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This Time is Different: Debt and Financial Crises in Cross-Country Historical Perspective

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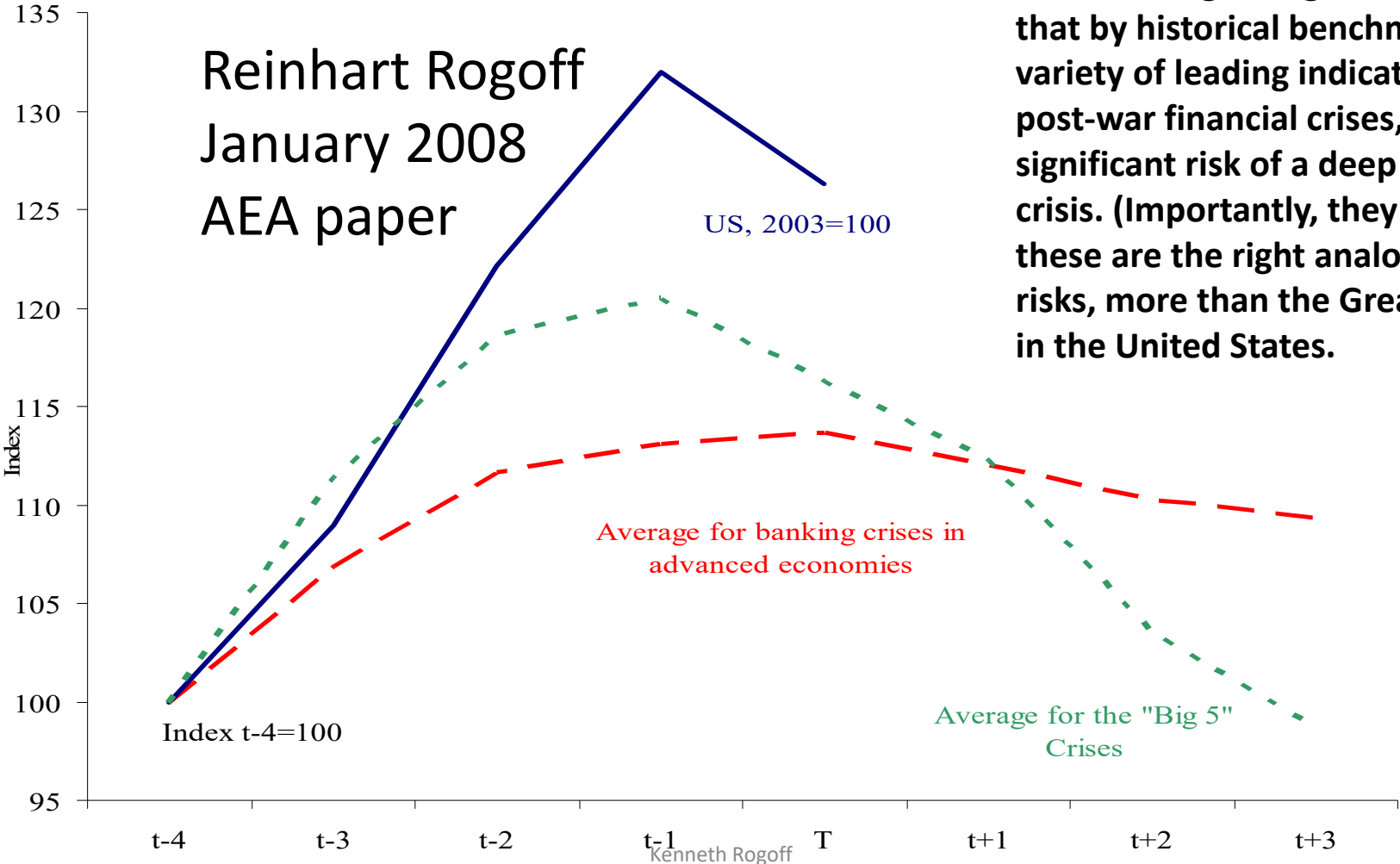
Importance of a long-dated cross-country quantitative perspective

- Extensive earlier literature on the history of banking and external debt crises, but much of it largely narrative. (Previous analysis of domestic debt defaults virtually non-existent).
 - Friedman and Schwartz (1963) an important exception but devoted to one country, the United States.
- Financial crises of all types (including external debt, domestic debt, banking crisis, exchange rate and inflation crises) tend to be relatively rare occurrences in most countries.
- Crises not only rare but nonlinear events. Quantifying would be challenging even with a well-specified model capturing all the key financial, economic, and political elements.
- Reinhart and Rogoff (2009) (henceforth also referred to as RR 2009) develop a large-scale historical data set covering 66 countries up to eight centuries including crises dates (all types), and key macroeconomic variables.
 - Build on decades of research by many scholars (extensive citations and detail in the text, appendix and online database.) Nevertheless, an order of magnitude greater than earlier work both in country/continent coverage and time dimension, (e.g., Froot and Rogoff (1995) on purchasing power parity over 700 years would constitute just a few data series of the thousands in the database/)
 - Helped to catalyze surge of research on quantitative implications of international financial historical data.
 - Provoked major data investments by IMF, BIS, and other agencies, filling in a gaping hole in the official public debt statistics. IMF first largely replicated RR debt series, has since substantially expanded it).
- An encompassing historical approach to studying all types of financial crises is important not just for understanding the last one, but in helping to anticipate and understand future financial crises yet to come, including those that might be very different from 2008-2009.

One cannot study 100 year floods with 25 years of data

- The construction and interpretation of historical international benchmarks around an array of variables (not just output), guided by judicious use of theory, history and policy, as well as the dating of financial crises of all types (including virtually unexplored realm of domestic public debt defaults) provided extremely helpful input to policy during the 2008 financial crisis.
 - Advanced countries not so different; some advanced countries have not fully graduated.
 - In debt, inflation and financial crises, Italy is not the United States, Greece is not Italy.
 - “This Time is Different” Syndrome: The conviction that financial crises only happen to other people in other countries at other times. Includes both anticipating and dealing with the crisis.
 - Regardless, over 80% of the world population lives outside advanced economies. Financial and debt crises remain one of the challenges they face.
- Timeliness and completeness helped inform policy as global financial crisis unfolded.
 - **Most fundamental point:** Recessions marked by banking crises tend to be acute, with very slow recoveries, U-shaped not the V-shaped recoveries business cycle economists traditionally studied.
 - Extensive dating and broad-based quantitative analysis of many other kinds of crises, including exchange rate, inflation, external and domestic debt, that may help inform policy in the future
 - Historical benchmarks are hardly the be-all and end-all of understanding financial crises, but they are an essential starting point for both policy and scholarly analysis.

Figure 1: Real Housing Prices and Banking Crises



Reinhart Rogoff argue in Jan 2008 that by historical benchmarks for a variety of leading indicators based on post-war financial crises, the US at significant risk of a deep financial crisis. (Importantly, they argued that these are the right analogy to likely risks, more than the Great Depression in the United States.

Banking Crises: An equal opportunity menace (RR 2008a)

Summary on the Incidence and Frequency of Banking Crises:
1800 (or independence)-2008

<i>Region/Group</i>	<i>Share of years in a banking crisis since independence or 1800</i>	<i>Number of banking crises</i>
Africa	12.5	1.7
Asia	11.2	3.6
Europe	6.3	5.9
Latin America	4.4	3.6
Of which: Argentina, Brazil, and Mexico	9.2	9.0
North America	11.2	10.5
Oceania	4.8	2.0
Advanced	7.2	7.2
Emerging	8.3	2.8

NBER version *before* the crisis, argued that advanced countries are perhaps not so different, even post 1945.

Post-War Experience with Systemic Financial Crises, Peak to Trough Changes

Spain (1977), Japan (1992), Norway (1987) Philippines (1997), Sweden (1991), Hong Kong (1997), Colombia (1998), Korea (1997), Malaysia (1997), Finland (1991), Thailand (1997) Indonesia (1997), Argentina (2001),	Cumulative % change	Duration
Housing prices	-36%	5 years
Equity prices	-56%	3.4 years
Unemployment	7%	4.8 years
Real GDP per capita	-9.3%	1.7 years

Reinhart and Rogoff, 2009
"The Aftermath of Financial Crises"

Kenneth Rogoff

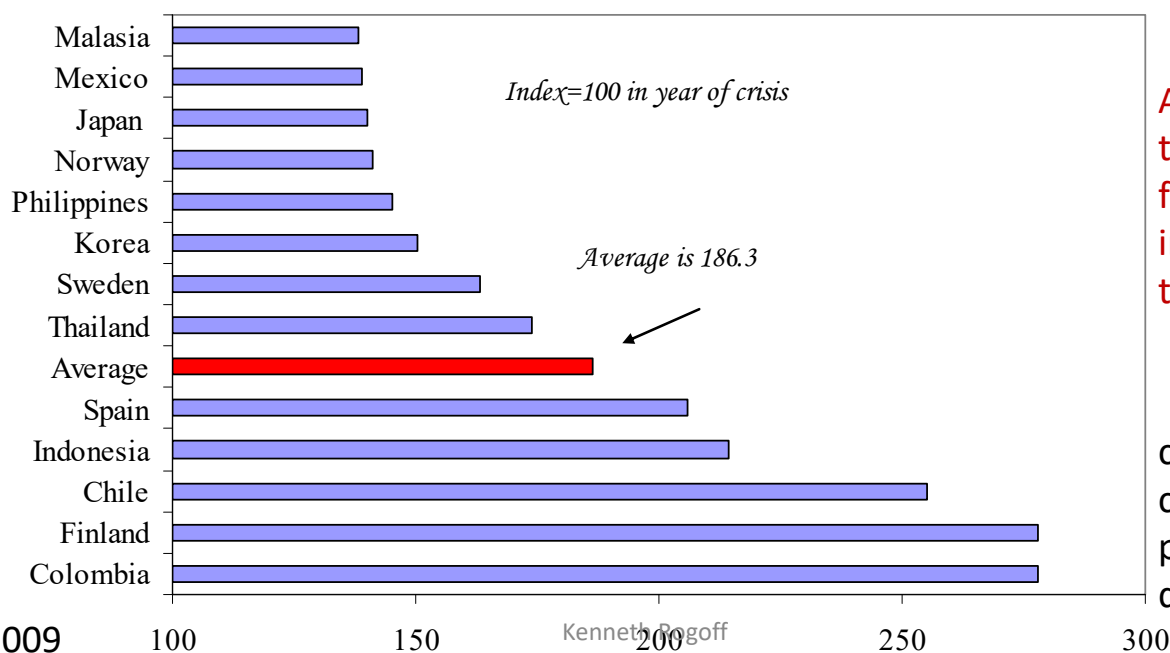
Published January 2009

RR (2009) look at range of variables besides output

- **First to use international housing data in this context** (one key source being previously unreleased data supplied by the BIS). Also looked at Great Depression.
- **The comovements of equity, housing, unemployment, public debt (another variable previously unavailable to researchers) and other macro variables support the view that financial crises are powerful amplification mechanisms.**
 - RR (2009) timeline and discussion emphasizes banking crises are caused by excessive expansion of domestic credit to private sector (Kaminsky and Reinhart, 1998).
- Important later work on housing bubbles and banking crises by Jorda, Schularick and Taylor (2015), and Mian and Sufi (2014) has given a much deeper and more extensive understanding
- Most of subsequent literature supports this view, albeit much continuing research including contrarian views that financial crises not that particularly significant (e.g., Romer and Romer, 2017, using only output data), also Fernald, Hall, Stock and Watson (2017) on US. See also Cole and Ohanian (2001) on the Great Depression in the US.

Typically a sharp runup in government debt due to low tax revenues, fall in output, countercyclical policy, and the transformation of “hidden” private debts into public ones

Cumulative increase in public debt in the three years following the banking crisis (based on pre-2008 crisis data)



Among advanced countries that experienced systemic financial crises, the average increase was 50% after three years, 75% through 2018.

RR (2009, 2011) find that a cluster of international banking crises leads to elevated probability of later sovereign debt crises.

Sovereign default on external debt

An Early History of Default: **Several now-advanced economies were serial defaulters (a cautionary tale...)**

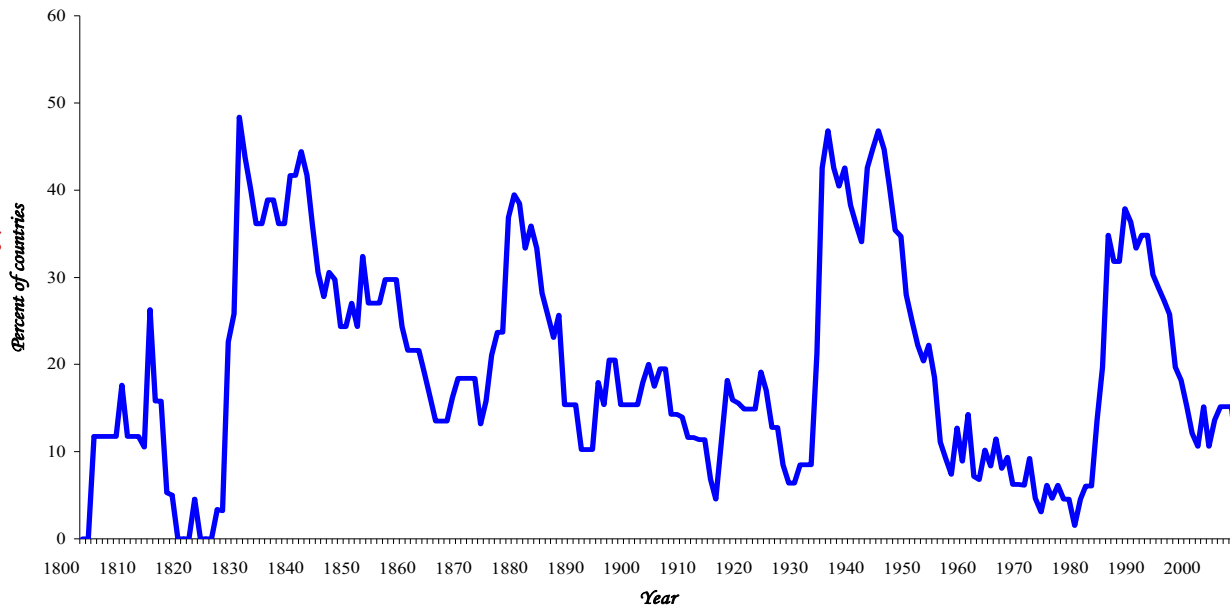
Number of defaults

	<i>1501-1800</i>	<i>1801-1900</i>	<i>1501-2010</i>
Austria	n.a.	5	7
France	8	1	9
Greece	n.a.	4	5
Germany	1	5	7
Portugal	1	5	6
Spain	6	7	13

Reinhart, Rogoff and Savastano (2003), Reinhart and Rogoff (2004, 2009) RR external default dates go back to Edward III in 14th century England.

Recurring default cycles and serial default

Sovereign External Debt: 1800-2006
Percent of Countries in Default or Restructuring



Although Latin American defaults have been much the most studied, in fact external sovereign default has hit all regions including Africa, Asia, Europe, etc.

Is this time different?

Quantitative historical benchmarks have also quite useful in thinking about debt crises

- **Emerging market defaults on external debt have historically occurred at remarkably low debt levels (as world is rediscovering in the latest EM turmoil)**
 - (Bulow and Rogoff, 1988a), RRS (Reinhart, Rogoff, and Savastano) (2003) RR (2009)
 - Fact that capital often flows from poor to rich countries (first emphasized by Gertler and Rogoff, 1989 and then Lucas 1990) strongly related to serial default (Reinhart and Rogoff (2004)).
 - **Debt defaults are prolonged events, often taking years, even decades to reach settlement**
 - Greece in default half its years since independence, Russian default of 1919.
 - Problem is especially severe for low income countries; strong negative correlation between income level and number of year in default. RR (2004) .
 - Average time in default has shortened from six years pre-WW II to three years post WW-II (RR, 2014), perhaps due to creation of IMF, but still remains much longer for poor countries.
- **Default Thresholds Depend On Country-specific Factors**
 - History of default is an especially important variable
- **Sovereign debt in emerging markets and “periphery” advanced economies has always been acutely vulnerable to rises in global interest rates.** (as empirically demonstrated in Bevilaqua, Bulow and Rogoff, 1992).

Reinhart, Rogoff and Savastano (2003) label the fact that countries often default at very low external debt levels as **DEBT INTOLERANCE**

External Debt to GDP in year of default/restructuring	Percent of total Middle Income Country Defaults
Below 40%	19.4%
41-60%	32.3%
61-80%	16.1%
81-100%	16.1%
Above 100%	16.1%

Reinhart and Rogoff 2009, ch 2; Reinhart, Rogoff and Savastano 2003. Bulow Rogoff, 1988a look at next transfers. See also https://en.wikipedia.org/wiki/Debt_intolerance

The theory of sovereign external debt

Understanding the stylized facts on sovereign defaults is a challenge for theorists

- **Eaton and Gersovitz (1981) emphasize penalty to default as exclusion from future borrowing (*purely* via reputational factors) as key in creating willingness to pay foreign creditors.**
 - Advantage: requires no knowledge of institutions, legal systems, only utility gain to consumption smoothing
 - However, **difficult to sustain empirically observed debt levels without a very large fudge factor**, Obstfeld-Rogoff (1996), Reinhart and Rogoff (2009), Uribe and Schmitt-Grohe, 2017)
 - **Deeper theoretical problems** include whether reputational factors can sustain emerging market debt repayments if advanced economies have institutions to enforce property rights (Bulow and Rogoff, 1989b) and ensuing literature.
 - Repayments can still be rationalized within a **larger supergame** involving a potentially involving trade, defense, etc. (Bulow and Rogoff (henceforth “BR”, 1989b, Cole and Kehoe, 1998), but this means partial reputation model based on access to capital markets and consumption is not very relevant.
- **Cohen and Sachs (1986) assume creditors can inflict direct damage on current output**
 - Useful if crude approximation: However, this approach grossly overstates bargaining power of creditors, does not explain multi-year delays in reaching agreement, nor how debtors/creditors extract third-party side payments (e.g., subsidized IMF/World Bank loans). Does not explain why sovereign debt is generally “*pari passu*” with no tranches of seniority.
 - **Most fundamentally, does not explain nature of threat creditors have**
- **Bulow and Rogoff (1988b, 1989a) develop bargaining-theoretic framework that addresses these issues. Attaches central role to legal enforcement by creditor country courts. Rights include ability to seize debtor assets and goods abroad, interfere with trade credits, lay prior claim to any future repayments.**

Bargaining-theoretic models have many desirable features

- **Consistent with a wide range of evidence suggesting legal rights of creditors in their home countries central to ability to enforce repayment**
 - Herbert and Schreger (2017) find that US court decisions drive price of Argentina debt.
 - Consistent with many a broad range of facts, for example why that Greek debt governed by UK courts paid a significantly higher percentage than debt governed by Greek courts.
- **Explains why debtors and creditors go through long bargaining process in defaults**
 - When information asymmetry introduced. Reinhart and Rogoff 2009, 2014, document average default spells over a broad range of historical episodes.
- Bargaining explains **why multilateral institutions are almost invariably drawn into sovereign defaults** because creditor country citizens have independent interest in maintaining unfettered trade with the debtor. (BR, 1989a), RR (2009).

In 1980s, tens of billions of dollars spent on ill-advised market-based debt repurchases at deep discount

- Theory of sovereign debt based on direct sanctions/bargaining showed that buybacks at discount **are fundamentally different from corporate case** (where they can be beneficial) and sovereign case where they are generally huge mistake. (Bulow Rogoff 1988a,1991, Obstfeld Rogoff 1996, RR 2009)
 - In sovereign case the ability of creditors to enforce repayments is very indirect, and is only marginally reduced by resources spent on buybacks.
 - This argument that buybacks are a giveaway to creditors holds even when debt overhang is interfering with a country's incentives to invest and grow (BR, 1991, OR, 1996).
 - Applies to variants of debt buybacks, including debt for equity and debt for nature swaps.
- **These arguments helped reshape policy on market-based buybacks, for example in dealing with Argentina (2001) and Greece (2010).**

Theory of domestic debt is less well developed

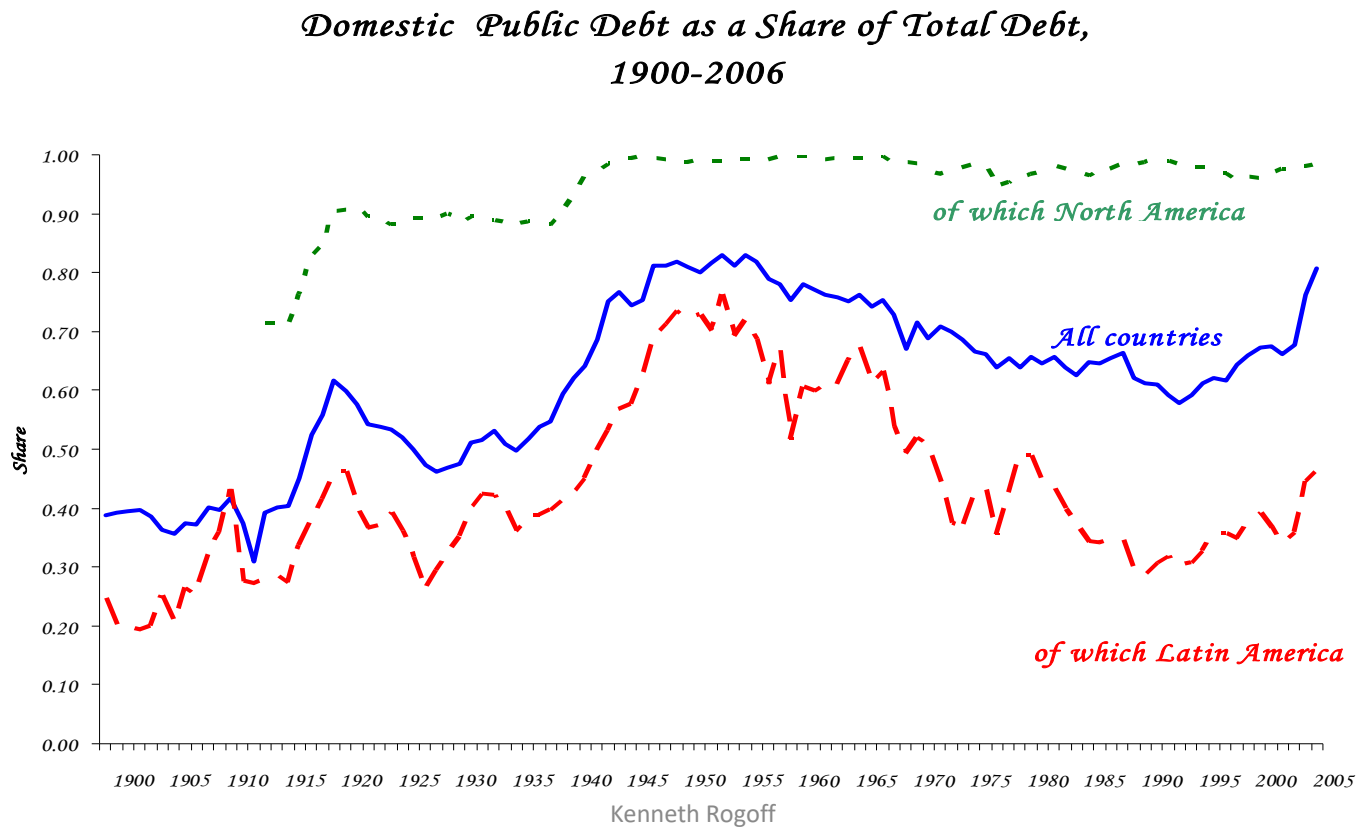
- Early political equilibrium theories for purely internal debt include:
 - Kotlikoff, Persson and Svensson (1988)
 - Tabellini (1991)
 - Future theoretical developments needed to explain likely important distinction between debt repayments and old age transfers (e.g., social security and Medicaid)
- Reinhart and Rogoff (2009) classification of domestic versus external debt follows Bulow-Rogoff legal distinction first, with currency of denomination a secondary issue.
- As we shall see, it turns out that **contrary to widely held earlier perception in scholarly and academic communities, there have long previous historic episodes where emerging market countries issues both.**

Part of the mystery of low thresholds for external debt due to “Forgotten History of Domestic Debt”

- In the case of default on external debt, there is a large and diverse previous literature (particularly on Latin America and Central Europe) including
 - Winkler, 1928
 - Wynne, 1951
 - Lindert and Morton, 1989.
 - Marichal, 1989.
 - Suter 1992
 - Eichengreen and Lindert, 1992.
- In the case of default on domestic debt, however, there has been no systematic previous cross-country research.
 - Widespread view in scholarly and policy community that domestic debt was relatively unimportant, and sovereigns always inflate to get rid of it.
 - Hard to fathom, even decade old debt public data ((equivalent of today’s 21 trillion dollar US debt.) for the vast majority of countries were not available to policymakers or researchers, not in IMF or World Bank data bases.

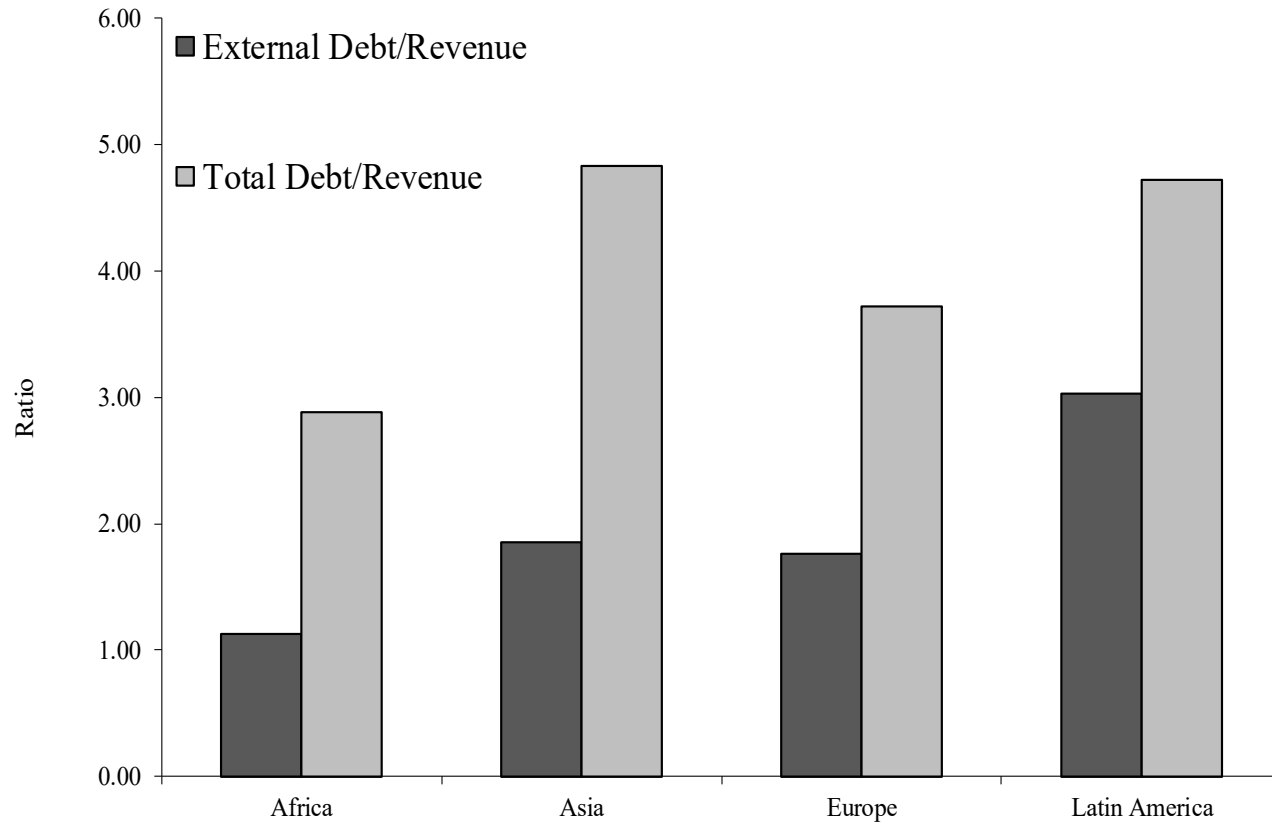
- RR online database (2008a, b; 2009) provide details on a comprehensive annual domestic (and external) public debt database covering 66 countries going back to 1900.
 - “It is utterly remarkable that that as of this writing no international agency with global reach is providing these data or pressuring member states to provide it.” (RR, 2009)
- **Up until 2010, domestic public debt a glaring omission of IMF external debt sustainability exercises, not to mention those done in the private sector.**
 - IMF seemed to believe that public debt in emerging markets was a novelty, instead of a casualty of the high inflation 80s and 90s. (It is easy to forget that in 1992, over 40 countries had inflation over 40%, Rogoff, 2004), In fact, domestic debt has historically been quite important, with a significant share long-term.
 - A prime example of what RR term as “Hidden Debts”
 - The IMF has since taken major steps to rectify the situation. Early versions of IMF global debt database starting end 2010 initially largely replicate RR (adding to RR’s initial 66 countries). Current version has much expanded breath, extremely useful for policymakers and investors. **Formal release in May 2018 of IMF global debt database a landmark event.**

Domestic debt was always large but often undocumented:



Hidden domestic public debt partly explains low external default thresholds

Ratios of public debt to revenue during external default: Eighty-nine episodes, 1827-2003



External Debt/Revenues	Total Debt/Revenues	Region
1.13	2.89	Africa
1.85	4.83	Asia
1.76	3.72	Europe
3.03	4.72	Latin America

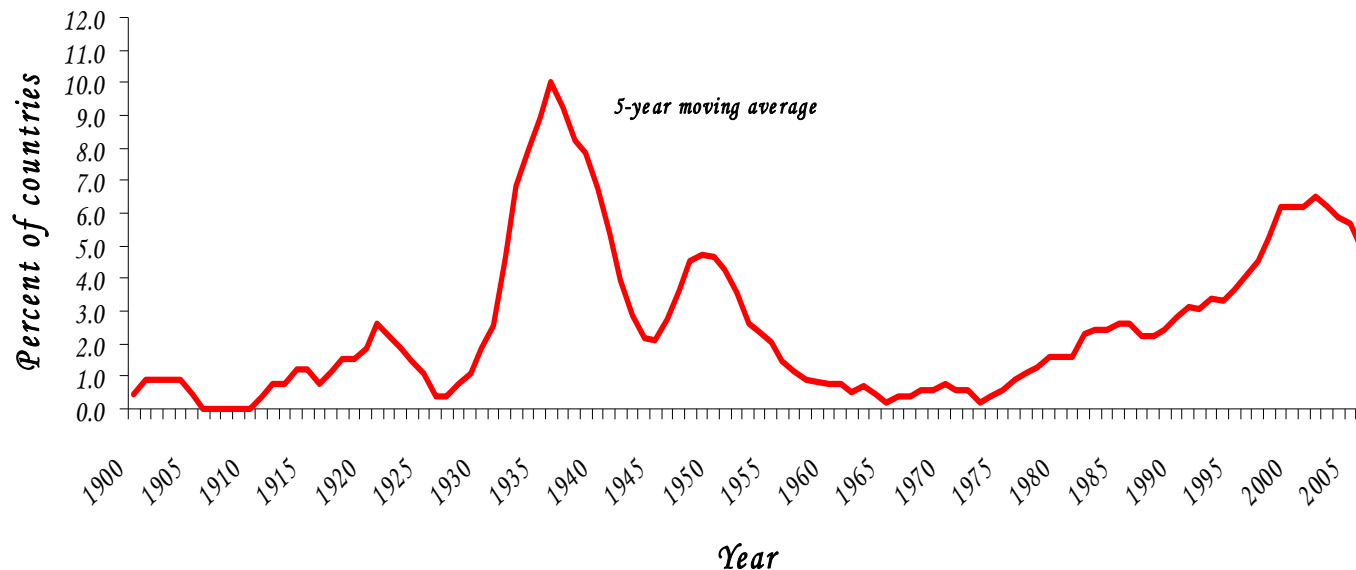
Theorists are only recently beginning to confront these new facts on the coexistence of large quantities of both external and domestic debt.

Debt ratios at the time of external default: Selected episodes: 1827-2003

<i>Country</i>	<i>Year of default</i>	<i>External public debt/ revenue</i>	<i>Total public debt/ revenue</i>
<i>Mexico</i>	<i>1827</i>	<i>1.55</i>	<i>4.20</i>
<i>Spain</i>	<i>1877</i>	<i>4.95</i>	<i>15.83</i>
<i>Argentina</i>	<i>1890</i>	<i>4.42</i>	<i>12.46</i>
<i>Germany</i>	<i>1932</i>	<i>0.64</i>	<i>2.43</i>
<i>China</i>	<i>1939</i>	<i>3.10</i>	<i>8.96</i>
<i>Turkey</i>	<i>1978</i>	<i>1.38</i>	<i>2.69</i>
<i>Mexico</i>	<i>1982</i>	<i>3.25</i>	<i>5.06</i>
<i>Brazil</i>	<i>1983</i>	<i>0.83</i>	<i>1.98</i>
<i>Philippines</i>	<i>1983</i>	<i>0.23</i>	<i>1.25</i>
<i>South Africa</i>	<i>1985</i>	<i>0.09</i>	<i>1.32</i>
<i>Russia</i>	<i>1998</i>	<i>3.90</i>	<i>4.95</i>
<i>Pakistan</i>	<i>1998</i>	<i>3.32</i>	<i>6.28</i>
<i>Argentina</i>	<i>2001</i>	<i>1.59</i>	<i>2.62</i>

The global incidence of *domestic* default

Sovereign Domestic Debt: 1900-2006
Percent of countries in Default or Restructuring

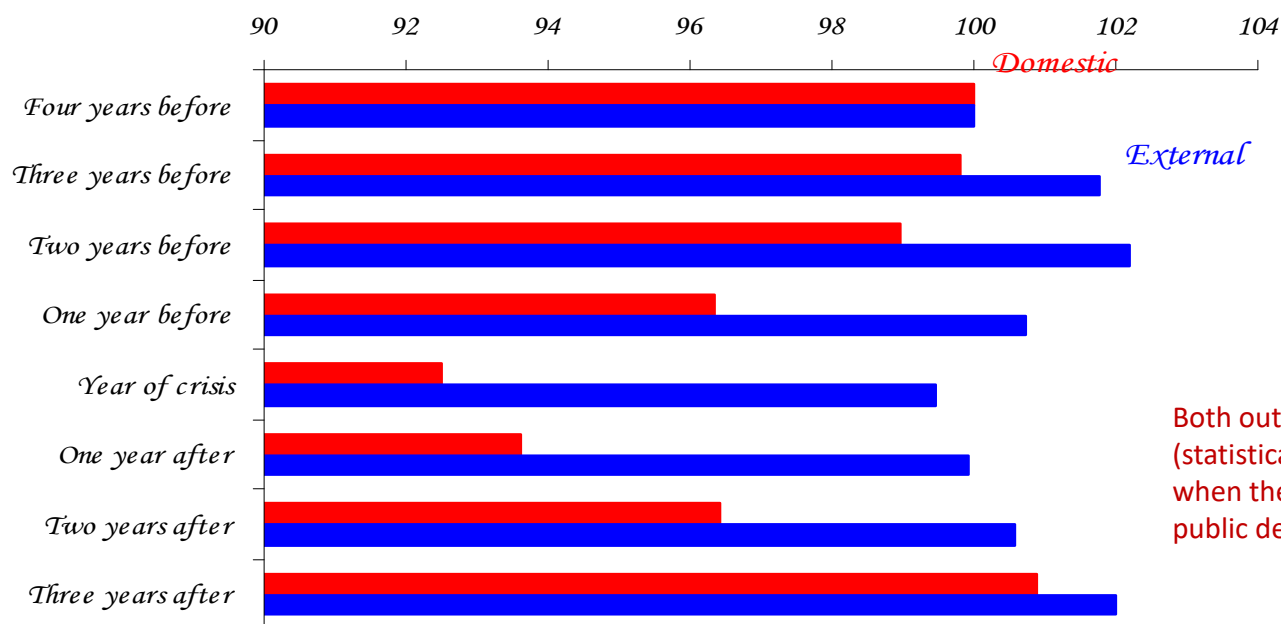


Reinhart and Rogoff (2009): Roughly half as many domestic debt defaults as external defaults in RR database

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Domestic defaults associated with more severe output declines than external debt crises

Domestic and external crises
Level of real GDP, index $t-4=100$



Both output and inflation are (statistically significantly) worse when there is a default on domestic public debt (RR, 2009)

Domestic Debt Defaults Associated with Even Larger Costs than for External (only) Debt Defaults

- Because existence of outright default on domestic debt (as opposed to inflating away debt) was not widely known or studied, no cross-country literature on costs of default
- The costs of sovereign external default, while difficult to isolate (per our discussion of the theory), but most studied (see discussion in RR (2009)) appear to be quite large, and include years of exclusion from international capital markets, significant costs to trade, lower investment in both physical and human capital, and often fall heavily on poor and middle class. External defaults are associated with long deep recessions (though causality difficult to show.)
- But episodes that include outright default on domestic debt appear to be, if anything, worse. Have not been quantitatively studied prior to RR (2009).

Conventional analyses of the seigniorage gains from inflation (e.g. Cagan 1956) miss that a lot of the action is default on “hidden” domestic debt

<i>Country</i>	<i>Year</i>	<i>Inflation</i>	<i>Domestic debt/GDP</i>	<i>Base Money/GDP</i>	<i>Domestic debt/ Total domestic liabilities</i>
<i>Some Hyperinflations</i>					
<i>Argentina</i>	<i>1989</i>	<i>3079.5</i>	<i>25.6</i>	<i>16.4</i>	<i>61.2</i>
<i>Brazil</i>	<i>1987</i>	<i>228.3</i>	<i>164.9</i>	<i>9.8</i>	<i>94.4</i>
	<i>1990</i>	<i>2947.7</i>	<i>155.1</i>	<i>7.1</i>	<i>95.6</i>
<i>Germany</i>	<i>1920</i>	<i>66.5</i>	<i>52.6</i>	<i>19.4</i>	<i>73.0</i>
	<i>1923</i>	<i>22220194522.37</i>	<i>0.0</i>	<i>0.0</i>	<i>1.0</i>
<i>High Inflations</i>					
<i>Greece</i>	<i>1922</i>	<i>54.2</i>	<i>53.0</i>	<i>34.3</i>	<i>60.7</i>
	<i>1923</i>	<i>72.6</i>	<i>41.3</i>	<i>32.7</i>	<i>55.9</i>
<i>Italy</i>	<i>1917</i>	<i>43.8</i>	<i>79.1</i>	<i>24.1</i>	<i>76.6</i>
	<i>1920</i>	<i>56.2</i>	<i>78.6</i>	<i>23.5</i>	<i>77.1</i>
<i>Japan</i>	<i>1944</i>	<i>26.6</i>	<i>236.7</i>	<i>27.8</i>	<i>89.5</i>
	<i>1945</i>	<i>568.1</i>	<i>266.5</i>	<i>74.4</i>	<i>78.2</i>
<i>Norway</i>	<i>1918</i>	<i>32.5</i>	<i>79.3</i>	<i>86.4</i>	<i>47.9</i>
	<i>1920</i>	<i>18.1</i>	<i>106.9</i>	<i>65.6</i>	<i>62.3</i>
<i>Philippines</i>	<i>1981</i>	<i>13.1</i>	<i>10.4</i>	<i>6.6</i>	<i>61.1</i>
	<i>1984</i>	<i>46.2</i>	<i>11.0</i>	<i>13.9</i>	<i>44.2</i>
<i>Turkey</i>	<i>1990</i>	<i>60.3</i>	<i>14.7</i>	<i>7.4</i>	<i>66.6</i>
	<i>1994</i>	<i>106.3</i>	<i>20.2</i>	<i>7.1</i>	<i>73.9</i>

Kenneth Rogoff

27

Drawbacks to inheriting high debt

There is little serious debate that high public debt levels (as well as unfunded pension liabilities) matter even in advanced countries

- Romer and Romer (2018) find that prolonged low growth spells after a financial crisis are significantly more severe when a country lacks fiscal space. Earlier papers by Jorda, Schularick and Taylor (2016b) as well as Bordo and Meisner (2016) find the same result.
- Bank bailout guarantees are only as good as the government balance sheet that lies behind them (bank/sovereign doom loop in Europe)
 - See Schneider and Tornell (2004) on effect of bailout guarantees on fragility
- Debt overhang dominated interwar international relations between advanced economies (see excellent discussion in Ahamed, 2009), the 1980s developing country debt crisis, and the recent Eurozone debt crisis.

Fiscal space, more generally, is an important tool for avoiding prolonged recessions in face of any catastrophe

- Fiscal space is important for confronting any kind of systemic shock, not only wars and financial crises, but natural disasters, pandemics, severe terms of trade shocks, all over which can lead to many years of slow growth absent effective response.
- **The core results of RR (2010a,b), RRR (2012) RRR (2015) stand: High debt levels are associated with lower medium-term average growth (with country-specific thresholds as RR 2010b emphasize).**
 - It is hard to understand the post-crisis debt experience of Greece and Italy otherwise (both entered the crisis with public debt over 100% of GDP).
 - Of course fiscal space depends on many factors, including level of interest rates, maturity structure of debt, capacity to invoke de facto default through inflation, past history of default and inflation (debt intolerance).
 - This is a completely different line of research from topics in Reinhart and Rogoff (2009) and comes after. RR and RRR neither claim, nor test for, a sharp break.
 - **RR suggest debt level markers more analogous to cholesterol levels over 200 and the risk of heart problems**
- The vast bulk of serious journal research confirms a negative association between high debt and medium-term growth. (For nuanced theoretical discussion (albeit excluding political economy elements), see Bhandari, Evans, Sargent and Golosov, 2017)

- RR (2009), (2014b) show that (more recently than commonly recognized) advanced countries have engaged in outright default on public debt, as well as extensive default through inflation and financial repression (RR, 2011, Reinhart, Reinhart and Rogoff, 2015)
- In many countries, high government, private and external debt, as well as unfunded pension liabilities (“Quadruple overhang” Reinhart, Reinhart and Rogoff, 2012)
 - **Return of fiscal dominance/financial repression/de facto default cannot be ruled out.**
- Independent central banks with technocratic objectives are a relatively modern creation in most countries.
 - First modeled as a mechanism for dealing with long-term credibility problems by Rogoff, *QJE* 1985), who models alternative implementation ideas including flexible inflation targeting, nominal GDP targeting, and the appointment of “conservative” inflation-conscious central bankers.
 - While very successful, today’s version of inflation-targeting regimes could be severely stress-tested if the next decade brings lingering high debts and populist spending and protectionist measures. See Aguiar, Amador, Farhi and Gopinath (2013) on the tension between default risk and overly strict inflation targeting.
- Even US engaged in domestic default in 1933 (RR 2009), (more recently Edwards (2018)), The financial repression of the 1950s and 1960s and the high inflation 1970s almost amounted to de facto default.
 - Farhi- Maggiori (2017) argue that over long periods, even “safe” financial center assets often turn out to be not so safe, and show why, in theory, equilibrium can be fragile.

Dealing with debt overhang

- RR and RRR emphasize that advanced economies have generally used heterodox methods (including inflation/ financial repression) to reduce severe debt overhang (RR 2014b, RRR (2015); Following RRS (2003), they argue that countries seldom dig their way out of severe debt overhang using only fast growth, fiscal consolidation (“austerity), or a combination of the two.
- **We argued that Eurozone recovery would have been greatly facilitated by a significant write-down of periphery country debt.**
 - Would need to be done in conjunction with a recapitalization of the Northern European banking system
 - (Mian and Sufi (2014) similarly argue why there should have been write-downs of subprime debt in US (as we did also.)
- Economic consequences of alternative approaches to fiscal consolidation (popularly known as “austerity”) in countries aiming or needing to cut deficits are the subject of Alesina and Ardagna (2010) that has sparked debate and a large body of further research. (RR have no discussion of these issues in their work.)
- Although many studies of fiscal multipliers find they are higher in recessions. The general proposition that fiscal multipliers are high is much debated, for example, Ilzetski, Mendoza and Vegh (2013) argue that fiscal multipliers can sometimes turn negative at sufficiently high debt levels.

Because monetary policy can be implemented with far less political disruption, it remains the first line of defense in recessions.

- Thanks to the rise of independent central banks with technocratic objectives (modelled by Rogoff, 1985, who studies the tradeoff between flexibility and commitment), countercyclical monetary policy far less political divisive than fiscal policy
- To treat fiscal policy as a non-partisan, non-political, mechanism for intervention (as in a sterile IS-LM or New Keynesian analysis) greatly understates the political dimension of policies that have such clear redistribution consequences.
 - These are brought out in the political economy literature, which rightly views expenditure and taxation choices as determined in political equilibrium (Alesina, 2016). **Fiscal policy is not just an economic but a political equilibrium.**
 - Alesina and Tabellini (1990), Persson and Svensson (1989) capture important point that governments have strong incentive to spend out of future income on their constituencies, Rogoff and Sibert (1988), Rogoff (1990) show that election cycles also lead to a deficit bias.

How to improve the effectiveness of monetary policy in the next financial crisis

- To better fight future financial crises, countries should consider preparing the groundwork for the monetary authorities to engage in **unencumbered** negative interest rate policy in emergency situations. Main obstacle is wholesale hoarding of currency, which also constrains pass-through from banks.
 - There are a number of ways to discourage this, for example with a time-varying tax on large cash re-deposits into the central bank.
 - Rogoff (2016, 2017) argues that as cash is increasingly marginalized in legal, tax compliant transactions (better yet if large denomination bills are phased out) effective negative interest rate will become increasingly feasible to implement.
 - We no longer live in the world of Keynes (1936).
- **Negative rates are a vastly more elegant than quantitative easing or forward guidance, and vastly more powerful in a full-blown crisis.**
 - Canzoneri, Henderson and Rogoff (1982) an early example showing how if monetary policy can be as effective operating through inflation expectations as through manipulating the current interest rate. Requires, however, strong credibility.

- Massive, out-of-the-box shocks can and *will* happen, governments need to be prepared, debt policy has a critical *risk management* element.
- Many populist leaders and academics contend that advanced countries are highly unlikely to face out-of-the-box events leading to fiscal stress. Unfortunately this view is both dangerous and stupefyingly naïve, prime example of “This Time is Different” mentality. Aside from future systemic financial crises, there are new age risks such as cyberwar, pandemics, CRISPER-enabled biological terrorism, etc.
- Although vulnerabilities obviously depend on interest rates, maturity structure, etc., the value of having a strong balance sheet remains important.

Important to resist “This Time is Different” thinking

- Great moderation era lulled the profession into a triumphalist “End of History” mentality. We see this again in an overconfident belief in “safe debt,” a permanent end to inflation, and the slaying of financial crises in emerging markets.
- A panoramic, cross-country, quantitative (not just narrative) view of crisis history is an essential vaccination to reduce the likelihood of future crises, and to be better able to handle them when they occur.

The End

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