio
NSGDP	WDI	National saving to GDP ratio
KFGDP	WDI	Capital formation to GDP ratio
BUSGDP	WDI, IFS	General government budget balance, ratio to GDP
NFA	LM	Stock of net foreign assets, ratio to GDP
RELY	WDI	Relative per capita income, adjusted by PPP exchange rates, measured relative to the U.S., range (0 to 1)
YOUNG	WDI	Youth dependency ratio (relative to mean across all countries), Population under 15 / Population between 15 and 65
OLD	WDI	Old dependency ratio (relative to mean across all countries), Population over 65 / Population between 15 and 65
YGRAVG	WDI	Average real GDP growth
TOTSD	WDI	Standard deviation of terms of trade
OPEN	WDI	Openness indicator: ratio of exports plus imports of goods and nonfactor services to GDP
PCGDP	BDL	Banking development, ratio of private credit to GDP
KAOPEN**	CI	Capital account openness
BQ	ICRG	Quality of Bureaucracy
LAO	ICRG	Law and order
CORRUPT	ICRG	Corruption index
LEGAL**	Authors' calculations	General level of legal development, first principal component of BQ, LAO, and CORRUPT.
LEFT	DPI2004	Dummy for left-wing government
PLURAL	DPI2004	Dummy for countries with plural political systems
MILEXP	SIPRI	Defense spending (as a ratio to GDP)
POLCONV	Henisz	Political Constraint (democracy) Index
POLITY	Polity IV	Polity (democracy) score
U	WDI	Unemployment rate

* These are mnemonics for the sources used to construct the corresponding. BDL: Beck, Demirgüc-Kunt, and Levine (2001, updated in following years); CI: Chinn and Ito (2006); DPI2004: Database of Political Institutions, Beck et al. (2001 and updated); GM: Gian Maria Milesi-Ferretti (1998); Henisz: Henisz (2000); ICRG: *International Country Risk Guide*; IFS: IMF's *International Financial Statistics*; IMF: Other IMF databases; LM: Lane and Milesi-Ferretti (2006); Polity IV: Polity IV project (Marshall and Jaggers, 2002, updated in 2004); SIPRI: Stockholm International Peace Research Institute (personal correspondence), and WDI: *World Development Indicators* (2006).
** In the original series, *KAOPEN* and *LEGAL* series range between negative and positive values since they are the first principal components. However, in order to avoid the complexity of interpreting the estimated coefficients, these variables are adjusted such that the minimum value is zero, i.e., they range between zero and some positive value.

References

Anderson, T.W. 1984. *Introduction to Multivariate Statistical Analysis*. New York: Wiley.

Beck, T., Clarke, G., and Groff, A., Keefer, P., and Walsh, P. 2001. "New Tools in Comparative Political Economy: The Database of Political Institutions" *The World Bank Economic Review,* Vol. 15, No. 1 p.165-176.

Beck, T., Levine, R. 2004. "Legal Institutions and Financial Development," in: Claude Menard and Shirley M. (Eds.), Handbook of New Institutional Economics. Kluwer Dordrecht, The Netherlands.

Beck, T., Demirgüc-Kunt, A., and Levine, R. 2001. "A new database on financial development and structure" in Demirgüc-Kunt, A., and Levine, R. (Eds.) *Financial Structure and Economic Growth: A Cross-Country Comparison of Banks, Markets, and Development,* Cambridge, MA: MIT Press.

Bernanke, B. 2005. "The Global Saving Glut and the U.S. Current Account," Remarks at the Sandridge Lecture, Virginia Association of Economics, Richmond, VA, March 10.

Braconier, H. and Holden, S. 2004. "Fiscal Policy in the OECD: Measurement and Cyclical Adjustment," mimeo.

Chinn, M. and Eswar P. 2003. "Medium-Term Determinants of Current Accounts in Industrial and Developing Countries: An Empirical Exploration," *Journal of International Economics* 59(1) (January): 47-76. Also *NBER Working Paper #7581* (March 2000).

Chinn, M. and Ito, H. 2006. "What Matters for Financial Development? Capital Controls, Institutions, and Interactions," *Journal of Development Economics,* Volume 81, Issue 1, Pages 163-192 (October). The long version is available as NBER Working Paper #11370.

Clarida, R. 2005a. "Japan, China, and the U.S. Current account deficit," *CATO Journal*, Vol. 25, No. 1 (Winter)

Clarida, R. 2005b. "Some Thoughts on 'The Sustainability and Adjustment of Global Current Account Imbalances,'" speech given at the Council on Foreign Relations, March 28.

Cragg, N.J., and S.G. Donald. 1993. "Testing Identifiability and Specification in Instrumental Variables models. *Econometric Theory* 9: 222–240.

Dooley, M., Folkerts-Landau, D. and Garber, P. 2003. "An Essay on the Revived Bretton Woods System." NBER Working Paper, No. 9971 (September).

_____ , forthcoming. "Direct Investment, Rising Real Wages and the Absorption of Excess Labor in the Periphery," In Richard Clarida (editor), *G-7 Current Account Imbalances: Sustainability and Adjustment* (Chicago University Press).

Economist, The. 2005. "A Survey of the World Economy: The Great Thrift Shift," *The Economist*, Sept 24, 2005.

Edwards, S. 2005. "Is the U.S. Current Account Deficit Sustainable? And if not, How Costly Is Adjustment Likely to be?" NBER Working Paper #11541 (August).

_____ . 1996. "Why Are Latin America's Saving Rates So Low: An International Comparative Analysis," *Journal of Development Economics,* Vol. 51.

Erceg, C., Guerrieri, L., Gust, C. 2005. "Expansionary Fiscal Shocks and the Trade Deficit," *International Finance Discussion Paper* No. 825 (Board of Governors of the Federal Reserve System: Washington, DC, January).

Faruqee, H., Laxton, D., Muir, D. and Pesenti, P. 2005. "Smooth landing or crash? Model-based scenarios of global current account rebalancing," Revised draft of the paper presented at the NBER conference on G-7 Current Account Imbalances: Sustainability and Adjustment, Newport, June 1-2.

Feldstein, M., Horioka, C. 1980. Domestic Saving and International Capital Flows. Economic Journal 90, p. 314 – 329.

Ferguson, R.W. 2004. "Global Imbalances," Speech at European Institute Roundtable on Financial and Monetary Affairs, Washington, D.C., April 23.

Frankel, J., Dooley, M., Mathieson, D. 1987. International Capital Mobility in Developing Countries vs. Industrialized Countries: What Do Saving-Investment Correlations Tell Us? IMF Staff Papers, 34, no. 3 (September), p. 503 – 530.

Greenspan, A. 2005a. "Current Account," at Advancing Enterprise 2005 Conference, London, England, February 4.

_____ . A. 2005b. "Mortgage Banking," at American Bankers Association Annual Convention, Palm Desert, California, September 26.

Gruber, J. and Kamin, S.B. 2005. "Explaining the Global Pattern of Current Account Imbalances," mimeo (Washington, D.C.: Board of Governors of the Federal Reserve System, September).

Gwartney, J. and Lawson, R. 2006. *Economic Freedom of the World: 2006 Annual Report.* Vancouver: The Fraser Institute. Data retrieved from www.freetheworld.com.

Henisz, W., 2000. "The Institutional Environment for Economic Growth," *Economics and Politics,* 12(1): p. 1 – 31.

Higgins, M. 2005. "The Global Investment Slump and the U.S. Current Account Deficit," mimeo (NY: Federal Reserve Bank of New York, August).

Hubbard, R. G. 2005. "A Paradox of Interest," *Wall Street Journal*, June 23.

Johnson, S., McMillan, J., and Woodruff, C. 2002. "Property rights and finance." *American Economic Review* 92, 1335 – 56.

Kaufmann, D., Kraay, A. and Mastruzzi, M. 2003. "Governance matters III: Governance indicators for 1996-2002," *mimeo* (Washington, DC: World Bank, June).

Lane, P., Milesi-Ferretti, G. M. 2006. The External Wealth of Nations Mark II: Revised and Extended Estimates of Foreign Assets and Liabilities, 1970 - 2004. IMF Working Paper, WP/06/69.

Lanman, S., Torres, C., 2007, "Bernanke Warns of Possible 'Crisis' From Budget Gap," Bloomberg.com (January 18).

Levine, R., Loayza, N., Beck, T. 2000. "Financial Intermediation and Growth: Causality and Causes." *Journal of Monetary Economics* 46: 31-77.

Mann, C. and Plück, K., forthcoming. "The U.S. Trade Deficit: A Disaggregate Perspective," in R. Clarida (ed.) *G-7 Current Account Imbalances: Sustainability and Adjustment* (U. Chicago Press for NBER).

Marshall, M. G. and Jaggers, K. 2002. "Polity IV Project: Political Regime Characteristics and Transitions, 1800 – 2002 – Dataset Users' Manual," University of Maryland.

Masson, P., Bayoumi T. and Samiei, H.1998. "International Evidence on the Determinants of Private Saving", *The World Bank Economic Review,* Vol. 12, No. 3: p. 483 – 501.

Milesi-Ferretti, G.M., 1998. "Why Capital Controls? Theory and Evidence," In: Eijffinger, S., Huizinga, H. (Eds.), *Positive political Economy: Theory and Evidence*. Cambridge, MA: Cambridge University Press.

Mussa, M. 2004. "Exchange Rate Adjustments Needed to Reduce Global Payments Imbalance," in Bergstein, C.F. and J. Williamson (Eds.): *Dollar Adjustment: How Far? Against What?,* Institute for International Economics, Washington, D.C.: November.

Obstfeld, M. and Rogoff, K., 1996. *Foundations of International Macroeconomics,* Cambridge, MA: MIT Press.

Organization for Economic Cooperation and Development, 2005. *OECD Economic Outlook* No. 78 (December).

Persson, T. and Tabellini, G. 2001. "Political Institutions and Policy Outcomes: What are the Stylized Facts?" CESifo Working Paper Series No. 459 (April).

Prasad, E. and Wei, S.J. 2005. "The Chinese Approach to Capital Inflows: Patterns and Possible Explanations." *IMF Working Paper* No. 05/79 (April).

Roubini, N., 1991. "Economic and Political Determinants of Budget Deficits in Developing Countries." Journal of International Money and Finance, Vol. 10, S49-S72.

Roubini, N. and Sachs, J. D., 1989a. "Political and Economic Determinants of Budget Deficits in the Industrial Democracies." European Economic Review, Vol. 33, 903-938

Roubini, N. and Sachs, J. D. 1989b. "Government Spending and Budget Deficits in the Industrial Countries." Economic Policy, Vol. 8, 99-132.

Sargan, J. 1958. "The Estimation of Economic Relationships Using Instrumental Variables," *Econometrica* 26: 393 – 415.

Talvi, E. and Vegh, C., 2005. "Tax Base Variability and Procylicality of Fiscal Policy," *Journal of Development Economics,* forthcoming.

Wei, S.J. 2000. "Local Corruption and Global Capital Flows," *Brookings Papers on Economic Activity*, No.2: p.303-354.

Table 1: <u>Current account</u> regression *without* institutions variable

Dependent variable: 5-yr average of current account (% of GDP): 1971 – 2004					
	(1)	(2)	(3)	(4)	(5)
	Full	IDC	LDC	LDC w/o Africa	EMG
Gov't budget balance	0.15	0.16	0.15	0.242	0.219
	[0.068]**	[0.086]*	[0.081]*	[0.092]***	[0.076]***
Lane's NFA (initial)	0.049	0.063	0.047	0.05	0.043
	[0.005]***	[0.011]***	[0.005]***	[0.006]***	[0.009]***
Relative income	0.027	0.059	0.032	0.09	0.1
	[0.019]	[0.025]**	[0.085]	[0.090]	[0.082]
Relative income squared	0.016	-0.212	0.008	0.118	0.073
	[0.029]	[0.080]***	[0.096]	[0.105]	[0.092]
Rel. dependency ratio (young)	-0.06	0.021	-0.071	-0.075	-0.013
	[0.020]***	[0.073]	[0.025]***	[0.025]***	[0.022]
Rel. dependency ratio (old)	-0.205	0.001	-0.313	-0.241	-0.347
	[0.061]***	[0.081]	[0.093]***	[0.098]**	[0.106]***
Financial deepening (PCGDP)	0.001	-0.006	0.005	0.013	0.003
	[0.008]	[0.010]	[0.013]	[0.014]	[0.013]
TOT volatility	-0.013	0.063	-0.017	-0.006	-0.016
	[0.019]	[0.058]	[0.020]	[0.018]	[0.019]
Avg. GDP growth	-0.151	-0.101	-0.161	-0.145	-0.187
	[0.141]	[0.207]	[0.155]	[0.117]	[0.115]
Trade openness	0.003	0.037	-0.003	-0.008	-0.005
	[0.009]	[0.011]***	[0.010]	[0.011]	[0.010]
Oil exporting countries	0.046	–	0.047	0.039	0.028
	[0.013]***	–	[0.013]***	[0.011]***	[0.013]**
Observations	502	132	370	235	210
Adjusted R-squared	0.42	0.50	0.39	0.53	0.49

Robust standard errors in brackets, * significant at 10%; ** significant at 5%; *** significant at 1%
The estimated coefficients for the time-fixed dummies and constant are not shown.

Table 2: <u>Current account</u> regression with legal development (*LEGAL*)

Dependent variable: 5-yr average of current account (% of GDP): 1971 – 2004					
	(1)	(2)	(3)	(4)	(5)
	Full	IDC	LDC	LDC w/o Africa	EMG
Gov't budget balance	0.159	0.154	0.168	0.251	0.23
	[0.065]**	[0.095]*	[0.079]**	[0.091]***	[0.075]***
Lane's NFA (initial)	0.049	0.069	0.047	0.051	0.041
	[0.005]***	[0.011]***	[0.005]***	[0.006]***	[0.009]***
Relative income	0.062	0.058	0.115	0.16	0.216
	[0.028]**	[0.028]**	[0.096]	[0.106]	[0.103]**
Relative income squared	0.032	-0.097	0.057	0.157	0.166
	[0.038]	[0.120]	[0.102]	[0.121]	[0.111]
Rel. dependency ratio (young)	-0.061	-0.027	-0.076	-0.099	-0.044
	[0.018]***	[0.082]	[0.022]***	[0.030]***	[0.023]*
Rel. dependency ratio (old)	-0.2	0.099	-0.368	-0.331	-0.529
	[0.058]***	[0.098]	[0.096]***	[0.114]***	[0.127]***
Financial Develop. (PCGDP)	-0.008	0.01	-0.043	-0.038	-0.082
	[0.009]	[0.012]	[0.032]	[0.040]	[0.038]**
Legal development (LEGAL)	-0.003	0.002	-0.017	-0.02	-0.018
	[0.004]	[0.007]	[0.008]**	[0.009]**	[0.010]*
PCGDP x LEGAL	-0.003	-0.035	-0.021	-0.025	-0.037
	[0.004]	[0.015]**	[0.011]*	[0.012]**	[0.016]**
Financial open. (KAOPEN)	-0.001	-0.002	0.002	0.005	0.008
	[0.003]	[0.003]	[0.007]	[0.008]	[0.010]
KAOPEN x LEGAL	0.002	0.012	0.002	0.002	0.005
	[0.001]*	[0.003]***	[0.002]	[0.002]	[0.003]
KAOPEN x PCGDP	-0.003	0.002	0	0.002	-0.002
	[0.005]	[0.009]	[0.007]	[0.008]	[0.009]
TOT volatility	-0.013	0.1	-0.015	-0.002	-0.003
	[0.017]	[0.054]*	[0.018]	[0.019]	[0.022]
Avg. GDP growth	-0.123	-0.036	-0.09	-0.107	-0.132
	[0.087]	[0.243]	[0.096]	[0.124]	[0.118]
Trade openness	0.006	0.046	0.005	0	0.004
	[0.009]	[0.014]***	[0.013]	[0.014]	[0.014]
Oil exporting countries	0.041	–	0.04	0.035	0.025
	[0.013]***	–	[0.013]***	[0.012]***	[0.013]*
Observations	471	126	345	234	203
Adjusted R-squared	0.47	0.55	0.46	0.54	0.51

Robust standard errors in brackets, * significant at 10%; ** significant at 5%; *** significant at 1%
The estimated coefficients for the time-fixed dummies and constant are not shown.

Table 3: Total Effects on Current Account of a 10% increase in Financial Development
conditional on legal development and financial openness

A: Industrialized countries		KAOPEN [0, 4.38]		
		Low 10 percentile (3.55)	Mean (4.22)	High 10 percentile (4.38)
LEGAL [0, 6.51]	Low 10 percentile (4.37)	0.365	0.379	0.382
	Mean (5.69)	-0.095	-0.082	-0.079
	High 10 percentile (6.47)	-0.370	-0.357	-0.354

B: Less developed countries		KAOPEN [0, 4.38]		
		Low 10 percentile (0.66)	Mean (1.82)	High 10 percentile (4.08)
LEGAL [0, 6.51]	Low 10 percentile (1.15)	0.408	0.408	0.408
	Mean (2.48)	0.127	0.127	0.127
	High 10 percentile (3.89)	-0.167	-0.167	-0.167

C: Emerging market countries		KAOPEN [0, 4.38]		
		Low 10 percentile (0.66)	Mean (1.90)	High 10 percentile (3.96)
LEGAL [0, 6.51]	Low 10 percentile (1.66)	0.528	0.503	0.462
	Mean (2.96)	0.058	0.033	-0.008
	High 10 percentile (4.50)	-0.523	-0.548	-0.589

D: Matrix for Emerging Asia		KAOPEN		
		Low 10 percentile (0.66)	Mean (1.90)	High 10 percentile (3.96)
LEGAL	Low 10 percentile (1.66)	Bangladesh	Indonesia, Philippines, Sri Lanka	
	Mean (2.93)	China	India, Korea, Malaysia, Thailand, ex-China EA	
	High 10 percentile (4.50)			Hong Kong, Singapore

Table 4: Estimated coefficients on the government budget balance
on current account balance (% of GDP) in different model specifications

Model Specifications	IDC	LDC	EMG
(0) pooled OLS w/ inst. vars	**0.154**	**0.168**	**0.230**
(1) 2SLS – IV w/out inst. vars	**0.325**	-0.004	0.184
(2) 2SLS – IV w/ inst. vars	**0.448**	0.209[17%]	**0.378**
(3) HP – OLS w/ inst. vars	**0.095**	**0.103**	**0.178**
(4) HP – FE	**0.485**	**0.306**	**0.180**
(5) HP – GLS w/out inst. vars	**0.375**	**0.099**	**0.129**
(6) HP – GLS w/ inst. vars	**0.326**	**0.166**	**0.229**

NOTES: Bold figures denotes significant at the 10% level.

(1) "2SLS – IV w/out inst. vars" refers to the 2SLS model applied to the five-year panel data, instrumented with the instrumental variables of the dummy for the left-wing government (LEFT) from the World Bank's Database of Political Institutions (DPI 2004); political constraint (democracy) index (POLCONV) from Henisz (2000); military spending as a ratio to GDP (MILEXP) from the Stockholm International Peace Research Institute (SIPRI); yearly changes in unemployment rates (D_U); and regional dummies, but does not include "institutional variables" mentioned in the text. (2) "2SLS – IV w/ inst. vars" is a five-year panel model instrumented with the same IVs, but it includes the institutional variables. (3) "HP – OLS w/ inst. vars" refers to the OLS model applied to a set of RHS variables that include variables detrended with HP-filter. (4) "HP – FE" refers to the fixed effects model applied to a set of RHS variables that include variables annual HP-filtered data, but not institutional and interaction terms. (5) "HP – GLS w/out inst. vars" refers to the GLS model applied to a set of RHS variables that include HP-filtered variables, but no institutional variables and interaction terms. (6) "HP – GLS w/ inst. vars" refers to the GLS model applied to a set of RHS variables that include HP-filtered variables, institutional variables, and their interaction terms.

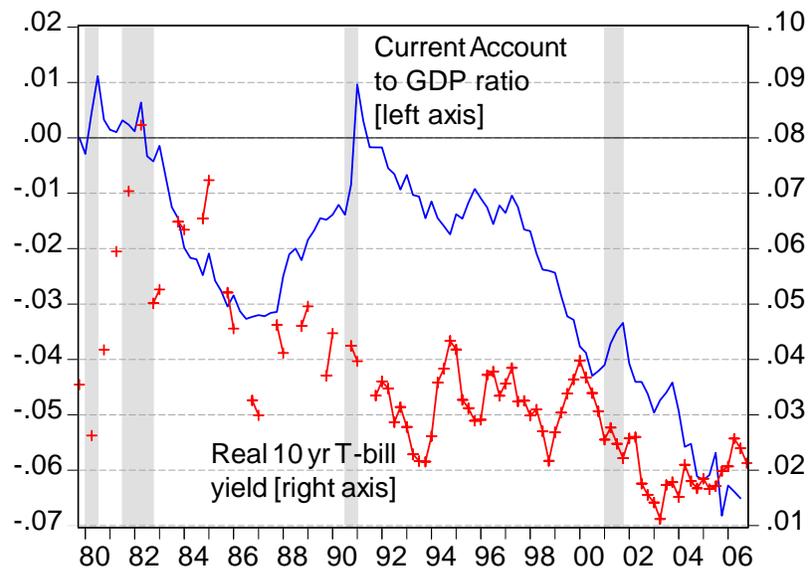**Figure 1: U.S. current account balance and real interest rate, 1979 – 2006**

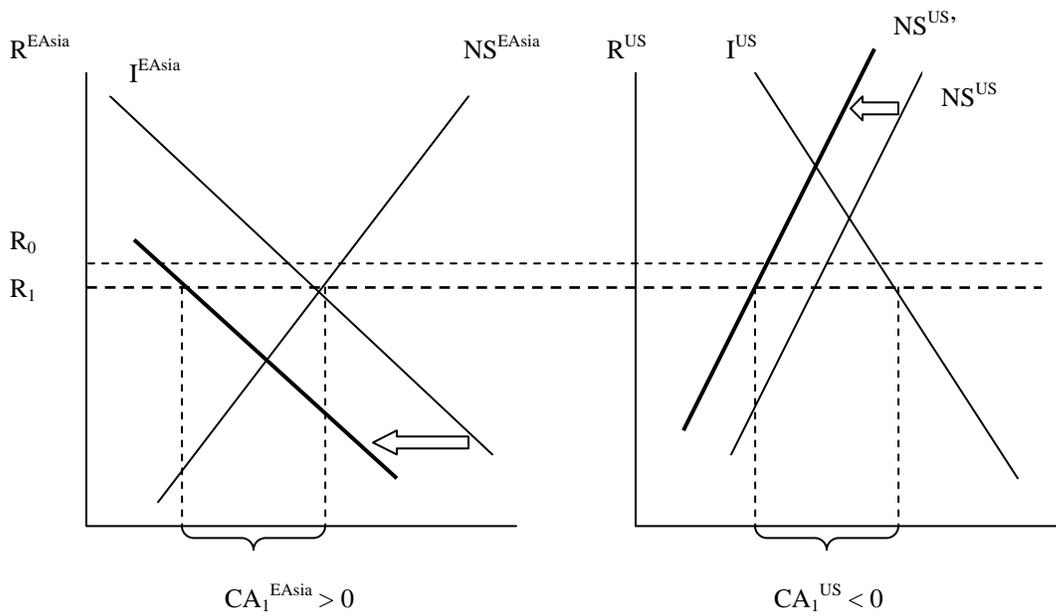**Figure 2: National Saving, Investment and Current Account Balances**

R^{EAsia} I^{EAsia} NS^{EAsia} R^{US} I^{US} $NS^{US,}$

NS^{US}

R_0
R_1

$CA_1^{EAsia} > 0$ $CA_1^{US} < 0$

**Figure 3: Effects of a 10% Change in Financial Development (*PCGDP*)
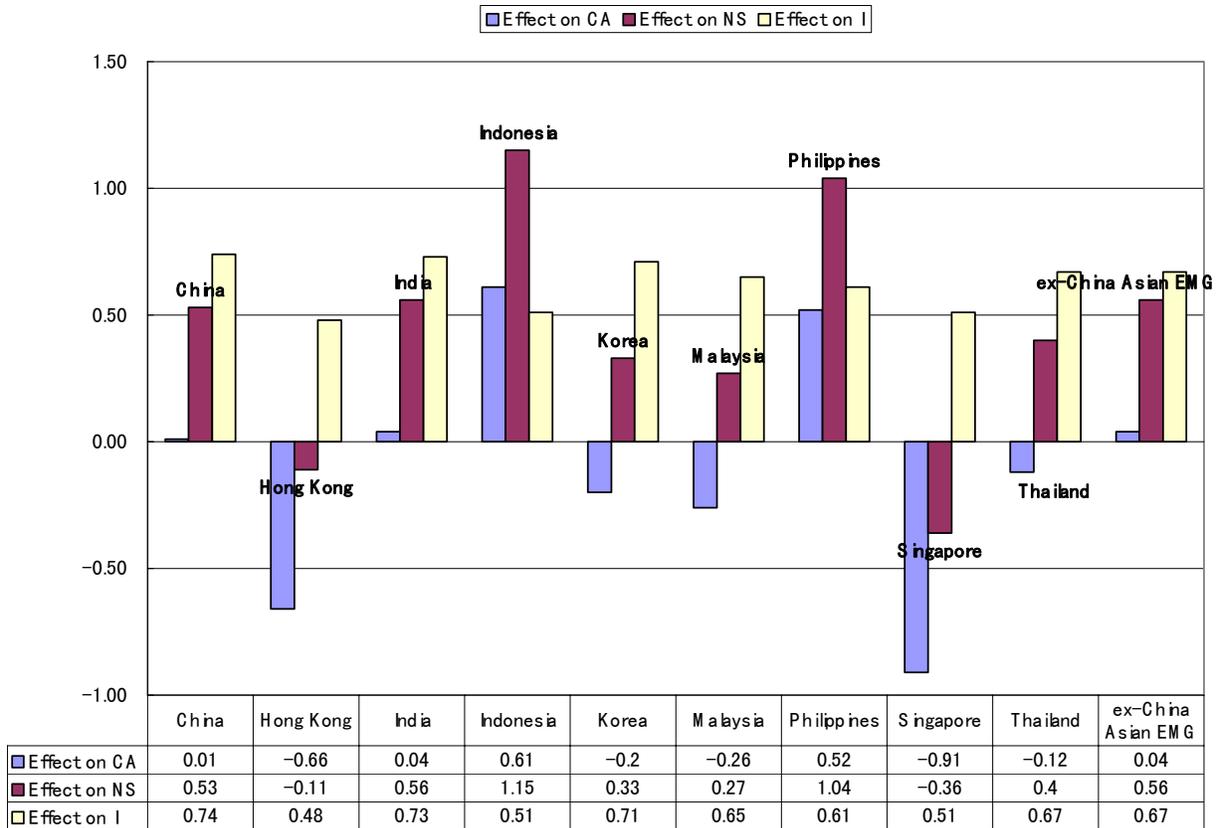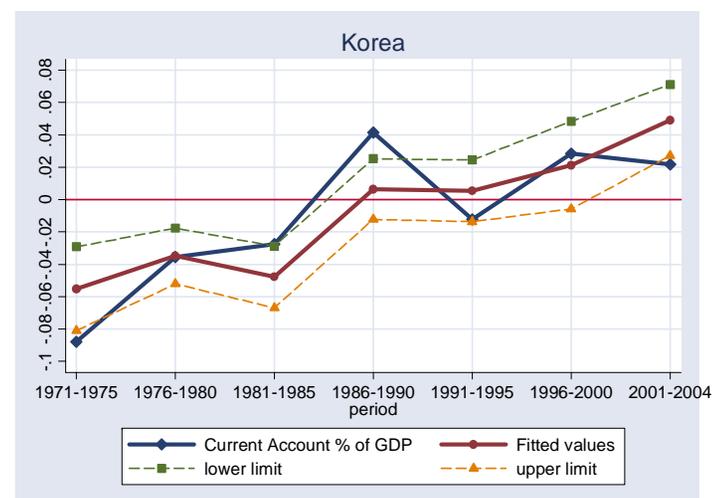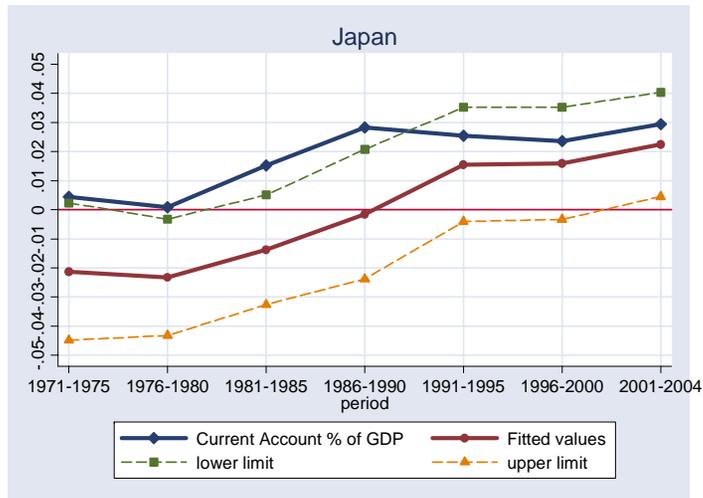on Current Accounts, Saving, and Investment in Emerging Asia**

☐ Effect on CA   ◼ Effect on NS   ☐ Effect on I

	China	Hong Kong	India	Indonesia	Korea	Malaysia	Philippines	Singapore	Thailand	ex-China Asian EMG
Effect on CA	0.01	−0.66	0.04	0.61	−0.2	−0.26	0.52	−0.91	−0.12	0.04
Effect on NS	0.53	−0.11	0.56	1.15	0.33	0.27	1.04	−0.36	0.4	0.56
Effect on I	0.74	0.48	0.73	0.51	0.71	0.65	0.61	0.51	0.67	0.67

31
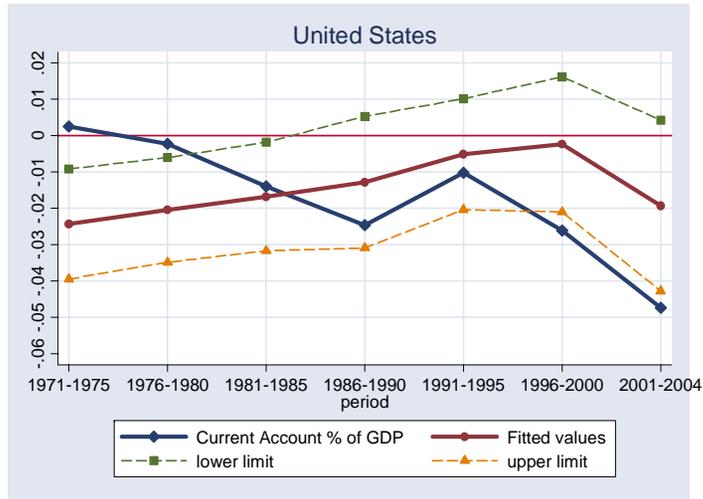
Figure 4: Implied Current Accounts
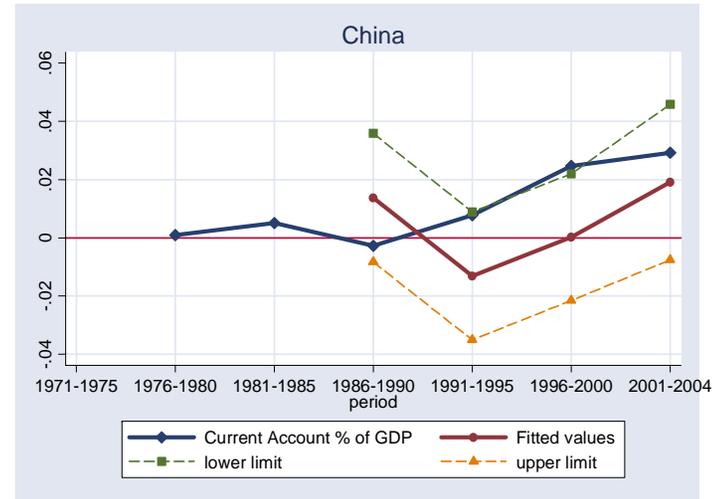
Figure 5: Out-of-sample Predictions of Current Accounts with and without Institutional Variables, Industrialized Countries
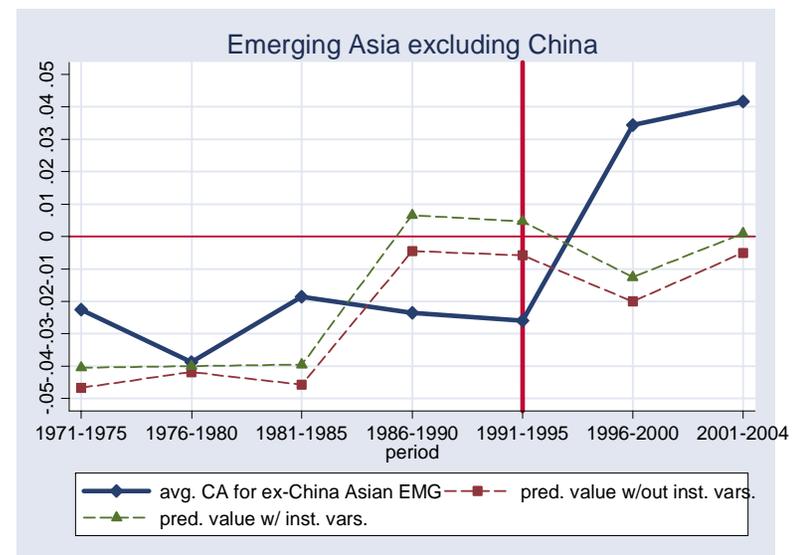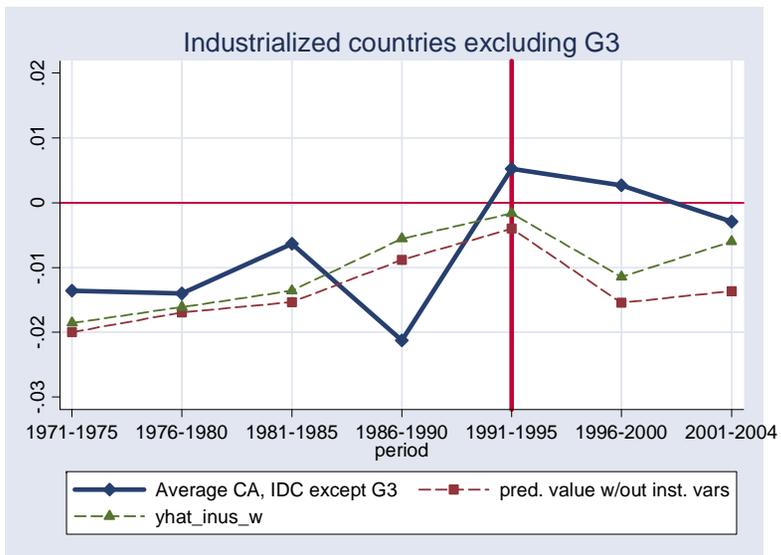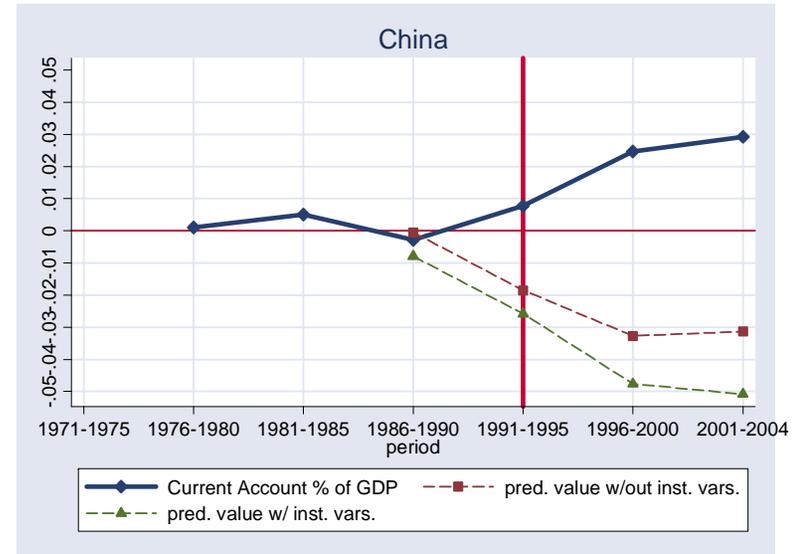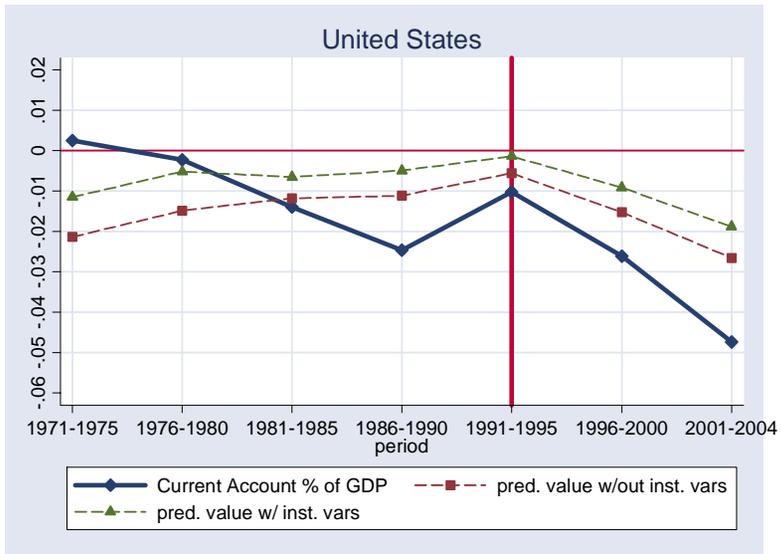
**Figure 6: Prediction Errors from the Estimations
with and without Institutional Variables for the 2001-04 Period (PPT)**

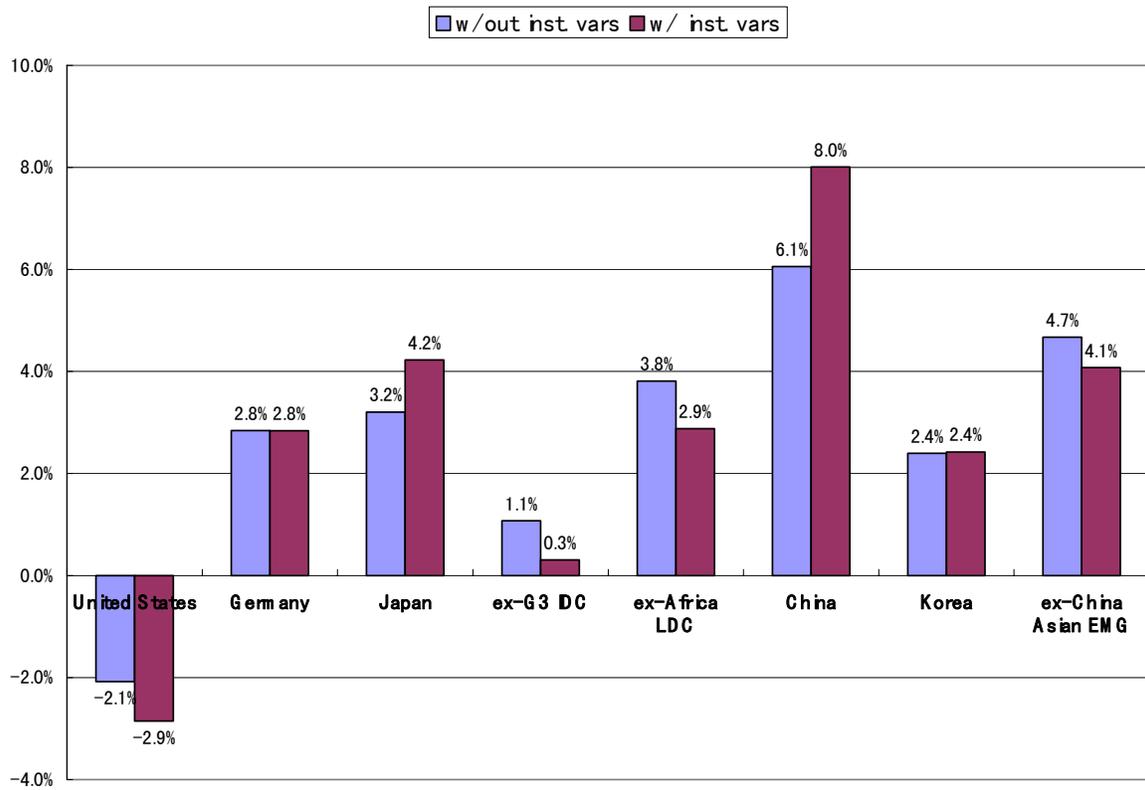# Figure 7-1: Out-of-sample predictions for U.S. national saving and investment

U.S. National Saving

Legend: Nat'l Saving % of GDP — Predicted Nat'l Saving

U.S. Investment
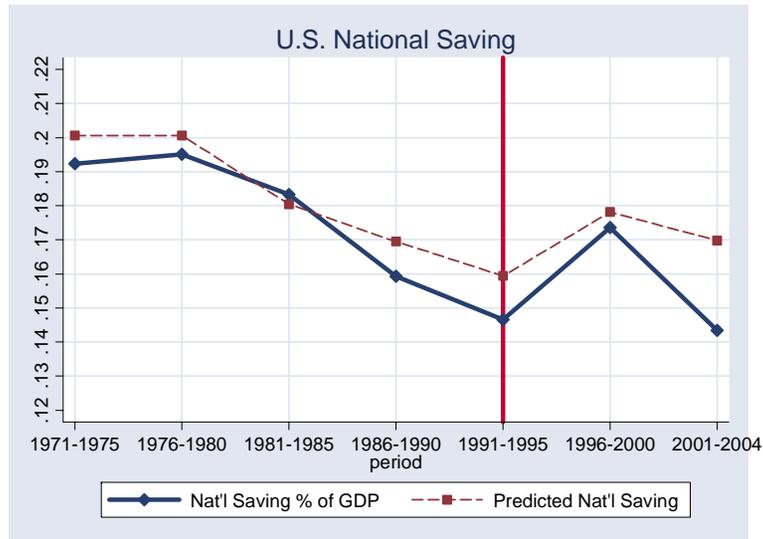
Legend: Investment % of GDP — Pred. Investment

Figure 7-2: Out-of-sample predictions for Emerging Asia's national saving and investment (excluding China)

Nat'l Saving of Emerging Asia excluding China

Legend: avg. Nat'l Saving for ex-China Asian EMG — Predicted Nat'l Saving

Investment of Emerging Asia excluding China

Legend: avg. Investment for ex-China Asian EMG — predicted Investment

35