

Some Reflections on Current Account Imbalances and the Management of Capital Flows

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1. Introduction

As the pre-crisis pattern of current account balances threatens to return, and capital flows to emerging markets rebound, attention has turned away from immediate crisis management and back toward the coordination of policies so as to support sustainable growth in the world economy. Some of the most salient issues relate to how developed economies and emerging market economies should respond to surges in capital inflows.

It might seem reasonable to take as given the global financial crisis and ensuing Great Recession, and look forward to thinking solely about the conditions that policymakers now face. I think that without considering the role of capital flows in the financial crisis, one cannot fully determine the appropriate course of action. In my view, it's important to highlight the interaction of domestic financial distortions *with* access to foreign capital as a source of macroeconomic instability.

2. Did Current Account/Capital Account Imbalances Cause the Crisis?

2.1 Potential Explanations for the Imbalances

In the years from 1998-2008, economists focused their attention on the causes and consequences of the expanding current account deficits and surpluses. The pattern of current account balances was interesting from an economic standpoint, in that it did not appear to conform to what would be predicted by standard economic theories. They were troubling from a policy standpoint in that they were unprecedentedly large by post-war standards.

Throughout the first decade after 2000, the United States ran enormous current account deficits. China, the rest of East Asia, and the oil exporting countries ran correspondingly large current account surpluses, as shown in Figure 1. In 2008-09, these current account balances drastically reversed, albeit incompletely, as a global financial crisis engulfed the world economy. The proximity of the two events naturally leads to the question whether the two phenomena are related, or causal in nature.

[Figure 1 about here]

The rise of global imbalances, defined as large current account balances, has been explained in a variety of ways. These explanations include (1) trends in saving and investment balances, (2) the intertemporal approach, (3) mercantilist behavior, (4) the global saving glut, and (5) distortions in financial markets. Note that the explanations are not mutually exclusive.

The saving-investment approach takes the perspective from the national saving identity which states that the current account is equal to the budget balance and the private saving-investment gap. This is a tautology, unless one imposes some structure and causality.

One particularly simple variant of this approach relies upon assuming that the shocks primarily hit the government sector. Then changes in the budget balance are quasi-exogenous, and the

current account consequently responds. The inspiration for this perspective is the mid-1980's experience with the Reagan era tax cuts and defense buildup. During that episode, the budget deficit and current account deficits both yawned to unprecedentedly large magnitudes, inspiring the term "the twin deficits".

Upon inspection, the simple interpretation of the twin deficits clearly does not hold, beyond the mid-1980s, and 2001-2004. Of course, other types of shocks perturb the economy, and once one allows for shocks to the other components of aggregate demand, or to the supply side, then no such positive correlation need hold at all times. However, that does not deny the validity of that view during the last decade.¹

A systematic approach involves modeling the current account by explicitly focusing on the determinants of private investment and saving, and adding those variables to the budget balance. Chinn and Ito (2007, 2008) a sample of developed and developing countries over the period 1971 to 2004, using non-overlapping 5 year averages of a the data. The regression analysis controls for a similar set of variables as used in Chinn and Prasad (2003). They find that government budget balances, initial net foreign asset positions and, for developing countries, indicators of financial deepening are positively correlated with current account balances. Among developing countries, they also find that higher terms of trade volatility is associated with larger current account surpluses (or smaller deficits). Greater macroeconomic uncertainty apparently increases domestic saving and also has a slightly negative impact on investment. The degree of openness to international trade appears to be weakly associated with larger current account deficits among developing countries.² Note that because they include average GDP growth and initial net foreign assets in the regressions, the saving-investment approach is consistent with some aspects of the intertemporal approach (discussed below).³

Their key finding is that 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 results that a one percent point increase in the budget balance leads to a 0.1 to 0.5 percentage point increase in the current account balance.⁴ For the United States, their analysis confirms the view that it is a saving drought – not investment boom – that is contributing to the enlargement of current account deficits, although there is some evidence of anomalous behavior in the 2001-04 period. For the East Asian countries, Chinn and Ito find some evidence that the current account balances are somewhat larger than predicted by their empirical models.

¹ See for instance Chinn (2005). A dissenting view is Truman (2005).

² They also find limited evidence to support the patterns of evolutions in current accounts predicted by the stages-of-development hypothesis. Other potentially important variables such as indicators of capital controls and average GDP growth, however, appear to bear little systematic relationship with current account balances.

³ Gruber and Kamin (2007) obtain similar results for a smaller panel of 61 countries spanning the 1982-2003 period. They find that including a crisis dummy for the East Asian countries statistically explains those countries' current account balances. However, their results do not shed light on the source of US deficits. Hence, while the stylized facts are relevant to the question at hand, they pertain to the period before the appearance of global imbalances.

⁴ Smaller estimates of the fiscal impact are reported by Bussiere (2005), Corsetti and Muller (2006), and Gruber and Kamin (2007).

The intertemporal approach is the mainstay of the formal approach to explaining current account imbalances. In this perspective, consumption today is to equal a share of the present discounted value of future expected net output, or net wealth. Hence, changes in consumption are due solely to changes in either the interest rate, or changes in expectations about future net output due to productivity shocks or reductions in investment and government spending.

The U.S. experience of the late 1990's can therefore be rationalized by an anticipation of a future productivity boom which induces a immediate increase in consumption, resulting in a current account deficit.⁵ In the context of America in the 2000's, to consume more now means to import more and export less. The deficits leading up to the financial crisis of 2008-09 are more difficult to fit into this approach. A large proportion of capital flowing to the United States takes place in the form of purchases of U.S. government securities – not purchases of American stocks or direct investment in its factories, as it did in the years leading up to 2000. Moreover, the heavy involvement of foreign central banks in purchasing U.S. assets suggests that the profit motive was not behind the ongoing flows to the United States.⁶

A formal test of the intertemporal approach, as applied to the recent US experience, was conducted by Engel and Rogers (2006). They model the current account as a function of the expected discounted present value of its future share of world GDP relative to its current share of world GDP (where the world is the advanced economies). The key difficulty in testing this approach is in modeling expected output growth; using a Markov-switching approach, they find that the U.S. is not keeping on a long-run sustainable path.⁷ ⁸However, using survey data on forecasted GDP growth in the G-7, their empirical model appears to explain the evolution of the U.S. current account remarkably well.

Another prominent view attributes the East Asian surpluses to explicitly mercantilist behavior. From this perspective, the developing countries of East Asia have followed an export led development strategy. That export led strategy resulted in rapid growth; however, starting in the mid-1990's, current account surpluses evolved into current account deficits, as investment boomed.

In the wake of the 1997 financial crisis, investment levels collapsed, while saving rates remained relatively high. Currencies depreciated sharply in the region; however, over time, East Asian central banks maintained their currencies at fairly weak levels. For some observers, this observation is sufficient to explain the relatively large and persistent current account surpluses in the region. One difficulty with this explanation is that the export led development path has been in place for decades; the explanation for the sharp break post-1997 is missing.

⁵ See Pakko (1999) for an early interpretation in this vein. Note that the empirical evidence for the theoretical model underpinning this argument is weak. See Nason and Rogers (2006).

⁶ There are numerous ways in which to account for intertemporal effects in current account dynamics. Chinn and Lee (2009) apply a structural VAR approach, which allows for transitory and permanent shocks to drive the current account and the real exchange rate. Using the same approach as in Lee and Chinn (2006), they examine the US, the euro area and Japan, and find that a large share of the 2004-07 US current account is inexplicable using their model.

⁷ Engel and Rogers use data over the 1790-2004 period for one of their sustainability tests. The survey-based tests rely upon a shorter sample, 1994-2004.

⁸ Choi, Mark and Sul (2008) allow for different rates of discount, and can replicate the pattern of imbalances in a two-country model.

Note that while the model explains one half of the current account imbalances, it does not explain the other side -- namely why it is that the United States, United Kingdom, and specific other developed countries ran substantial deficits. In a series of papers, Dooley, Folkerts-Landau, and Garber (2003; 2008) interpret 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. Their explanation argues that the government interventions are aimed at supporting exporting industries.

There are also problems with this thesis. Most notable 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? For a thorough critique, see Prasad and Wei (2005).

An alternative interpretation for the large scale reserve accumulation has been attributed to the self-insurance or precautionary demand. Foreign exchange reserves can reduce the probability of an output drop induced by capital flight or sudden stop. This self-insurance motivation rose substantially in the wake of the East Asian crises; this point was verified by Aizenman and Marion (2003).⁹ Aizenman and Lee (2007) evaluated the relative importance of these of the various motivations by augmenting the conventional specifications for reserve holdings with proxy variables associated with the mercantilism and self-insurance/precautionary demand approaches. While variables associated with both approaches are statistically significant, the self-insurance variables play a greater economic role in accounting for recent trends. In results that are consistent with both the mercantilist and self-insurance motives, Gagnon (2010) finds that a one percentage point of GDP increase in *official* financial outflows (including reserve accumulation) causes a 0.4-0.5 percentage point of GDP increase in current account.¹⁰

The "global saving glut" explanation has been expounded by Bernanke (2005), Clarida (2005a,b), and Hubbard (2005). This argument views excess saving from Asian emerging market countries, driven by rising savings and collapsing investment in the aftermath of the financial crisis (and to a lesser extent Europe), as the cause of the U.S. current account deficit. More recently, the burgeoning surpluses of the oil exporters, ranging from the Persian Gulf countries to Russia, have moved to the fore as sources of excess saving. From this perspective, the U.S. external imbalance is a problem made abroad; the lack of well-developed and open financial markets encourages countries with excess savings to seek financial intermediation in well-developed financial systems such as the United States. Hence, a solution may only arise in the longer term, as better developed financial systems mitigate this excess savings problem.

Caballero, Farhi and Gourinchas (2008) model the saving glut explanation as a shortage of assets in the developing world. Mendoza, Quadrini and Rios-Rull model financial development as the increase in the degree of enforcement of financial contracts.

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. An

⁹ See also Aizenman and Lee (2007), and Jeanne and Ranciere (2005).

¹⁰ On the other hand, it's not clear to me that the greater exchange rate flexibility that comes with less intervention would necessarily lead to more rapid current account adjustment. See Chinn and Wei (2010).

expansionary fiscal policy in the United States, combined with an investment drought in East Asia would yield the observed increase in current account imbalances, while at the same time resulting in a drop in the real interest rate. Thus, a simple open economy macro model can explain the recent rise in U.S. current account deficits, East Asian current account surpluses, and the recent fall in global interest rates without resort to exotic demand for high quality assets, or the like.

In order to formally test the saving glut hypothesis, one can evaluate whether financial development and institutional development explain the pattern of imbalances, using the framework laid out in Section 3. The estimation results are reported in Table 1, extracted from Chinn and Ito (2008).¹¹

[Table 1 about here]

One 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 financial markets lead to decreased current account balances, as posited by the adherents of the global saving glut thesis.

Because the economic environmental factors may affect the way in which financial development might affect saving and investment we include interaction involving these variables. Interactions between the financial development and legal variables (*PCGDP* times *LEGAL*), 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.

In order to examine the importance of institutions, Chinn and Ito augment their basic model specification with variables aimed at capturing institutional factors, namely the legal development variable (*LEGAL*), financial openness (*KAOPEN*), and associated interaction terms (including those with *PCGDP*). Table 2 displays results from panel OLS regressions with institutional variables. They obtain several notable results.

[Table 2 about here]

Despite the 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

¹¹ Since these results are sensitive to the inclusion of the African countries, Chinn and Ito also report separate sets of results with and without the African countries included, for the developing country sample. They also report separate results for an emerging market group that differs somewhat from the developing country sample.

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 that reported in Table 1 the other sample groups.¹²

Second, financial development is found to have different, and nonlinear, effects on saving and investment. Chinn and Ito use the estimates from Table 2 to identify the countries for which financial development would reduce the current account. With only Hong Kong and Singapore categorized as countries in East Asia at the highest tenth percentile in legal development and highest tenth percentile in financial openness, only they would experience a reduction in their current account balances as financial development proceeds. For the majority of Asian emerging market countries that are categorized as middle or lower level in terms of legal development and financial openness, they will experience an *increase* in the ratio of national savings to GDP if financial markets develop further. Given these results, Chinn and Ito conclude that financial development reduces the level of current account balances, especially for Asian emerging market countries, but that effect is achieved, not through a reduction in savings rates, but through increased levels of investment.

In sum, Chinn and Ito's results present evidence against 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. In addition, more open financial markets do not appear to have any impact on current account balances for this group of countries.

Ito and Chinn (2009) examine whether their results are sensitive to the use of alternative indicators of financial development, namely measures of equity, bond, and insurance market activity, as well as different aspects of financial development such as the cost performance, size, and activeness of the industry. They find that credit to the private sector and stock market capitalization appears to be equally important determinants of current account behavior. While increases in the size of financial markets induce a decline in the current account balance in industrial countries, the reverse is more often the case for developing countries, especially when other measures of financial development are included. They also find that a greater degree of financial openness is typically associated with a smaller current account balance in developing countries.

Chinn, Eichengreen and Ito (2010) find that the US current account is overpredicted in the 2006-08 period, while the Chinese current account is underpredicted – in both cases by (barely) statistically significant amounts. Hence, there is some role for factors that are not accounted for in our models. One of those is financial deregulation, and the inducement of a “bubble” or boom/bust cycle delinked from fundamentals. This observation is directly linked to my interpretation of the role of the global imbalances in the financial crisis.

¹² Gruber and Kamin (2005) report similar results.

2.2. Imbalances and the Global Financial Crisis

Some observers have taken to claiming the saving glut caused the crisis, by inducing a search for yield and excessive leverage, and/or risk taking. This view is succinctly summarized in CEA (2009: 22-23):

- The roots of the current global financial crisis began in the late 1990s. A rapid increase in saving by developing countries (sometimes called the “global saving glut”) resulted in a large influx of capital to the United States and other industrialized countries, driving down the return on safe assets. The relatively low yield on safe assets likely encouraged investors to look for higher yields from riskier assets, whose yields also went down. What turned out to be an underpricing of risk across a number of markets (housing, commercial real estate, and leveraged buyouts, among others) in the United States and abroad, and an uncertainty about how this risk was distributed throughout the global financial system, set the stage for subsequent financial distress.
- The influx of inexpensive capital helped finance a housing boom. House prices appreciated rapidly earlier in this decade, and building increased to well-above historic levels. Eventually, house prices began to decline with this glut in housing supply.

In this interpretation, the trigger is excess savings associated with the inflows. What is missing from the story is the explanation for why the capital had to flow to the United States.¹³ In contrast, Obstfeld and Rogoff (2009) argue:

We too believe that the global imbalances and the financial crisis are intimately connected, but we take a more nuanced stance on the nature of the connections. In our view, both originated primarily in economic policies followed in a number of countries in the 2000s (including the United States) and in distortions that influenced the transmission of these policies through U.S. and ultimately through global financial markets.

Financial market distortions in the developing world led to the excess of saving; financial distortions in America pulled those flows to America. These financial distortions have been highlighted in a number of analyses of the financial crises. Irrationality, or waves of excess optimism and pessimism, is stressed by Akerlof and Shiller (2009). Stiglitz (2010) stresses the credit market imperfections associated with asymmetric information. Rent seeking and regulatory capture dominate the discussion by Johnson and Kwak (2010). Interestingly, excess saving from East Asia does not appear as a causal factor in any of these accounts. Roubini and Mihm (2010: 80-82) and Chinn and Frieden (2009; forthcoming) argue that excess rest-of-world saving combined with domestic financial distortions were central to the development and extent of the crisis.

¹³ Caballero, Farhi and Gourinchas (2008b) view the link from inflows to crisis through the prism of the asset shortage interpretation (Caballero, Farhi and Gourinchas, 2008a).

The Chinn-Frieden interpretation is consistent with the view that a resumption of expanding imbalances without dealing with the distortions in credit markets would cause a repetition, albeit some other form. While the US has begun addressing some of those market distortions in the form of a comprehensive financial regulation package, much of the actual regulation remains to be implemented. Even then, it is unlikely that the financial reforms will do more than moderate the distortions. Hence, going forward, policymakers should seek to mitigate large current account balances (in either direction), as a second best policy.¹⁴

3. Lessons for Emerging Markets from Previous Episodes

There have been recurrent bouts of capital flows to emerging markets, which have led to boom-bust episodes. One systematic empirical analysis was conducted by the IMF (2007).¹⁵ Based upon a statistical analysis incorporating 109 episodes of large capital inflows, they concluded:

First, countries that experience more volatile macroeconomic fluctuations—including a sharp reversal of inflows—tend to have higher current account deficits and experience stronger increases in both aggregate demand and the real value of the currency during the period of capital inflows. Second, episodes during which the decline in GDP growth following the surge in inflows was more moderate tend to be those in which the authorities exercised greater fiscal restraint during the inflow period, which helped contain aggregate demand and limit real appreciation. Third, countries resisting nominal exchange rate appreciation through intervention were generally not able to moderate real appreciation in the face of a persistent surge in capital inflows and faced more serious adverse macroeconomic consequences when the surge eventually stopped. Fourth, tightening capital controls has, in general, been associated neither with lower real appreciation nor with reduced vulnerability to a sharp reversal of inflows.

One of the most robust of the findings is that countercyclical fiscal policy can mitigate the post inflow crash. Table 3 (Table 3.2 from IMF (2007) highlights the fact that regardless of specification, the fiscal policy variable is always significant.

[Table 3 about here]

Another interesting finding is that capital controls do not appear to have a statistically significant effect on post-inflow growth, regardless of whether the restrictions pertain to inflows or outflows. I take this to mean that we should be agnostic on the use of capital controls, largely because we do not have good measures of de facto capital controls (as opposed to de jure).

¹⁴ Clearly, this is a rejection of the Greenspan (2005) doctrine that associates larger current account deficits and surpluses with greater optimizing in the face of increased capital mobility.

¹⁵ I served as a consultant on this chapter.

4. Current Challenges for Emerging Markets

4.1 Individual country issues

Currently, the world economy faces a period of record low short term interest rates in the core developed economies, and rapidly growing emerging markets. This “two-speed” world economy has set up a situation where vast capital flows are flowing to the emerging markets. The implementation of a second round of quantitative easing in the United States which has pushed down yields at longer maturities, plus turmoil in European sovereign debt markets, has only exacerbated the “push” factor, adding to the “pull” of relatively buoyant returns in emerging markets.¹⁶

[Figure 2 about here]

The statistical analysis cited in Section 3 suggests that, if the inflows are expected to be persistent, measures to stifle exchange rate appreciation through aggressive foreign exchange intervention and sterilization are likely to be counterproductive. Countries should also not expect much long term aid from capital controls. Exchange rate appreciation, painful as it might be for certain sectors, might be the best way to accommodate these inflows (especially if combined with the requisite fiscal retrenchment).

China constitutes a special case, given the extensive and pervasive nature of capital controls *and* a highly regulated and repressed financial sector. In addition, capital flows to China are only partly due to higher perceived expected returns on Chinese assets; expected currency appreciation also draws in financial flows.

Exchange rate adjustment, especially a one-off event, would probably do a lot to reduce hot capital inflows. Appreciation would also help to shrink the Chinese current account balance to more sustainable levels. The results in Chinn and Ito, discussed in section 2 of the paper, highlight the fact that fiscal policy could do additional work. And certainly there is scope for additional government spending, given the relatively low ratio of government debt to GDP. However, the cross section analysis conducted by Chinn and Ito could not get at some of the factors of specific import for the Chinese economy. After all, in their studies, the Chinese current account surplus was underpredicted – not by a statistically significant amount, but by a couple percentage points. This outcome was a function of the underprediction of national saving.

Kuijs (2005) stressed corporate saving as the main culprit in the surge in the early 2000’s. Prasad (2009) has focused on both corporate and household saving, while Ma and Yi (2010) argue that currently all three of the components of saving – government, household and corporate – have been abnormally high and rising.¹⁷

¹⁶ The foregoing assumes that perfect capital substitutability and mobility, and is consistent with deviations from uncovered interest parity (Frankel, 2008).

¹⁷ The biggest medium term issue seems to be the decreasing share of labor income in Chinese GDP. This phenomenon, combined with the relatively high household saving rate, means that merely trying to raise the household saving rate (by improving the social safety net, and by increasing access to consumer credit) cannot in and of itself solve the problem. Hence, rebalancing involves a rebalancing of the domestic shares of income, away

In sum, there is scope for government policy to accelerate rebalancing, in part by affecting each of these components of saving. In the short term, this involves faster currency appreciation;¹⁸ over the longer term, allowing state owned enterprises to pay dividends, reducing the monopoly power of the state owned corporations, and accelerating the development of a social safety net and provision of social services (which will reduce incentives for household saving, while decreasing government saving).

4.1 Externalities in the International Financial System

So far, the focus has been on country-by-country concerns. But it's clear that measures taken by one country can have unintended consequences for other countries. When the costs and benefits of capital flow measures are not fully internalized, then externalities become important. Korinek (2010) has forwarded a model wherein a crisis in one country causes a credit constraint that induces a capital surge to another (unconstrained) economy. In other words, "...each time one borrower faces a crisis, it flows to the next and increases that borrower's financial fragility, creating the potential for 'serial financial crises'." (p.2). Taxing hot capital flows in order to internalize the externalities is the obvious policy implication; however, being able to differentiate "hot" capital from ordinary capital is key to implementing the measure effectively.

5. Conclusion

Capital flows to developed economies have not in the past behaved in a manner predicted by the neoclassical model. Rather, government saving behavior, government intervention in capital flows (including reserve accumulation) and distortions in the financial markets of the US, and other industrial countries, have pulled in financial capital in a manner not entirely dissimilar to other capital boom-bust cycles seen in emerging markets. Hence, it makes sense to try to mitigate resulting episodes of excessive borrowing by attacking the distortions in those financial markets. In other words, large current account balances should be viewed as signals of unsustainable macro/financial and/or regulatory policies.

Capital inflows to emerging markets, in addition to being driven by domestic financial distortions, are currently also being driven by record low yields in the developing economies. To the extent that these flows are expected to be persistent, traditionally implemented measures of resistance are unlikely to be effective. On the other hand, countercyclical fiscal policy, and prudential measures for the financial sector, might prove more useful for addressing the challenges of persistent capital inflows.

from capital. This point has become increasingly central as the debate has moved to whether wage rates are rising. Those familiar with the Lewis (1954) and Fei-Ranis (1964) model of development will recall that as wages rise, the share of income going to capital decreases. If the propensity to save of labor is less than that of capitalists, then the saving rate should decline (Kroeber, 2010). It might be that this process is happening as a natural outcome arising from the exhaustion of labor close to the coastal provinces. Even if that is true, the process of raising household savings (in aggregate terms, not just as a share of household income) can be accelerated by aggressive government action – although even the most aggressive action will take years to have a substantive impact.

¹⁸ There has been some debate whether such appreciation endangers China's growth too much. On one side is Dani Rodrik (2008). On the other side is IMF (2010) and Eichengreen and Rose (2010).

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Table 1: Current account regressions

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 [0.068]**	0.16 [0.086]*	0.15 [0.081]*	0.242 [0.092]***	0.219 [0.076]***
Lane's NFA (initial)	0.049 [0.005]***	0.063 [0.011]***	0.047 [0.005]***	0.05 [0.006]***	0.043 [0.009]***
Relative income	0.027 [0.019]	0.059 [0.025]**	0.032 [0.085]	0.09 [0.090]	0.1 [0.082]
Relative income squared	0.016 [0.029]	-0.212 [0.080]***	0.008 [0.096]	0.118 [0.105]	0.073 [0.092]
Rel. dependency ratio (young)	-0.06 [0.020]***	0.021 [0.073]	-0.071 [0.025]***	-0.075 [0.025]***	-0.013 [0.022]
Rel. dependency ratio (old)	-0.205 [0.061]***	0.001 [0.081]	-0.313 [0.093]***	-0.241 [0.098]**	-0.347 [0.106]***
Financial deepening (PCGDP)	0.001 [0.008]	-0.006 [0.010]	0.005 [0.013]	0.013 [0.014]	0.003 [0.013]
TOT volatility	-0.013 [0.019]	0.063 [0.058]	-0.017 [0.020]	-0.006 [0.018]	-0.016 [0.019]
Avg. GDP growth	-0.151 [0.141]	-0.101 [0.207]	-0.161 [0.155]	-0.145 [0.117]	-0.187 [0.115]
Trade openness	0.003 [0.009]	0.037 [0.011]***	-0.003 [0.010]	-0.008 [0.011]	-0.005 [0.010]
Oil exporting countries	0.046 [0.013]***	– –	0.047 [0.013]***	0.039 [0.011]***	0.028 [0.013]**
Observations	502	132	370	235	210
Adjusted R-squared	0.42	0.5	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: Current account regressions with institutional factors

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 [0.065]**	0.154 [0.095]*	0.168 [0.079]**	0.251 [0.091]***	0.23 [0.075]***
Lane's NFA (initial)	0.049 [0.005]***	0.069 [0.011]***	0.047 [0.005]***	0.051 [0.006]***	0.041 [0.009]***
Relative income	0.062 [0.028]**	0.058 [0.028]**	0.115 [0.096]	0.16 [0.106]	0.216 [0.103]**
Relative income squared	0.032 [0.038]	-0.097 [0.120]	0.057 [0.102]	0.157 [0.121]	0.166 [0.111]
Rel. dependency ratio (young)	-0.061 [0.018]***	-0.027 [0.082]	-0.076 [0.022]***	-0.099 [0.030]***	-0.044 [0.023]*
Rel. dependency ratio (old)	-0.2 [0.058]***	0.099 [0.098]	-0.368 [0.096]***	-0.331 [0.114]***	-0.529 [0.127]***
Financial Develop. (PCGDP)	-0.008 [0.009]	0.01 [0.012]	-0.043 [0.032]	-0.038 [0.040]	-0.082 [0.038]**
Legal development (LEGAL)	-0.003 [0.004]	0.002 [0.007]	-0.017 [0.008]**	-0.02 [0.009]**	-0.018 [0.010]*
PCGDP x LEGAL	-0.003 [0.004]	-0.035 [0.015]**	-0.021 [0.011]*	-0.025 [0.012]**	-0.037 [0.016]**
Financial open. (KAOPEN)	-0.001 [0.003]	-0.002 [0.003]	0.002 [0.007]	0.005 [0.008]	0.008 [0.010]
KAOPEN x LEGAL	0.002 [0.001]*	0.012 [0.003]***	0.002 [0.002]	0.002 [0.002]	0.005 [0.003]
KAOPEN x PCGDP	-0.003 [0.005]	0.002 [0.009]	0 [0.007]	0.002 [0.008]	-0.002 [0.009]
TOT volatility	-0.013 [0.017]	0.1 [0.054]*	-0.015 [0.018]	-0.002 [0.019]	-0.003 [0.022]
Avg. GDP growth	-0.123 [0.087]	-0.036 [0.243]	-0.09 [0.096]	-0.107 [0.124]	-0.132 [0.118]
Trade openness	0.006 [0.009]	0.046 [0.014]***	0.005 [0.013]	0 [0.014]	0.004 [0.014]
Oil exporting countries	0.041 [0.013]***	– –	0.04 [0.013]***	0.035 [0.012]***	0.025 [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**Table 3.2. Post-Inflow GDP Growth Regressions**

Dependent Variable: Post-Inflow GDP Growth ¹	(1)	(2)	(3)	(4)	(5)
Real government expenditure growth ²	-0.109 (0.015)**	-0.111 (0.014)**	-0.111 (0.014)**	-0.099 (0.027)**	-0.093 (0.040)**
Index of resistance to exchange market pressures ³	-1.812 (0.114)	-2.090 (0.085)*	-2.086 (0.088)*	-2.147 (0.080)*	-2.282 (0.059)*
Post-inflow world GDP growth ¹	1.023 (0.017)**	0.836 (0.056)*	0.858 (0.071)*	0.875 (0.063)*	0.844 (0.076)*
Real U.S. Federal funds rate ⁴		0.279 (0.165)	0.279 (0.170)	0.209 (0.294)	0.240 (0.226)
Post-inflow terms-of-trade change ¹			-0.013 (0.773)	-0.011 (0.827)	-0.024 (0.662)
Cumulative size of capital inflow				-0.049 (0.148)	-0.048 (0.157)
Sterilization index ³					-0.981 (0.262)
Constant	0.093 (0.905)	0.260 (0.757)	0.265 (0.757)	1.100 (0.263)	1.854 (0.124)
Observations	69	69	69	69	69
Adjusted R-squared	0.133	0.138	0.125	0.187	0.188

Sources: IMF, *International Financial Statistics*; IMF, *Balance of Payments Statistics*; and IMF staff calculations.

Note: * and ** denote significance at the 10 percent and 5 percent level, respectively. Robust *P*-values are in parentheses.

¹Average in the two years after the episode minus average during the episode.

²Average deviation from trend of real government expenditure (excluding interest) during the episode minus average in the two years before the episode.

³Average during the episode.

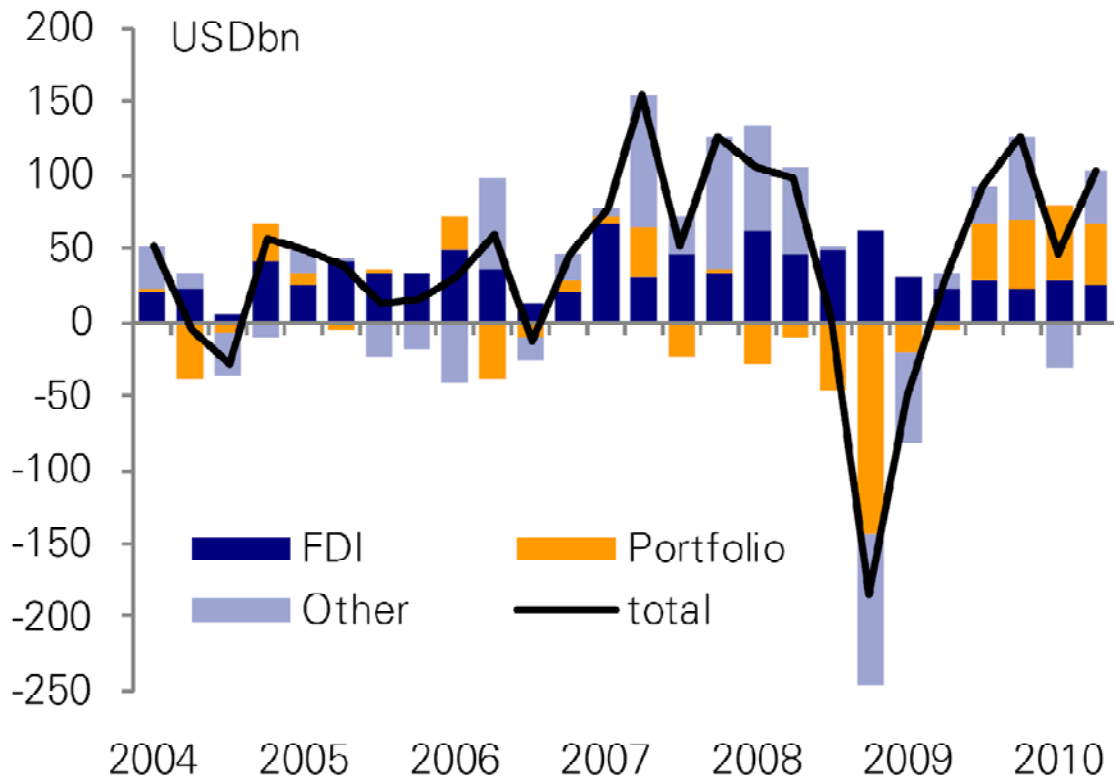
⁴Average during the episode minus average in the two years before the episode.

Source: IMF (2007).



Figure 1: Current account balances as a share of world GDP. 2009-2015 data are IMF projections. US is United States, OIL is oil exporting countries, DEU+JPN is Germany plus Japan, OCADC is other advanced developed countries, CHN+EMA is China plus other emerging Asia, and ROW is rest of the world. Source: IMF, *World Economic Outlook*, October 2010.

Net capital flows in emerging markets ex-China



Sources: CEIC, Haver and Deutsche Bank

Figure 2: Net Capital Flows in Emerging Markets ex.-China. Source: Hooper, et al. (2010).