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How Does Trade Evolve in the Aftermath of Financial Crises?

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Abdul Abiad, Prachi Mishra & Petia Topalova

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Abstract

International trade collapsed in 2008–09, particularly in countries that experienced a financial crisis. Was this collapse unique or part of a broader historical pattern? Using an augmented gravity model and 179 episodes from 1970 to 2009, we find that financial crises are associated with sharp declines in imports of the crisis country—19 percent, on average, in the year following a crisis—and this decline is persistent, with imports recovering to their gravity-predicted levels only after 10 years. In contrast, exports of the crisis country fall modestly and then remain close to or even above the predicted level. The protracted drop in imports post crisis is consistent with evidence of a sustained depreciation of the exchange rate and impaired credit conditions following crises.

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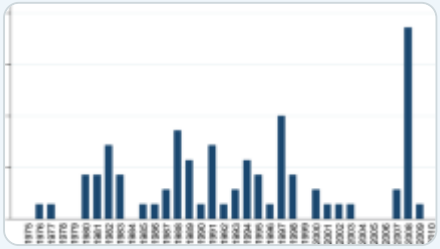

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Notes

1. See, among others, Baldwin (2009) and references therein, Alessandria, Kaboski, and Midrigan (2010), Bems, Johnson, and Yi (2010), Levchenko, Lewis, and Tesar (2010), Eaton and others (2011), and Chor and Manova (2012). There is also a rising literature that provides microevidence on trade adjustment following large depreciations in emerging economies (for example, Gopinath and Neiman, 2011; and Alessandria, Kaboski, and Midrigan, 2011).

2. Freund (2009) also takes a historical perspective by examining the decline in world trade following four previous global downturns. In this paper we focus not on global trade dynamics, but on what happens to trade of individual economies that experience a banking or debt crisis.

3. The framework can be derived formally from a general equilibrium model of production, consumption, and trade, as in Anderson and Van Wincoop (2003). See also Baldwin and Taglioni (2006) for a survey of the use of gravity models in the literature, as well as the pitfalls one faces in estimating them.

4. We follow the majority of the empirical literature on the gravity model by focusing only on the nonzero trade flows. However, our findings are not sensitive to the exclusion of zero flows.

5. The results discussed below are robust to using the nominal dollar values of trade and GDP instead.

6. Trade dynamics following currency crises (as defined by Laeven and Valencia, 2008) are qualitatively similar to trade dynamics following banking crises, but with a much deeper initial fall in imports followed by a faster recovery to gravity-predicted levels. In the analysis below, we also investigate the role of the exchange rate—both changes in its level and its volatility.

7. In the baseline specification, we include only the current value of the dummy for FTA. However, as Baier and Bergstrand (2007) have shown, FTAs can have strong cumulative effects on trade (we thank an anonymous referee for pointing this out). In order to address this issue, we estimate an alternative specification where we include current as well as five lags of the FTA variable. The coefficients on the importer and exporter crisis variables remain very similar to the baseline.

8. More precisely, it takes 11 years, because the coefficient of the eleventh lag is statistically indistinguishable from zero. The exact effect on imports in year k can be calculated as $(1-e^{-k}) \approx -k$, because k is small.

9. Several studies document substantial medium-term output losses following financial crises. Cerra and Saxena (2008) find that the negative effect of banking crises on output 10 years later is about 7½ percent. Using a slightly different methodology, Abiad and others (2009) establish that seven years after a financial crisis, output has declined relative to trend by close to 10 percent on average.

10. On the other hand, the average decline in imports following a crisis is much smaller than the destruction of trade between countries at war with each other as estimated by Glick and Taylor (2010). The contemporaneous effect of war on trade between belligerents is roughly nine times the effect of a financial crisis. However, trade with "neutrals" (that is, trading partners who are not directly involved in the conflict), which might be a more suitable comparator, declines by about 12 percent on average at the onset of war, and these effects remain statistically significant up to seven years after the start of the conflict. Thus, the magnitude of the effect of a war on neutrals is similar to a financial crisis.

11. When interpreting the findings of this robustness check, it is important to keep in mind that HMR methodology is more suitable for estimating the cross-sectional, rather than time-varying, determinants of trade, because their exclusion variables are time invariant. Note also that we implement the HMR methodology in the specification with separate exporter and importer fixed effects (and not interaction), because the exclusion variable varies only across country pairs but not over time.

12. As in Cerra and Saxena (2008), we use the estimated coefficients on the crisis and its lags from a specification in which the dependent variable is the

growth rate of the outcome of interest in order to construct the evolution of the level of the outcome of interest in the aftermath of a crisis.

13. See, for example, McKinsey (2010) and Tang and Upper (2010).

14. See, for example, Friedman and Levinsohn (2003) who document the impact of the 1997 Asian crisis on Indonesian households.

15. We also examine whether the effect of a financial crisis in a country is more severe when it is concurrent with a crisis in only one trading partner (as opposed to global downturns). Indeed, the decline in trade between two countries that have both had a crisis is disproportionately more severe, as well as more persistent. Finally we also examine whether import losses are greater for "severe" crises, where a severe crisis is defined as an episode in which the size of the output loss in the first two years of the crisis is above the median. We found that import losses occur regardless of whether a financial crisis is severe or moderate, but the initial import loss is larger for severe crises.

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Additional information

*Abdul Abiad is Deputy Division Chief and Prachi Mishra and Petia Topalova are Senior Economists at the International Monetary Fund. The views expressed in this paper are those of the authors and do not necessarily represent those of the IMF or IMF policy. We are grateful to the editors, two anonymous referees, Olivier Blanchard, Don Davis, Petya Koeva Brooks, David Romer, Philippe Martin, Andrei Levchenko, and seminar participants at the World Bank, IMF, ITC, Hong Kong University of Science and Technology, Indira Gandhi Institute for Development Research, ICRIER, and the Delhi School of Economics for helpful comments. We thank Gavin Asdorian, Stephanie Denis, Lisa Kolovich, Andy Salazar, and Yorbol Yakhshilikov for excellent research assistance.

Appendix

Data Sources

The primary data sources for the chapter are the IMF's *Direction of Trade Statistics* (*DOTS*), *World Economic Outlook* (*WEO*), and *International Financial Statistics* (IFS) databases, the NBER-UN *World Trade Flows* database (2005), and Laeven and Valencia (2008 and 2010). Additional data sources are listed in Table A1.

Table A1 Data Sources

Crisis indicators are from Laeven and Valencia (2008 and 2010). Laeven and Valencia (2010) present new and comprehensive data on the starting dates and characteristics of systemic banking crises over the period 1970–2009, building on earlier work by Caprio and others (2005), Laeven and Valencia (2008), and Reinhart and Rogoff (2009a). They update the Laeven and Valencia (2008) database on systemic banking crises to include the recent episodes following the U.S. mortgage crisis of 2007, and identify 129 episodes since 1970.

Laeven and Valencia (2008) also identify debt crisis episodes based on sovereign debt default and restructuring by relying on information from Beim and Calomiris (2001), World Bank (2002), Sturzenegger and Zettelmeyer (2006), and IMF Staff reports. The information compiled includes the year of sovereign default to private lending and the year of debt rescheduling. Using this approach, they identify 60 episodes of sovereign debt defaults and restructurings since 1970.

Data on bilateral and aggregate imports and exports from the *DOTS* database are reported in current U.S. dollars. These are deflated using the world import and export price deflators, respectively, from the *IFS* database, to get each economy's real imports and exports. The series on real GDP in U.S. dollars is from the *WEO* database. Import- and export-weighted partner GDP and GDP per capita are constructed using real GDP in U.S. dollars and import and export weights from the *DOTS* database. These weights vary each year based on the actual import and export flows between economies.6

Table A2 Summary Statistics of Main Variables

Data on imports and exports by product category are constructed from the NBER-UN *World Trade Flows* database (see Feenstra and others, 2005). The database is first extended using the UN *Comtrade* database. The Standard International Trade Classification, Revision 2 (SITC Rev. 2) codes that identify products in the NBER-UN trade data are matched to the UN Broad Economic Classification (BEC) codes. These are then classified into Capital Goods, Consumer Durables, Consumer

Nondurables, Intermediate Goods, and Primary Goods, following Pula and Peltonen (2009).7

Table A3 Imports and Exports Following Crises: Robustness

The measure of trade liberalization is from the IMF Structural Reforms Database and is described in Giuliano, Mishra, and Spilimbergo (2013).

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