

DEPARTMENT OF ECONOMICS

WORKING PAPER

Balance of Payments Constraints, the U.S. Current Account, and the Crisis of 2008

J. W. Mason

Working Paper 2014-02



Balance of Payments Constraints, the US Current Account Deficit and the Crisis of 2008

J. W. Mason

October 31, 2014

Abstract

Persistent current account imbalances need not contribute to macroeconomic instability, despite widespread claims to the contrary by both mainstream and Post Keynesian economists. On the contrary, in a world of large capital inflows, a high and stable level of world output is most likely when the countries with the least capacity to generate capital inflows normally run current account surpluses, while the countries with the greatest capacity to generate capital inflows (the US in particular) normally run current account deficits. An emphasis on varying balance of payments constraints is consistent with the larger Post Keynesian vision, which emphasizes money flows and claims are not simply passive reflections of “real” economic developments, but exercise an important influence in their own right. It is also consistent with Keynes’ own views. This perspective helps explain why the crisis of 2008 did not take the form of a fall in the dollar, and why reserve accumulation in East Asia successfully protected those countries from a repeat of the crisis of 1997. Given the weakness of the “automatic” mechanisms that are supposed to balance trade, income and financial flows, a reduction of the US current account deficit is likely to exacerbate, rather than ameliorate, global macroeconomic instability.

1 Introduction and Overview

This essay challenges the widespread view that large current account imbalances must contribute to macroeconomic instability. On the contrary, I argue, in a international monetary system dominated by large private financial flows, high and stable output probably requires sustained current account imbalances, given the wide variation in the capacity of countries to attract and manage financial inflows. In particular, I reject the view that the US current account deficit in the period preceding the 2008 financial and economic crisis was a contributing factor in that crisis. There is good reason to believe that in the absence of large US current account deficits, the global economic and financial crisis that began in 2008 would have been even more severe.

The larger goal is to reframe the question of global imbalances by asking what pattern of trade we would expect to be most conducive to high and stable global output levels, in a Post Keynesian framework. That is, under what conditions will negative fluctuations in output be amplified across borders, and under what conditions they will be dampened? One important dimension of the answer, I suggest, hinges on the variation between countries in the degree to which they are subject to balance of payments constraints. In general those countries least subject to balance-of-payments constraints should be running deficits in normal times, and those most subject to balance-of-payments constraints should be running surpluses.

The starting point is to remember that short-run (at least) changes in output are determined by aggregate demand, so it is useful to ask how trade flows affect demand. Here, the two central premises are, first, that the important relationship, especially in the short term, is not between trade flows and relative prices, but between trade flows and income; there is an economically important short run in which relative prices are not reliable drivers of trade flows. And second, countries, like other economic units, may face liquidity constraints: It is not possible for a country to accumulate unlimited foreign

debt at “the” world interest rate, subject only to an intertemporal budget constraint. It follows that, when the ceiling on foreign borrowing binds, that is, when a country is subject to a balance-of-payments constraint, if changes in relative price cannot produce appropriate changes in trade flows over the relevant horizon (and if direct controls on trade are ruled out), then the response to a negative shock to foreign-exchange receipts must be a reduction of income and output. The required contraction in domestic expenditure may often be some large multiple of the initial shock to financial inflows and/or net exports. This reduction in income in turn produces a negative shock to net exports for the country’s trading partners, which may force them to reduce income as well if they also are subject to a binding balance-of-payments constraint.

The argument of the paper is that a trading system is least vulnerable to destabilizing swings in income when the fewest possible countries are close to their balance-of-payments constraints. This minimizes the probability that a shift in trade or financial flows, or a demand shortfall somewhere in the system, will force countries into potentially cascading contractions in order to achieve acceptable levels of net exports. Because countries will be able to sustain different levels of foreign borrowing, the most stable configuration will not in general be one of balanced trade. Rather, it will be one where the countries with the greatest capacity to sustain foreign borrowing or financial inflows normally run trade deficits, and those with the least capacity normally run surpluses. Such an arrangement may have the perverse implication that poorer countries are net lenders to richer ones; this must be weighed against the very large costs associated with the contractions that these countries would otherwise need to undertake in response to declines in financial inflows or export earnings.

The paper is organized as follows.

First, I give a brief overview of the literature on “global imbalances,” which argues that the US current account deficit – and large trade imbalances

in general – contributed in an important way to the crisis of 2007-08, along with some of the work criticizing that view. This is a starting point for the argument in this paper.

I then sketch out the Post Keynesian vision of international finance and trade, presenting six key points that are shared, at least implicitly, by most work within this tradition.

In the next section, I turn to empirical evidence that the assumptions of the Post Keynesian view are broadly applicable to real-world patterns of trade. I focus particularly on existing estimates of price and income elasticities, to ask in what contexts and over what horizons is the assumption that trade flows adjust only through income a reasonable one. It seems likely that while both relative prices and income growth can play a role in long-term changes in trade flows, there is an economically important short period in which price effects are weak or absent, and income effects dominate.

I then present a simple model of adjustment to shocks to trade or financial flows in a world where countries are subject to varying balance of payments constraints. The key claim here is that variation in balance of payments constraints can be important in the propagation of crises and downturns across borders historically. In this section, I also discuss some papers within the balance-of-payments constrained growth literature that have developed similar models.

I then briefly summarize Keynes' views on the balance of payments, arguing that the framework here captures an important strand of his thinking.

Next, I ask how we can relate the model to observable patterns of trade and financial flows in the real world. In particular, on what basis might we assess how far a country is far from its maximum sustainable current account deficit?

Then, I offer a case study in the form of the contrasting experience of the newly industrializing Asian economies in the crises of 1997, on the one hand, and 2007-2008, on the other. The external shocks experienced by these

countries were similar in the two crises, but the outcomes were dramatically different. The difference, I argue, can be explained by the fact that the countries were subject to binding balance of payments constraints in the first crisis but, thanks to surpluses and accumulated reserves, were not in the second. This means there was space for a policy response in 2008 that stabilized demand, whereas in the earlier crisis these countries were forced to adopt policies that exacerbated the fall in demand.

The final section concludes. I also consider the policy implications here. While the main conclusion is negative – governments should not regard the elimination of global imbalances as a goal – I suggest that the analysis here supports the case for more aggressive fiscal policy in the United States.

2 Literature Review

2.1 Global Imbalances

There are two main strands of argument that the current account imbalances between the US and its (mainly Asian) trade partners gave rise to the crisis. The first, of which there were an endless number of examples over the past decade, sees the US as in similar position to any other country with high level of external debt. At some point private lenders will be unwilling to hold additional US assets without higher returns. Dollar depreciation will eventually bring the current account back into balance, but if lenders fear other lenders will not be willing to roll over US debts, shift in market sentiment could be rapid, resulting in disorderly decline of the dollar with a risk of overshooting, and disruption to trade and financial markets. A few representative examples include Ahearne et al. (2007), IMF (2007), Obstfeld and Rogoff (2004), and Roubini and Setser (2005).¹ A more sophisticated version

¹Roubini and Setser (2005) were incautious enough to offer the prediction that Asian reserve accumulation would cease by the end of 2007, and with the US no longer able to finance its current account deficit, the dollar would fall precipitously. Needless to say, this

of this view is found in Eichengreen (2005). He observes that the US cannot really be compared to other countries with high external debts, because of its special role as supplier of the global reserve currency. However, he argues that this position is much less secure today than the similar position the US occupied under the Bretton Woods system. Compared with the earlier period, he argues, the US has less comparative advantage as a provider of liquidity through the depth of its financial markets; there is less restraint on private financial flows; deregulation makes it harder for industrializing countries to channel credit to tradable-goods sectors; export-led growth is less attractive in general; and there is not the kind of coordinated exchange-rate management among Asian countries that there was among European countries under Bretton Woods. This makes it very likely, he argues, that Asian countries will soon find that the costs of maintaining undervalued currencies and accumulating reserves exceed the benefits; when they cease their purchases of dollar assets, there is likely to be a race for the exits. Thus, again, we have a rapid collapse in the dollar, a spike in US borrowing costs, and a firesale of US assets; only this time the key players are Asian central banks rather than private asset owners. But however plausible this story may have looked in the mid-2000s, it clearly does not describe the crisis as it unfolded. From the perspective of the global-imbalances literature, we had the wrong crisis. (DeLong 2008)

The second strand of argument linking current account balance to the crisis is the global savings glut hypothesis. (Bernanke 2007) According to this view, excessive savings in industrializing countries, mainly in Asia, were channeled via national governments into dollar assets.² This drove down US interest rates, leading to inflated asset prices and overinvestment in interest-sensitive sectors, particularly housing. On the face of it, this looks more

is not what happened.

²A “savings glut” could just as easily be called an “investment-opportunity dearth,” but in most of this literature the emphasis is exclusively on the savings side. Obstfeld and Rogoff (2009) is an exception.

consistent with events in the real world. But there are some serious problems with this view. First, it confuses savings with liquidity. (Bibow 2008) Low interest rates in the United States were the result of financial developments here (including expansionary policy by the Federal Reserve); absent that, higher desired savings could just as well have resulted in lower income and deflation. More concretely, the savings glut hypothesis fails to answer two central, related questions: Why was there a lack of productive investments available to be financed, and why did the financial system fail to channel the inflow of savings in a sustainable way? From a Keynesian perspective, there is nothing strange about the idea of a world where savings rates are chronically too high, so that output is demand-constrained; but this is not the perspective from which the savings-glut hypothesisers are arguing. In other contexts, they take it for granted that an increase in the savings rate will result in greater investment and faster growth. It is particularly disorienting to find advocates of the savings-glut view simultaneously suggesting that one positive outcome of the crisis is that the federal government may move toward fiscal balance. (Obstfeld and Rogoff 2009) The conventional benefit of a more favorable fiscal balance is supposed to be a greater supply of savings available to the private sector, resulting in lower interest rates and higher investment. But if lower interest rates would only lead to asset bubbles, what is the argument for reducing the fiscal deficit? It is not clear why the financial system would be more successful in channeling the savings made available via lower public deficits into productive investment, than it is supposed to have been in channeling the flow of foreign savings associated with the current account deficit. Even more puzzling is the variation on the savings glut argument that claims that not only was the Asian savings rate too high, US private savings were too low.(Feldstein 2008) It might be true that a higher US savings rate would be associated with a move toward current account balance (or it might not), but if the whole problem with the current account deficit is that it provided more savings than the financial system was able

to intermediate, it's not clear how more US saving is a solution. On the whole, it seems simpler to regard the manifest failure of the financial system in the 2000s as an independent phenomenon from the relatively (but not extraordinarily) low real interest rates of the decade, which in turn were independent of the current account imbalance. (Dooley, Folkerts-Landau and Garber 2009)

2.2 Dissenting Views

While the bulk of the literature on global imbalances considers them pathological, and responsible for actual or potential crises, there is also some attention to the ways that imbalances may be functional. Within the Post Keynesian/structuralist literature, there are a number of papers that, like the current paper, locate one argument for imbalanced trade in countries' differing capacities to sustain financial inflows. But most focus on the advantages of exports for growth rather than reserve accumulation *per se*. Thus for instance Cimoli and Procile (2011) explore the way balance of payments constraints may mean that asymmetric trade policies between the center and periphery will lead to higher global growth rates; however, they focus on the productivity gap between center and periphery, and like almost all structuralist writers, assume that trade must be balanced in the long run. Perelstein (2009) argues, a bit unsystematically, that as the source of international liquidity, a large US current account deficit may be necessary to sustain high growth rates at a global level. Other writers argue that competitive real exchange rates can be pursued by the developing world as a whole, even though this implies a tendency toward current account deficit for the industrialized countries as a group, since the positive externalities of tradable-goods industries are greater for middle-income countries and the policy space for offsetting demand stimulus is greater in the rich countries. (Frenkel and Rapetti 2010; 2009) Probably closest to the perspective adopted here, Jörg Bibow argues in several recent papers that pursuit of current ac-

count surpluses should be understood as not as “mercantilist” policies to boost demand via positive net exports, but as “self-insurance” against future foreign-exchange crises. (Bibow 2008; 2010*c;b;a*) Section 8 builds on Bibow’s work by applying this argument to the experience of East Asian countries.

Many of the same points can also be found among more mainstream authors: that short-run adjustments of external balance happen mainly through changes in aggregate income, rather than expenditure switching (Lane and Ferretti 2011); that demand for US assets is largely driven by liquidity needs rather than risk-adjusted return, and that the crisis was characterized by a dollar shortage rather than a dollar glut (Rose and Spiegel 2011, McGuire and von Peter 2009, McCauley and McGuire 2009); and that the main value of current account surpluses for developing countries is the insurance that reserve accumulation provides against external shocks (Summers 2007, Dominguez, Hashimoto and Ito 2011). A more systematic critique of the link between global imbalances and the crisis is the “Bretton Woods II” view. This holds that because the US current account deficit is financed by official reserve accumulation by industrializing countries, mainly in Asia, pursuing export-led growth strategies, the US is not subject to the pressures and potential crises facing other countries receiving large capital inflows. (Dooley, Folkerts-Landau and Garber 2003) This view gains important support from the fact that, contrary to many predictions, the financial crisis did not involve a flight from the dollar, but the opposite, a fact which has led to surprisingly little reassessment of the theories that predicted a dollar crisis. (Dooley, Folkerts-Landau and Garber 2009) The most important differences between the current essay and Dooley et al. is, first, that I link this argument to the Post Keynesian-structuralist literature on balance-of-payments constraints; and second, that I emphasize the value of current account surpluses and reserve accumulation as a buffer against crises, rather than export growth as an end in itself. This difference of emphasis does not necessarily

imply a substantive disagreement, since net exports may be pursued both for the positive externalities of tradable-goods industries and insurance against external shocks. However, the insurance argument brings out two important aspects that the BWII approach does not. First, it emphasizes the benefits of surpluses and reserves for demand management, suggesting in particular that output at a global level will be higher when countries vulnerable to external shocks normally run surpluses. Dooley et al., like most of the authors discussed in this section, focus on long-term growth and largely ignore the implications of trade flows for aggregate demand. Thus, as with Frenkel and Rapetti (2010), the argument that pursuit of net exports is not a zero-sum game hinges on the belief that tradables externalities are greater for developing than for developed countries, a possibly shaky foundation. Second, my argument focuses on the fact that the global economy, like national economies, is based on monetary exchange and not barter, in a way that the export-led growth argument does not. In particular, the BWII approach gives relatively little attention to the status of the dollar as the world reserve currency.

3 A Post Keynesian Perspective on Trade

The Post Keynesian approach to trade, I suggest, has six key features.

1. The exchange rate does not reliably respond to macroeconomic variables. It may (especially in the long run) be fixed by PPP or a similar relationship; or it may (especially in the short run) be essentially conventional, unanchored by economic factors, and potentially available as independent policy variable. But it does not adjust in either the short or long run to produce balanced trade flows or equilibrium in asset markets.³

³Other heterodox approaches reject both the notion of exchange rates adjusting to produce current account balance, and the notion that they are fixed in the long term by

2. Regardless of what determines exchange rates, exchange-rate changes themselves do not reliably move trade flows. Note that there is not a consensus in the Post Keynesian literature on this point. While many economists in the Keynesian and structuralist traditions, especially in Latin America, are doubtful that exchange rate changes can reliably move trade flows toward balance, other Post Keynesians do see a large role for exchange rates. (Blecker 2009) Keynes himself. Keynes himself was very much an “elasticity pessimist,” especially with respect to the short periods in which balance of payments deficits must usually be closed.⁴ There are three potential slips between the cup and the lip:

- (a) Changes in nominal exchange rates may induce offsetting changes in nominal prices or wages, so that real exchange rates and relative costs move less, or not at all.⁵
- (b) Changes in relative costs may not be passed through to prices in the destination market. The usual explanation for this limited pass-through is the fact that many traded goods are sold in imperfectly competitive markets where sellers prefer lower margins to sacrificing market share, especially in the face of exchange rate changes that are perceived as temporary. But there are a number of other possible explanations.

a relationship such as PPP. (Shaikh and Antonopoulos 1998)

⁴Keynes to Harry Hopkins, 1942: “I myself greatly doubt the utility of sudden exchange depreciations to meet sudden developments. Broadly speaking, the factor governing the exchanges in the long run is the level of money wages relatively to efficiency in one country as compared with another. This is not as a rule anything which changes very suddenly. ... It is only when a reduction in the price of our exports by 10 percent increases the demand for them by more than 10 percent that we benefit in the slightest degree. We always stand to lose through depreciation ... if we can find a level, though not necessarily the optimum, which we and our markets and our competitors have settled down to, it is only in exceptional circumstances that we could gain much by disturbing it.” (Keynes and Moggridge 1980, p. 105-107)

⁵Measures of the real exchange rate mostly or completely eliminate this factor, depending on the deflator used. But while this may be appropriate for many analytic purposes, it is generally the nominal exchange rate that is accessible to policymakers.

- (c) Final demand for traded goods is likely to be relatively inelastic. This is especially likely for the capital goods, branded goods and commodities (oil, but others as well) without close domestic substitutes that make up a disproportionate share of traded goods.

Each of these factors progressively weakens the effect of a change in the market exchange rate on trade flows. And even where the effect remains reasonably strong, it is typically quite slow – even studies that find the Marshall-Lerner-Robinson condition comfortably satisfied in the long run seldom if ever find it satisfied at a horizon of a year. If a country needs to adjust its external balance over a shorter period, then even if the “correct” exchange-rate adjustment can be achieved it may be ineffectual or produce a perverse effect.

3. The most important relationship is not between trade flows and relative prices, but trade flows and income. The strongest and most reliable drivers of trade flows in the short run are changes in output and income. And because output, at least in the short run, is determined by aggregate demand, changes in net exports, as a form of autonomous demand, will in turn produce upward or downward movements in output.
4. Countries typically face a balance of payments (BoP) constraint – cross-border financial flows cannot grow without limit. This is typically expressed as a requirement for long-run current-account balance; the core premise of this essay is that it can be given a more general form. In either case, while changes in net exports affect output directly as a form of autonomous demand, they also affect it indirectly as a country already at its BoP constraint that faces a negative shock to net exports must stay under the constraint by reducing imports. If direct controls on trade are ruled out, the only reliable way to rapidly reduce imports is to reduce income. Alternatively, a country may be able to attract short-term financial inflows by raising interest rates; in practice, higher

interest rates may often improve the balance of payments more by their negative effect on domestic activity than their positive effect on portfolio inflows. (Robinson 1946)

5. Improving the trade balance via a reduction in income may require a fall in income several times greater than the initial shock - in the simplest case, inversely proportional to the marginal propensity to import. So apart from very open economies with a marginal propensity to import close to one, and successful exporters far from their BoP constraint, the total effects of trade on demand are typically larger than the direct effects. This is why trade is not a zero-sum game even in Keynesian world where economies face demand constraints. This is also why trade shocks can amplify themselves as they propagate between countries. This point is implicit in the Post Keynesian literature but is seldom stated directly. Calling attention to it and drawing out its implications is a central goal of this paper.

6. Finally, demand constraints are important in the long run as well as in the short run. First, because externally-induced unemployment can reduce the growth of potential output. This may happen through the adaptation of the labor supply adjusts to current unemployment rates, or hysteresis; persistent effects of demand constraints on output through this channel are well-established empirically. (Ball 2009) It may also happen through the effect of the output gap on productivity growth, the relationship known as Verdoorn's Law. (Michl 1985) And second, a country whose rate of growth is greater than the ratio of the rest of the world's income elasticity of demand for its exports to its own income elasticity of demand for imports, will eventually run up against its BoP constraint.⁶

⁶This last is an important general claim of the Post Keynesian literature, but an argument of this paper is that in practice it does not apply in the special case of financial-center countries, including the United States.

My goal is not to argue that these propositions are universally correct, but that they constitute a coherent paradigm that can bring out important features of world trade and financial flows that would otherwise be less visible. It's also important to recognize how little most of these points are acknowledged in much of the literature on trade.

4 Empirical Evidence

The central point I would like to establish in this section is that for many countries, there is an economically relevant horizon over which trade flows do not adjust through relative price movements but largely or entirely through income movements.

As noted in Section 3, there are several reasons we might expect price adjustments to be ineffective. First, it may be that nominal exchange rates do not move rapidly to bring trade toward balance, or even move perversely. Second, changes in nominal exchange rates and prices may offset each other.⁷ In general, depreciation will be inflationary and appreciation deflationary; in countries where the exchange rate is an important anchor for the price level, these effects may be quite strong. Third, to the extent that relative prices do change, these prices may not be passed through into destination markets. This is particularly important for exports to the US, where most studies of passthrough suggest that it is on the order of 0.3 – that is, that one third or less of changes in relative prices are reflected in changes in import prices, with the rest showing up in changes in profit margins or real wages at the exporting firms. (Hervé et al. 2010) This is approximately the same value suggested by a simple regression of an import price index on the exchange rate. There

⁷This relationship between the exchange rate and the price level is a primary reason many developing countries, especially in Latin America, have adopted fixed exchange rates as part of anti-inflationary packages. It is important to recognize, though that this relationship depends on the real exchange rate being relatively fixed. In other words, to the extent that the exchange rate is available as a nominal anchor, it is not available as a tool for managing trade.

is no reason to believe that dollar prices of US imports are becoming more responsive to exchange rate movements than they have been in the past. If anything, there is evidence that passthrough has become even lower since the mid-1990s. (Marazzi et al. 2005) While few other countries seem to have passthrough rates as low as the United States, the US numbers are still important, since they limit the ability of depreciations to increase exports for countries for which the US is an important export market. Finally, demand for traded goods may simply be price inelastic. The balance-of-payments constrained growth literature tends to emphasize the second of these factors – offsetting price movements – but all of them are potentially important in limiting the effectiveness of exchange rate changes in equilibrating trade and financial flows even under floating rates.

There is a vast literature estimating trade elasticities, with substantial variation in methodology and findings. I expect that a systematic survey of the empirical literature will find an adequate level of support for the claims, first, that in most contexts price elasticities are insufficient to restore equilibrium given the typical size of external shocks and the realistic range of exchange rate movements, especially over the short time period within which countries must satisfy their balance of payments constraints; and second, that income elasticities represent genuine structural parameters that are stable over the relevant horizon.⁸ I do not offer such a survey here. Instead, first, let me point to one representative set of estimates, those used in the OECD's global model. (Hervé et al. 2010) These imply that the MLR condition is not satisfied anywhere at a one-year horizon, and even at a two-year horizon is satisfied only for Japan. This implies that a country that is compelled to reduce its net exports over a period of a few years or less, for instance by a sudden stop of financial inflows, cannot do so via devaluation. They also treat income elasticities of import demand as valid structural param-

⁸It is sometimes claimed that income elasticities are really misspecified supply relationships. (Krugman 1989).

Table 1: Selected Estimates of US Trade Elasticities

Study	Years	Imports		Exports		Measure
		Income	Price	Income	Price	
Hervé et al. (2010)	n/a	1.2	0.32	1	0.58	C
Wu (2008)	1960-1998	2.2	0.15	1.6	1.4	E
Kwack et al. (2007)	1984-2003	1.89	0.93			P
Crane, Crowley and Quayyum (2007)	1955-2006	1.95	0.55	2.3	0.61	P, E
Bahmani-Oskooee and Ardalani (2006)	1991-2002	1.8	0.05	2.5	0.79	E
Mann and Plck (2005)	1980-2003	2.2	0.28	1.4	0.2	P
Chinn (2005)	1975-2004	2.4	0.21	1.85	0.76	E
Hooper, Johnson and Marquez (1998)	1960-1994	2.1	0.45	1.3	1	P
Senhadji (1998), Senhadji and Montenegro (1999)	1960-1993	2.5	0.5	1	0.7	P
Wren-Lewis and Driver (1998)	1980-1995	2.4	0.18	1.2	0.65	E
Marquez (1999)	1973-1985	1.9	0.78	1.4	0.76	P
Houthakker and Magee (1969)	1951-1966	1.68	1.03	0.99	1.51	P

ters. Second, I offer some recent elasticity estimates for the United States, summarized in Table 1.

In the last column of the table, C means the price measure used was competitiveness (real unit labor costs), E means it was the exchange rate, and P the import price in the destination country. Crane et al uses the import price for US imports but the exchange rate for US exports.

In general, US price elasticities, like those estimated for a number of other countries, appear too low for exchange rate movements to play a large role in maintaining balance of payments equilibrium. In nearly half the studies, the Marshall-Lerner-Robinson condition appears not to be met even in the long run, implying that a weaker currency could permanently increase the current account deficit. (A striking feature of the literature is the widespread

view that this finding cannot be correct, and that exchange rate movements must, have the expected effect on trade flows, despite empirical results to the contrary. Boyd, Caporale and Smith (2001) are representative: “A typical finding in the empirical literature is that import and export demand elasticities are rather low, and that the Marshall-Lerner (ML) condition does not hold. However, despite the evidence against the ML condition, the consensus is that real devaluations do improve the balance of trade.”) It should be noted, furthermore, that the elasticities reported in more or less all published studies are overestimates of the elasticities available to policymakers, in the sense that the use of real exchange rates assumes that the price level does not change in response to exchange-rate movements; studies that use import price are also implicitly assuming complete passthrough. Income elasticities, on the other hand, are large and reasonably stable.

An important element missing from most published studies is the speed at which the adjustment takes place. The great majority of published estimates are for long-run elasticities only. It is generally acknowledged that even if the MLR condition is satisfied in the long run, an exchange rate change is likely to produce a wrong-signed change in the current account at least over the first year, and perhaps for two years or longer. But adjustments in response to falls in export earnings or financial inflows often must take place over a shorter period. In this case, even optimistic estimates of the long-run elasticities are compatible with short-run adjustment entirely through aggregate demand-driven changes in income. (This is especially true if moderate interest rate movements are insufficient to shift short-term financial flows.) This is the assumption in the model presented in Section 5.1: in the short run, equilibrium comes through income adjustments, but in the longer run changes in relative prices can create different configurations.

5 Varying Balance-of-Payments Constraints

In this section, I describe the role of balance of payments constraints in propagating demand shocks across countries in terms of a very simple model of international trade. I then offer some suggestions about how to operationalize the idea of varying balance of payments constraints in terms of countries' observable characteristics.

5.1 A Simple Model

One way to think of varying balance-of-payments constraints is as a minimum value for the net international investment position or the current account. In this section I sketch out a basic version of the latter approach. In the future, it would be interesting to explore how the canonical model of balance-of-payments constrained growth (McCombie and Thirlwall (1994); for a critique, see Razmi (2009)) can be extended to cover the case where, instead of all countries being required to have balanced current accounts over the horizon of the model, there is a maximum long-term current account deficit that varies across countries. In particular, it should be possible to show in such a model how the effect of fluctuations in financial flows or import demand on global output depends on how many countries are near their constraint. Here is a start.

The intuition is captured in Figure 1. We write a simple linear equation for trade flows and output:

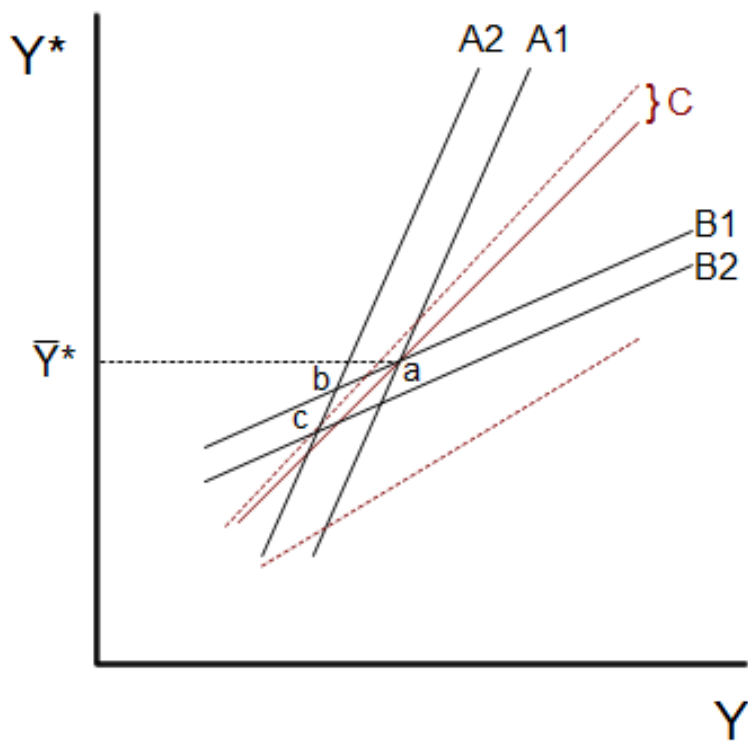
$$M = \alpha Y + \beta e \frac{P}{P^*}$$

$$Y = \gamma(M^* + A)$$

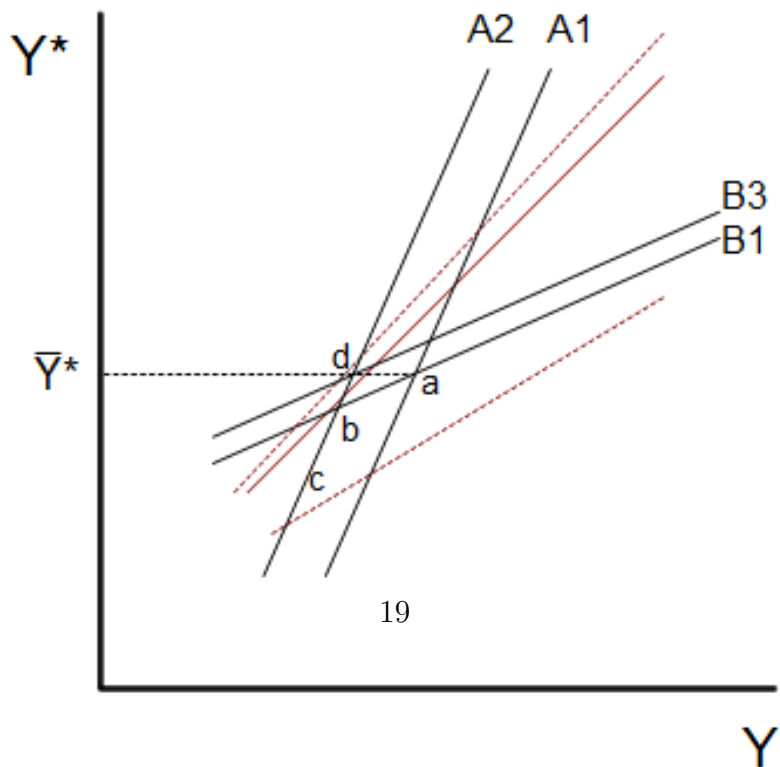
for the home country, where M , P , Y and A are home country imports, the home country price level, home country income and home country autonomous expenditures, and α and β and γ are parameters, with starred equivalents for the foreign country, and e is the nominal exchange rate. The

Figure 1: Varying Balance of Payments Constraints

(a) Balanced trade



(b) Imbalanced trade



foreign country's equations are symmetrical. Since there are only two countries, M^* represents the home country's exports as well as the foreign country's imports. Initially, we will consider a case in which relative prices don't matter, either because e , P and P^* are fixed, because moves in e and $\frac{P}{P^*}$ offset each other, or because β is small. So we can show the system in Y - Y^* space, as in Figure 1.

In the figure, the A curves show $Y = \gamma(\alpha^*Y^* + A)$, the B curves show $Y^* = \gamma^*(\alpha Y + A^*)$. So an increase in home autonomous expenditure will shift line A to the right, while an increase in foreign autonomous expenditure will shift line B up. The solid red diagonal line shows trade balance, $M = M^*$. In the standard account of balance-of-payments constrained growth, we would stipulate that equilibrium had to lie along this line and the A and B curves must adjust accordingly. Here, however, we are positing that some finite imbalance may be sustained over the relevant period. The upper diagonal dotted red line shows the maximum trade deficit for the foreign country, while the lower dotted red line shows the maximum deficit sustainable for the home country. Note that both dotted lines could lie on the same side of the balanced-trade line if one country was constrained to run a surplus, for instance if income payments due abroad exceeded sustainable financial inflows. As drawn, both countries can sustain deficits, but the home country can sustain a larger deficit than the foreign country. The vertical distance C is equal to $\frac{c^*}{\alpha^*}$, where c is the maximum sustainable deficit expressed as a share of GDP. (The horizontal distance between the current-account balance line and the lower dotted line is the equivalent for the home country.)

With this framework, we can think through the implications of different balance of payments constraints. In the first diagram, at the initial equilibrium shown as point a, trade is balanced between the two countries. Now suppose there is a negative shock to demand in the home country, taking the form of a fall in autonomous expenditures that shifts curve A from A1 to A2. If autonomous expenditure in the foreign country remained unchanged,

the result would be a shift left along curve B1 to point b. On the other hand, if the foreign country sought to maintain output at \bar{Y}^* by increasing autonomous expenditure to offset the fall in export demand, the equilibrium would shift left along the horizontal dotted line. But neither of these outcomes is possible, since both resulting points lie above the dotted line representing the maximum sustainable deficit for the foreign country. Instead, the foreign country's balance-of-payments constraint requires it to reduce autonomous demand, shifting the B curve from B1 down to B2. This results in a new equilibrium at point c, the intersection of the new A curve and the line representing the maximum sustainable foreign-country deficit. As can be seen, the fact that the foreign country must contract to limit its deficit means that the fall in income in the home country is greater than that induced by the initial fall in autonomous demand.

The second panel of Figure 1 shows the same situation, except that the foreign country's exports are now more competitive, perhaps because of a weaker real exchange rate or perhaps for some other reason. This is represented by an upward shift of the current-account balance locus and the associated maximum-deficit lines. Autonomous spending and import propensities are the same as in the first case, so A1 and B1 are the same as in the first panel, with the same initial equilibrium at point a, which now corresponds to a current account deficit for home and a surplus for foreign. In this situation, faced with the same negative shock to home autonomous demand, foreign output is able to passively adjust from point a to point b. Alternatively, the foreign country can increase autonomous expenditure to stabilize output, shifting the B curve from B1 up to B3 and ending up at point d. (As drawn, the foreign country remains in surplus in the first case and shifts to deficit in the second; the important point is just that both these points fall below the upper dotted line.) At both of these points, income in both countries is higher than it would be at point c, the only possible outcome in the first case.

5.2 Some Applications

This simple model, I suggest, captures a dynamic that has been important historically.

As discussed below in Section 8, a good example of this dynamic is the contrast between the Asian crisis of 1997 and the experience of the same countries in 2007-2008. In terms of the model, the first crisis is better represented as a downward shift in the maximum-sustainable-deficit line, rather than a negative demand shock in the export market, but the logic is the same. Because these countries were already on their balance-of-payments constraint, and because by hypothesis (but not unrealistically) price adjustments were not available to them, the only response to the shock was to depress demand through high interest rates and reduced public spending, reducing income enough to get the deficit back below the sustainable limit. Some substantial fraction of the import reductions fell on countries that were near their own balance-of-payments constraints, forcing them to reduce income and imports in turn, causing the crisis to spread and amplify across borders. (This is independent of the more-discussed channel of financial contagion.) In the 2007-2008 crisis, on the other hand, countries were far from their balance-of-payments constraints, so they were able to offset the external shock (which this time did include a major negative shock to demand in export markets, in addition to a downward shift in the sustainable deficit as in the first crisis) with increases in autonomous domestic expenditure, instead of reductions. So the effects of the crisis were dampened rather than amplified as it spread. Strictly speaking, the policy of “self-insurance” (Bibow 2010*c*) has two effects in terms of this diagram: Improved competitiveness shifts the trade-balance loci up as shown, and holding a stock of reserves also increases the distance C.

An advantage of this perspective is that it focuses attention on how the propagation of shocks leads the entire trading system to move toward lower or higher levels of activity together, as opposed to the focus of the relative-price

framework on adjustment to differential shocks. This was Triffin's critique of the Gold Standard literature – it focused almost entirely on the mechanisms producing balance between trade partners, when many of the most important developments in the trading system involved prices and output of the main trading countries moving together. A similar criticism would apply to much of trade theory today.

Conventional theory tells us that trade flows are primarily driven by changes in relative prices, which in the absence of manipulation should be expected to adjust over the long term to maintain current account balance. In a world where that was true, we would expect a country's imports and exports to move in opposite directions, restoring current account balance; under the "rules of the game" of the gold standard and similar arrangements today, central banks would meanwhile raise rates when faced with deficits and lower them when faced with surpluses. But this is not what we see in reality. Both in the gold standard era and today, we more often see a country's imports and exports rising and falling together. The dominant pattern is not one of changes in relative prices leading to shifts of net trade flows between countries, but changes in income broadly shared across countries leading to shifts in trade flows governed by income elasticities; some countries consistently experience favorable movements in the balance of payments during booms, others during slumps. Gross flows are large relative to net ones, that is, a given country's imports and exports usually move together, rather than in opposing directions as in a world where relative price movements dominated. Similarly, the price level, rather than rising in surplus countries and falling in deficit ones, changes more or less in the same direction across all major trading countries; and central banks, rather than adjusting rates in response to trade flows, adjust them mainly in response to the business cycle, which again is broadly synchronous across countries. The relevant question, looking at the actual patterns of trade both under the gold standard and more recently, is not how changes in relative price equilibrate trade between

countries in response to differential shocks to tastes and technology, but how changes in incomes propagate shocks to demand across the whole trading system. (Triffin 1968)

5.3 Varying Constraints in the BoP-Constrained Growth Literature

The canonical balance-of-payments constrained growth models simply assume that, over the horizon represented by the model, the current account must be balanced. (Or, equivalently, that trade must be balanced, since there are no net income flows.) This assumption is justified in various ways, and is undoubtedly reasonable in some contexts. A few papers, however, do extend the model to consider the case of unbalanced trade, notably Thirlwall and Hussain (1982), Barbosa Filho (2002) and Moreno-Brid (2003). These papers, while useful, don't directly address the questions of interest here, because they are explicitly focused on the long term, that is, on patterns that are assumed to hold over an infinite period of time. This approach, while standard in the growth literature, is not always appropriate even for growth, and has some pitfalls. For example, Barbosa Filho (2002) insists that a growth model must describe a path over which a country's net exports are stable, since if the ratio of net exports to income doesn't converge the country will eventually produce all of world income. But he fails to notice that the assumption – essential to his argument – that developing countries have income elasticities of imports greater than unity, implies a similarly explosive path for *gross* imports. If such an elasticity is maintained forever, while the country's net exports may stabilize, it will be importing and re-exporting the entire world product an arbitrarily large number of times per year. Does this mean that long-run models can only include income elasticities less than one? (Or only equal to one, if we don't want there to be autarchy in the limit.) Yes, if one understands the long-run to mean an infinite horizon. But it seems more sensible to conclude that “forever” is not in fact a good ap-

proximation to the economically-relevant long-run.⁹ In any case, the current paper is not primarily about growth, but about fluctuations; the question is, what pattern of trade imbalances, if sustained for a moderately long time (let's say: a period longer than one business cycle) will lead to the most stable path of output for the trading system as a whole?

6 Keynes on the Balance of Payments

I suggest that this framework better captures the spirit of Keynes' writings in the period leading up to Bretton Woods. Keynes is often understood to have argued for a system that would have required countries with current account surpluses to adjust so as to achieve current account balance. In my view, this is incorrect. In fact, his sole concern was that balance of payments imbalances not prevent countries from managing domestic demand so as to reach full employment. In other words, he was not concerned with the direct effects of current account imbalances on demand, but on the constraints that the current account might place on governments that would limit their ability to maintain demand at the full employment level.

Eichengreen and Temin (2010), for example, note that "creditor adjustment" was central to all Keynes' proposals for a postwar international financial architecture. But it's important to be clear what "creditor adjustment" means in this context. Keynes was concerned with a balance of payments surplus, not a current account surplus; his goal was not to prevent countries from running trade surpluses, even sustained ones, but to ensure that deficit countries maintained control of their domestic interest rate. As he put it in a letter to Roy Harrod on this question, "The whole management of the domestic economy depends upon being free to have the appropriate rate of

⁹It also may be doubted how well-suited structural models are to the development process, since it is not clear what parameters we should expect to be stable across the institutional transformations involved. A case-study approach is arguably more appropriate; see for instance Rodrik (2008).

interest without reference to the rates prevailing elsewhere in the world.” (Keynes and Moggridge 1980, p. 149) This did not require balanced trade, only that any deficit could be financed without raising the interest rate above the level compatible with full employment.

So to say that “The nation which is experiencing the favorable balance of trade should ... solve the trade imbalance by not hoarding (saving) in the form of international liquid assets... Instead, the creditor nation should spend any excessive trade surplus earnings by buying producibles from deficit nations,” (Davidson 2009) misrepresents Keynes in a subtle but important way. When Keynes used a formula like this – and he used it often – he invariably added, Or lending to the deficit nations. For example, he criticized the United States on the grounds that “the dollars that may accrue to them from a favorable balance of payments as a result of their neither consuming **nor investing** what they earn from their [exports].” (quoted in Skidelsky 2001, emphasis added) When presenting his plan for postwar financial arrangements in the House of Lords, he explained that the goal was to eliminate those “trading difficulties in the past ... caused in a most acute form if a creditor country ... is refusing to spend its income abroad either on goods for home consumption **or on investment overseas.**” (Keynes and Moggridge 1980, p. 272-273, emphasis added) Similar language is found in almost all of Keynes’ writing on trade issues from the 1940s.

The application to current debates is straightforward. We should not worry about the current account deficit per se, but about whether the need to finance the deficit compels the deficit country (here the US) to adopt contractionary policies. So long as we do not have to raise interest rates or reduce public spending to attract capital inflows, there is no sense in which the current account deficit limits employment here. Harrod articulated the logic of Keynes’ position even more explicitly: “Creditor adjustment could be secured most simply by an agreement that the creditor would always accept cheques from the deficit countries. So long as their credit position cannot

cause pressure elsewhere, there is no harm in allowing a further accumulation.” (quoted in Keynes and Moggridge 1980, p. 227) Needless to say, checks from the United States are always accepted by China and other creditor countries. So following Harrod, “there is no harm in allowing a further accumulation” of dollar claims.

In short, the reason Keynes was concerned with the balance of payments was not the direct effect of net exports on aggregate demand, but the indirect effect when the need to limit balance of payments deficits compels a country to reduce domestic demand.

7 Operationalizing the Model

The main goal of this paper is to establish that *if* countries face varying balance-of-payments constraints, then incomes are likely to be higher where relatively more constrained countries run surpluses and relatively less constrained countries deficits. It’s particularly important to show how even in a Keynesian world where the main impact of trade is on aggregate demand, as opposed to specialization driven by comparative advantage, trade nonetheless does not have to involve a zero-sum competition for markets.

But to show that this model is useful as a description of real-world dynamics, it would be good to offer at least preliminary answers to two further questions. First, why should we believe that some countries, such as the United States, are more capable of sustaining of long-term financial inflows than others? And second, how do we operationalize the concept of the balance of payments constraint, given that we don’t observe a hard ceiling on the current account deficit?

With respect to the arguments summarized in Section 2.1, the mere fact that the US current account deficit has not resulted in downward pressure on the dollar or upward pressure on US interest rates is arguably sufficient. The key point is that the fact that the US has not experienced a balance of

payments crisis despite its deficits, while many of its trading partners have experienced such crises in periods when they were dependent on financial inflows, is good reason to believe that global imbalances were stabilizing rather than destabilizing in the past decade. In general, any world in which some countries run large, persistent current account deficits without evident costs (not only the US, but, e.g., Australia, which has had large – 3 percent of GDP, on average – trade deficits in 48 out of the past 50 years) while others do clearly face binding external constraints, is a world where the model potentially applies.

The most natural way to operationalize balance of payments constraints would be to simply look at a country's foreign-exchange reserves. But while reserve holdings are an important factor in the degree to which a country faces balance of payments constraints, the latter cannot simply be reduced to the former. First, of course, a country whose own currency is used internationally, or whose external obligations are denominated in its own currency, will not face a balance of payments constraint as long as these conditions hold, regardless of its reserve holdings. Second, countries vary in their ability to control their short-term financial inflows. A country with a deep, stable and trusted financial system will have an easier time attracting offsetting private financial inflows if some category of demand for its assets falls. Different institutional arrangements may make offsetting official inflows more or less available as well. Finally, countries often, though not always, have more policy tools to control financial outflows than to control inflows. And even if not, the same developments in financial markets that lead to an interruption of financial inflows, may have a similar, offsetting effect on outflows (e.g. "home bias" may be greater in a period of uncertainty). So a country will the same net inflow is likely to be less balance-of-payments constrained if that is the result of much larger offsetting gross flows.

More generally, we might expect countries to be less BoP-constrained when (1) their financial markets are broad, deep, and familiar to foreign

investors; (2) their currency is used in international transactions (i.e. they supply a reserve currency); (3) borrowing (both public and private) is in the domestic currency; and/or (4) the net financial inflow is small relative to the gross flows. The first three are straightforward; the argument for the last is that a broader range of policy tools are available to restrict financial outflows than to induce financial inflows. (Indeed, in the decades after WWII, the consensus was that the first thing a country facing balance of payments problem should do was impose limits on financial outflows.) Keynes at various points emphasized the greater ease with which a country with large outward foreign investment could finance a current account deficit.

One useful quantitative indicator for these three factors, particularly the first, is the so-called “exorbitant privilege” – the favorable return differential between a country’s foreign assets and its foreign liabilities. In the case of the US, this favorable differential has existed throughout the postwar period, and has tended to widen rather than diminish in the floating-rates era. It includes a composition effect, since a larger share of foreign holdings in the US are safe, short-term assets that would be expected to have lower yields, and a pure return effect, as average returns (yields plus capital gains) tend to be smaller for foreign-owned US assets than for comparable foreign assets owned by the US.¹⁰ (Gourinchas and Rey 2005) This return differential has the direct effect of making current account deficits more sustainable, since it means that even persistent deficits do not give rise to the compounding income flows that, in a textbook model, would eventually grow without limit if the trade account did not move to surplus. For a country enjoying exorbitant privilege, income flows may remain positive even if current account deficits are maintained indefinitely. (Higgins and Klitgaard 2008, Higgins, Tille and Klitgaard 2007) In addition, the differential is an indicator of the advantages enjoyed by

¹⁰It’s worth noting that the return component directly contradicts one common explanation for financial inflows, which is that capital returns are supposed to be higher in the US.

the country's financial system in terms of liquidity and/or risk.¹¹ On this point, it is interesting to observe that, after the US, the other countries that enjoy persistently higher yields on foreign assets than on foreign liabilities are Switzerland, Japan, and the UK, in that order. (Habib 2010) This is exactly what one might expect if the differential reflected a country's role as a financial center.

Another approach would be to look at incremental reserve demand. We know the growth rates of world trade and cross-border financial flows, conventional ratios of foreign-exchange reserves to these flows, and the share of reserves made up by dollars, which appears to be fairly stable over time. (Chinn and Frankel 2007) So we can calculate the additional flow of dollars demanded as reserves each year. While in principle this demand can be met by an excess of US outward FDI over inward FDI, in practice it seems more likely to be met by the current account deficit. (Block (1977) has a good discussion of the difficulties that arose with meeting world demand for dollar reserves in the period when the US ran a current account surplus.) If actual current account deficits are less than incremental reserve demand, we should expect to see upward pressure on the dollar, downward pressure on yields on US assets (particularly those likely to be held as reserves), and deflationary pressures in the world as a whole. This would seem to characterize the decade of the 2000s. This is an independent argument that US current account deficits in that period were stabilizing, or even too low rather than too high. In any case, as long as there is excess demand for dollar reserves, it does not seem possible for the US to face a balance-of-payments constraint.

¹¹It may be that an important form of risk is political risk. The security and longevity of capitalist hegemony in the United States, compared with even most other rich countries, may be a significant factor in making US assets more attractive to wealth owners, especially in crises.

Table 2: Change in Gross Inflows as Percent of Peak GDP

Country	1997Q2-1997Q4			Peak-2008Q4		
	Portfolio	Financial	Forex	Portfolio	Financial	Forex
Indonesia	-10.6	- 17.6	-18.5	-6.1	-3.9	-9.7
Korea	-5.9	- 19.0	-18.0	-10.1	-26.0	-29.5
Phillipines	-5.4	- 20.2	-15.9	-9.3	-24.8	-30.1
Thailand	-2.5	- 12.9	-12.4	-6.2	-15.2	-22.4

Source: IMF International Financial Statistics.

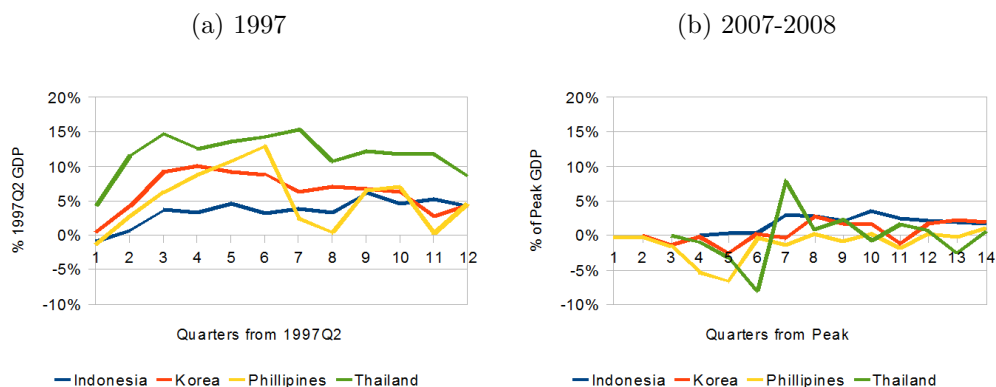
Note: Financial inflows is the sum of gross portfolio inflows, inward FDI, and other inward investment. Forex inflows is the sum of all financial inflows and exports. For the recent crisis, the peak quarter is 2008Q2 for Indonesia, 2007Q4 for Korea, 2007Q2 for the Philippines and 2008Q1 for Thailand.

8 Case Study: The Asian Crisis

The contrasting experience of newly-industrialized countries in Asia in the respective crises of 1997 and 2008 shows the advantages of the framework laid out in this paper, compared with the traditional approach that links trade flows to relative prices. I am not interested here in the causes of the crises, just in establishing some basic facts about their trajectories.

1. Asian countries that faced a sudden reversal of portfolio inflows in 1997, and were therefore forced to move from current account deficit to current account surplus. Net exports increased substantially in all the crisis countries, by amounts ranging from 4.5 percent of GDP in Indonesia to as high as 15.4 percent of GDP in Thailand., This improvement came almost entirely by reducing imports, which fell by an average of 20 percent in 1998, after growing at an annual average of 10 percent a year through the 1990s. Exports generally did not contribute to the net-export improvement, as export growth slowed sharply following the crisis despite the devaluations.
2. Import reductions in turn were achieved largely through reductions in

Figure 2: Current Account Adjustment After Two Asian Crises



income, with only a small contribution from devaluations. Investment dropped especially sharply, by an average of 15 percent of GDP. It took as long as five years for output and employment to return to pre-crisis levels.

3. The same countries experienced sudden stops of financial inflows in 2007-2008 comparable to the sudden stops in 1997. When all sources of foreign exchange, are taken into account, the external shock in 2007-2008 was substantially larger than that of a decade earlier. (See Table 2.)
4. Nonetheless, the macroeconomic impact of the external shock was much smaller after 2007-2008 than after 1997. Imports fell less than half as much, and output fell even less.
5. This difference is explained by the different policies followed by the affected countries in 1997 and in 2007-08. In the first crisis changes in autonomous domestic demand magnified the external shock, in the second, they offset it. This difference can be attributed to the presence of a binding BoP constraint in the first crisis but not in the second.

6. The 1997 crisis was amplified as it spread across borders, while the 2007-08 crisis was dampened. In 1997, countries facing a decline in portfolio inflows could only stay under their balance of payments constraint by rapidly improving their current account balance, which meant reducing imports. This in turn reduced foreign exchange earnings of their trading partners and forced them to contract in order to reduce imports as well. In the current crisis, by contrast, countries far from their BoP constraint did not have the same need to improve their current account balance when faced with a portfolio outflow, and did not do so. None of the four countries saw significant increases in net exports in the crisis period. (See Figure 2.)

It's often claimed that the existence of floating exchange rates is sufficient to ensure smooth adjustment of external balances, and that this explains why the experience of the Asian countries was so different in 2008 compared with a decade earlier. There are at least two good reasons to doubt this explanation. First, as shown in Table 2, several Asian countries did experience reversals of foreign inflows in 2008 as large and rapid as in the earlier crisis. So it does not seem to be true that self-reinforcing doubts about the credibility of a currency peg are the only reason a country might be faced with a "sudden stop". Second, it does not appear that the devaluations were an important contribution to the improvement in the current account in the initial crisis. While this claim should be tested econometrically, one strong reason to believe it is that the current account improvement came almost entirely from reduced imports rather than increased exports, as shown in in Table 3. As the table shows, during the period when the current account balance improvement was achieved, all four countries saw extremely large decelerations of import growth, equal to one-third of the 1997 import volume. Yet three of the four countries saw no acceleration in export growth at all, and in the one exception – Indonesia – the deceleration of imports was still much larger. It is hard to understand how a devaluation would have

Table 3: 1998 Growth in Trade Volumes Relative to Previous Five Years

Country	Imports	Exports
Indonesia	-36.6	7.4
Korea	-33.6	1.1
Phillipines	-33.2	1.8
Thailand	-31.7	-0.5

Source: World Trade Organization.

Note: The numbers shown in the table are the difference between the 1998 growth rate and the average growth rates for 1993-1997.

such divergent effects on imports and exports, especially since the empirical literature typically finds that exports respond more rapidly to exchange rate changes than do imports. (Hervé et al. 2010) It's also worth noting that several Asian countries experienced depreciations in 2008 that, while smaller than the devaluations in the 1997 crisis, were still quite large by historical standards, without showing any improvement in the current account. These observations are more consistent with the view that the reduction in imports following the 1997 crisis was largely or entirely the result of the fall in income, without any major contribution from the exchange rate.

These are not original observations, but it is surprising how little some of these points are recognized. For present purposes, they are important because they are consistent with the impact of an external shock being very different depending on how close the affected country is to its BoP constraint. This is important both for analysis – since it suggests we need to understand better what determines variation in BoP constraints across countries and time, and incorporate that variation into our models – and for policy, since it suggests that the goal for high and stable output should not be balanced trade, but a pattern of trade imbalances that minimizes the number of countries that are near their BoP constraints.

It is also worth noting that there was no consistent difference in the fiscal positions of the industrializing Asian countries in the periods leading up to

the two crises. This is further evidence that it was the external constraint that mattered for policy.

9 Concluding Thoughts

It may be useful to think of trade and financial flows being driven by two independent sets of fundamentals. In some historical contexts, the equilibrium financial flows and trade imbalances will tend to offset each other, so that only modest changes to relative prices or growth rates are needed to maintain balance. Keynes described the relatively brief period before World War I in which the gold standard worked reasonably well in exactly these terms. It was “the peculiar organization in London” of international finance that produced large flows of foreign investment that happened to offset current account imbalances. Under this system – which Keynes stressed arose through historical accident, and not through the operation of any general equilibrating forces, “a flow of gold immediately translated itself, not in the first instance into a change in prices and wages, but into a change in the volume of foreign investment by the creditors, [which] caused the burden to be carried on the stronger shoulders.” (Keynes and Moggridge 1980, p. 29-30) It is worth emphasizing that the US-centered system of international finance and trade of today shares this essential virtue: The burden of adjustment does not fall on the main debtor country.

In other contexts, this will not be the case, and the relatively weak or unreliable equilibrating forces of conventional models may be insufficient to balance the two sets of flows without periodic crises. This is essentially the account given by Temin (1991) of the underlying causes of the Great Depression. One can tell a similar story about the Gold Standard era, in which only specific social-institutional factors, and not any kind of automatic equilibrating mechanism, resulted in net trade and financial flows from Great Britain roughly balancing each other. Other parts of the Gold Standard world

were not so lucky. (Ford 1960) Today, one might contrast a Pacific trading system, where the independently established patterns of trade and financial flows today produce a relative absence of balance-of-payments constraints and the resulting contractionary pressures, and a European trading system, where the fact that the financial center is also the main surplus country means that such pressures can be severe.

From a policy standpoint, the suggestion of this analysis is that if there is a problem with the US current account deficit, it is not any downward pressure on US demand (which could be offset with increased autonomous domestic demand, and is modest in any case) nor with the associated financial inflows as such; rather the problem is that those flows have financed speculation and consumption, rather than productive investment. So while US policymakers need not seek to reduce the size of the current account deficit, they do need to adopt policies to ensure that the abundant domestic credit associated with US role as world's central bank finances public and/or private investment. (Bibow 2010*a*) This might mean permanently higher fiscal deficits, or it might mean policies that allow private investment to be more easily funded with financial claims that can serve as reserve assets for the rest of the world. A greatly expanded program of loan guarantees could be an example of this latter approach. (Pollin et al. 2011) To the extent that the investment, public or private, involves the provision of global public goods (climate change mitigation, for instance), such policies will also help address concerns about the equity implications of net lending to the United States by poorer countries.

References

Ahearne, Alan, Yung Chul Park, William R. Cline, Jean Pisani-Ferry, Kyung Tae Lee, and John Williamson. 2007. "Global imbalances: time for action." Bruegel Policy Briefs 35.

- Bahmani-Oskooee, M., and Z. Ardalani.** 2006. "Exchange rate sensitivity of US trade flows: evidence from industry data." *Southern Economic Journal*, 72(3): 542-559.
- Ball, Laurence M.** 2009. "Hysteresis in unemployment: old and new evidence." National Bureau of Economic Research.
- Barbosa Filho, Nelson H.** 2002. "The Balance-of-payments Constraint: From Balanced Trade to Sustainable Debt." Schwartz Center for Economic Policy Analysis (SCEPA), The New School SCEPA Working Papers 2001-06.
- Bernanke, Ben S.** 2007. "Global imbalances: recent developments and prospects: a." *Speech delivered at the Bundesbank, Berlin, Germany.*
- Bibow, Jorg.** 2008. "The International Monetary (Non-)Order and the 'Global Capital Flows Paradox'." Levy Economics Institute, The Economics Working Paper Archive 531.
- Bibow, Jorg.** 2010a. "Bretton Woods 2 Is Dead, Long Live Bretton Woods 3?" Levy Economics Institute, The Economics Working Paper Archive 597.
- Bibow, Jorg.** 2010b. "The Global Crisis and the Future of the Dollar: Toward Bretton Woods III?" *Economics Working Paper Archive.*
- Bibow, Jorg.** 2010c. "Global Imbalances, the U.S. Dollar, and How the Crisis at the Core of Global Finance Spread to 'Self-insuring'; Emerging Market Economies." Levy Economics Institute, The Economics Working Paper Archive 591.
- Blecker, Robert A.** 2009. "Davidson on Keynes: the open economy dimension." *Journal of Post Keynesian Economics*, 32(1): 19-41.

- Block, F.L.** 1977. *The origins of international economic disorder: a study of United States international monetary policy from World War II to the present. Campus Series*, University of California Press.
- Boyd, Derick, Guglielmo Maria Caporale, and Ron Smith.** 2001. “Real Exchange Rate Effects on the Balance of Trade: Cointegration and the Marshall-Lerner Condition.” *International Journal of Finance & Economics*, 6(3): 187–200.
- Chinn, M. D.** 2005. “Doomed to deficits? Aggregate US trade flows re-examined.” *Review of World Economics*, 141(3): 460485.
- Chinn, Menzie, and Jeffrey A. Frankel.** 2007. “Will the Euro Eventually Surpass the Dollar as Leading International Reserve Currency?” In *G7 Current Account Imbalances: Sustainability and Adjustment. NBER Chapters*, 283–338. National Bureau of Economic Research, Inc.
- Cimoli, Mario, and Gabriel Procile.** 2011. “Global Growth and International Cooperation: A Structuralist Perspective.” *Cambridge Journal of Economics*, 35: 383–400.
- Crane, L., M. A Crowley, and S. Quayyum.** 2007. “Understanding the evolution of trade deficits: Trade elasticities of industrialized countries.” *Economic Perspectives*, 31(4).
- Davidson, P.** 2009. *John Maynard Keynes. Great Thinkers in Economics*, Palgrave Macmillan.
- DeLong, J. Bradford.** 2008. “The Wrong Financial Crisis.”
- Dominguez, Kathryn M.E., Yuko Hashimoto, and Takatoshi Ito.** 2011. “International Reserves and the Global Financial Crisis.” National Bureau of Economic Research Working Paper 17362.

- Dooley, Michael, David Folkerts-Landau, and Peter Garber.** 2009. “Bretton Woods II Still Defines The International Monetary System.” *Pacific Economic Review*, 14(3): 297–311.
- Dooley, Michael P., David Folkerts-Landau, and Peter Garber.** 2003. “An Essay on the Revived Bretton Woods System.” National Bureau of Economic Research, Inc NBER Working Papers 9971.
- Eichengreen, Barry.** 2005. “Global imbalances and the lessons of Bretton Woods.” *Proceedings*, , (Feb).
- Eichengreen, Barry, and Peter Temin.** 2010. “Fetters of Gold and Paper.” National Bureau of Economic Research Working Paper 16202.
- Feldstein, Martin S.** 2008. “Resolving the Global Imbalance: The Dollar and the U.S. Saving Rate.” National Bureau of Economic Research, Inc NBER Working Papers 13952.
- Ford, Alec G.** 1960. “Notes on the Working of the Gold Standard Before 1914.” *Oxford Economic Papers*, 12(1): 52–76.
- Frenkel, Roberto, and Martin Rapetti.** 2009. “A developing country view of the current global crisis: what should not be forgotten and what should be done.” *Cambridge Journal of Economics*, 33(4): 685–702.
- Frenkel, Roberto, and Martin Rapetti.** 2010. “Economic Development and the International Financial System.” In *Time for a visible hand: lessons from the 2008 world financial crisis. Initiative for policy dialogue series*, , ed. S. Griffith-Jones, J.A. Ocampo and J.E. Stiglitz. Oxford University Press.
- Gourinchas, P. O, and H. Rey.** 2005. “From world banker to world venture capitalist: US external adjustment and the exorbitant privilege.” *NBER working paper*.

- Habib, Maurizio M.** 2010. “Excess Returns on Net Foreign Assets: The Exorbitant Privilege from a Global Perspective.” European Central Bank ECB Working Paper 1158.
- Hervé, K., N. Pain, P. Richardson, F. Sédillot, and P.-O. Beffy.** 2010. “The OECDs New Global Model.” OECD Economics Department Working Papers 768.
- Higgins, M., and T. Klitgaard.** 2008. “Financial globalization and the US current account deficit.” *Current Issues in Economics and Finance*, 13(11).
- Higgins, M., C. Tille, and T. Klitgaard.** 2007. “Borrowing without debt? understanding the US international investment position.” *Business Economics*, 42(1): 1727.
- Hooper, Peter, Karen Johnson, and Jaime Marquez.** 1998. “Trade elasticities for G-7 countries.” Board of Governors of the Federal Reserve System (U.S.) International Finance Discussion Papers 609.
- Houthakker, Hendrik, and Stephen Magee.** 1969. “Income and Price Elasticities in World Trade.” *Review of Economics and Statistics*, 51: 111–124.
- IMF.** 2007. “World economic outlook : a survey by the staff of the International Monetary Fund.”
- Keynes, J.M., and D.E. Moggridge.** 1980. *The Collected Writings of John Maynard Keynes Volume 25. Collected writings of John Maynard Keynes*, Macmillan.
- Krugman, Paul.** 1989. “Differences in income elasticities and trends in real exchange rates.” *European Economic Review*, 33(5): 1031–1046.

- Kwack, Sung Yeung, Choong Y. Ahn, Young S. Lee, and Doo Y. Yang.** 2007. “Consistent Estimates of World Trade Elasticities and an Application to the Effects of Chinese Yuan (RMB) Appreciation.” *Journal of Asian Economics*, 18(2): 314–330.
- Lane, Philip R., and Gian Maria Milesi Ferretti.** 2011. “External Adjustment and the Global Crisis.” National Bureau of Economic Research Working Paper 17352.
- Mann, Catherine, and Katharina Plck.** 2005. “The US Trade Deficit: A Disaggregated Perspective.” Institute for International Economics Working Paper WP 05-11.
- Marazzi, Mario, Nathan Sheets, Robert J. Vigfusson, Jon Faust, Joseph Gagnon, Jaime Marquez, Robert F. Martin, Trevor Reeve, and John Rogers.** 2005. “Exchange rate pass-through to U.S. import prices: some new evidence.” Board of Governors of the Federal Reserve System (U.S.) International Finance Discussion Papers.
- Marquez, Jaime.** 1999. “Long-Period Trade Elasticities for Canada, Japan, and the United States.” *Review of International Economics*, 7(1): 102–16.
- McCauley, Robert N, and Patrick McGuire.** 2009. “Dollar appreciation in 2008: safe haven, carry trades, dollar shortage and overhedging.” *BIS Quarterly Review*.
- McCombie, J.S.L., and A.P. Thirlwall.** 1994. *Economic growth and the balance-of-payments constraint*. St. Martin’s Press.
- McGuire, Patrick, and Goetz von Peter.** 2009. “The US dollar shortage in global banking.” *BIS Quarterly Review*.
- Michl, Thomas R.** 1985. “International comparisons of productivity growth: Verdoorn’s Law revisited.” *Journal of Post Keynesian Economics*, 474–492.

- Moreno-Brid, Juan Carlos.** 2003. "Capital Flows, Interest Payments and the Balance-of-Payments Constrained Growth Model: A Theoretical and Empirical Analysis." *Metroeconomica*, 54(2-3): 346–365.
- Obstfeld, Maurice, and Kenneth Rogoff.** 2004. "The Unsustainable US Current Account Position Revisited." National Bureau of Economic Research, Inc NBER Working Papers 10869.
- Obstfeld, Maurice, and Kenneth Rogoff.** 2009. "Global Imbalances and the Financial Crisis: Products of Common Causes." C.E.P.R. Discussion Papers CEPR Discussion Papers 7606.
- Perelstein, Julia S.** 2009. "Macroeconomic Imbalances in the United States and Their Impact on the International Financial System." Levy Economics Institute, The Economics Working Paper Archive 554.
- Pollin, Robert, James Heintz, Heidi Garrett-Peltier, and Jeannette Wicks-Lim.** 2011. "19 Million Jobs for U.S. Workers: The Impact of Channeling 1.4 trillion in Excess Liquid Asset Holdings into Productive Investment." Political Economy Research Institute.
- Razmi, Arslan.** 2009. "Exploring the Robustness of the Balance of Payments-Constrained Growth Idea in a Multiple Good Framework." University of Massachusetts Amherst, Department of Economics Working Papers 2009-10.
- Robinson, Joan.** 1946. "The pure theory of international trade." *The Review of Economic Studies*, 14(2): 98–112.
- Rodrik, D.** 2008. *One Economics, Many Recipes: Globalization, Institutions, and Economic Growth*. Princeton University Press.
- Rose, Andrew K., and Mark M. Spiegel.** 2011. "Dollar Illiquidity and Central Bank Swap Arrangements During the Global Financial Crisis." National Bureau of Economic Research Working Paper 17359.

- Roubini, Nouriel, and Brad Setser.** 2005. “Will the Bretton Woods 2 regime unravel soon? the risk of a hard landing in 2005-2006.” *Proceedings*, , (Feb).
- Senhadji, Abdelhak.** 1998. “Time-Series Estimation of Structural Import Demand Equations: A Cross-Country Analysis.” *IMF Staff Papers*, 45(2): 236–268.
- Senhadji, Abdelhak S., and Claudio E. Montenegro.** 1999. “Time Series Analysis of Export Demand Equations: A Cross-Country Analysis.” *IMF Staff Papers*, 46(3).
- Shaikh, Anwar, and Rania Antonopoulos.** 1998. “Explaining long term exchange rate behavior in the United States and Japan.” EconWPA Macroeconomics 9809011.
- Skidelsky, Robert.** 2001. *John Maynard Keynes, Vol. 3: Fighting for Freedom, 1937-1946.* . First Edition ed., Viking Adult.
- Summers, Lawrence H.** 2007. “Reflections on Global Account Imbalances and Emerging Markets Reserve Accumulation.” eSocialSciences Working Papers id:1042.
- Temin, P.** 1991. *Lessons from the Great Depression. Lionel Robbins lectures*, MIT Press.
- Thirlwall, Anthony P, and Mohammed Nureldin Hussain.** 1982. “The Balance of Payments Constraint, Capital Flows and Growth Rate Differences between Developing Countries.” *Oxford Economic Papers*, 34(3): 498–510.
- Triffin, Robert.** 1968. *Our international monetary system: yesterday, today and tomorrow.* Random House.

- Wren-Lewis, Simon, and Rebecca L Driver.** 1998. "Real Exchange Rates for the Year 2000." Institute for International Economics.
- Wu, Y.** 2008. "Growth, expansion of markets, and income elasticities in world trade." *Review of International Economics*, 16(4): 654671.