How Does Trade Evolve in the Aftermath of Financial Crises?

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Abdul Abiad, Prachi Mishra & Petia Topalova

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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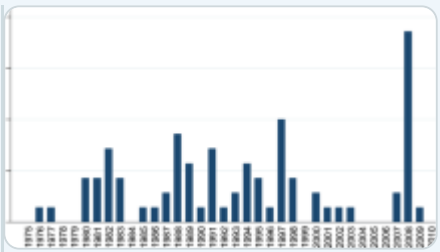

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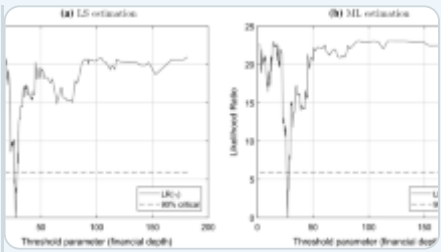

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Notes

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.

References

Abiad, Abdul, and others, 2009, "What's the Damage? Medium-Term Output Dynamics after Banking Crises," IMF Working Paper 09/245 (Washington: International Monetary Fund).

Abiad, Abdul, Giovanni Dell'Ariccia, and Bin Li, 2011, "Creditless Recoveries," IMF Working Paper 11/58 (Washington: International Monetary Fund).

Alessandria, George, Joseph P. Kaboski, and Virgiliu Midrigan, 2010, "The Great Trade Collapse of 2008–09: An Inventory Adjustment?," IMF Economic Review, Vol. 58, No. 2, pp. 254–94.

Article Google Scholar

Alessandria, George, Joseph P. Kaboski, and Virgiliu Midrigan, 2011, "Inventories, Lumpy Trade and Large Devaluations," American Economic Review, Vol. 101, No. 3, pp. 303–7.

Article Google Scholar

Amiti, Mary and David E. Weinstein, 2011, "Exports and Financial Shocks," Quarterly Journal of Economics, Vol. 126, No. 4, pp. 1841–77.

Article Google Scholar

Anderson, James and Eric Van Wincoop, 2003, "Gravity with Gravitas: A Solution

to the Border Puzzle," American Economic Review, Vol. 93, No. 1, pp. 170–92.

Article Google Scholar

Baier, Scott and Jeffrey Bergstrand, 2007, "Do Free Trade Agreements Actually Increase Members' International Trade?," Journal of International Economics, Vol. 71, No. 1, pp. 72–95.

Article Google Scholar

Baldwin, Richard, 2009, *The Great Trade Collapse: Causes, Consequences and Prospects*. Available via the Internet: www.voxeu.org/index.php?q=node/4297.

Baldwin, Richard and Daria Taglioni, 2006, "Gravity for Dummies and Dummies for Gravity Equations," NBER Working Paper No. 12516 (Cambridge, MA: National Bureau of Economic Research).

Beim, David and Charles Calomiris, 2001, *Emerging Financial Markets*, appendix to Chapter 1 (New York: McGraw-Hill/Irwin).

Bems, Rudolphs, Robert C. Johnson, and Kei-Mu Yi, 2010, "Demand Spillovers and the Collapse of Trade in the Global Recession," IMF Economic Review, Vol. 58, No. 2, pp. 295–326.

Article Google Scholar

Berman, Nicolas and Philippe Martin, 2012, "The Vulnerability of sub-Saharan Africa to the Financial Crisis: The Case of Trade," IMF Economic Review, Vol. 60, No. 3, pp. 329–64.

Article Google Scholar

Bertrand, Marianne, Esther Duflo, and Sendhil Mullainathan, 2004, "How Much Should We Trust Differences-in-Differences Estimates?," Quarterly Journal of

Economics, Vol. 119, No. 1, pp. 249–75.

Article Google Scholar

Blomberg, S. Brock and Gregory D. Hess, 2006, “How Much Does Violence Tax Trade?,” Review of Economics and Statistics, Vol. 88, No. 4, pp. 599–612.

Article Google Scholar

Bown, Chad P., 2010, “Global Antidumping Database.” Available via the Internet: http://econ.worldbank.org/ttbd/gad/.

Braun, Matías and Borja Larrain, 2005, “Finance and the Business Cycle: International, Inter-Industry Evidence,” Journal of Finance, Vol. 60, No. 3, pp. 1097–128.

Article Google Scholar

Caprio, Gerard, Daniela Klingebiel, Luc Laeven, and Guillermo Noguera, 2005, “Appendix: Banking Crisis Database,” in Systemic Financial Crises: Containment and Resolution, ed. by Patrick Honohan, and Luc Laeven (Cambridge, U.K.: Cambridge University Press).

Google Scholar

Cerra, Valerie and Sweta Saxena, 2008, “Growth Dynamics: The Myth of Economic Recovery,” American Economic Review, Vol. 98, No. 1, pp. 439–57.

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Chor, Davin and Kalina Manova, 2012, “Off the Cliff and Back? Credit Conditions and International Trade during the Global Financial Crisis,” Journal of International Economics, Vol. 87, No. 1, pp. 117–33.

Article Google Scholar

Cook, David and Michael Devereux, 2006, “External Currency Pricing and the East Asian Crisis,” Journal of International Economics, Vol. 69, No. 1, pp. 37–63.

Article Google Scholar

Eaton, Jonathan, Sam Kortum, Brent Neiman, and John Romalis, 2011, “Trade and the Global Recession,” NBER Working Paper No. 16666 (Cambridge, MA: National Bureau of Economic Research).

Evenett, Simon J., 2009, “What Can Be Learned from Crisis-Era Protectionism? An Initial Assessment,” CEPR Discussion Paper No. 7494 (London: Centre for Economic Policy Research).

Feenstra, Robert, 2002, Advanced International Trade: Theory and Evidence (Princeton: Princeton University Press).

Google Scholar

Feenstra, Robert *et al*. 2005, “World Trade Flows: 1962–2000,” NBER Working Paper No. 11040 (Cambridge, Massachusetts: National Bureau of Economic Research).

Frankel, Jeffrey, Ernesto Stein, and Shang-Jin Wei, 1996, “Regional Trading Arrangements: Natural or Supernatural?,” American Economic Review, Vol. 86, No. 2, pp. 52–6.

Google Scholar

Freund, Caroline, 2009, “The Trade Response to Global Downturns: Historical Evidence,” Policy Research Working Paper No. 5015 (Washington: World Bank).

Friedman, Jed and James Levinsohn, 2003, “The Distributional Impacts of

Indonesia's Financial Crisis on Household Welfare: A 'Rapid Response' Methodology," The World Bank Economic Review, Vol. 16, No. 3, pp. 397–423.

Article Google Scholar

Glick, Reuven and Andrew K. Rose, 2002, "Does a Currency Union Affect Trade? The Time Series Evidence," European Economic Review, Vol. 46, No. 6, pp. 1125–51.

Article Google Scholar

Glick, Reuven and Alan M. Taylor, 2010, "Collateral Damage: Trade Disruption and the Economic Impact of War," Review of Economics and Statistics, Vol. 92, No. 1, pp. 102–27.

Article Google Scholar

Gopinath, Gita and Brent Neiman, 2011, "Trade Adjustment and Productivity in Large Crises," NBER Working Paper No. 16958 (Cambridge, MA: National Bureau of Economic Research).

Gourinchas, Pierre-Olivier and Maurice Obstfeld, 2012, "Stories of the Twentieth Century for the Twenty-First," American Economic Journal: Macroeconomics, Vol. 4, No. 1, pp. 226–65.

Google Scholar

Gregory, Rob, Christian Henn, Brad McDonald, and Mika Saito, 2010, "Trade and the Crisis: Protect or Recover," IMF Staff Position Note 10/07 (Washington: International Monetary Fund).

Giuliano, Paola, Prachi Mishra, and Antonio Spilimbergo, 2013, "Democracy and Reforms: Evidence from a New Dataset," American Economic Journal: Macroeconomics, Vol. 5, No. 4, pp. 179–204.

Google Scholar

Harrigan, James, 2001, “Specialization and the Volume of Trade: Do the Data Obey the Laws?” NBER Working Paper No. 8675 (Cambridge, MA: National Bureau of Economic Research).

Helpman, Elhanan, Marc Melitz, and Yona Rubinstein, 2008, “Estimating Trade Flows: Trading Partners and Trading Volumes,” Quarterly Journal of Economics, Vol. 123, No. 2, pp. 441–87.

Article Google Scholar

Iacovone, Leonardo and Veronika Zavacka, 2009, “Banking Crises and Exports: Lessons from the Past,” Policy Research Working Paper 5016 (Washington, DC: World Bank).

International Monetary Fund (IMF). 2004, “A New Look at Exchange Rate Volatility and Trade Flows,” IMF Occasional Paper No. 235 (Washington: International Monetary Fund).

International Monetary Fund (IMF). 2009, “What’s the Damage? Medium-term Output Dynamics after Financial Crises,” *World Economic Outlook*, Chapter 4, October.

Kaminsky, Graciela L. and Carmen M. Reinhart, 1999, “The Twin Crises: The Causes of Banking and Balance of Payments Problems,” American Economic Review, Vol. 89, No. 3, pp. 473–500.

Article Google Scholar

Klein, Michael W. and Jay C. Shambaugh, 2006, “Fixed Exchange Rates and Trade,” Journal of International Economics, Vol. 70, No. 2, pp. 359–83.

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Laeven, Luc and Fabian Valencia, 2008, “Systemic Banking Crises: A New Database,” IMF Working Paper 08/224 (Washington: International Monetary Fund).

Laeven, Luc and Fabian Valencia, 2010, “Resolution of Banking Crises: The Good, the Bad, and the Ugly,” IMF Working Paper 10/146 (Washington: International Monetary Fund).

Levchenko, Andrei, Logan Lewis, and Linda Tesar, 2010, “The Collapse of International Trade during the 2008–2009 Crisis: In Search of the Smoking Gun,” IMF Economic Review, Vol. 58, No. 2, pp. 214–53.

Article Google Scholar

Ma, Zihui and Leonard Cheng, 2005, “The Effects of Financial Crises on International Trade,” NBER Conference Volume, International Trade in East Asia Seminar on Economics, Vol. 14 (Cambridge, MA: National Bureau of Economic Research).

Martin, Philippe, Thierry Mayer, and Mathias Thoenig, 2008, “Make Trade, Not War?,” Review of Economic Studies, Vol. 75, No. 3, pp. 865–900.

Article Google Scholar

McKinsey Global Institute. 2010, Debt and Deleveraging: The Global Credit Bubble and Its Economic Consequences. (McKinsey Global Institute).

O’Rourke, Kevin, 2009, “Government Policies and the Collapse in Trade during the Great Depression,” in *The Great Trade Collapse: Causes, Consequences and Prospects*, ed. by Richard Baldwin. Available via the Internet: www.voxeu.org/index.php?q=node/4267.

Pedroni, Peter, 2004, “Panel Cointegration; Asymptotic and Finite Sample Properties of Pooled Time Series Tests with an Application to the PPP Hypothesis,” Econometric Theory, Vol. 20, No. 3, pp. 597–625.

Article Google Scholar

Pula, Gabor and Tuomas Peltonen, 2009, “Has Emerging Asia Decoupled? An Analysis of Production and Trade Linkages Using the Asian International Input-Output Table,” ECB Working Paper No. 993 (Frankfurt: European Central Bank).

Qureshi, Mahvash Saeed, 2009, “Trade and Thy Neighbor’s War,” IMF Working Paper 09/283 (Washington: International Monetary Fund).

Reinhart, Carmen and Kenneth Rogoff, 2008, “Banking Crises: An Equal Opportunity Menace,” NBER Working Paper No. 14587 (Cambridge, MA: National Bureau of Economic Research).

Reinhart, Carmen and Kenneth Rogoff, 2009a, This Time is Different: Eight Centuries of Financial Folly (Princeton: Princeton University Press).

Google Scholar

Reinhart, Carmen and Kenneth Rogoff, 2009b, “The Aftermath of Financial Crises,” American Economic Review, Vol. 99, No. 2, pp. 466–72.

Article Google Scholar

Rose, Andrew, 2000, “One Money, One Market: Estimating the Effect of Common Currencies on Trade,” Economic Policy, Vol. 15, No. 30, pp. 7–46.

Article Google Scholar

Sturzenegger, Federico and Jeromin Zettelmeyer, 2006, *Debt Defaults and*

Lessons from a Decade of Crises, Chapter 1, Table 1 (Cambridge, MA: MIT Press).

Tang, Gary and Christian Upper, 2010, "Debt Reduction After Crises," *BIS Quarterly Review*, September.

Thursby, Marie and Jerry Thursby, 1987, "Bilateral Trade Flows, the Linder Hypothesis, and Exchange Risk," Review of Economics and Statistics, Vol. 69, No. 3, pp. 488–95.

Article Google Scholar

World Bank, 2002, *Global Development Finance*, appendix on commercial debt restructuring (Washington: World Bank).

Yu, Miaojie, 2010, "Trade, Democracy and the Gravity Equation," Journal of Development Economics, Vol. 91, No. 2, pp. 289–300.

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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

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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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