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Preliminary

When the North Heads South: The World in Crisis

Carmen M. Reinhart
University of Maryland and the NBER

Vincent Reinhart
The American Enterprise Institute

What began as the subprime crisis in the United States during the summer of 2007 morphed into a severe financial crisis in advanced economies of the “North.” As exports collapsed and financing from global capital markets dried up, the “South” was engulfed in the crisis, at which point it became truly global. These events led to monetary and fiscal stimulus efforts worldwide.

We focus on three aspects of recent experience through the lens of a large dataset on financial crises. **First**, the propagation and magnification of the downturn owed importantly to **international linkages**. A simultaneous and sharp downturn in export volumes as has been seen in the past year has only been matched once in the past century—in the Great Depression. **Second**, the **simultaneity** of the downdraft has consequences for the effectiveness of policy, a lesson that can be informed by the mixed record of the abandonment of the gold standard in the 1930s. **Third**, given the virulence of the global contraction and the uncertainty about the effectiveness of monetary policy, fiscal action looms especially large. However, that policy has to be time-consistent, which requires policy makers not to add to **uncertainty** or declare victory prematurely.

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I. Introduction

The advanced economies of the world have been shocked out of their two-decade-long “Great Moderation.” The larger share of the world’s population who live in emerging market and developing economies has never known that peace. As Guillermo Calvo presciently pointed out, macroeconomics is interesting when volatility is high.¹ Macroeconomics in advanced economies has just gotten interesting because the North has headed south.

Those advanced economies have been there before. There is ample precedent for financial crises and wrenching economic adjustment. Among the advanced economies, those examples either occurred before World War II or in open economies that were out of sync with the global cycle.² We make a variety of comparisons of crises, corrections, and policy responses using a large set of events sampled over time and across countries. However, to find a synchronous correction in large and small countries requires going back to the Great Depression, as Eichengreen and O’Rourke (2009) already have usefully detailed. Our main comparator for the current global contraction will also be this predecessor of the 1930s.

Thus far, the evolving narrative to explain events has mostly been narrow and focused inward to the United States. It also lacks the complexity featured, say, in the chronicling of emerging market crashes by Diaz-Alejandro (1984 and 1985) and of large-country corrections by Kindleberger (1989). Central to those stories were the incompleteness of markets, the fickleness of investors, and the inconsistency of policymakers. Instead, macroeconomists have mostly focused on the power of policy in allowing an asset bubble to inflate but then employing massive

¹ Quoted in Rowe (2007).

² Reinhart and Rogoff (2009) provide many comparisons and a full explanation of the data.

fiscal stimulus and the central bank's balance sheet, both here and abroad, to cut short contraction.

We believe that the story is more complicated in three material ways. Global linkages made the downturn more severe and will make recovery more problematic. The threads of this argument will be addressed in three separate sections that follow.

First, the propagation and magnification of the downturn owed importantly to **international linkages**. As opposed to most other financial crises over the past century, activity is collapsing in unison. Indeed, the rarity of current circumstances is why we rely on an event three-quarters-century old, the Great Depression, as the main comparator.

Second, the **simultaneity** of the downdraft has consequences for the effectiveness of policy. Unconventional monetary policy action is a “foolproof” solution in preventing deflation for an open economy that can generate additional demand through exchange-rate depreciation.³ That fits the experience of the Nordic countries in the 1990s or the Asian crisis cases in 1997-1998, in which a prompt policy response produced a quick turnaround from banking crisis. But when the global pie is shrinking, such action may be less effective. Mundell (1968) pointed the way with his discussion of the N+1 currency problem: Countries that depreciate lead to appreciation somewhere else. Moving off the gold standard was an unconventional monetary policy action that bought fiscal authorities more space for stimulus.⁴ Those actions were mostly uncoordinated in time, scale, and scope. As a consequence, the record of abandoning the gold standard and the speed of recovery is quite mixed.

³ To use the phrase of Lars Svensson (2003).

⁴ It also allowed everyone to devalue relative to the N+1 price, gold, as discussed in Eichengreen (1992) and Romer (1992).

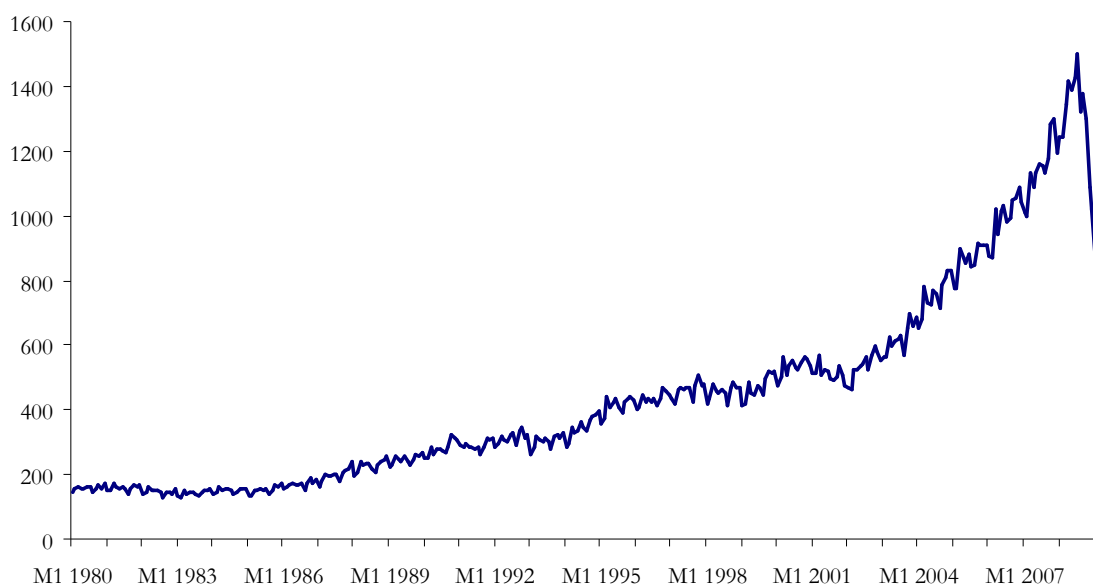
Third, given the virulence of the global contraction and the uncertainty about the effectiveness of monetary policy, fiscal action looms especially large. Massive increases in spending were put in place during the 1930s, but fiscal authorities acted **inconsistently** and were prone to reverse themselves. As a result, some of the direct benefits of spending impetus were offset by the volatility of that impetus. The central message is that policy has to be time-consistent, which requires policy makers not to add to uncertainty or declare victory prematurely. Progress has been made, in that policy in many emerging market economies is not now as decidedly pro-cyclical as it was in the 1930s. But asking for more from them may be asking too much. Weak institutions and a poor record of policy making in many emerging market economies have limited their ability to take counter-cyclical action. In such circumstances, the advanced economies may have to shoulder relatively more of the responsibility for reflation.

The final section offers concluding comments.

II. The First Post-World-War-II Global Crisis

The Business Cycle Dating Committee of the National Bureau of Economic Research puts the peak of the U.S. cycle at the end of 2007. There is no such equivalent formalism at the world level, but indicators for most other countries started turning down about one-half-year later, consistent with the United States leading everyone down. We know from Barro and Ursúa (2008) that occasional, large adverse shocks hit, but we do not always know why. That uncertainty is compounded when considering the simultaneous contraction of many national economies. World merchandise exports, plotted in Figure 1, show the clear imprint.

Figure 1. World exports, and regional groupings, 1980-2009
Billions of U.S. dollars



	<i>Month of Peak</i>	<i>Last observation</i>	<i>Decline from peak, percent</i>
World	July-08	Mar-09	-35%
Emerging and Developing Economies	July-08	Jan-09	-45%
Africa	July-08	Sep-08	-18%
CIS and Mongolia	July-08	Apr-09	-55%
Central and Eastern Europe	July-08	Mar-09	-35%
Developing Asia	July-08	Jan-09	-37%
Western Hemisphere	July-08	Apr-09	-37%
Europe	July-08	Apr-09	-48%

Source: International Monetary Fund, International Financial Statistics

The contraction in income in many countries has shrunk world export demand, reflected both in declines in exports volumes (as in Figure 1) and in commodity prices. Across the major

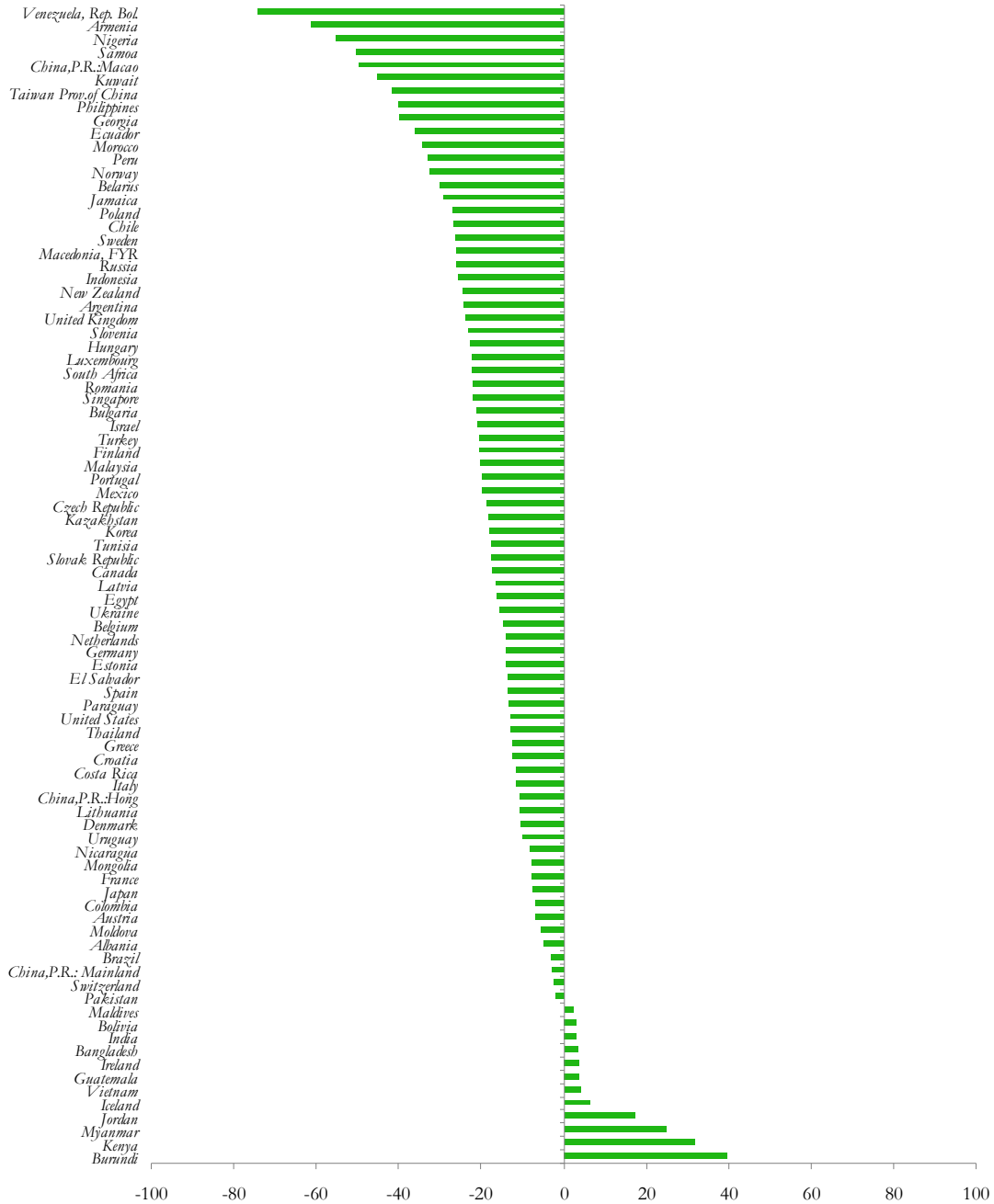
regions of the world, the lower panel, the level of exports topped out in July 2008. Since then, the world total has fallen 35 percent. Some regions, though, have seen their export shipments fall more than half, not at an annual rate. No region has been immune, implying that “decoupling” from the world leader was an aspiration, not a reality.

Figure 2 adds information on the widespread nature of the collapse, which affected countries in all regions, low-, middle-, and high-income alike. The world aggregates are truly representative of the individual country experience and not driven by developments in a handful of large countries that have heavy weights. Only a dozen countries in the sample of 87 show an increase in nominal merchandise exports. And the declines were substantial in many cases, with the median drop about one-quarter.

The commonality of this experience is difficult to explain with standard trade variables. Table 1 reports one such regression-based attempt for 57 countries. The usual suspects include openness, proxied by the ratio of total merchandise trade (exports plus imports) to nominal GDP, and exposure to the center of the global contraction, or exports to the United States as a share of total exports. Those ratios are measured as of 2006, before the onset of the economic turbulence. We also included national current account balances relative to GDP (averaged over 2002 to 2006). Presumably, an economy reliant on foreign sources of funding is more likely to slash activity when financial market access comes to a sudden stop, to use a phrase made famous by Guillermo Calvo (1998). Lastly, we added a measure of the propensity toward banking crises, or the share of years from 1980 to 2006 in which there were banking crises in each country (using the definitions in Reinhart and Rogoff, 2009). A country where banking crises are prevalent

Figure 2. The collapse of exports, 2007-2008

Change from 2007:12 to 2008:12, percent



Source: International Monetary Fund, *International Financial Statistics*.

Probably has a weak institutional structure and does not enjoy the confidence of investors, whether foreign or domestic.

Table 1

Potential determinants of the changes in exports

2007:12 to 2008:12, across 57 countries

<i>Explanatory variables:</i>	<i>Explaining:</i>			
	Change in exports 2007 to 2008, percent			
	(1)	(2)	(3)	(4)
Constant	-18.311 <i>3.058</i>	-18.182 <i>2.323</i>	-17.908 <i>1.914</i>	-18.680 <i>3.275</i>
Openness, 2006 (X+M)/GDP	-0.302 <i>3.142</i>			
Exports to U.S., 2006 as a share to total exports		-1.277 <i>4.489</i>		
Current account balance, 2002 to 2006			-0.641 <i>0.308</i>	
Unconditional probability of a banking crisis, 1980 to 2006				0.008 <i>0.140</i>
Adjusted R ²	-0.018	-0.017	0.056	-0.018
Standard error of the regression	14.190	14.810	14.270	14.820

Note: Standard errors are given in italics.

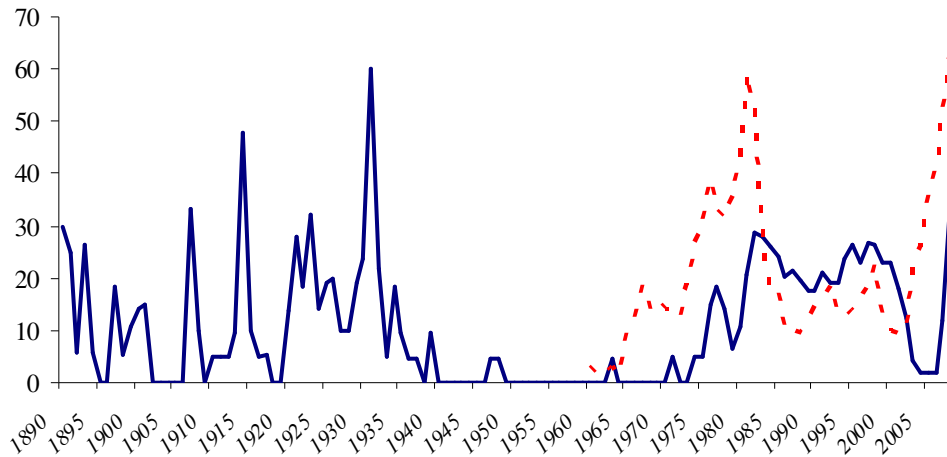
In the event, the contraction in exports, which averages around 20 percent in this group, cannot be explained by these variables, either individually (as detailed in the columns of the table) or jointly (not shown). The only statistically significant coefficient is on the current account and implies that countries with larger current account surpluses (or those that are net suppliers of funds to the world) had larger declines in exports. This would seem to suggest that

problems are more prevalent at countries with export-led-growth strategies rather than those cut off from funding, at least for now. In any event, the quantitative significance is slight.

This is not to say that the antecedents of some elements of the current crises were entirely hidden from view. Key elements of the current correction have been the deflation of an asset bubble and the resultant wreck of many financial institutions that had levered up excessively during its inflation. It have a pattern has often been repeated in the modern era of global finance. Investors turn with interest toward some asset class or national market. Capital flows in volume, and asset prices to rally. These favorable asset price movements improve national fiscal indicators and encourage domestic credit expansion. These, in turn, exacerbate structural weaknesses in the domestic banking sector. When excesses accumulate and investors' attention waver, market prices collapse. The shock sometimes threatens key national financial institutions and almost always has macroeconomic repercussions.

We investigated this pattern in Reinhart and Reinhart (2009) by identifying episodes when countries received capital inflow "bonanzas," or episodes when the capital account surplus (current account deficit) was historically large. The thresholds were chosen on a country-by-country case, but it turned out that many countries tended to experience bonanzas at the same time. Figure 3 updates the data on capital flow bonanzas through this year. It also shows how some of the seeds of the current distress had been sown over the prior few years. The dashed line shows the share of the nations experiencing a bonanza out of the total, which is about 50 countries at the start of the sample in 1965 and 180 at the end.

Figure 3
Banking crises and capital flow bonanzas
 share of countries, percent



Source: Reinhart and Reinhart (2008), Reinhart and Rogoff (2009), and authors' calculations

The solid line gives the incidence of banking crises since 1980, taken from Reinhart and Rogoff (2009). Two points are evident. First, capital flows do tend to surge into many countries in waves and in advance of banking crises. Second, the past few years had been witness to a pickup in capital-flow bonanzas on the order witnessed just before the Latin American debt crisis in the early 1980s. Such a surge in flows usually brings with it mistakes, often costly ones in terms of financial distress.⁵

With this record of investor enthusiasm, that financial crisis would follow at some point is not that surprising. The widespread declines in trade introduce a higher order to the problem, because the resolution of financial crises typically relies on an external spur to growth. The necessary longer perspective is provided in Table 2. The rows give the growth of real exports for

⁵ Logistic regressions on this annual data suggest that capital-flow bonanzas lead financial crises by three to four years. For other evidence of some limited predictability of crises, see Kaminsky, Lizondo, and Reinhart (1998).

Table 2

Export growth at a time of crisis

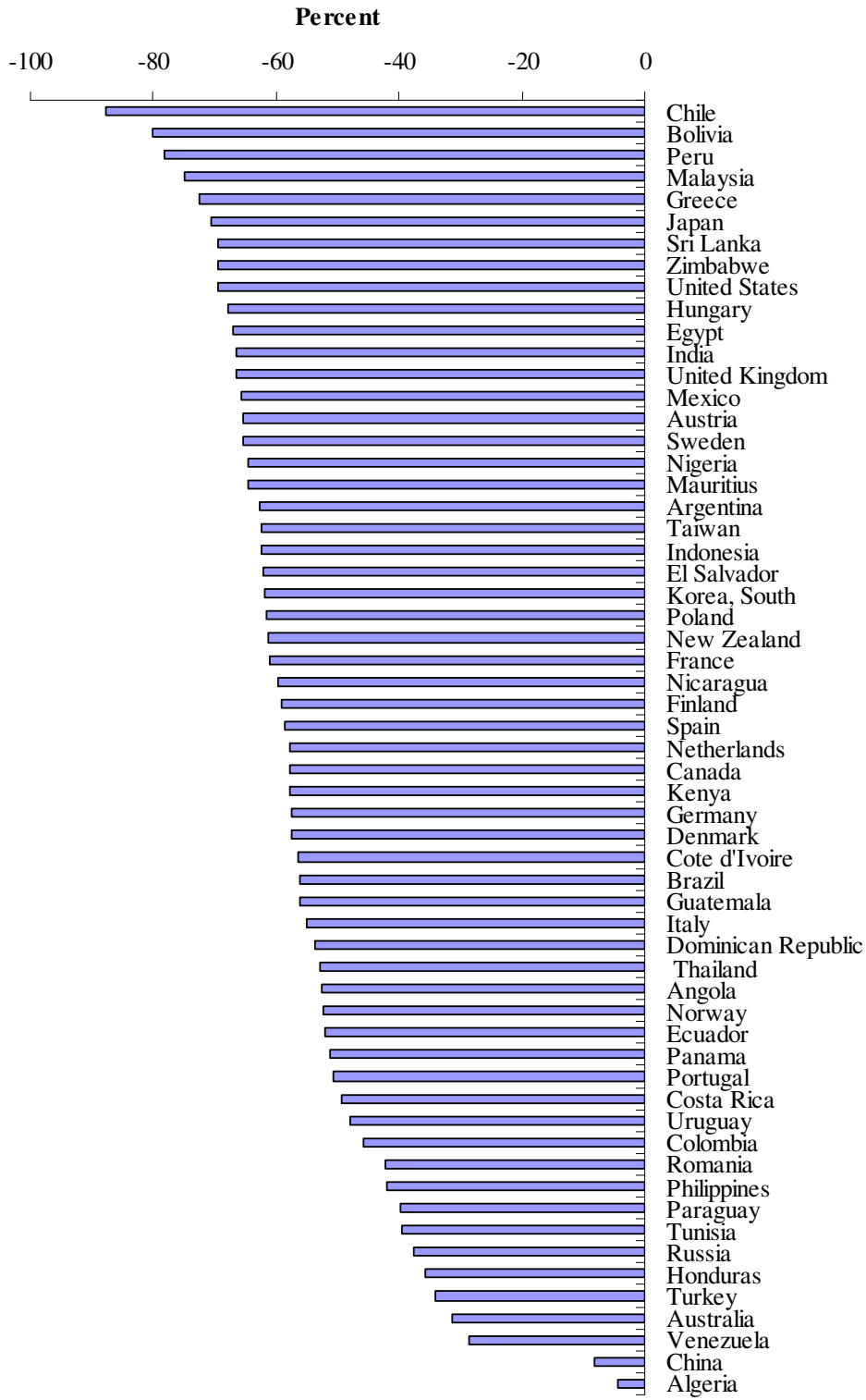
Episode	Years	Number of countries included	Share of countries with export declines	Share with export declines greater than 15 percent	Largest decline	Median change
Average	1890-1939	70	41.1	18.0	-82.2	4.5
Average	1957--2008	99	33.0	14.6	-92.0	9.2
Regional or global episodes						
Barings crisis	1890	35	34.3	5.2	-18.0	2.2
	1891	35	57.1	8.6	-47.5	-1.0
Panic of 1907	1907	73	31.5	4.1	-27.4	6.9
	1908	75	66.7	20.0	-33.6	-5.4
Commodity crash	1920	70	48.6	31.4	-60.9	1.4
	1921	73	76.7	54.8	-73.7	-19.8
Great Contraction	1929	94	43.6	13.8	-36.2	1.3
	1930	94	88.3	48.9	-51.2	-13.9
	<i>1931</i>	<i>95</i>	<i>100</i>	<i>88.4</i>	<i>-73.5</i>	<i>-33.3</i>
	1932	95	80.0	62.1	-53.8	-17.1
Sterling crisis	1967	104	48.5	23.3	-92.0	0.4
End of BrettonWoods	1973	111	11.7	4.5	-79.4	39.1
First oil shock	1975	110	41.8	29.1	-78.3	1.8
Latin American debt crisis	1981	106	60.4	31.1	-70.7	-3.6
	1982	108	62.3	29.2	-77.2	-4.0
Nordic crises	1991	93	57.0	26.9	-75.8	-1.4
Exchange Rate Mechanism	1992	95	36.8	14.7	-65.6	3.9
Tequila crisis	1995	105	23.8	11.4	-79.3	9.4
Asia, Russia, LTCM	1997	109	40.4	13.8	-83.8	2.8
	1998	107	51.4	22.4	-62.4	-1.4
September 11	2001	108	74.1	28.7	-39.8	-9.6
2 nd Great Contraction	2008	87	86.2	52.9	-74.1	-16.6
	<i>2009(April)</i>	<i>42</i>	<i>100</i>	<i>92.9</i>	<i>-62.2</i>	<i>-36.6</i>

different subperiods from 1890 to today for a sample that ranges 35 to 111 countries. The periods are chosen by the spikes in the banking crisis data just shown. It is not unprecedented for the majority of countries to experience declines in real exports coincident with such crises. Many of the median changes listed in the last column are negative and the largest declines can be quite large, indeed. The scale of the most recent experience, however, has only one precedent, the early 1930s.

The scope of the problem also sets off the Great Depression and the current second great contraction. Virtually all of the nations of the world then and now witnessed shrinking trade flows. Moreover, the declines are sizable in both cases. More than four-fifths the countries in both periods saw contractions in exports of greater than 15 percent. No other crisis period in the past century matches that experience.

To be more explicit about the comparison, Figure 4 repeats the format of the prior one to show the collapse in trade volumes cumulatively from 1929 to 1933. The collapse was total. A finer distinction can be made between the collapse then and now and the paths followed in most post-WWII systemic banking crises. The solid blue line in Figure 4 shows the experience of exports in fifteen systemic crises (as defined in Reinhart and Rogoff, 2009). In most of them, a small-to-moderate-sized open economy suffered

Figure 4. The collapse of exports, 1929-1932 (cumulative percent change)

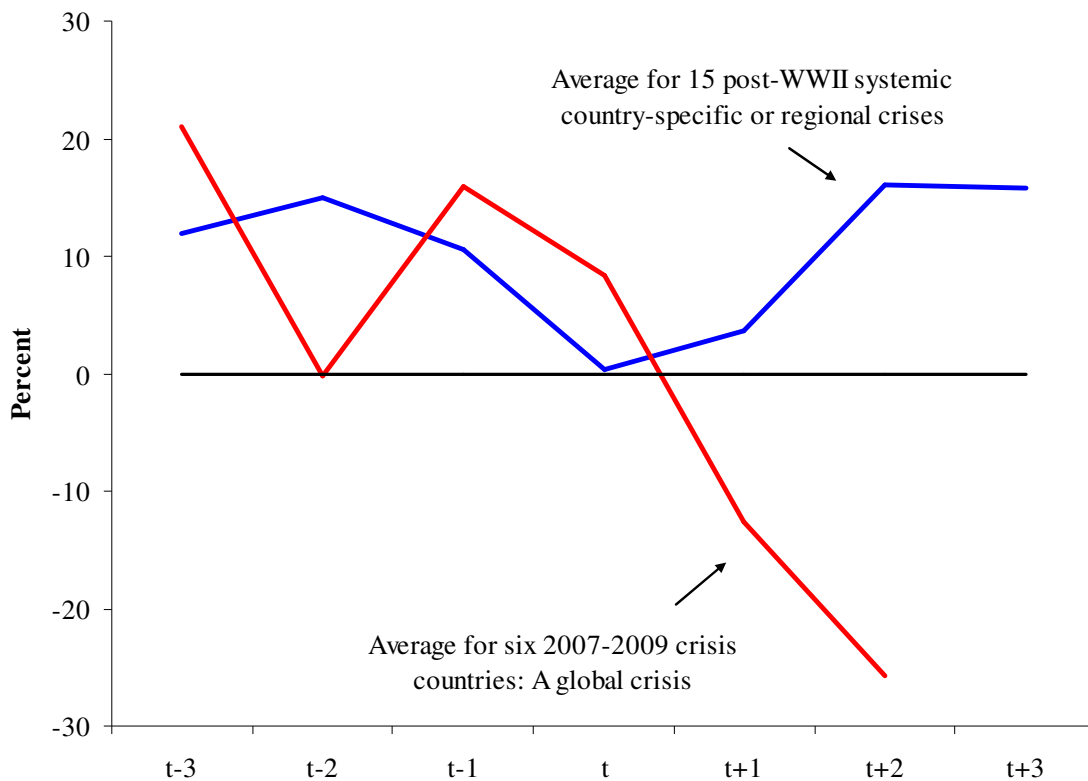


Sources: The individual country sources are provided in the Data Appendix and authors' calculations

Figure 5 makes this comparison more explicitly. The solid blue line shows the experience of exports in fifteen systemic crises (as defined in Reinhart and Rogoff, 2009). In most of them, a small-to-moderate-sized open economy suffered considerable losses on the

Figure 5. Export growth before and after systemic banking crises: A comparison of global and country-specific or regional episodes (12-month change, end-of-year)

Add a line on the Depression



Sources: International Monetary Fund, *International Financial Statistics* and authors' calculations.

Notes: The 15 post WWII systemic crises are: Spain, 1977, Chile 1981, Norway 1987, Finland and Sweden 1991, Japan 1992, Mexico 1994, Hong Kong, Indonesia, Korea, Malaysia, Philippines and Thailand 1997, Colombia 1998, and Argentina 2001. The six 2007-2009 crisis countries are Austria, Hungary, Ireland, Spain, United Kingdom, and United States. The most recent observation (t+2) for this group is the 12-month change ending April 2009 for the United States and ending March 2009 for the remaining five countries.

balance sheets of national financial champions. This put pressure on fiscal resources because private debts become public ones at a time of stress. The impairment of markets and the

destruction in wealth spilled over to macroeconomic activity and was associated with a contraction in trade.

But that revision to investors' outlook was not without benefits as well. A newfound disfavor in global markets led to significant exchange-rate depreciation that spurred demand in these open economies. Hence, we see a 15 percentage-point swing in export growth. Importantly, these countries benefited from being out of cycle with the rest of the world, as they could grab a larger slice of an expanding pie. Opportunities are scarcer when the global pie shrinks. As the red-dashed line shows, exports have thus far contracted sharply in a world entangled in crisis. The figure also shows that it happened before. Exports fell markedly, the dashed line, after the financial crisis that produced the Great Depression.

III. Monetary Policy: Lessons from the Past and the Recent Response

Monetary and exchange rate policy during the Great Depression: Revisiting the received

The shock from the correction of excesses in the residential real estate and asset markets and the propagation through world trade has imposed a considerable drag on the global economy. This opens an opportunity for policy action. There was similarly a role for policy in the 1930s, and that role was undertaken by authorities. Understanding why those actions only gained traction slowly and fitfully can provide important lessons for today. In this section, we consider monetary policy and in the next fiscal policy.

The key decision that shifted the stance of monetary policy decisively toward ease was made outside the Federal Reserve. The combination of devaluation of gold by newly-inaugurated President Roosevelt and subsequent gold inflows as a result of instability in Europe

produced a large increase in high-powered money here at home.⁶ As shown in Figure 6, high-powered money increased 60 percent from March 1933 to May 1937 (the trough and peak, respectively, of the business cycle). As opposed to the pre-1933 experience in which high-powered money and the monetary aggregates went their separate ways, M1 also expanded 60 percent from 1933 to 1937. The short-term nominal interest rate, proxied in the bottom panel by the three-month Treasury bill rate, was already close to zero. Thus, from 1932 onward, it was a decade in which policy impetus could not be measured by the level of the short-term interest rate, either in real or nominal terms, alone. The size and the composition of the monetary authority's balance sheet had the potential to influence financial markets and the economy. An enlarged size of the balance sheet also could provide fiscal authorities more space to be aggressive, if they felt so inclined. This all meets the definition of "unconventional" monetary policy and quantitative easing (as in Bernanke and Reinhart, 2004). In the standard rendering, there were three acts to this episode of quantitative easing (Q.E.)

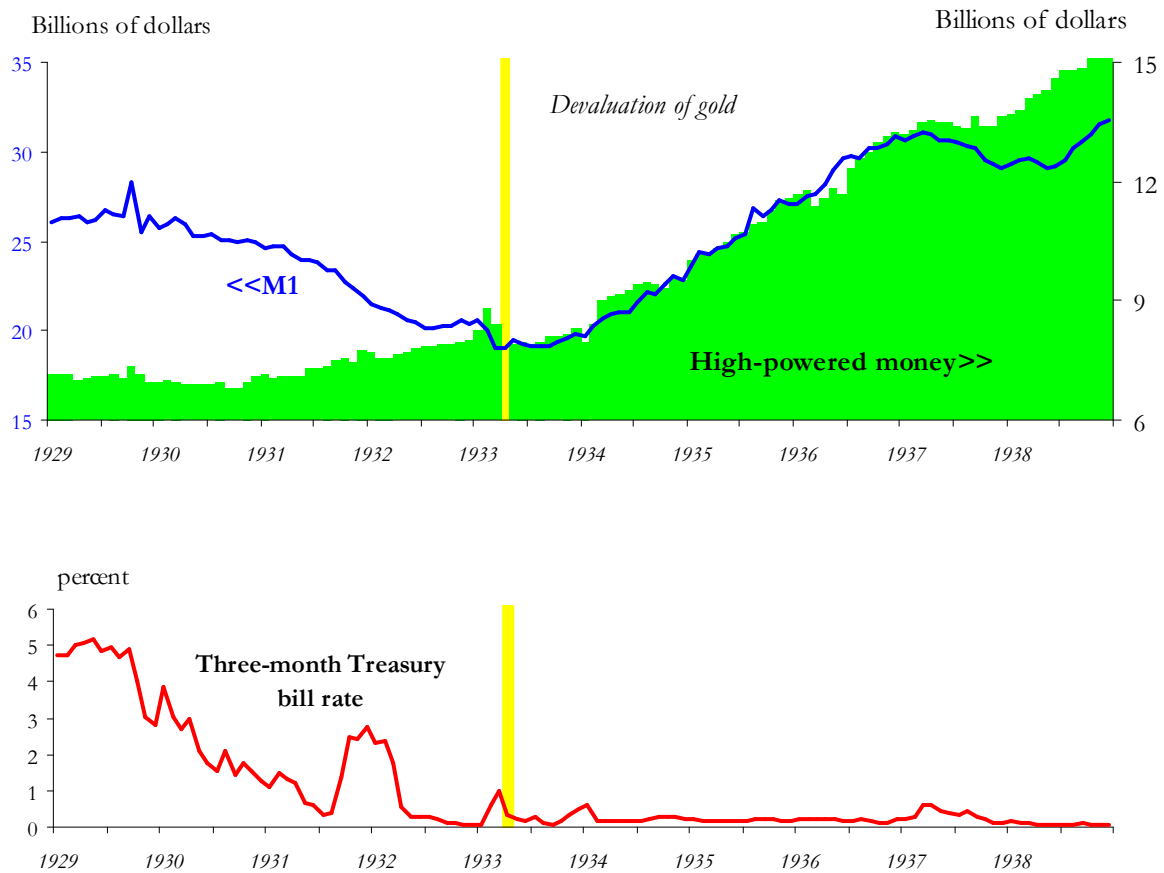
In the first act in 1932, U.S. policymakers extended their mistake of the prior three years in not addressing a crisis of confidence. High-powered money did expand, but by a singularly insufficient amount to offset increases in desired currency and reserve holdings, as detailed in Friedman and Schwartz (1963) and Cagan (1965).⁷ Roosevelt's decision to devalue relative to gold in 1933 triggered an expansion in the monetary authority's balance sheet and sent a clear signal of the intent to reflate.⁸

⁶ Eichengreen (1992), Romer (1992), and Bernanke (2004) explain the mechanics.

⁷ This failure can be explained either as the Fed being hamstrung by the gold standard (as in Eichengreen, 1992) or focused too much on reserve supply rather than reserve demand (as in Meltzer, 2003). In any case, it would be a failure of the willingness to use policy, not the ability. Hsieh and Romer (2006) show that a short-lived monetary accommodation in 1932 did not trigger concerns in markets or among policy makers about a destabilizing exit from the gold standard.

⁸ Romer (1992) stresses the multiplier effects of the former while Eichengreen and Temin (2000) emphasizes the change in the zeitgeist as rekindling inflation expectations.

Figure 6. Monetary conditions in the Great Depression



Source: Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*, 1943.

In the final act of the decade, policy makers repeated their initial mistake and contracted policy through sterilization of gold inflows in 1936 and an increase in reserve requirements in 1937. Both acts stalled the expansion of high-powered money and rolled back some of the increase in M1.⁹

This third act, an almost farcical repeat of the tragedy of the first act, highlights the danger of a premature exit from policy accommodation (as Romer, 2009, has pointed out). It is

⁹ Meltzer (2003) and Orphanides (2004) review this experience.

the middle act, moving off the gold standard, that has been praised and that offers the best hope that unconventional policy action can spur recovery. The U.S. experience can be interpreted that way, but the wider foreign record is more mixed.

Table 3 gives a year-by-year chronology of exits from the gold standard, along with some information about the course of economic recovery. The first column provides the year that output peaked, mostly 1928 or 1929. The second column lists the peak-to-trough decline in output. This was, indeed, a wrenching contraction, with the 29 percent decline in output in the United States close to the median experience. Small open economies that were reliant on commodity production were hit especially hard, seen in the experience in Latin America. Most closed economies, in contrast, fared better. The last column provides a metric for recovery: the number of years it took for output to return to the peak value. This seems an intuitive way to measure a downturn, but it is also quite conservative. Ongoing expansion in potential output implies that a return to the pre-recession level of production is not synonymous with an elimination economic slack. The striking aspects of that last column are how varied was the experience and how long was the path to recovery.

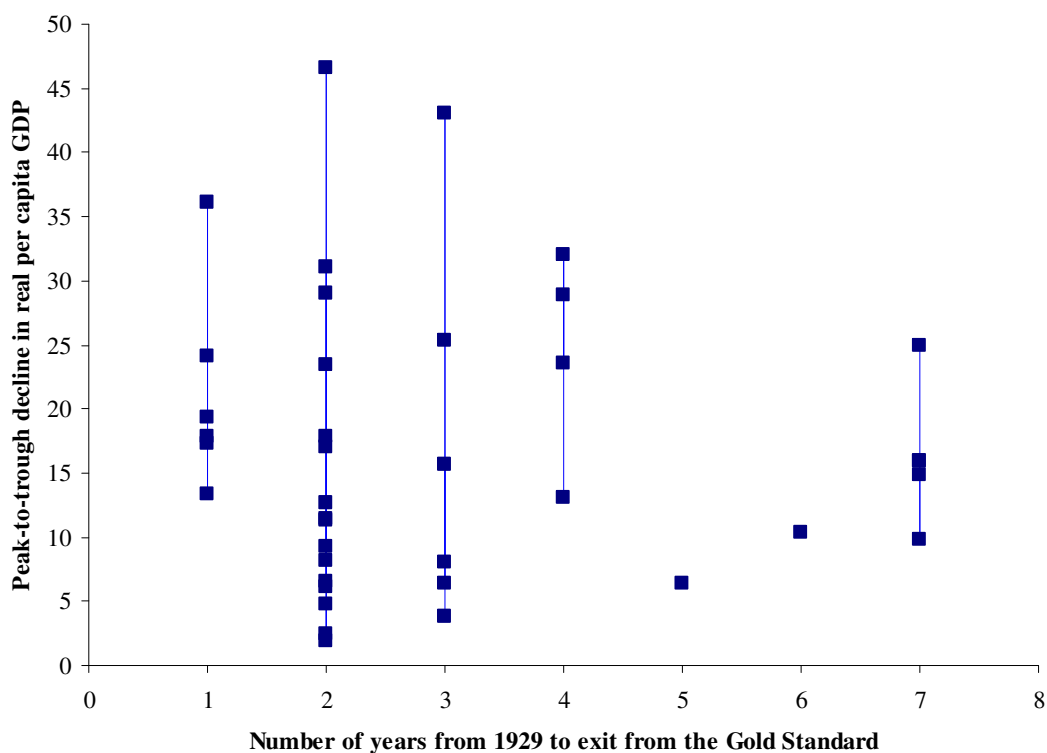
Abandoning the gold standard may have restarted the engine of recovery, but it was not a fool-proof solution. Figure 7 plots the observations from the table. The horizontal axis measures the number of years it took after 1929 to devalue or leave the gold standard, and the vertical axis measures the peak-to-trough decline in real GDP. As is evident, there is no obvious association between the timing of devaluation and the severity of the economic

Table 3. Exits from the Gold Standard and Depth and Duration of the Depression
(Real Per Capita GDP, 1990 International Geary-Kamis Dollars)

Country	Peak year	Peak-to-trough decline (percent)	Years to return to pre- crisis level
December 1929 and 1930 exits from the Gold Standard			
Australia	1926	17.3	10
New Zealand	1929	17.8	7
Argentina	1929	19.4	15
Brazil	1928	13.3	8
Uruguay	1929	36.1	17
Venezuela	1929	24.1	6
1931 exits from the Gold Standard			
United Kingdom	1929	6.6	5
Austria	1929	23.4	10
Canada	1928	29.0	12
Finland	1929	6.1	5
Germany	1928	17.8	7
Japan	1929	9.3	4
Norway	1929	1.9	3
Sweden	1930	4.8	4
Chile	1929	46.6	16
El Salvador	1928	11.3	9
Hungary	1929	11.4	7
India	1929	8.2	31
Korea	1928	12.7	5
Malaysia (Malaya)	1929	17	35
Mexico	1929	31.1	16
Portugal	1929	2.4	2
1932 exits from the Gold Standard			
Colombia	1929	3.8	3
Costa Rica	1928	15.7	9
Greece	1930	6.4	4
Nicaragua	1929	43.0	24
Peru	1929	25.4	6
Romania	1931	8.0	7
1933 exits from the Gold Standard			
United States	1929	28.9	10
Guatemala	1930	23.6	6
Honduras	1931	32.0	36
Philippines	1929	13.1	8
1934 exits from the Gold Standard			
Italy	1929	6.4	6
1935 exits from the Gold Standard			
Belgium	1928	10.4	11
1936 exits from the Gold Standard			
France	1929	15.9	10
Netherlands	1929	16.0	21
Switzerland	1929	9.8	9
Indonesia (Netherlands East Indies)	1929	14.3	9
Poland	1929	24.9	9

Sources: Eichengreen (1995), League of Nations (1936/37), Maddison (2004), Officer (2001), Reinhart and Rogoff (2009) and authors' calculations.

Figure 7. Severity of the downturn and exits from the Gold Standard: Selected Countries, 1929-1936



Averages by Exit Year (Real Per Capita GDP, 1990 International Geary-Kamis Dollars)

Year of exit from the Gold Standard	Peak year	Peak-to-trough decline (percent)	Years to return to pre-crisis level
December 1929-1930	1928.3	21.3	10.5
1931	1928.8	15.0	10.7
1932	1929.3	17.1	8.3
1933	1929.8	24.4	15.0
1934	1929	6.4	6.0
1935	1928	10.4	11.0
1936	1929	16.3	11.6

Notes: The downturn is measured as the cumulative peak-to-trough percent decline in real per capita GDP, 1990 Geary-Kamis dollars. Countries exiting the Gold Standard in December 1929 are grouped with those exiting during 1930.

Sources: Eichengreen (1995), League of Nations (1936/37), Maddison (2004), Officer (2001), Reinhart and Rogoff (2009) and authors' calculations.

downturn. Early leavers, those is 1930, had output contractions from 13 to 37 percent. Late exiters, from 1933 onward, had output declines from 6 to 32 percent. The table below the chart lists year-by-year averages of those observations, along with averages of the number of years required to recover the lost output. The averages for both the peak-to-trough decline and length of time to recover are relatively flat across the exit year.

These observations are made more systematically in Table 4. Listed are the results of regressions trying to explain the peak-to-trough decline in real GDP (panel A) and the duration of the downturn (panel B). The main explanatory variable is the length of time in years from 1929 that a country exited the gold standard. Included in these explanations are dummy variables selecting among the 39 countries that were Axis powers during World War II, in Latin America, or in the British Commonwealth. As is evident, there is no explanatory power from the timing of the exit from the gold standard.

There are good theoretical reasons why currency devaluation in terms of gold should restart recovery (as in Eichengreen and Sachs, 1986). In particular, it can be an engine of reflation when everyone does it so that bilateral exchange rates do not change, but all cheapen against the numéraire. But practical considerations seem to have intruded to muddy that result, including the uneven timing and extent of change against gold.¹⁰

¹⁰ In their empirical work, Eichengreen and Sachs (1985) emphasize that the glass was half full—that there were some benefits to countries that exited the gold standard. But, as here, they also emphasize that not all the potential benefits were achieved. Also note that the argument that exiting the gold standard was not a fool-proof solution is logically consistent with the view that monetary policy makers who were fixated on the gold standard made poor decisions before they were compelled to abandon gold (as discussed in Eichengreen, 1992, and Eichengreen and Temin, 2000).

Table 4

Exiting the Gold Standard and the shape of economic recovery
1929 to 1937, across 39 countries

<i>Explanatory variables:</i>	<i>Explaining:</i>				
	(A)	Depth: Peak-to-trough decline in real GDP, percent		(B)	Duration: Years to return to pre-crisis level, relative to 1929
		(1)	(2)	(3)	(4)
Constant	18.105	7.865		10.176	5.848
	<i>3.367</i>	<i>4.521</i>		<i>2.567</i>	<i>3.923</i>
Date of exit	-0.346	1.019		0.213	0.836
	<i>0.946</i>	<i>0.954</i>		<i>0.721</i>	<i>0.828</i>
Dummies for:					
Axis power?		3.558			-1.473
		<i>5.489</i>			<i>4.763</i>
Latin American?		14.815			5.313
		<i>3.918</i>			<i>3.400</i>
Commonwealth?		6.285			5.770
		<i>5.427</i>			<i>4.709</i>
Adjusted R ²	-0.023	0.228		-0.025	-0.002
Standard error of the regression	11.072	9.619		8.440	8.346

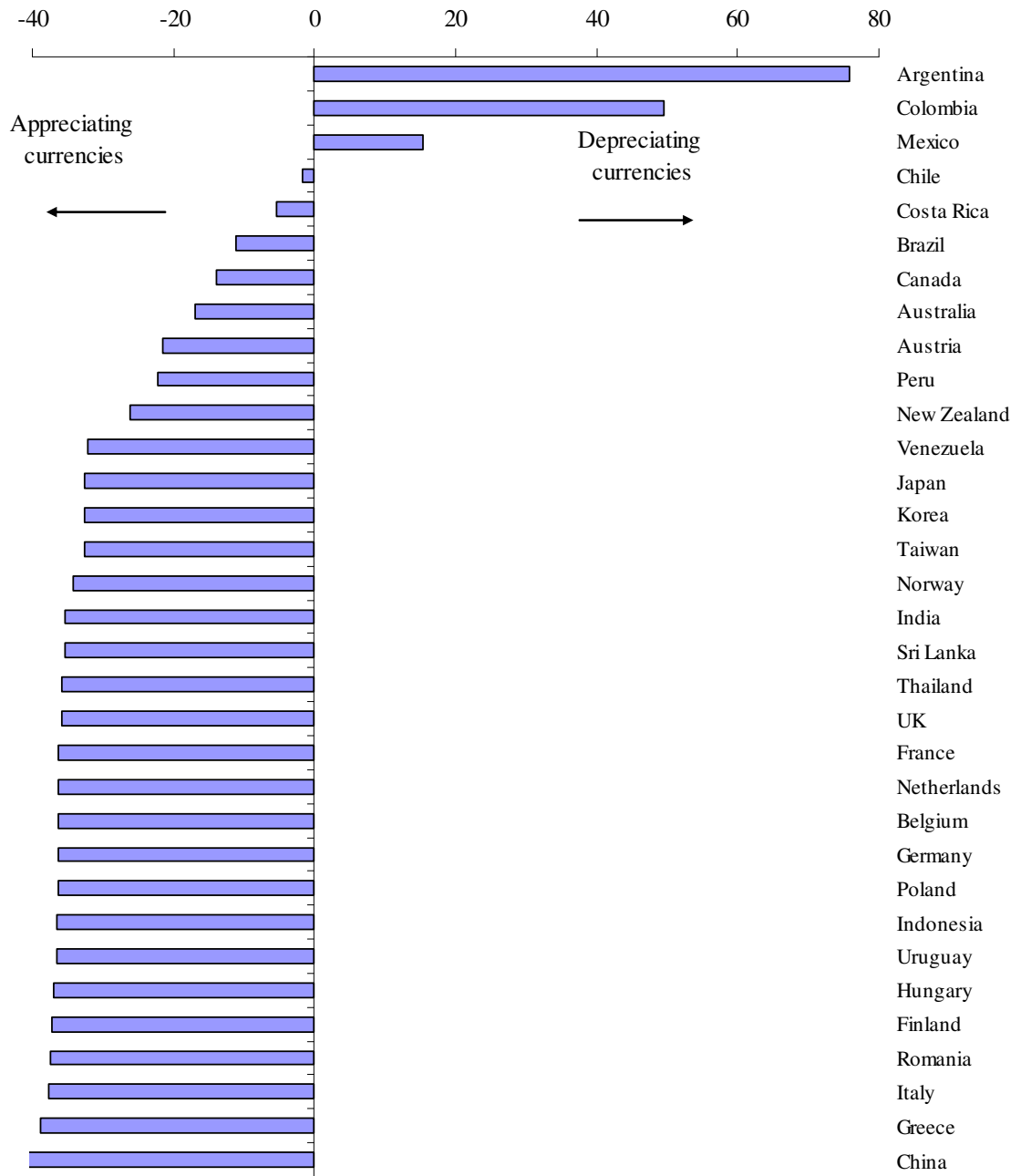
Note: Standard errors are given in italics.

The consequences of the raggedness of the adjustment are addressed in the two panels of Figure 8. Panel a plots the net depreciation vis-à-vis the U.S. dollar from the end of 1929 to the end of 1932 for countries that left the gold standard by the end of 1932. There are three groups of bars, arranged by the year that the currency regime was adjusted against gold. The range of variation is wide, indicating that policy makers did not follow a single roadmap. The greatest number of countries left in 1931, but those who did so in 1932 adjusted by more. A few of those that moved to some form of floating arrangement saw their exchange rate unhelpfully

appreciate. The important point is that almost all of these devaluations relative to gold produced an appreciation relative to the dollar, adding to the force of contraction in the United States.

Not until 1933 was some of that force pushed back. Panel b shows the changes in dollar exchange rates that year when the base currency devalued relative to gold. The dollar still appreciated against many of the economies in that sample. Exchange rate adjustments were uneven and uncoordinated in time. Indeed, when the realignment was delegated to the foreign exchange market, the result was not always conducive to domestic adjustment. For contemporaneous observers, these swings in bilateral exchange rates smacked of “beggar thy neighbor” policy. From that experience was borne a mistrust of floating exchange rates and a desire for a more managed system (famously including Rangar Nurkse, 1944). The net effect of these currency changes was to worsen the external drag on the U.S. economy, exactly when the appropriate policy was to reflate.

Figure 8b. A delayed adjustment? Percent Change in Bilateral Exchange Rates versus the US dollar during 1933 (local currency units per US dollar)

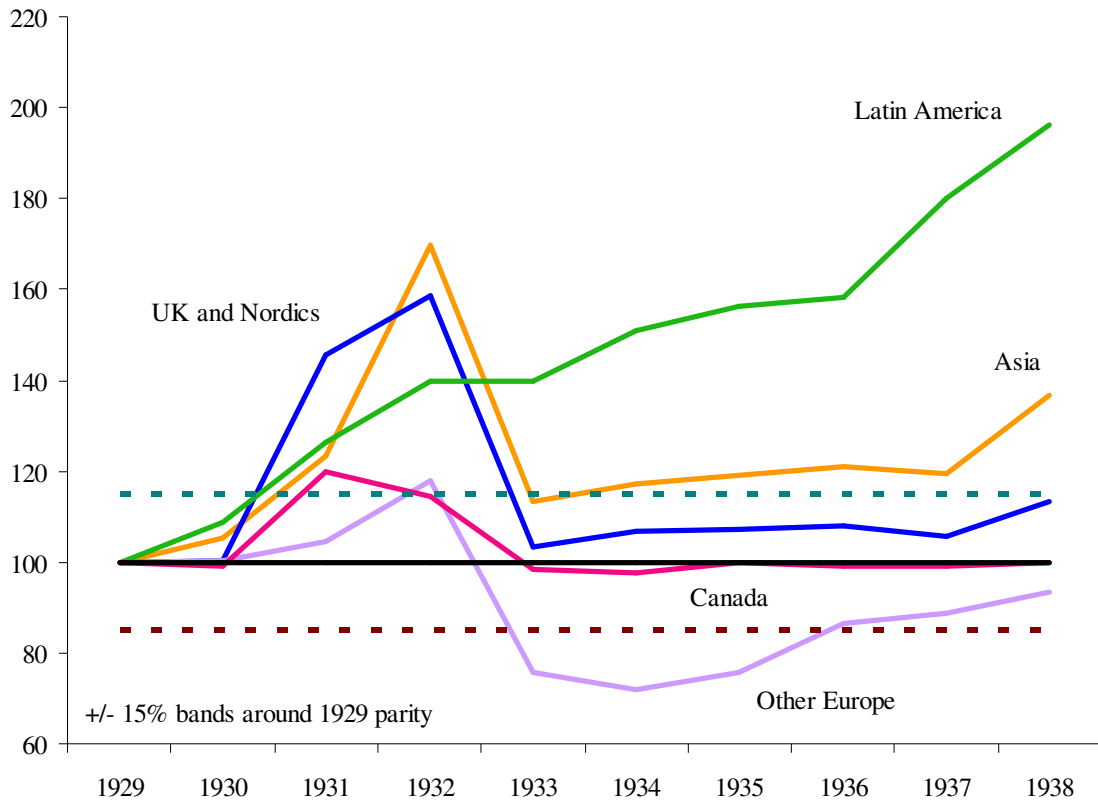


Some sense of the net external drag can be gotten from Figure 9, which plots the level of bilateral U.S. exchange rates for five country groups. The base is set in 1929 to 100, and the horizontal bands are plotted at plus and minus 15 percent of parity. There are three main messages. First, those horizontal bands encompass the experience from 1933 and thereafter, suggesting that external relative price adjustment was not the crucial means for rebalancing. Second, Canada's vaunted embrace of floating exchange rates produced a result suggestive of considerable management in that market outcome.¹¹ Third, most of the lines follow a track above 100 (that is, an appreciation of the U.S. dollar), implying exchange rates worked to offset some of the domestic monetary policy stimulus.

This brings to mind Robert Mundell's (1968) insights about the N+1 currency problem. In a system of N+1 floating exchange rates, depreciation of N of them must come from an appreciation of the N+1 currency. This creates a need for the economy of the anchor currency to overcompensate with domestic stimulus for that force of external restraint. The advantage of the gold standard is that all N could cheapen their currencies without putting a special burden on any one nation in particular if the N+1 price was the value of gold. In the event, the adjustment was not so smooth in the 1930s.

¹¹ Indeed, "fear of floating" in the Calvo and Reinhart (2002) sense seems evident.

Figure 9. Indices of Bilateral Exchange Rates versus the US dollar during 1929-1938 (local currency units per US dollar, 1929=100)



Notes: Average for Asia includes: China, India, Indonesia, Japan, Korea, Philippines, Sri Lanka, Taiwan, and Thailand; Latin America average is comprised of Argentina, Brazil, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Peru, Uruguay, and Venezuela; the Nordic group includes Finland, Norway and Sweden; other Europe consists of Austria, Belgium, France, Germany, Greece, Hungary, Italy, Netherlands, Poland, Portugal and Romania. Unweighted simple averages are shown.

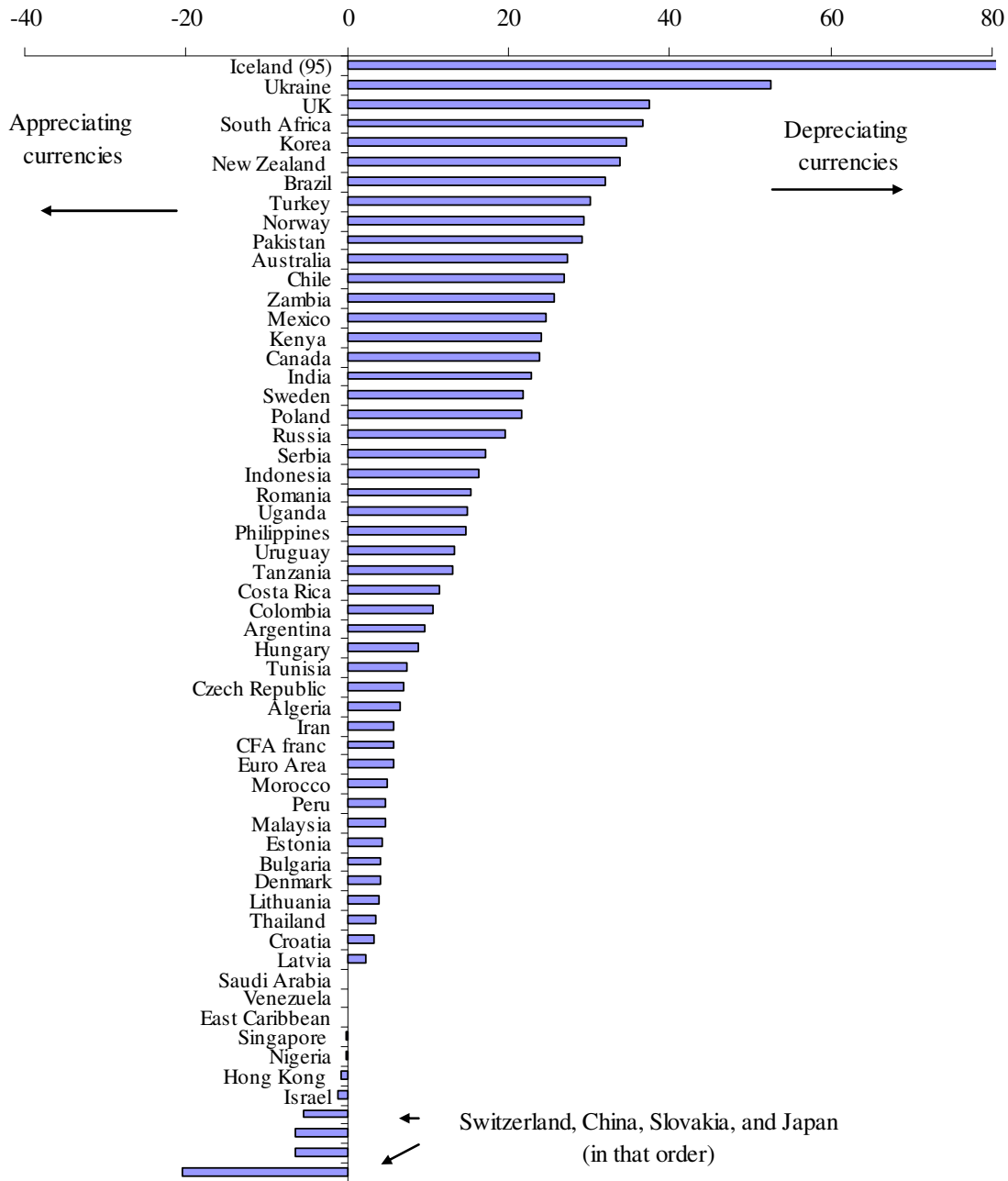
Sources: Reinhart and Rogoff (2009) and sources cited therein, and authors' calculations.

In the 2000's, the N+1 currency is the U.S. dollar. Of late, the special reserve-currency status of the dollar meant that it received flight-to-safety flows.¹² The consequences are shown in Figure 10, which plots the net changes in bilateral exchange rates vis-à-vis the U.S. dollar over 2008. With few exceptions, most nations shifted some of their burden of adjustment to the United States through depreciation. The list is long and the amounts are sometimes large. That

¹² This point is raised by Reinhart and Reinhart (2008b) when they asked whether the United States was too big to fail. Note the parallel with the discussion of the Federal Reserve's failure in the early 1930s. Policy makers have to recognize that safe-haven flows increase demand, necessitating even greater increases in supply.

makes the amount of stimulus required in the United States all the greater, as was the case in the 1930s.

Figure 10. Percent Change in Bilateral Exchange Rates versus the US dollar during 2008 (local currency units per US dollar, end-of-period)



Sources: International Financial Statistics, International Monetary Fund, and authors' calculations.

IV. Fiscal policy: More on Lessons from the Past for the Present

These uncertainties about monetary policy make the case for sustained fiscal impetus all the more clear. There is also an interaction between monetary and fiscal policies. Central bank accommodation through purchasing government securities and lowering real interest rates gives fiscal authorities more space to be expansive. As for the former, open market purchases can lower government yields if assets are imperfect substitutes. Even if they are perfect substitutes, the swap of interest-bearing government debt for non-interest-bearing reserves works to lower debt service.¹³ As for the latter, a decline in real interest rates improves measures of debt sustainability.

An unpleasant reality intrudes: Not all countries are viewed alike by financial markets, often for good reason. Some national authorities have a history of uncertain repayment of their debt. Indeed, as shown in Reinhart, Rogoff, and Savastano (2003), some countries are “debt intolerant” and default at debt-to-income ratios that would otherwise be an entry ticket to the European Monetary Union under the Maastricht Treaty. Progress in institution building has been significant in many of these emerging market economies. But national authorities take that lingering lack of acceptance very seriously and are unlikely to act in a fashion that threatens a reminder of earlier excesses. This implies that the burden of fiscal adjustment is likely to fall disproportionately on advanced economies.¹⁴

¹³ Two issues arise. First the macroeconomic effects will depend on whether the public capitalizes the income stream of central bank profits. Second, paying interest on reserves lessens the reduction in the debt burden associated with open market purchases.

¹⁴ Another reason the advanced economies may have to shoulder more of the burden is systematic differences in fiscal multipliers across the North and the South, as discussed in Ilzetski, Mendoza, and Vegh (2009).

Fiscal policy during the Great Depression

The problem is that, as already described, the economic contractions that follow financial crises tend to be severe and protracted (as shown in Reinhart and Rogoff, 2009). This strengthens the case for sustained fiscal impetus. It was similarly needed in the 1930s. And it was tried in many countries, but seldom consistently. Indeed, in many cases fiscal policy contracted as the national economy shrank, worsening the downturn.

This checkered record of policymaking is summarized in Table 5. The first column repeats the year in which economic activity hit its cyclical low in thirty countries. The second column records the level of real government spending, indexed so that 1929 equals 100. We rely on government spending to measure fiscal impetus, rather than the more commonly used budget balance for two reasons. These are detailed in Kaminsky, Reinhart and Vegh (2003), but the gist is that revenues fall off in economic contractions (irrespective of policy intent), widening the fiscal balance without necessarily providing impetus. Also, we are somewhat more confident about the reliability of spending data over time and across countries.

The countries are grouped according to those in which policy was procyclical (that is, the index was distinctly below 100 in the trough year), acyclical (a reading around 100 at the trough), and countercyclical (or a level well above 100). Quite clearly, fiscal policy in most countries was either irrelevant or unhelpful in countering the economic shock. Indeed, policy sometimes imparted considerable restraint. As shown in the third column, real government spending contracted in at least one year in 24 of the 30 countries, sometimes by large amounts. The median of the largest declines among the procyclical countries is 25 percent.

Table 5. Real government spending during the contraction phase of the Great Depression:
Selected countries, 1929-1936

Country	Year of trough in real per capita GDP	Real government spending index at trough (1929=100)	Largest annual decline in real spending during downturn (in percent)	Year of largest decline
Procyclical				
Chile	1932	53.0	34.4	1932
Peru	1932	55.7	25.7	1932
Venezuela	1932	73.8	33.2	1931
Finland	1932	79.4	28.7	1932
Austria	1933	79.9	21.8	1933
Germany	1932	94.1	9.8	1931
Indonesia	1934	94.9	4.0	1931
Acyclical				
Brazil	1931	96.4	15.4	1931
Mexico	1932	96.9	7.2	1931
Japan	1931	99.7	8.9	1931
Colombia	1931	102.0	32.7	1929
Norway	1931	105.5	None	
New Zealand	1932	106.1	3.7	1932
Argentina	1932	110.2	3.9	1931
Uruguay	1933	110.7	13.3	1929
Hungary	1932	111.8	10.2	1932
India	1938	112.6	9.9	1932
Poland	1933	114.0	None	
Australia	1931	115.7	3.1	1929
Belgium	1932	116.2	0.2	1932
Greece	1932	117.5	38.8	1931
United Kingdom	1931	118.3	None	
Korea	1932	120.2	None	
Countercyclical				
France	1932	138.9	None	
Canada	1933	149.0	11.9	1933
Portugal	1936	151.9	3.9	1930
Sweden	1933	152.3	None	
Netherlands	1934	154.2	3.6	1934
Italy	1934	178.5	31.1	1929
United States	1933	191.6	2.1	1933

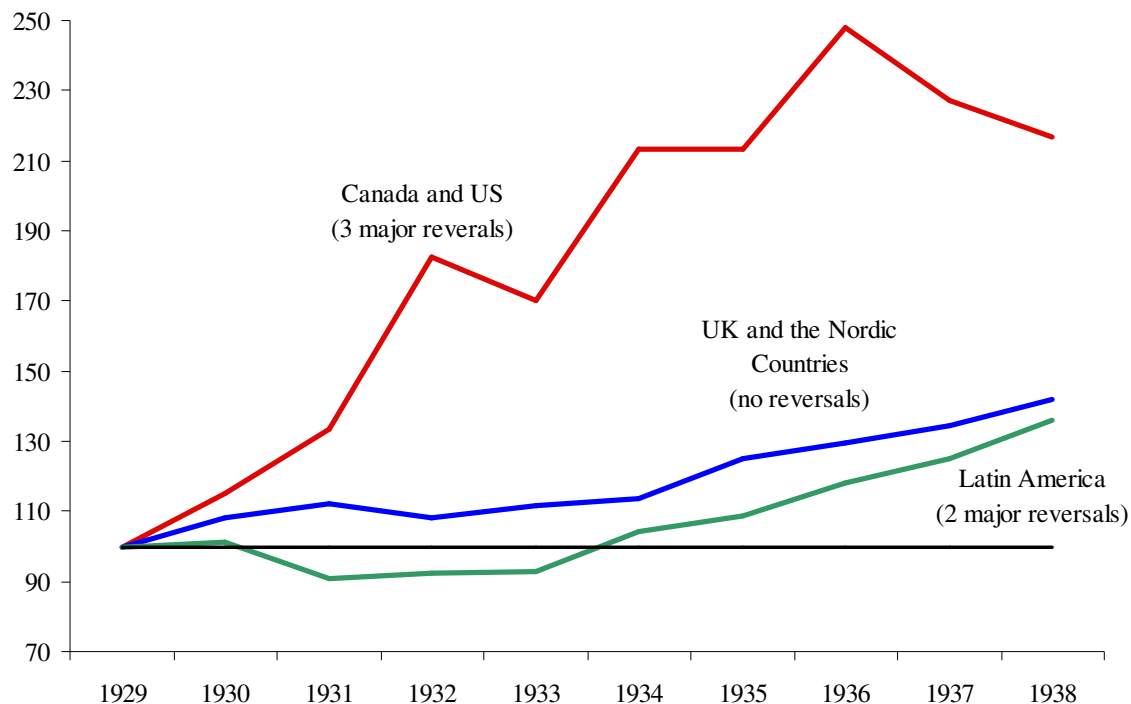
Notes: The median real government spending index at the trough is 111.3 and the standard deviation is 31.9. The rough groupings into procyclical, acyclical, and countercyclical categories are meant to be illustrative and are based on subtracting (adding) ½ the standard deviation from the median for the procyclical (countercyclical) groupings. Sources: Mitchell (2003a, b, and c), Reinhart and Rogoff (2009) and sources cited therein, and authors' calculations.

Notably, the United States was not among the countries where the trend of real government spending amplified the business cycle. By the business-cycle trough in 1933, real government spending was almost twice its level in 1929. The red line in Figure 11 plots the average level of real government spending in the United States and Canada, indexed to 100 in 1929. There were three episodes of large increases in government spending, first at the end of the Hoover Administration in 1932 and then under Roosevelt in 1934 and 1936. Counter to the popular perception, Hoover did significantly enlarge the role of government.¹⁵ In contrast, the United Kingdom and Nordic countries (the blue line) provided less impetus on net, and fiscal policy in Latin American countries was decidedly procyclical. The latter group was no doubt hampered by a lack of access to funding, as well as institutional problems.

While fiscal impetus was forceful in some countries, in almost all it was also erratic. Note in the figure that each of the three large increases in spending in the United States and Canada was followed by some retrenchment. Policy setting, especially when undertaken by elected officials, lends itself to the declaration of premature victory. Government spending impetus in the United States in 1932, 1934, and 1936 appeared on a track to provide considerable lift to the economy. After each of those years, the level of real spending dropped off, imparting an arithmetic drag on expansion. That fiscal policy has been aggressive in many countries in 2009 works to help contain contraction in the global economy. That such policy will continue to do so is far from assured.

¹⁵ This is a point made forcefully by Shlaes (2007), although she argues the composition of the effort was unhelpful. Akerlof and Shiller (2009) applaud the aggressiveness of both Hoover and Roosevelt but lament the inconsistency of their policies.

Figure 11. Real Government Spending: Averages for Selected Country Groups, 1929-1938 (index level, 1929=100)



Notes: Average for Latin America is comprised of Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay, and Venezuela the Nordic group includes Finland, Norway and Sweden. Unweighted, simple averages are shown.

Table 6 provides information on the volatility of real government spending countries from 1929 to 1939. Column 1 gives the most conventional measure, the standard deviation of annual changes in real government spending. Fiscal policy was volatile, indeed, with six countries posting a standard deviation of spending of more than 30 percent. In all the countries, real spending dropped off in at least one year of the decade, which we call a reversal. Column 2 gives the amplitude of the largest swing in real spending growth for each country. Column 3 gives the number of times such reversals crossed the threshold of 10 percent, and column 4 lists the year of the largest reversal. Again and again, fiscal policy lacked follow-through in providing consistent impetus.

Table 6. Real government spending, volatility and reversals during the Great Depression:
Selected countries, 1929-1939

Country	Standard deviation of annual changes in real government spending (in percent)	Largest fiscal reversal: Amplitude of contraction (in percent)	Number of reversals greater than 10 percent	Year of largest reversal episode
	(1)	(2)	(3)	(4)
Italy	105.4	227.7 ¹	3	1937
Greece	61.3	159.2 ²	3	1931
Peru	45.0	64.8	5	1929
United States	33.8	47.5	3	1933, 1935 are comparable
Brazil	31.5	55.0	5	1933
Finland	30.6	33.0	4	1929
Portugal	29.7	66.6	2	1937
Japan	28.9	42.3	4	1937
Chile	27.6	51.5	4	1929
Colombia	27.6	68.0	3	1929
Venezuela	24.7	46.8	4	1929
France	21.5	15.1	2	1936
Germany	21.2	21.5	2	1929
Canada	16.6	39.9	2	1933
Sweden	16.5	31.4	2	1934
Austria	16.4	18.5	3	1931, 1932 are comparable
Uruguay	16.4	24.1	2	1929
Argentina	15.2	21.2	3	1935
Netherlands	12.5	20.7	3	1932
Mexico	12.0	24.4	1	1937
Korea	11.9	16.6	3	1932
Indonesia	11.7	30.3	1	1938
India	10.0	13.5	2	1931
Hungary	9.6	20.1	1	1932
United Kingdom	9.0	12.8	1	1933
Norway	8.6	11.9	1	1933
Poland	7.8	12.8	1	1937
Australia	7.2	11.8	1	1932
New Zealand	6.5	8.9	None	

Notes: Reversals are defined as a year of rising real government spending followed by a year of contraction in government spending; only reversals with an amplitude greater than 10 percent are included in the tally. Amplitude is calculated as a growth in year t minus growth in t+1. For instance, if real spending rose by 15 percent in year t and declined by 12 percent in the following year, our amplitude measure would show a reading of 27 percent.

¹ Spending rose by 191 percent in 1936 in Italy as...

Sources: Mitchell (2003a, b, and c), Reinhart and Rogoff (2009) and sources cited therein, and authors' calculations.

The data in the table are aggregated into regional groups in Figure 12. The United States and Canada, which were the most aggressive in the application of fiscal policy, were also the most erratic in terms of having the most reversals, the largest one, and the highest volatility of spending growth. One cannot help but to suspect that this inconsistency blunted some of the force of the impetus as people found it difficult to plan and adjustment costs ate into the budget.

The extent to which such mechanisms were at work is examined in Table 7. The table relates regressions for our two preferred measures of the cycle, its depth and duration, and the standard deviation of the growth of real government spending for 31 countries from 1929 to 1939. We once again also include dummies for regions and participation in WWII. As is evident, there is no strong association. However, panel B does suggest that the volatility of real government spending tended to extend the length of the economic recovery. Thus, there may have been real costs associated with policy wavering.

Figure 12. Real government spending, volatility and reversals during the Great Depression, for Selected Country Groups, 1929-1939

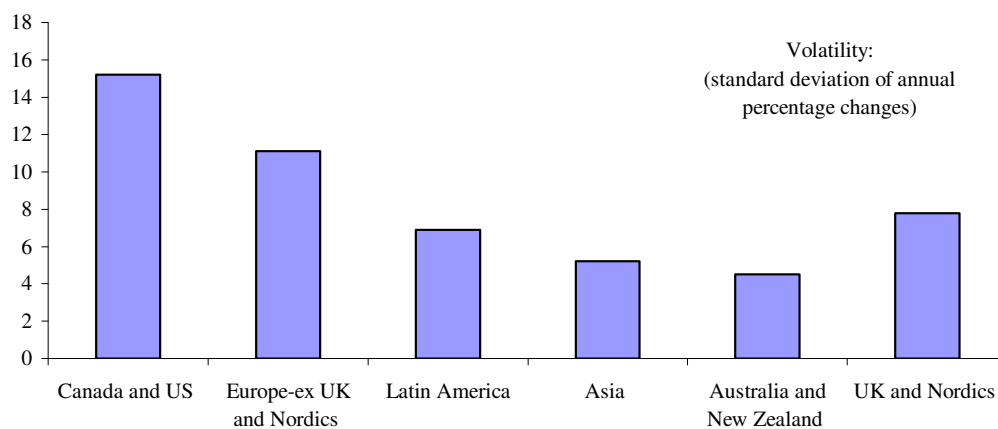
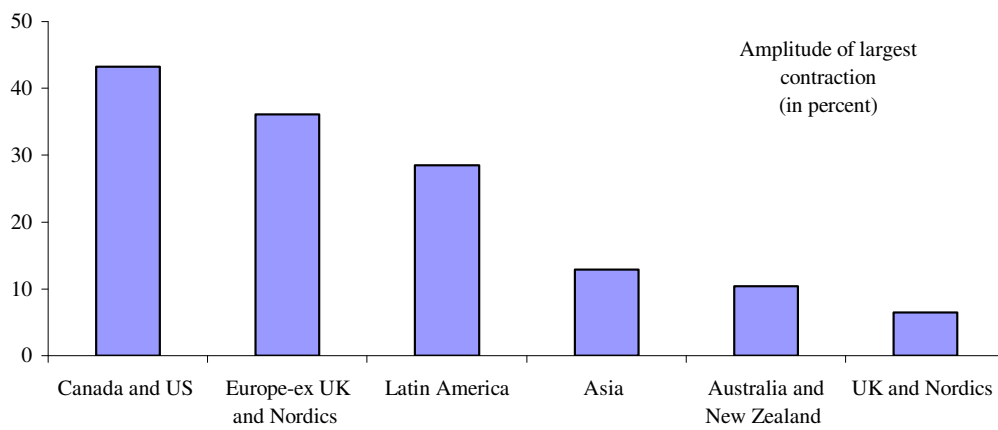
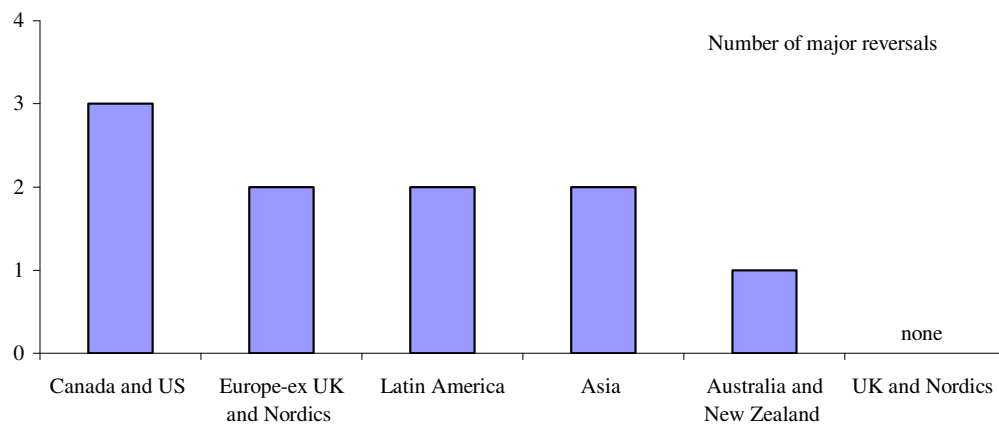


Table 7

Volatility of the growth of real government spending
and the shape of economic recovery
1929 to 1939, across 39 countries

<i>Explanatory variables:</i>	<i>Explaining:</i>				
	(A)	Depth: Peak-to-trough decline in real GDP, percent		(B)	Duration: Years to return to pre-crisis level, relative to 1929
		(1)	(2)	(3)	(4)
Constant		14.203 <i>3.163</i>	8.852 <i>3.848</i>	6.494 <i>2.437</i>	4.802 <i>3.294</i>
Standard deviation of real government spending		0.207 <i>.1.66</i>	0.159 <i>0.997</i>	0.351 <i>0.128</i>	0.373 <i>0.137</i>
Dummies for:					
Axis power?			3.881 <i>5.697</i>		-1.747 <i>4.877</i>
Latin American?			12.273 <i>4.116</i>		1.662 <i>3.524</i>
Commonwealth?			7.912 <i>5.733</i>		7.128 <i>4.908</i>
Adjusted R ²		0.019	0.198	0.211	0.176
Standard error of the regression		10.611	9.593	8.178	8.213

Note: Standard errors are given in italics.

V. Reflections on Monetary and Fiscal Policy as Culprits and Saviors Around Crises

We too have succumbed to the temptation of drawing easy lessons from the past. In this case, our primary lessons, which run counter to current fashion, are that we are not obviously smarter than our predecessors nor are our policy makers endowed with more powerful tools.

Unconventional monetary policy and aggressive fiscal action were used in the 1930s. There were not, however, employed **consistently**. Monetary policy was hampered by beggar-thy-neighbor problems as countries devalued relative to gold at different times and by different amounts. As a consequence, not as much benefit from exiting the gold standard was achieved as could have been gotten. The United States was in the vanguard of aggressive use of fiscal policy. But fiscal impetus was often partly reversed soon after. The net effect was to raise volatility (and therefore uncertainty) and lessen the stimulus policy provided.

The message from this experience for today is that policy has to be time-consistent, which requires policymakers not to add to uncertainty or declare victory prematurely. Moreover, the advanced economies have to shoulder relatively more of the responsibility for reflation as weak institutions and a poor record of policy making in many emerging market economies have limited their ability to take counter-cyclical action.

In conducting policy, national authorities have to recognize that the openness of the global economy sometimes works to blunt the effectiveness of policy in one country. Authorities in the anchor country have to be mindful that the benefits of being the reserve currency come with a responsibility to shoulder more of the burden of accommodation. This reserve-currency status creates an opportunity as well. U.S. fiscal expansion can be funded with debt that will be added to the coffers of foreign official entities as they continue to build up

reserves. But those reserve managers will only continue to add to their holdings of dollar assets as long as they believe that the United States is a pillar of stability.

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