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Research Summaries

The Impact of the Great Recession on Emerging Markets

Ricardo Llaudes, Ferhan Salman, and Mali Chivakul



This article examines the impact of the 2008–09 global crisis on emerging market economies. The impact of the crisis was more pronounced in those emerging markets that had initial weaker

fundamentals and greater financial and trade linkages. This effect is observed along a number of dimensions, such as growth, stock market performance, sovereign spreads, and credit growth. Moreover, pre-crisis reserve holdings helped to mitigate the initial collapse in growth. This finding contrasts with other studies that fail to find a significant relationship between reserves and the decline in growth.

The global economy is by now emerging from the largest shock in the post-war era. Following years of strong global growth and increasing trade and financial

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The Missing Link between Dutch Disease, Appreciation, and Growth

Nicolás E. Magud and Sebastián Sosa



Reviewing the literature on “Dutch disease,” this article documents that shocks that trigger foreign exchange inflows appreciate the real exchange rate, generate factor reallocation, and reduce manufacturing output and net exports. It also finds that real exchange rate misalignment

due to overvaluation and higher real exchange rate volatility reduces growth. The evidence is mixed and inconclusive on the effect of undervaluation on growth, but there is no evidence that Dutch disease reduces growth. Policy responses should aim at adequately managing the boom and the risks associated with it.

Concerns about adverse growth effects of real appreciation have been explored for many years, going back at least to the “Dutch disease” literature of the early 1980s. Dutch disease refers to the effects of discoveries or price increases of natural resources that result in real exchange rate appreciation, factor reallocation, and de-industrialization (Magud and Sosa, 2010). Similar effects may stem

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linkages, the implosion in advanced economy financial centers, especially after the collapse of Lehman brothers in September 2008, quickly spilled over to emerging market economies. As a result, growth of the global economy fell by 6 percentage points from its pre-crisis peak to its trough in 2009, the largest straight fall in global growth in the post-war era. The median emerging market economy suffered a somewhat larger decline in output (4.9 percent) than the median advanced economy (4.5 percent), measured from the pre-crisis peak to the trough during the crisis. Moreover, the impact was more varied in emerging market economies: several of them were affected more than the worst-hit advanced economies, while others continued to grow through the crisis period. High-frequency financial variables exhibit similar behavior.

Llaudes, Salman, and Chivakul (2010) explores the channels and factors that shaped the initial impact of the crisis on emerging market economies using a sample of around 50 emerging market economies. To account for initial conditions and pre-crisis fundamentals, they use a unique measure of vulnerabilities developed by IMF staff that, by virtue of its construction, allows for a consistent comparison of vulnerabilities across emerging market economies. Given that for most emerging markets this was an externally driven crisis, the paper focuses on external sector vulnerabilities prior to the crisis, including current account deficits, reserve holdings, and external debt levels, among others.

The impact of the crisis can be measured along two dimensions:

- **Impact on the real economy.** The preferred measure of real impact in this summary is the percent change in seasonally-adjusted quarterly GDP from each country's peak to its respective trough during the crisis.
- **Impact on financial markets and the banking sector.** This is measured, for each country, by the (1) change in the average monthly stock market index during the crisis; (2) the collapse in real private sector credit growth from its peak to trough and the difference between pre- and post-crisis average monthly credit flows in percent of GDP; and (3) the rise in the average monthly Emerging Markets Bond Index sovereign spread from its trough to peak (in basis points). Similar to the output loss analysis, country variation in peaks and troughs is taken into account.

The fall in real output is measured as a function of pre-crisis vulnerabilities, trade connectedness with the rest of the world, and international financial integration. The least vulnerable emerging market economies, on average, contracted 6½ percentage points less than the most vulnerable ones. Emerging market economies experienced an additional 1½ percentage point reduction in real output during the crisis for every percentage point fall in domestic demand in their advanced economy trading partners. Large emerging market economies, for which exports formed a smaller component of their aggregate demand, consequently experienced smaller real shocks. Trade fell more during this crisis than in past global recessions, in part a reflection of increasing interconnectedness and the

“Up to a limit, reserves helped dampen the impact of the crisis on emerging market economies.”

responsiveness of global supply chains (Freund, 2009). Nevertheless, contrary to early concerns, problems with trade finance were not a principal cause of the sharp collapse in trade. Also, even though trade dispute filings intensified during the crisis, a wholesale rise in protectionism did not materialize.

An interesting and perhaps surprising result emerging from the analysis above is that even the most vulnerable emerging market economies experienced a smaller initial fall in output during this crisis than they did in past capital account crises. The global coordinated response to this crisis, with the provision of quick and large amounts of financing from international institutions including the IMF, allowed countries to smooth adjustment. In addition, past emerging market crises often involved banking crises, which was not the case this time around. This was partly due to the crisis having emerged in advanced economy financial centers, but also probably due to the general absence of currency crises that could have severely impaired banks and corporate balance sheets.

A higher ratio of reserves to external financing requirements—defined as the sum of short-term debt (at residual maturity) and the current account deficit—helped to reduce external vulnerabilities. This result is different from what has been suggested by Blanchard, Faruquee, and Das (2010), but in line with IMF (2010). Higher reserves had a significant payoff in terms of output loss at low levels of reserve coverage, but much less so at high levels of coverage. Indeed,

at very high levels of reserves the marginal gain from holding additional reserves is largely negligible.

An important empirical finding about this crisis is that countries that had more reserves going into it made greater use of them during the crisis period in order to avoid sharp depreciations that could have had pronounced implications on corporate, household, and bank balance sheets, potentially creating a systemic event. On average, countries used around 7 percent of their GDP equivalent of international reserves either to protect the currency or the balance sheets.

Pre-crisis external vulnerabilities also help to explain the rise in sovereign spreads during the crisis. Controlling for other factors, the country considered most externally vulnerable in the spring of 2007 experienced about a 200 basis point greater widening in spreads than the country considered the least vulnerable. In addition, the ratio of reserves to short-term external financing needs influenced market perceptions of a country's sovereign risk during the crisis, and countries with greater reserves coverage experienced a smaller increase in spreads. Two other factors also affected sovereign spreads: cumulative inflation in the years preceding the crisis, and having an inflation-targeting regime. Both likely affected market perceptions of policy credibility and whether macroeconomic stability would be maintained.

Pre-crisis credit booms—in many cases funded from abroad—generally ended in credit and output busts. A country that had double the average level of cross-border claims (of about 7 percent of GDP) according to Bank for International Settlements (BIS) reporting experienced an additional 1¼ percentage points in output reduction. Credit busts were also associated with sharp increases in money market rates, which are a symptom of a credit crunch. The impact of global deleveraging on credit growth in emerging market economies was particularly pronounced in emerging Europe, where cross-border lending had been growing sharply before the crisis. Emerging market economies whose banking systems were primarily funded by domestic deposits were better able to sustain credit growth and support activity through the crisis.

Notwithstanding global deleveraging, credit busts in emerging market economies have been less damaging than during past crises. The change in the growth rate of private credit was more pronounced for countries with high pre-crisis vulnerabilities. Nevertheless, through the fourth quarter of 2009, these countries had not experienced sharply negative credit growth as in past crises. This was despite the fact that pre-crisis credit booms had been more pronounced this time around than in past crises. The seemingly benign outcome

may reflect the lack of currency and banking crises and the support provided by the international community. In fact, this is also reflected in bank lending behavior in this crisis. The exposure of BIS banks in emerging Europe remained flat, a stark difference from the steep fall during the past crises.

Emerging market economies' heterogeneous experience during the crisis underscores the importance of economic fundamentals and global linkages. Controlling for factors beyond their control, emerging market economies with smaller initial vulnerabilities went into recession later, exited earlier, and suffered considerably smaller declines in output during the first stage of the crisis. Emerging market economies with stronger external linkages—higher dependence on demand from advanced economies or larger exposure to foreign bank claims—experienced sharper falls in output during the crisis. The analysis also indicates that countries that experienced pre-crisis credit booms had sharper output declines during the crisis, although to a lesser extent than during previous crisis episodes. Such credit booms were typically foreign-financed and more pronounced for countries with fixed exchange rate regimes.

Up to a limit, reserves helped dampen the impact of the crisis on emerging market economies. Higher levels of pre-crisis reserve cover were associated with less deterioration in both sovereign spreads and output during the crisis. However, this effect was subject to diminishing returns: emerging market economies enjoyed little additional benefit for having reserves in excess of the sum of short-term debt and the current account deficit.

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from other shocks entailing an increase in foreign exchange inflows, such as capital inflows, foreign aid, and remittances.

While these types of shock are in principle positive due to wealth effects, there have long been concerns among economists about the potential negative impact of Dutch disease on long-term growth (Rajan and Subramanian, 2005; Ismail, 2010). These concerns are usually based on the idea that the declining (usually manufacturing) tradable sectors possess some special characteristics (e.g., increasing returns to scale, learning by doing, spillover effects, or other positive externalities) that stimulate growth and welfare in the long term.

Motivated by the experiences of China and other east Asian countries, a new literature based on the export-led growth strategy argues that an undervalued or “competitive” real exchange rate fosters growth—the operative channel being the (manufacturing) tradable sector. In this view, while real exchange rate overvaluations hurt growth, undervaluations foster it. Another position, however, argues that any real exchange rate misalignment (either undervaluation or overvaluation) from its long-run (fundamentals-based) equilibrium lowers growth (Berg and Miao, 2010).

However, showing that Dutch disease reduces growth requires a strong assumption: that the manufacturing tradable sector is “special,” assuming the existence of learning by doing or similar externalities in this sector. Absent these assumptions, Dutch disease only depicts an equilibrium real exchange rate appreciation reflecting stronger fundamentals and de-industrialization, but need not be bad for growth.

This article examines whether the literature provides support for concerns about the potential adverse effects of Dutch disease on long-term growth. To this end, we reviewed more than 60 papers on Dutch disease and on the relationship between the real exchange rate and growth. For systematic comparisons of the papers’ results, we construct indices to evaluate their partial and overall implications. The evidence is used to analyze the policy implications of Dutch disease shocks.

We document that Dutch disease does exist. Shocks that trigger foreign exchange inflows (such as natural resource booms, surges in capital inflows, foreign aid, and remittances) appreciate the real exchange rate, generate factor reallocation, and reduce manufacturing output and net exports. However, we do not find evidence that Dutch disease reduces economic growth. We also find that real exchange rate mis-

alignment—particularly when due to overvaluation—and higher volatility of the real exchange rate reduce growth. The evidence is mixed and inconclusive on the effect of undervaluation of the exchange rate on growth.

Most of the Dutch disease empirical literature focuses on the impact of foreign exchange inflows (natural resource booms, remittances, aid, etc.) on the real exchange rate and the tradable-nontradable resource reallocation, but does not examine the effects on long-term growth or whether the adverse effects associated with Dutch disease offset the beneficial effects of inflows. Research in this area has typically not attempted to directly demonstrate the presence of spillovers or other growth-enhancing qualities in the tradable sector. Hence, the evidence on the negative impact of Dutch disease on growth is still partial, and generally inconclusive.

Concerns about Dutch disease may also derive from the view that real exchange rate overvaluation lowers growth, a result that appears to be supported by the empirical evidence. Evidence on the positive effects that an undervalued real exchange rate may exert on growth is mixed—some studies suggest that undervaluation actually hurts growth. In any case, the real appreciation associated with Dutch disease is in principle an equilibrium phenomenon reflecting a change in underlying fundamentals and does not necessarily imply overvaluation, so it is not clear why lower growth should be an unavoidable outcome. Furthermore, Lama and Medina (2010) analyze the effects of exchange rate stabilization in the face of Dutch disease shocks and find that it reduces welfare by contributing to misallocating resources and raising economic volatility.

Therefore, even though there is some debate as to whether misalignment or overvaluation lowers growth, the channel through which Dutch disease reduces growth is not found in the literature. This is quite relevant, as it affects the economic policy discussion.

Should real exchange rate appreciation be a source of concern for policymakers? Should they act to curb Dutch disease effects? If yes, is it due to concerns about long-run growth? A given appreciation of the real exchange rate may have a differential impact on growth depending on whether it reflects an equilibrium phenomenon. If the appreciation is driven by a permanent change, then it implies an equilibrium movement, and in principle Dutch disease should not be a concern. However, the real exchange rate could overshoot and become overvalued (e.g., if agents overestimate the persistence of the shock, or an excess supply of money results from the government’s monetization of the external

shock, triggering an overshooting of the price of nontradable goods). Thus, macroeconomic policy should focus on avoiding overshooting, overheating, and the surge of macroeconomic imbalances that could later become unsustainable.

It is sometimes very difficult for policymakers to assess if a certain shock and the corresponding real exchange rate appreciation is temporary or permanent. If the authorities treat a permanent shock as temporary and decide, for example, to intervene in the foreign exchange market, they will delay an unavoidable—and desirable—macroeconomic adjustment, incurring as well substantial quasi-fiscal costs due to sterilization. If, on the contrary, they treat a temporary shock as permanent, they may experience costs in terms of reduced growth. The optimal policy response would depend, to some extent, on the type of shock behind the Dutch disease. For instance, in the case of a surge in aid inflows, creating a sovereign wealth fund to be held abroad would not help.

Fiscal policy is a natural instrument to help curb Dutch disease effects. In fact, excessive public spending has been a common component of economic mismanagement of booms stemming from positive Dutch disease shocks. Fiscal policy may contribute not only by mitigating the “spending effect” associated with Dutch disease, but also by smoothing expenditures to reduce output volatility. A prudent expenditure policy would help save part of the increased revenues, which could be used to either repay external debt or accumulate foreign assets. This would help to limit aggregate demand pressures and hence the spending effect, and weaken real appreciation pressures. Directing spending to tradables (e.g., imported capital goods) would also help curbing the negative impacts of Dutch disease.

If there is a presumption that the shock may be temporary, smoothing expenditure over time would help reduce volatility. In this case, a fiscal rule and a stabilization fund could be appropriate. Also, there is a case for improving the quality of expenditures, such as by promoting investments that would entail positive supply-side effects. Investments that foster productivity and the supply of nontradables (e.g., investments in infrastructure and education) would be particularly advantageous. Finally, improving financial regulation and supervision could play an important role in helping to contain credit booms or assets bubbles, reducing the likelihood of boom-bust cycles.

Therefore, should policymakers worry about real exchange rate appreciation and limit it to avoid potential Dutch disease symptoms? The evidence on the impact of Dutch disease effects on growth is mainly inconclusive. Moreover, it is

worth noting that shocks that cause Dutch disease—such as large capital inflows and export price booms—are usually associated with periods of economic bonanza. Dutch disease effects are an unintended consequence of foreign exchange abundance, but these negative effects would not necessarily offset the beneficial effects of the inflow. The challenge for policymakers is to adequately manage the boom and the risks that come with them—taking advantage of the boom while dealing with the undesired consequences that it may cause. In responding to the effects of Dutch disease and thinking about how to address them, policymakers should be careful not to kill the goose that laid the golden egg.

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Seven Questions about the Global Trade Collapse of 2008–09

Rudolfs Bems



The world experienced a synchronized collapse in trade flows during the recent global financial crisis: global trade fell by 15 percent from the first quarter of 2008 through the first quarter of 2009. Perhaps the most striking fact about this episode is that global GDP over the same period

declined by 3.7 percent, implying a trade elasticity of 4. This article reviews the recent literature on the causes and consequences of the dramatic collapse in global trade.

Question 1: Why was trade elasticity so high during the 2008–09 financial crisis?

The disproportional fall in trade (relative to GDP) resulted from a composition effect that accompanied a fall in global demand. The standard one-sector macro model predicts that trade should rise and fall proportionally to aggregate demand. This result, however, does not hold in a multisector setting, when final demand for tradables falls by more than that for nontradables. Indeed, demand changes during the financial crisis exhibited large sectoral asymmetries. Bems, Johnson, and Yi (2010) estimate that final demand, including changes in inventories, for durable manufactures fell by more than 25 percent globally, while demand for services remained broadly unchanged. Since durables constitute only 10 percent of final demand, but 37 percent of global trade, trade contracted by more than output. Bems, Johnson, and Yi (2010) perform a detailed cross-country exercise to quantify the impact of the observed sectoral demand asymmetries on trade. The exercise generates a trade elasticity of 3, thus explaining three-quarters of the response of trade to output during the crisis. Other studies, including Auboin (2009) and Eaton and others (2011), report similar estimates.

Question 2: Was the fall in global demand unprecedented?

There are two contributing factors to the trade collapse that stand out in the historical context. First, the size of the fall in global final demand was unprecedented in the post-war period. The fall in demand by 3.7 percent is comparable only to the Depression era. Second, all the major world economies (with the notable exception of China and India) experienced a simultaneous contraction in final demand during the 2008–09 crisis, which is equally unprecedented.

Interestingly, there was nothing unique about the size of sectoral asymmetries in the final demand contraction, which generated the large trade elasticity. Such asymmetries are a well-documented empirical regularity of business cycles. Bussière and others (2011) find that demand asymmetries between components of aggregate demand were of comparable magnitude during the 2008–09 crisis and earlier downturns. Alessandria, Kaboski, and Midrigan (2010) argue that relative to the magnitude of the downturn, inventory cycle dynamics—another important contributor to asymmetries—were also not out of the ordinary.

Question 3: Did tightening of trade finance contribute to the high trade elasticity?

Deterioration in credit conditions is a well-documented source of asymmetries in sectoral supply dynamics. Despite challenges of distinguishing between the effects of general credit supply and availability of trade finance, several recent papers investigate how credit conditions faced by exporters contributed to the trade collapse. Chor and Manova (2010) estimate that credit restrictions on international trade generated a 2.5 percent fall in U.S. imports, compared to an overall fall of 12 percent. Paravisini and others (2011) find that cutbacks in bank credit to exporting companies accounted for 15 percent of the drop in Peruvian exports during the financial crisis. The World Bank estimates that 10 to 15 percent of the trade collapse can be attributed to the fall in the supply of trade finance (Auboin, 2009). The various quantitative estimates are broadly consistent and suggest that supply of trade finance contributed to the collapse.

Question 4: Did trade restrictions contribute to the trade collapse?

There is no systematic evidence that trade restrictions contributed significantly to the global trade collapse. Motivated by historical experience, many experts were concerned that the global crisis would lead to major increases in protectionism, which can easily spiral out of control (Baldwin and Evenett, 2009). Fortunately, such concerns so far have found no empirical support. Gregory and others (2010) conclude that the aggregate impact of new restrictions is modest, estimated at about 0.25 percent of global trade. Bown (2010) finds that the measured increase in

temporary trade barriers during the crisis was consistent with pre-crisis trends.

Question 5: Did global production chains contribute to the trade collapse?

Global production-sharing arrangements have proliferated during recent decades, with intermediate production inputs now accounting for two-thirds of global trade flows. These developments make trade related to production chains a suspect in the trade collapse. To answer the question, it is important to distinguish between two commonly used definitions of trade related to global production chains. The first broad definition considers such trade as all traded intermediate production inputs. Bems, Johnson, and Yi (forthcoming) find that, contrary to some suggestions in the literature, trade in intermediate production inputs during the financial crisis exhibited significantly lower output elasticity (2.1) than trade in final goods (4.6). The authors explain the variation in trade elasticities in terms of differences in composition effects: durables have a larger weight in trade with final goods than intermediates, and the relevant sectoral demand asymmetries during the crisis were smaller for intermediates than final goods.

The other, narrower, definition considers trade associated with production sharing as all traded intermediate production inputs that are subsequently re-exported (vertical specialization trade). Bems, Johnson, and Yi (forthcoming) estimate that output elasticity for trade in re-exported imports was larger (3.5) than that for other trade flows (2.8). The difference is again explained by composition effects: sectors that exhibited a larger fall in demand were also the ones that are more vertically specialized.

Thus, depending on the definition used, trade related to global production chains exhibited higher or lower output elasticity than other trade flows. One potential shortcoming of this research is that the structure of cross-country production-sharing arrangements is assumed to have remained constant during the crisis, which leads to the next important question.

Question 6: How did the trade collapse affect global trade patterns and production chains?

Longer post-crisis data series are needed to convincingly answer this question. Nevertheless, several recent studies suggest that the trade collapse took place mostly through the intensive margin of trade, with falling quantities and to a lesser extent prices. Behrens, Corcos, and Mion (2010) look at detailed trade data for Belgium and conclude that the fall in trade was broad-based and very homogenous. Examining

data for French exporters, Bricongne and others (2010) also conclude that the collapse was mostly on the intensive margin and equally affected small and large exporters. Haddad, Harrison, and Hausman (2010) draw broadly similar conclusions from data for the United States, European Union, Brazil and Indonesia.

The finding that the collapse in trade took place predominantly on the intensive rather than extensive margin matches evidence from previous crises (e.g., the 1997 Asian crisis). It is consistent with the claim that demand was the main driver of the collapse and that the structure of global production sharing was not significantly altered during the crisis. It remains to be seen if the crisis will lead to any longer-term structural changes in trade patterns.

Question 7: Were there significant cross-country spillovers from the trade collapse?

The conventional economic wisdom tells us that trade cannot generate significant cross-country spillovers from a decline in domestic demand, because trade linkages are small relative to the aggregate economic activity. Bems, Johnson, and Yi (2010) argue that this intuition did not apply during the financial crisis. The main reason is that the decline in demand was concentrated in sectors that are very open to trade. In the case of the United States, estimates show that 40 percent of final demand changes for durables are borne by foreign countries, but only 1 percent of changes in final demand for services. Given the observed demand asymmetries during the crisis, the authors estimate that 20 to 30 percent of the observed decline in final demand in the United States and the European Union was borne by foreign countries. Predictably, partners in the North American Free Trade Agreement were most affected by the demand decline in the United States, while Eastern Europe was most affected by the demand decline in the European Union. Both trade in intermediate and final goods contributed significantly to the cross-country spillovers.

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