The Global Economy Seven Years after the Financial Crisis: Vulnerabilities and Policy Issues

Carmen M. Reinhart
Harvard University

Asian Bureau of Finance and Economic Research and Asian Monetary Policy Forum Joint Dinner
Singapore, May 28, 2015
Outline of talk

- **Advanced economies:** (i) Delayed recovery, (ii) deflationary tendencies (iii) Debt overhangs and their resolution
- **Global finance:** Equilibrium real interest rates, QE, and the trend toward financial repression
- **Emerging markets:** (i) Capital flow bonanzas and their aftermath. (ii) Where are we in the boom-bust cycle? (iii) Persistence and duration -- Commodities? China?
Where are the advanced economies seven years after subprime?
Basic concepts: An Illustration with the US Banking Crisis of 1893

Number of years peak-to-trough is 2
Number of years peak to recovery is 6
Peak-to-trough change is -14.2%

Double dip: A renewed downturn before reaching prior peak

Note: The severity index for this episode is 20.2
The 2007-2009 Crisis: Severity measures

- It is premature to construct a definitive measure of the severity of the recent crises.
- Of the twelve countries experiencing a systemic crisis starting in 2007-2008 (France, Germany, Greece, Iceland, Ireland, Italy, Netherlands, Portugal, Spain, Ukraine, UK, and US), only Germany and the US have reached their pre-crisis peak in per capita GDP.
### Output, Crises and Recovery

**Reinhart and Rogoff (2014) updated with World Economic Outlook, April 2015**

<table>
<thead>
<tr>
<th>Year</th>
<th>Country</th>
<th>% change Peak to trough</th>
<th>Number of years</th>
<th>% change Peak to trough</th>
<th>Number of years</th>
<th>% change Peak to trough</th>
<th>Number of years</th>
<th>% change Peak to trough</th>
<th>Number of years</th>
<th>Severity index</th>
<th>Breakeven year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2008 France</td>
<td>-3.8</td>
<td>2</td>
<td>9</td>
<td>12.8</td>
<td>2016</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2008 Germany</td>
<td>-5.3</td>
<td>1</td>
<td>3</td>
<td>8.3</td>
<td>2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>2008 Greece</td>
<td>-25.8</td>
<td>6</td>
<td>14</td>
<td>39.8</td>
<td>2021??</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>2007 Iceland</td>
<td>-9.9</td>
<td>3</td>
<td>9</td>
<td>18.9</td>
<td>2016</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>2007 Ireland</td>
<td>-12.6</td>
<td>3</td>
<td>11</td>
<td>23.6</td>
<td>2018</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>2008 Italy</td>
<td>-10.8</td>
<td>7</td>
<td>14</td>
<td>24.8</td>
<td>2021??</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>2008 Netherlands</td>
<td>-5.0</td>
<td>5</td>
<td>10</td>
<td>15.0</td>
<td>2018</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>2008 Portugal</td>
<td>-7.4</td>
<td>6</td>
<td>12</td>
<td>19.4</td>
<td>2019</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>2008 Spain</td>
<td>-9.0</td>
<td>6</td>
<td>11</td>
<td>20.0</td>
<td>2018</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>2008 Ukraine</td>
<td>-14.8</td>
<td>1</td>
<td>12</td>
<td>26.8</td>
<td>2020</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>2007 United Kingdom</td>
<td>-5.9</td>
<td>5</td>
<td>8</td>
<td>13.9</td>
<td>2015</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>2007 United States</td>
<td>-4.8</td>
<td>2</td>
<td>6</td>
<td>10.8</td>
<td>2013</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summary:**

- Mean: Mean | -9.6  | 3.9  | 9.9  | 19.5
  - Median: -8.2  | 4.0  | 10.5 | 19.2
  - Standard deviation: 6.1  | 2.2  | 3.2  | 8.6

**Note:** The italics denote any calculations in which IMF estimates for 2015-2020 are used. Reinhart
The number of years to recover the pre-crisis peak in per capita GDP in 100 of the worst crises since the 1840s is about 8 years (the median is 6 1/2 years).

In the 2007-2008 wave of crises, the average may come in closer to 10 years.
The incidence of deflation and high inflation, 22 advanced economies, 1945-2015

Share with annual inflation above 10%

Share with deflation

Iceland 2008-200

Japan

Reinhart
What factors have made this crisis so protracted? What is the end-game?

The list includes:

- the synchronous nature of the crisis,
- the absence of greater exchange rate adjustment,
- austerity,
- the dearth of credit—(external or domestic),
- the lack of deleveraging and write-downs (private or public) almost a decade later.
Private Domestic Credit as a Percent of GDP
Advanced Economies, 1950-2014

Lack of deleveraging (even after 7 years)
The contrast of the Nordic Crises: Finland, domestic credit around the 1991 crisis

1991, the first year of the banking crisis (black line)

Sharp private deleveraging followed the crisis
Public debt as a percent of GDP: Advanced Economies: 1900-2015

WWI and Depression debts
advanced and emerging economies: default, restructuring and conversions--a few hyperinflations

WWII debts:
Axis countries: default and financial repression/inflation
Allies: financial repression/inflation

Reinhart
What is the endgame?

Throughout history, debt/GDP ratios have been reduced by:

(i) economic growth;
(ii) fiscal adjustment/austerity;
(iii) explicit default or restructuring;
(iv) a sudden surprise burst in inflation; and
(v) a steady dosage of financial repression that is accompanied by an equally steady dosage of inflation.
Public debt reduction has not always been orthodox -- even in advanced economies

Reinhart, Reinhart and Rogoff (2015)

Factors Behind Debt Reversals:
Fiscal Adjustment, Restructuring, Inflation, Growth, and Real Interest Rates

<table>
<thead>
<tr>
<th></th>
<th>Growth &gt; median</th>
<th>Primary balance &gt; median</th>
<th>Real rates &lt; median</th>
<th>Inflation &gt; median</th>
<th>Default or restructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sample, 70 episodes</td>
<td>38</td>
<td>41</td>
<td>41</td>
<td>41</td>
<td>16</td>
</tr>
<tr>
<td>Share</td>
<td>0.54</td>
<td>0.61</td>
<td>0.59</td>
<td>0.59</td>
<td>0.23</td>
</tr>
<tr>
<td>Post-war cases, 36 episodes</td>
<td>21</td>
<td>16</td>
<td>30</td>
<td>30</td>
<td>9</td>
</tr>
<tr>
<td>Share</td>
<td>0.58</td>
<td>0.48</td>
<td>0.86</td>
<td>0.83</td>
<td>0.25</td>
</tr>
<tr>
<td>Peacetime, 34 episodes</td>
<td>17</td>
<td>25</td>
<td>11</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>Share</td>
<td>0.50</td>
<td>0.74</td>
<td>0.32</td>
<td>0.32</td>
<td>0.21</td>
</tr>
</tbody>
</table>

Memorandum items:
Share of debt reduction episodes associated with deflation
Total 0.07
War 0.11
Peace 0.03
Real interest rates, financial regulation, and the post crisis re-emergence of financial repression
"World" Real Short-term Interest Rates, 1870-2015

"World" Real Interest Rate (percent, 3-year moving average)
UK Discount rate 1870-1919 minus CPI inflation
US Discount rate 1920-1956 minus CPI inflation
US Federal Funds rate 1957-2014 minus CPI inflation

Reinhart
For the advanced economies in our sample, real interest rates were negative roughly $\frac{1}{2}$ of the time during 1945-1980.

“Financial repression” was most successful in liquidating debts when accompanied by a steady dose of moderate inflation.

Average annual interest expense savings as a percent of GDP (FR tax) range from about 1 to 5 percent of GDP for the full 1945-1980 sample.
Real T-bill Rates Frequency Distributions:
22 Advanced Economies, 1945-2015

Real Interest rate on T-bills
Share of observations at or below:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-1 percent</td>
<td>-33.9</td>
<td>-5.7</td>
<td>-28.8</td>
</tr>
<tr>
<td>0</td>
<td>-47.8</td>
<td>-11.3</td>
<td>-57.7</td>
</tr>
<tr>
<td>1 percent</td>
<td>-62.8</td>
<td>-23.1</td>
<td>-85.9</td>
</tr>
<tr>
<td>2 percent</td>
<td>-76.5</td>
<td>-38.8</td>
<td>-95.5</td>
</tr>
</tbody>
</table>

Percent of observations

real interest rate on 3-month T-bills (percent)

-1 percent -33.9 -5.7 -28.8
0 -47.8 -11.3 -57.7
1 percent -62.8 -23.1 -85.9
2 percent -76.5 -38.8 -95.5
The cross-country incidence of negative real interest rates in advanced economies

Rates are on 3-month T-bills
22 advanced economies, 1945-2015
Selected post crisis regulatory changes with FR features
Cyprus, March 2013: Severe capital controls limiting credit card transactions, daily withdrawals, money transfers abroad and the cashing of checks. The controls were announced as a temporary measure to deal with the banking/external debt crisis. How temporary remains to be seen (see Iceland entry).

EU, July 2013: Bank regulation tightens capital requirements and introduces new liquidity rules (new standards phased in from January 2014 to January 2019). Government securities in domestic currency are deemed to be zero-risk, high-quality and liquid assets, which supports the banking sector’s demand for sovereign bonds.

France, December 2010: Liquidation of Fonds de Reserve Pour Les Retraites (FFR) The French government changed the law to shift the €37bn FFR from providing long-term financial support to the French PAYG pension system after 2020 to instead pay an annual €2.1bn to the Caisse d’Amortissement de la Dette Sociale (CADES) from 2011 to 2024 and at that point transfer all remaining assets to the CADES in one lump-sum payment. This shift in FFR’s investment horizon has meant a radical shift in asset allocation from longer-term diversified riskier assets to a short-term LDI-strategy dominated by liability matching short-term French government bonds. For the duration of its lifespan the FRR has consequently been transformed into a large captive buyer of French government bonds.

Iceland, October 2010: Strict controls on both inflows and outflows to stem capital flight during the crisis. The measures were announced as temporary but the left over debt overhang from the carry trade in some of the largest banks significantly raises the risks associated with lifting the controls. See Baldursson and Portes, 2013.
**Ireland, 2010: Use of the National Pension Reserve Fund to Recapitalize Banks**  As a result of the banking crisis, Ireland National Pension Reserve Fund (NPRF) may have to contribute up to €17.5bn to recapitalize Ireland’s banks. The NPRF was originally set up in 2001 to help finance the long-term costs of Ireland's social welfare and public service pensions from 2025 onwards. However, a 2010 law directed the NPRF to invest in Irish government securities and provides the legal authority for the Irish government to fund capital expenditure from the NPRF from 2011-2013.

**April 2011: Levy on pension funds**. The Irish government has further recently suggested to fund job creation schemes through a special 0.5% levy on private pension funds.

**Japan, March 2010: Reversal of Post Privatization and Raising of Deposit Ceiling** The new DPJ government reversed the 2007 plan to privatize Japan Post, the world’s largest financial conglomerate with more than ¥300tr in assets. Crucially, the DPJ government with the new law also doubled the deposit cap at Japan Post Bank to ¥20mn and raised the life insurance coverage limit at Japan Post Insurance Co. from ¥13mn to ¥25mn. Given Japan Post’s traditional roughly 75 percent asset allocation to JGBs, and under the assumption that consumers will transfer deposits to a company certain to enjoy a government guarantee, the reversal of the Japan Post privatization provides additional incentives to a captive customer of Japanese government debt.

**Portugal, 2010: The transfer of the previously privatized Portugal Telecom pension scheme back to the Portuguese government**, which in the process immediately booked €2.8bn (1.6% of GDP) in extra revenues. This enabled the Portuguese government to improve its budget deficit in 2010 sufficiently to cosmetically appear to be in line with annual EU deficit reduction targets.
Spain, April 2010: Interest rate ceilings on deposits. The Ministry of Finance (MoF) requires that institutions offering deposit interest rates that are considered to be above market rates (determined by MoF) double their contributions to the Fondo de Garantía de Depósitos.

April 2013: Spain’s social security pension reserve fund increased its portfolio allocation to domestic government bonds in 2012 from 90% to 97.5%. (In 2007, the fund was 50% invested in Spanish bonds.)

UK, October 2009, UK Financial Services Authority (FSA) puts a global regulatory liquidity marker. The proposal by the FSA requires UK banks, investment banks, and subsidiaries or branches of foreign banks operating in the London market to hold more high quality government securities—at least around £110 billion more (at that time), and cut their reliance on short-term funding by 20 percent in the first year alone.

US, October 2013. The Federal Reserve Board proposed a rule to strengthen the liquidity positions of large financial institutions. The proposal would for the first time create a standardized minimum liquidity requirement for large and internationally active banking organizations and systemically important, non-bank financial companies designated by the Financial Stability Oversight Council. These institutions would be required to hold minimum amounts of high-quality, liquid assets such as government and corporate debt that can be converted easily and quickly into cash.

Emerging markets

2008-2013: The “capital inflow problem” again…

2013-present: The aftermath of the capital flow and commodity bonanza.

Where does that leave EMs in the boom-bust cycle?
Probability of a crisis, by type, and the benefit of observing a current account bonanza

Share of countries, 1982 to 2014, percent

By early 2013, in major emerging markets

- Current account deficits had reappeared
- As did credit booms
- And currency overvaluation
- Growth had begun to slow
- Inflation had resurfaced as a concern

And then came the announcement of QE tapering...
Since the May 2013 tapering announcement, global factors have deteriorated for many EMs

(i) commodity prices have declined further (and sharply);
(ii) China’s slowdown has intensified;
(iii) global investors have turned to advanced economies equity markets in increasing numbers.
(iv) an appreciating US dollar increased the burden of dollar debts

Reinhart
Real Commodity Prices: 1854-2015

Real commodity prices index (2005 = 1)
Boughton (1991) 1854-1979
IMF WEO, 1980-2015, Non-Fuel Price Index
deflated by Advanced Economy CPI
China’s fall and rise, 1500-2013

China's share in world real GDP
1500-2013

Reinhart
Private Sector Domestic Credit/GDP, 2014

(most of those above China have already had banking crises)

<table>
<thead>
<tr>
<th>Country</th>
<th>Domestic Credit/GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>251.0</td>
</tr>
<tr>
<td>Spain</td>
<td>222.5</td>
</tr>
<tr>
<td>Netherlands</td>
<td>215.0</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>208.3</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>199.7</td>
</tr>
<tr>
<td>Ireland</td>
<td>199.5 2010 Peak, 230.1</td>
</tr>
<tr>
<td>Portugal</td>
<td>193.4</td>
</tr>
<tr>
<td>Switzerland</td>
<td>178.0</td>
</tr>
<tr>
<td>Norway</td>
<td>176.3</td>
</tr>
<tr>
<td>Italy</td>
<td>167.8</td>
</tr>
<tr>
<td>United States</td>
<td>155.9</td>
</tr>
<tr>
<td>China</td>
<td>151.8</td>
</tr>
<tr>
<td>Sweden</td>
<td>142.2</td>
</tr>
<tr>
<td>Greece</td>
<td>139.4</td>
</tr>
<tr>
<td>Iceland</td>
<td>139.3 2007 Peak, 313.9</td>
</tr>
<tr>
<td>France</td>
<td>135.0</td>
</tr>
<tr>
<td>Malaysia</td>
<td>134.3</td>
</tr>
<tr>
<td>Austria</td>
<td>130.9</td>
</tr>
<tr>
<td>Thailand</td>
<td>126.8</td>
</tr>
<tr>
<td>Germany</td>
<td>121.4</td>
</tr>
<tr>
<td>Belgium</td>
<td>115.2</td>
</tr>
<tr>
<td>Finland</td>
<td>106.4</td>
</tr>
<tr>
<td>Singapore</td>
<td>105.2</td>
</tr>
<tr>
<td>Korea</td>
<td>102.6</td>
</tr>
<tr>
<td>India</td>
<td>73.6</td>
</tr>
<tr>
<td>Philippines</td>
<td>50.9</td>
</tr>
<tr>
<td>Indonesia</td>
<td>39.6</td>
</tr>
</tbody>
</table>

Reinhart
The share of EMs with significant current account deficits has risen markedly

Share of emerging market and developing countries with a current account deficit greater than 3 percent of GDP (2-year moving average)
Final thoughts: Advanced economies

- Now in seventh year post crisis, there are signs of stabilization and recovery in Europe but output remains well below its pre-crisis peak in most of the crisis countries. A Grexit setback is possible...

- Public debt overhangs usually last more than two decades (see Reinhart, Reinhart and Rogoff, 2012). The combination of sluggish growth and deflation or low inflation does not contribute to their resolution.

- Low and (often negative) real interest rates may be necessary to unwind the public and private debt loads.
The return of financial repression?

To deal with the current debt overhang, policies like those documented here have re-emerged, sometimes in the guise of prudential regulation.

Moreover, the process where debts are being “placed” at below market interest rates in pension funds and other captive domestic financial institutions is already under way in several countries in Europe and to a lesser degree the US.
As to Emerging Markets

Even remembering that many EMs are debt intolerant, the indicators for early 2015 do not match (in magnitude) the usual vulnerabilities associated with the onset of past financial crises. Qualitatively the direction in many indicators is a source of deep concern.

The bonanza decade of 2003-2013 is over.

A key source of present policy vulnerability is treating what are likely to be persistent adverse shocks as temporary.

Downgrades may be a matter of time...