Economics 210c/236a
Fall 2011

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LECTURE 6
The Effects of Financial Crises

October 5, 2011

I. Ben Bernanke, "Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression"

Conceptual Framework

- Cost of Credit Intermediation (CCI)
- How do banking crises increase CCI?
- How do bankruptcies increase CCI?

Macroeconomic Consequences of Increased CCI

- Aggregate supply effects
- Aggregate demand effects

Bernanke's Empirical Strategy

- Regress the growth rate of industrial production on unanticipated changes in the money supply.
- Unanticipated changes in the money supply calculated as residuals of a regression of money on four monthly lags of IP, M and prices.

TABLE 2—ESTIMATED OUTPUT EQUATIONS

$$(1)\quad Y_t = \underset{(10.21)}{.623}\, Y_{t-1} - \underset{(-2.37)}{.144}\, Y_{t-2} + \underset{(3.42)}{.407}\,(M - M^e)_t + \underset{(1.16)}{.141}\,(M - M^e)_{t-1}$$

$$+ \underset{(0.42)}{.051}\,(M - M^e)_{t-2} + \underset{(1.19)}{.144}\,(M - M^e)_{t-3}$$

$$s.e. = .0272 \quad D.W. = 2.02 \quad \text{Sample: } 1/19\text{–}12/41$$

Notes: Y_t = rate of growth of industrial production (*Federal Reserve Bulletin*), relative to exponential trend.
$(M - M^e)_t$ = rate of growth of $M1$, nominal and seasonally adjusted (Friedman and Schwartz, Table 4-1), less predicted rate of growth.
$(P - P^e)_t$ = rate of growth of wholesale price index (*Federal Reserve Bulletin*), less predicted rate of growth.
$DBANKS_t$ = first difference of deposits of failing banks (deflated by wholesale price index).
$DFAILS_t$ = first difference of liabilities of failing businesses (deflated by wholesale price index).
Data are monthly; *t*-statistics are shown in parentheses.

Bernanke's Empirical Strategy (continued)

- Then adds two measures of financial crises:
  - Change in deposits in suspended banks (*DBANKS*)
  - Change in business failures (*DFAILS*)
- Looks for significance of coefficients on crisis variables.
- Also does dynamic simulations:
  - How much of movement in IP do the equations explain?

TABLE 1—SELECTED MACROECONOMIC DATA, JULY 1929–MARCH 1933

Month	*IP*	*Banks*	*Fails*	$\Delta L/IP$	*L/DEP*	*DIF*
1929*J*	114	60.8	32.4	.163	.851	2.31
A	114	6.7	33.7	.007	.855	2.33
S	112	9.7	34.1	.079	.860	2.33
O	110	12.5	31.3	.177	.865	2.50
N	105	22.3	52.0	.121	.854	2.68
D	100	15.5	62.5	−.214	.851	2.59
1930*J*	100	26.5	61.2	−.228	.837	2.49
F	100	32.4	51.3	−.102	.834	2.48
M	98	23.2	56.8	.076	.835	2.44
A	98	31.9	49.1	.058	.826	2.33
M	96	19.4	55.5	−.028	.820	2.41
J	93	57.9	63.1	.085	.818	2.53
J	89	29.8	29.8	−.055	.802	2.52
A	86	22.8	49.2	−.027	.800	2.47
S	85	21.6	46.7	.008	.799	2.41
O	83	19.7	56.3	−.010	.791	2.73
N	81	179.9	55.3	−.067	.777	3.06
D	79	372.1	83.7	−.144	.775	3.49
1931*J*	78	75.7	94.6	−.187	.763	3.21
F	79	34.2	59.6	−.144	.747	3.08
M	80	34.3	60.4	−.043	.738	3.17
A	80	41.7	50.9	−.104	.722	3.45
M	80	43.2	53.4	−.133	.706	3.99
J	77	190.5	51.7	−.120	.707	4.23
J	76	40.7	61.0	−.013	.704	3.93
A	73	180.0	53.0	−.103	.706	4.29
S	70	233.5	47.3	−.050	.713	4.82
O	68	471.4	70.7	−.310	.716	5.41
N	67	67.9	60.7	−.101	.726	5.30
D	66	277.1	73.2	−.120	.732	6.49
1932*J*	64	218.9	96.9	−.117	.745	4.87
F	63	51.7	84.9	−.138	.757	4.76
M	62	10.9	93.8	−.183	.744	4.91
A	58	31.6	101.1	−.225	.718	6.78
M	56	34.4	83.8	−.154	.696	7.87
J	54	132.7	76.9	−.170	.689	7.93
J	53	48.7	87.2	−.219	.677	7.21
A	54	29.5	77.0	−.130	.662	4.77
S	58	13.5	56.1	−.091	.641	4.19
O	60	20.1	52.9	−.095	.623	4.44
N	59	43.3	53.6	−.133	.602	4.79
D	58	70.9	64.2	−.039	.596	5.07
1933*J*	58	133.1	79.1	−.139	.576	4.79
F	57	62.2	65.6	−.059	.583	4.09
M	54	3276.3[a]	48.5	−.767[a]	.607[a]	4.03

TABLE 2—ESTIMATED OUTPUT EQUATIONS

(1) $$Y_t = \underset{(10.21)}{.623}\ Y_{t-1} - \underset{(-2.37)}{.144}\ Y_{t-2} + \underset{(3.42)}{.407}\ (M - M^e)_t + \underset{(1.16)}{.141}\ (M - M^e)_{t-1}$$

$$+ \underset{(0.42)}{.051}\ (M - M^e)_{t-2} + \underset{(1.19)}{.144}\ (M - M^e)_{t-3}$$

$$s.e. = .0272 \quad D.W. = 2.02 \quad \text{Sample: } 1/19\text{–}12/41$$

(3) $$Y_t = \underset{(9.86)}{.613}\ Y_{t-1} - \underset{(-2.63)}{.159}\ Y_{t-2} + \underset{(2.92)}{.332}\ (M - M^e)_t + \underset{(0.99)}{.113}\ (M - M^e)_{t-1} + \underset{(0.96)}{.110}\ (M - M^e)_{t-2}$$

$$+ \underset{(1.38)}{.156}\ (M - M^e)_{t-3} - \underset{(-4.24)}{.869E-04}\ DBANKS_t - \underset{(-1.93)}{.406E-04}\ DBANKS_{t-1}$$

$$- \underset{(-1.95)}{.258E-03}\ DFAILS_t - \underset{(-2.47)}{.325E-03}\ DFAILS_{t-1}$$

$$s.e. = .0249 \quad D.W. = 1.99 \quad \text{Sample: } 1/21\text{–}12/41$$

Notes: Y_t = rate of growth of industrial production (*Federal Reserve Bulletin*), relative to exponential trend.
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Evaluation of Bernanke's Empirical Strategy

- Can it distinguish between money and credit stories?
- Omitted variable bias
- Importance of outliers

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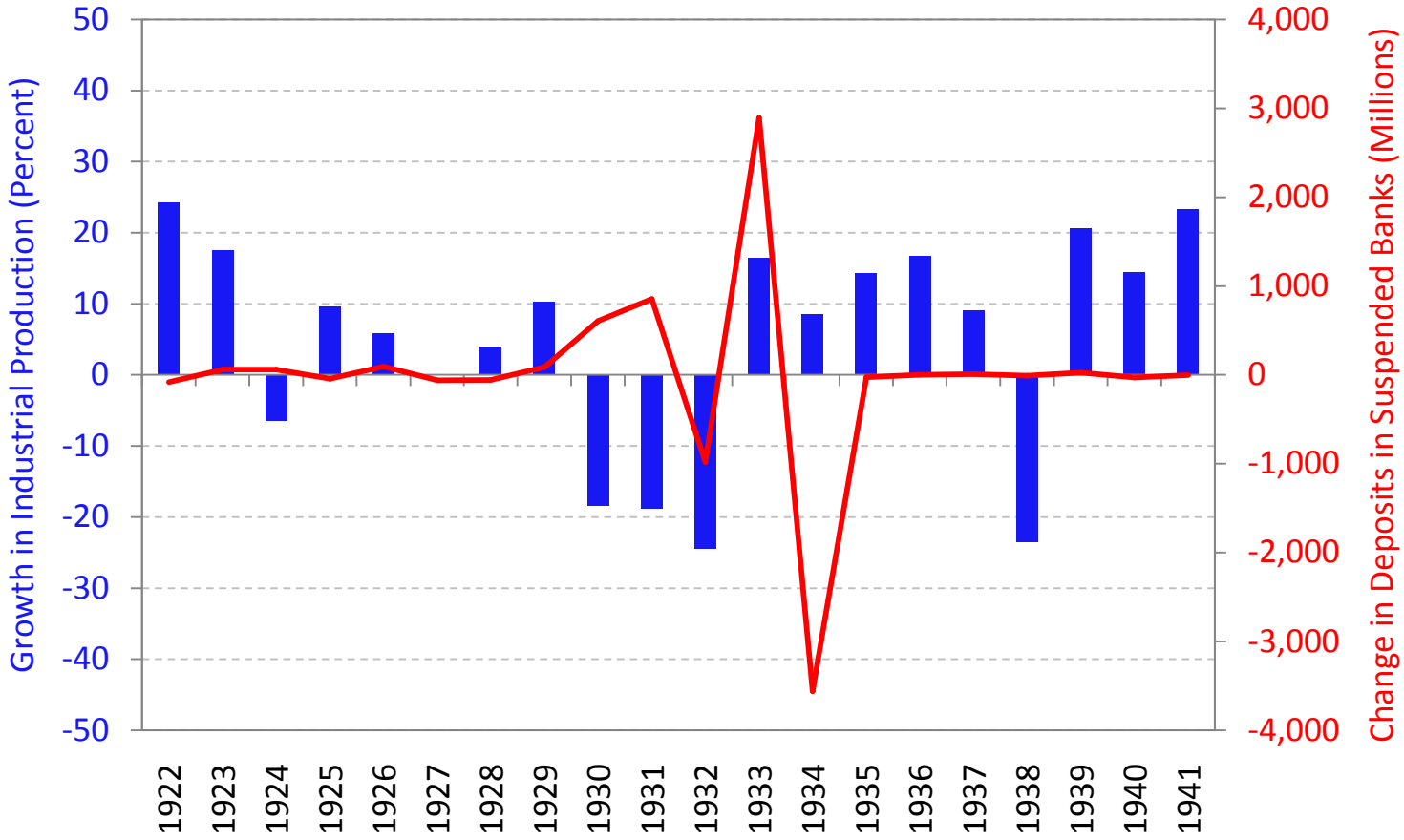
Growth of Industrial Production and Change in Bank Suspensions, 1922-1941



II. Reinhart and Rogoff, "The Aftermath of Financial Crises," Chapter 14 of *This Time is Different: Eight Centuries of Financial Folly*

Reinhart and Rogoff's Definition

"We mark a banking crisis by two types of events: (1) [systemic, severe] bank runs that lead to the closure, merging, or takeover by the public sector of one or more financial institutions and (2) [financial distress, milder] if there are no runs, the closure, merging, takeover, or large-scale government assistance of an important financial institution (or group of institutions) that marks the start of a string of similar outcomes for other financial institutions."

Reinhart and Rogoff, *This Time is Different*, p. 11.

Reinhart and Rogoff's Application of Their Definition

- Secondary sources
- No discussion of why they classified things as they did

TABLE A.4.1 Continued

Country	Brief summary	Year	Source
Japan	Banks suffered from a sharp decline in stock market and real estate prices. In 1995, estimates of non-performing loans were $469–1,000 billion or 10–25 percent of GDP; at the end of 1998 they were estimated at $725 billion or 18 percent of GDP; and in 2002 they were 35 percent of total loans. Seven banks were nationalized, sixty-one financial institutions closed, and twenty-eight institutions merged.	1992–1997	Bordo et al. (2001), Caprio and Klingebiel (2003)

From: Reinhart and Rogoff, *This Time Is Different*, p. 371.

TABLE A.4.1 Continued

Country	Brief summary	Year	Source
United States	During the Great Depression, thousands of banks closed; failures were correlated with particular Federal Reserve districts. The Bank of the USA failed in December 1930; between August 1931 and January 1932, 1,860 banks failed.	1929–1933	Bernanke and James (1990), Bordo et al. (2001)
	There were 1,400 savings and loan and 1,300 bank failures.	1984–1991	Bordo et al. (2001), Caprio and Klingebiel (2003)

From: Reinhart and Rogoff, *This Time Is Different*, p. 371.

Definition of the "Big Five" Crises

The Big Five crises are all protracted, large-scale financial crises that are associated with major declines in economic performance for an extended period. Japan (1992), of course, is the start of the "lost decade," although all the others left deep marks as well.

From: Reinhart and Rogoff, "Is the 2007 US Sub-Prime Financial Crisis so Different?"

Empirical Methodology

- Old NBER graphical approach
- Casual approach to samples
- No comparison group

As a benchmark for the 2007 US sub-prime crisis, we draw on data from the 18 bank-centered financial crises from the postwar period, as identified by Kaminsky and Reinhart (1999) and Gerard Caprio et. al. (2005). These crisis episodes include:

The "Big Five" Crises: Spain (1977), Norway (1987), Finland (1991), Sweden (1991), and Japan (1992), where the starting year is in parentheses.

Other Banking and Financial Crises: Australia (1989), Canada (1983), Denmark (1987), France (1994), Germany (1977), Greece (1991), Iceland (1985), Italy (1990), New Zealand (1987), United Kingdom (1974, 1991, 1995), and United States (1984).

From: Reinhart and Rogoff, "Is the 2007 US Sub-Prime Financial Crisis so Different?"

1. What happens after postwar banking crises in advanced economies?

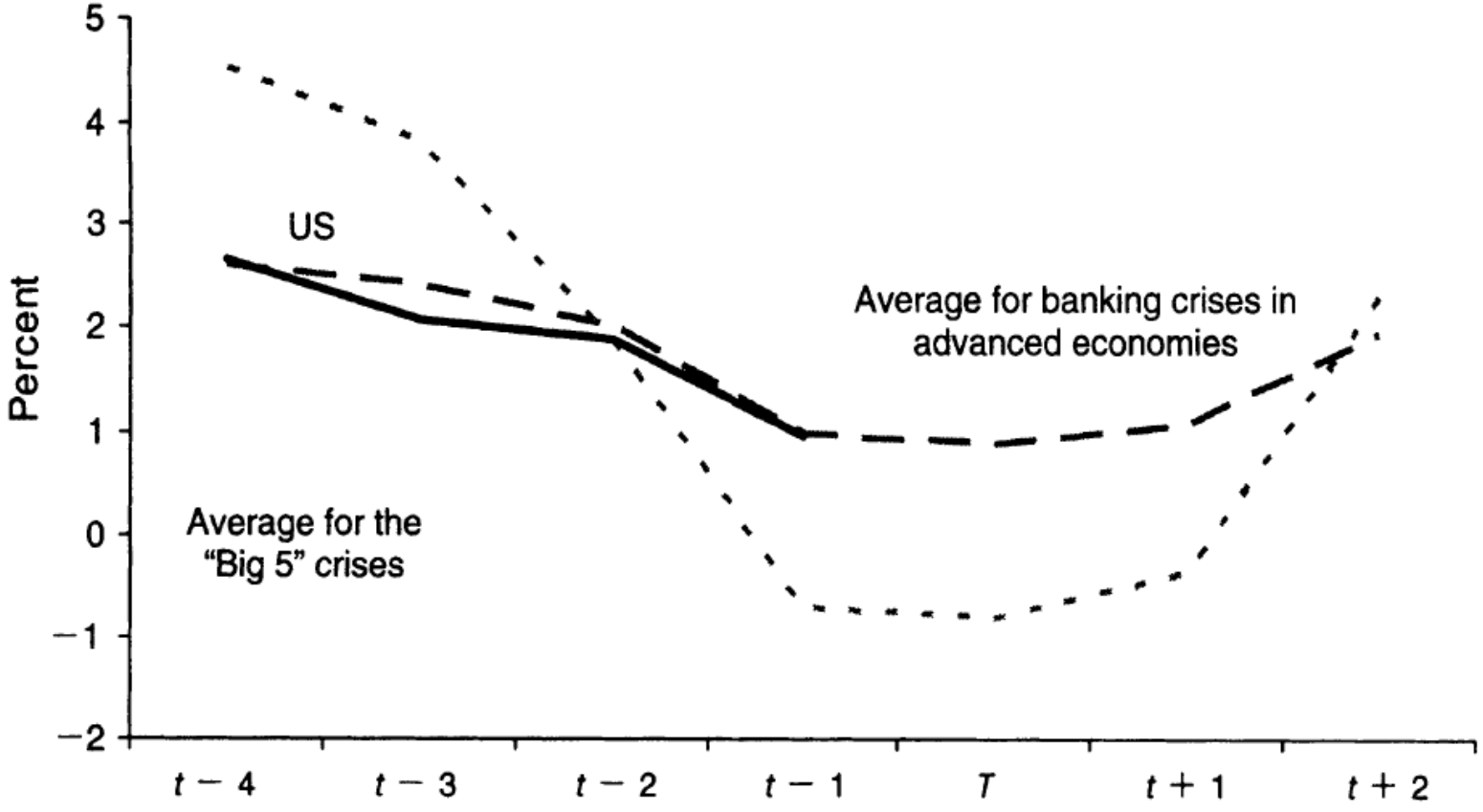


FIGURE 4. REAL GDP GROWTH PER CAPITA AND BANKING CRISES
(*PPP basis*)

From: Reinhart and Rogoff, "Is the 2007 US Sub-Prime Financial Crisis so Different?"

2. What happens after banking crises in another sample of countries?

- 21 major banking crises.
- 6 current; 13 other postwar (5 in advanced countries, 8 in developing); 2 others (Norway 1899, U.S. 1929).

Falls in Real GDP per Capita

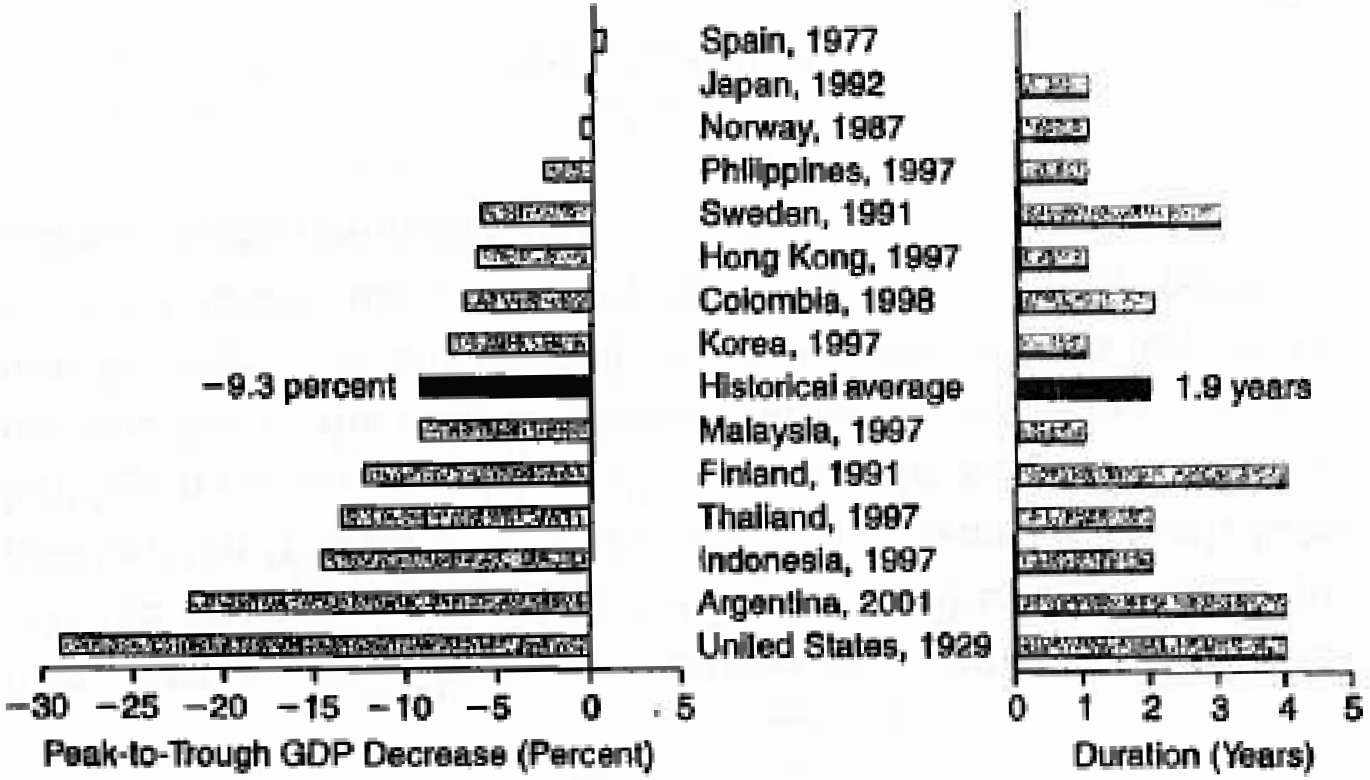


Figure 14.4. Cycles of past real per capita GDP and banking crises.
Sources: Total Economy Database (TED), Carter et al. (2006), and the authors' calculations.
Notes: Each banking crisis episode is identified by country and the beginning year of the crisis. Only major (systemic) banking crisis episodes are included, subject to data limitations. The historical average reported does not include ongoing crisis episodes. Total GDP in millions of 1990 U.S. dollars (converted at Geary Khamis PPPs) divided by midyear population.

Issues

- What is driving the results?
- Quality of the empirical technique?
- Impact of dating crises at their start?
- What is the logic behind the sample? Is there one?
- Lack of a control group

3. How do postwar crises compare to the Great Depression?

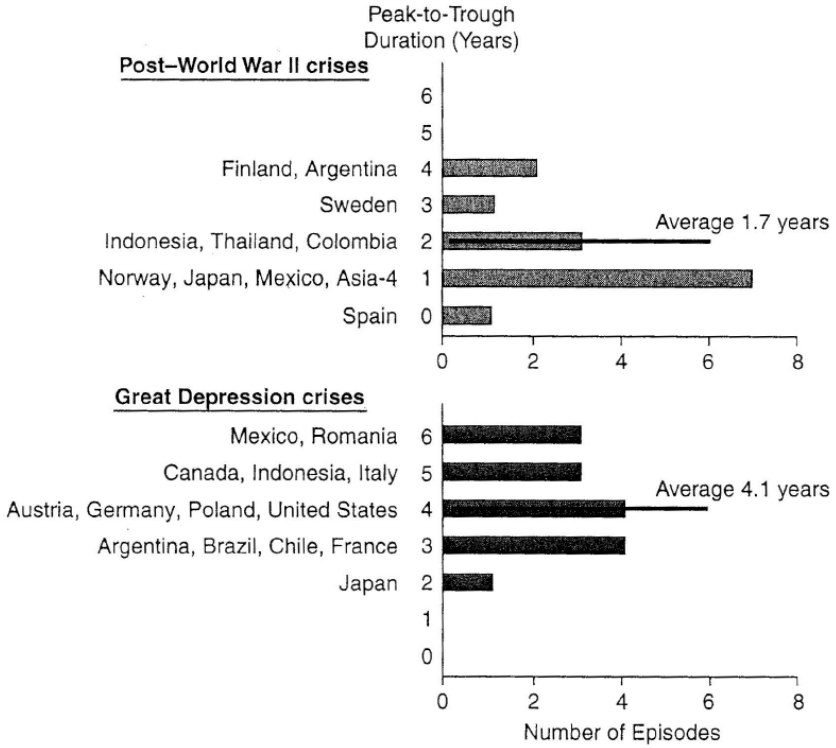


Figure 14.7. The duration of major financial crises: Fourteen Great Depression episodes versus fourteen post–World War II episodes (duration of the fall in output per capita).
Sources: Appendix A.3 and the authors' calculations.
Notes: The fourteen postwar episodes were those in Spain, 1977; Norway, 1987; Finland, 1991; Sweden, 1991; Japan, 1992; Mexico, 1994; Indonesia, Thailand, and (grouped as Asia-4 in the figure) Hong Kong, Korea, Malaysia, and Philippines, all 1997; Colombia, 1998; and Argentina, 2001. The fourteen Great Depression episodes were comprised of eleven banking crisis episodes and three less systemic but equally devastating economic contractions in Canada, Chile, and Indonesia during the 1930s. The banking crises were those in Japan, 1927; Brazil, Mexico, and the United States, all 1929; France and Italy, 1930; and Austria, Germany, Poland, and Romania, 1931.

Issues

- What counts in the Depression sample?
- Where did Mexico come from?
- Impact of dating crises at their start?

Bordo, et al. Sample

Sample

Our 21-country sample consists of Argentina, Australia, Brazil, Canada, Chile, Denmark, Finland, Greece, Italy, Japan, Norway, Portugal, Spain, Sweden, and US (defined as 'emerging markets' in the pre-1914 period) as well as Belgium, France, Germany, the Netherlands, Switzerland, and Great Britain (the pre-1914 'industrial economies'). Classifying the US as an emerging market is controversial, but we do so because it was a steady capital importer through much of the period, like the other late developers in our sample, and because it lacked a number of the institutions of an advanced-industrial economy, notably a central bank. Starting in 1919, we re-classify Australia, Canada, Denmark, Finland, Italy, Japan, Norway, Sweden and the US as industrial.

Our 56-country sample consists of the 53 countries in IMF (1998), listed in the data table below, plus Senegal, Ghana and Côte d'Ivoire. We added these three in order to increase the overlap with the sample of countries for which we have information on crisis resolution (crisis and recession dates for these three are not included in the data table below).

From Bordo, et al., "Is the Crisis Problem Growing More Severe?"

Table 1. Duration and depth of crises

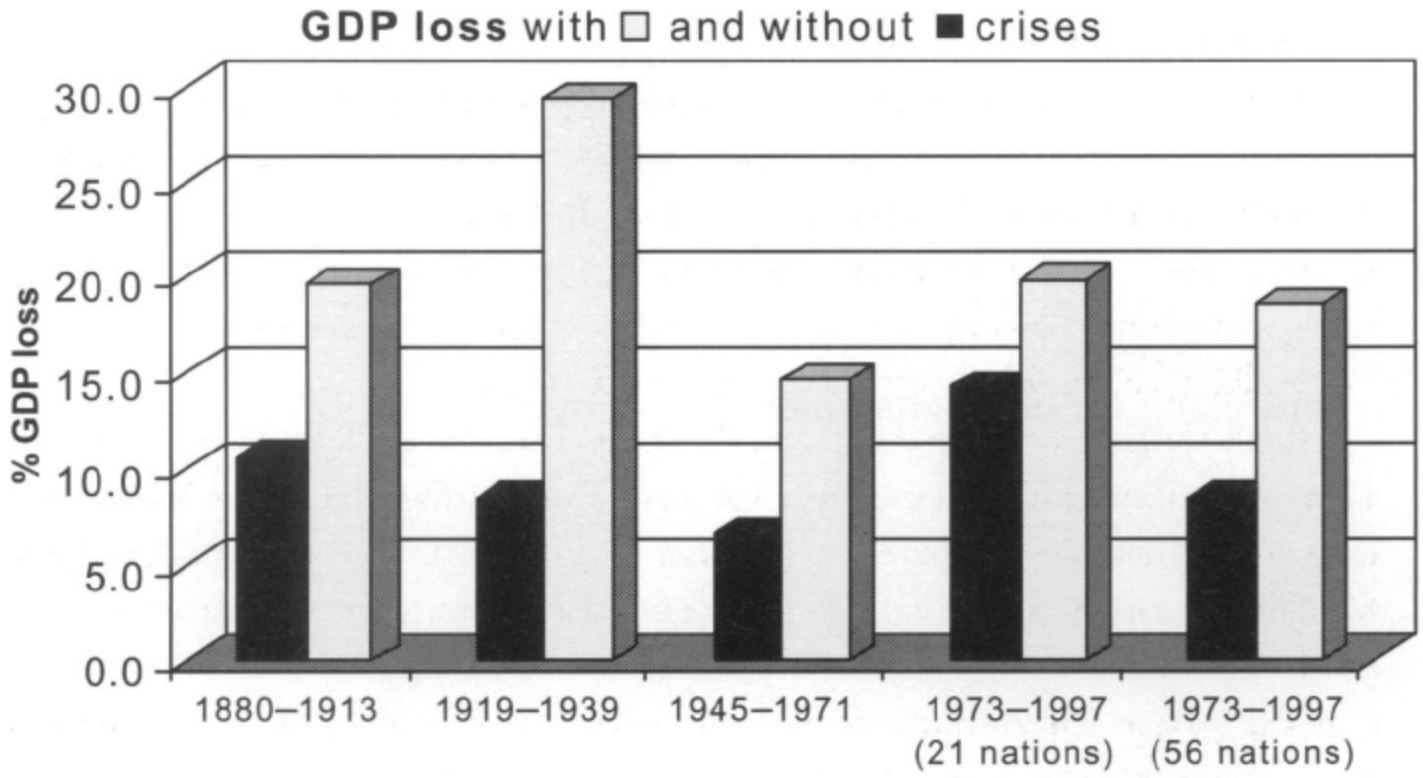
All countries	1880–1913	1919–1939	1945–1971	1973–1997 21 nations	1973–1997 56 nations
		Average duration of crises in years			
Currency crises	2.6	1.9	1.8	1.9	2.1
Banking crises	2.3	2.4	[a]	3.1	2.6
Twin crises	2.2	2.7	1.0	3.7	3.8
All crises	2.4	2.4	1.8	2.6	2.5
		Average crisis depth (cumulative GDP loss in %)			
Currency crises	8.3	14.2	5.2	3.8	5.9
Banking crises	8.4	10.5	[a]	7.0	6.2
Twin crises	14.5	15.8	1.7	15.7	18.6
All crises	9.8	13.4	5.2	7.8	8.3

Notes: [a] indicates no crises

Source: Authors' calculations.

From Bordo, et. al, "Is the Crisis Problem Growing More Severe?"

Falls in Real GDP with and without Crises



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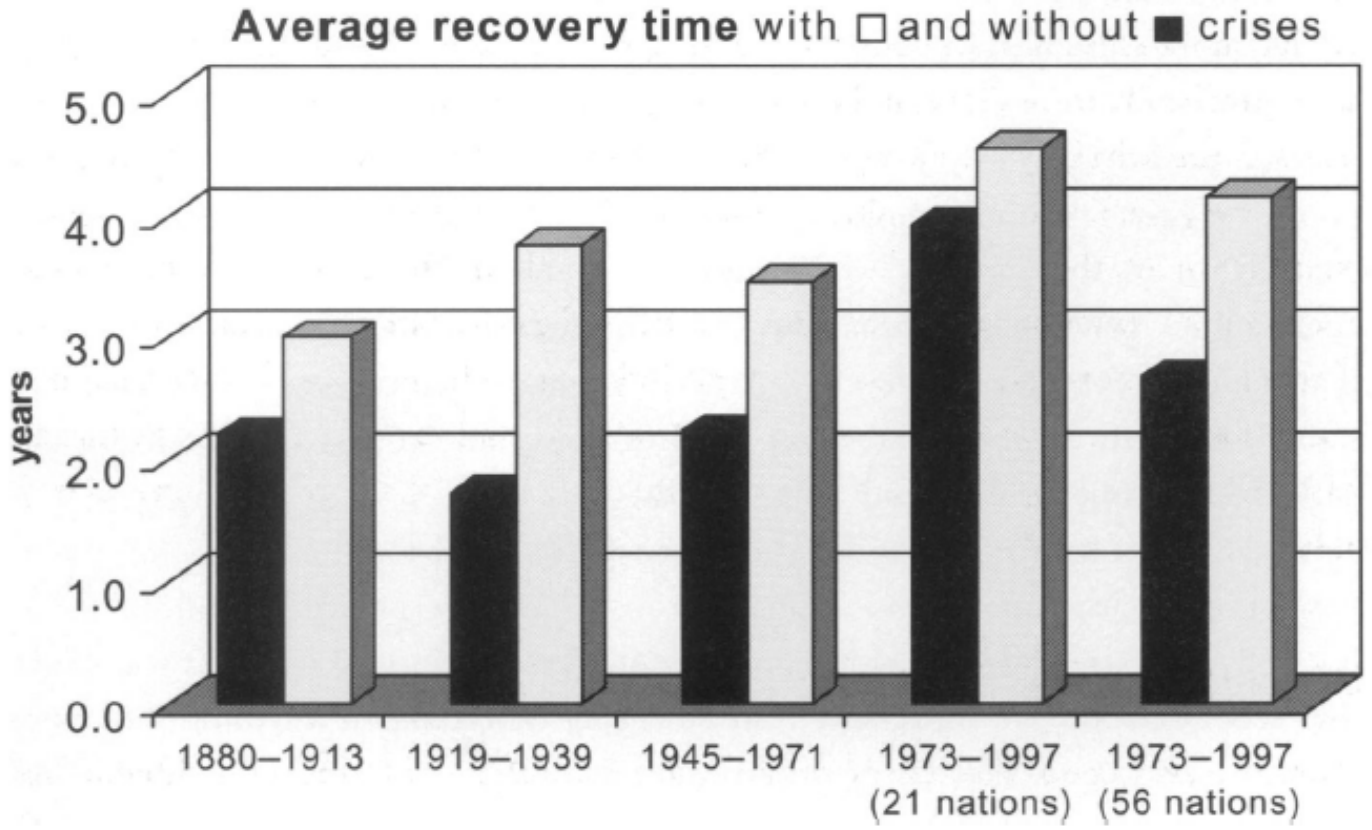


Figure 2. Recessions with and without crises

From Bordo, et. al, "Is the Crisis Problem Growing More Severe?"

Table 2. Depth of recessions with and without crises: regression analysis

Variable	Coefficient	*t*-statistic	Variable	Coefficient	*t*-statistic
1880–1997 (dependent variable % loss of output)					
Constant	**−6.33**	**2.51**	Constant	**−6.86**	**3.65**
Average growth	**3.20**	**9.08**	Average growth	**3.19**	**9.25**
Industrial nation	2.36	1.83	Industrial nation	**2.74**	**2.12**
All crises	**8.67**	**5.52**	Banking crisis	3.22	1.72
			Currency crisis	**7.79**	**4.16**
			Twin crisis	**14.84**	**4.87**
$N = 351$, $R^2 = 0.41$			$N = 351$, $R^2 = 0.41$		
1973–1997 (dependent variable % loss of output)					
Constant	**−8.18**	**2.66**	Constant	**−7.98**	**2.46**
Average growth	**3.09**	**5.87**	Average growth	**3.00**	**6.33**
Industrial nation	**5.45**	**3.08**	Industrial nation	**5.89**	**3.46**
All crises	**10.50**	**5.98**	Banking crisis	**4.44**	**2.30**
			Currency crisis	**8.67**	**4.37**
			Twin crisis	**15.95**	**5.42**
$N = 140$, $R^2 = 0.40$			$N = 140$, $R^2 = 0.46$		

Notes: *t*-statistics were calculated using White heteroscedasticity consistent standard errors. The regression for the pooled sample (1880–1997) also includes period fixed effects (not reported). Entries in bold face denote coefficients that differ significantly from zero at the 95% confidence level.

From Bordo, et. al, “Is the Crisis Problem Growing More Severe?”

While we have now controlled for other characteristics of cycles that affect the severity of recession, the inferences we drew from Table 2 may be based on an inappropriate assumption about the direction of causality, which could run from recessions to crises rather than from crises to recessions. Those who regard business-cycle fluctuations as fundamental and crises as ephemera (e.g., Schwartz, 1986 and Gorton, 1988) would subscribe to this view. To address this possibility, we employ a two-step statistical technique ('two stage least squares') that seeks to eliminate the possibility of reverse causality. We do so as follows. In the first step, we estimate multinomial logit regressions of the crisis indicators (where the crisis indicator can take on four values denoting a currency crisis, a banking crisis, a twin crisis, or no crisis, and these alternatives are mutually exclusive) on lags of inflation, the ratio of broad money (M2) to reserves, the ratio of M2 to GDP, the trade balance, the budget balance, a dummy variable for currency pegs, a dummy variable for capital controls, and a measure of crises in neighbouring countries as a proxy for crisis 'contagion'. The use of lagged values increases the likelihood that these are valid instruments. (An alternative specification that

From Bordo, et. al, "Is the Crisis Problem Growing More Severe?"

III. López-Salido and Nelson, "Postwar Financial Crises and Economic Recoveries in the United States"

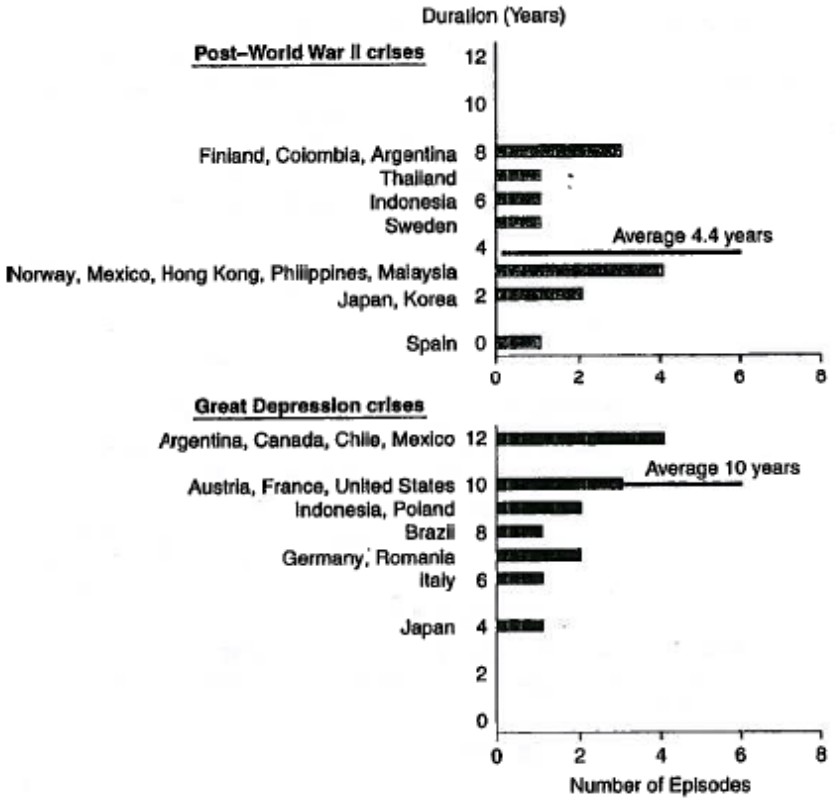


Figure 14.8. The duration of major financial crises: Fourteen Great Depression episodes versus fourteen post–World War II episodes (number of years for output per capita to return to its precrisis level).
Sources: Appendix A.3 and the authors' calculations.
Notes: The fourteen postwar episodes were those in Spain, 1977; Norway, 1987; Finland, 1991; Sweden, 1991; Japan, 1992; Mexico, 1994; Hong Kong, Indonesia, Korea, Malaysia, the Philippines, and Thailand, all 1997; Colombia, 1998; and Argentina, 2001. The fourteen Great Depression episodes were comprised of eleven banking crisis episodes and three less systemic but equally devastating economic contractions in Canada, Chile, and Indonesia. The banking crises were those in Japan, 1927; Brazil, Mexico, and the United States, all 1929; France and Italy, 1930; and Austria, Germany, Poland, and Romania, 1931. The precrisis level for the Great Depression was that of 1929.

From: Reinhart and Rogoff, *This Time Is Different*, p. 371.

Lopez-Salido and Nelson's Definition of a Banking Crisis

- Events involving "the closure, merging, takeover, or large-scale government assistance of an important financial institution (or group of institutions)."
- Apply in two ways:
  - Try to use the definition directly.
  - "Case law": How do events in U.S. compare with events in other countries that Reinhart & Rogoff classify as banking crises?

Example: 1973–1975

- Failure of Franklin National Bank (20th largest bank in U.S.), October 1974.

- Alan Greenspan (who was chair of the CEA) "raised the prospect that the thrift industry might require … a large-scale infusion of funds from the federal government."

- Numerous other signs of financial stress.

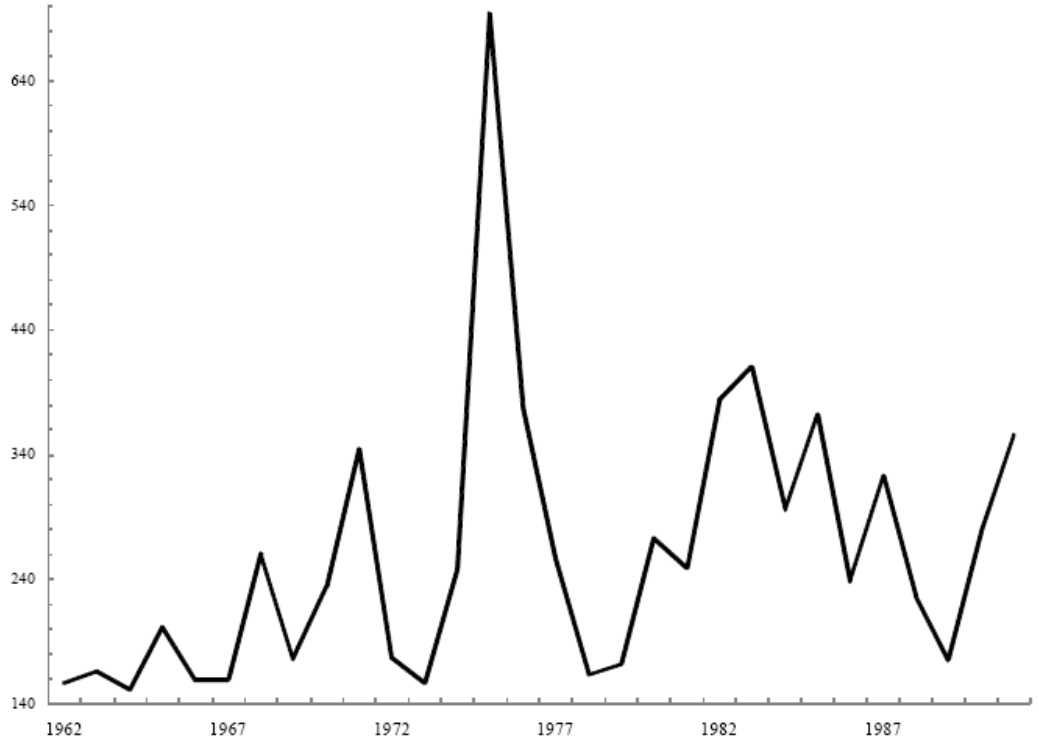


Figure 2: Total uses of the terms "financial crisis" or "banking crisis" in the *Wall Street Journal*, the *Washington Post*, and the *New York Times*, by year. Source: Authors' calculations from Proquest database.

1974

From Lopez-Salido and Nelson, "Postwar Financial Crises and Economic Recoveries"

Example: 1973–1975 (cont.)

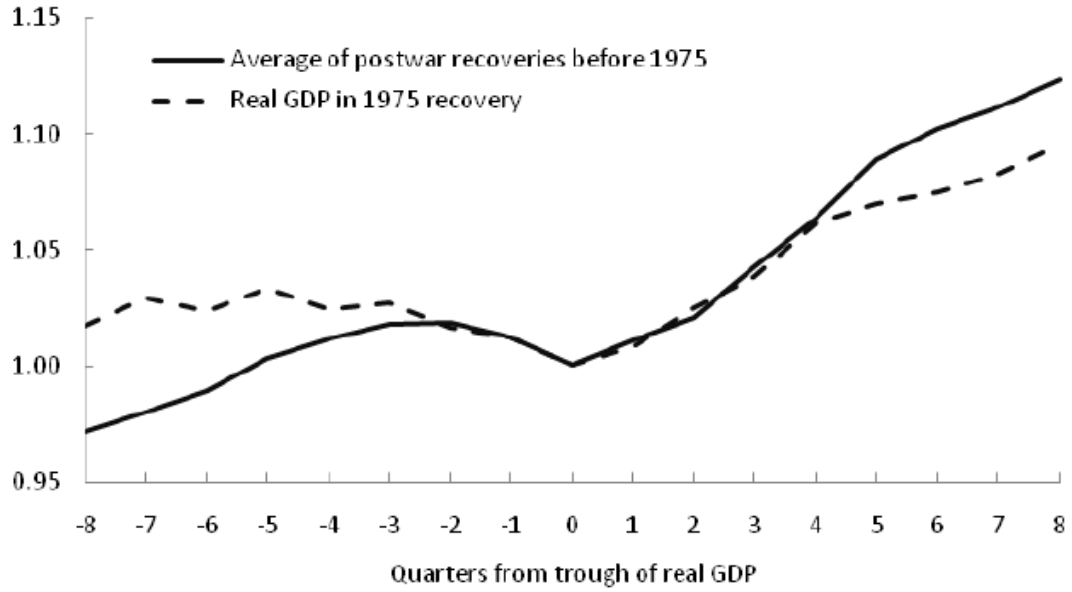
- Comparison with the U.K.: "The United Kingdom's problems in the mid-1970s are less recognizable as a bank-centered financial crisis than are those of the United States. … The U.K. financial crisis of 1974–1976 witnessed no closure of liquidation of commercial banks."

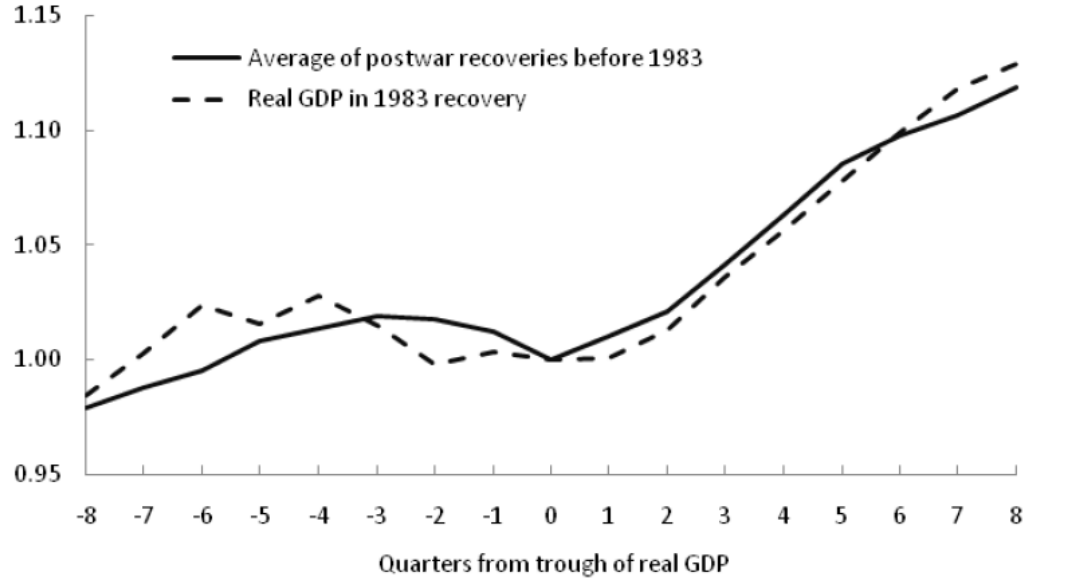
Table 2. Chronologies of postwar U.S. financial crises before 2007

Reinhart-Rogoff (2008b, 2009b) dating		Alternative Chronology	
Crisis	Date	Crisis	Date
		Crisis I: Bank Capital Squeeze	1973–1975
		Crisis II: LDC Debt Threat	1982–1984
Savings and Loan Crisis	1984–1991	Crisis III: Savings and Loan Crisis	1988–1991

Source: Reinhart-Rogoff dating: Reinhart and Rogoff (2008b, esp. p. 7 and Table A5, p. 82; 2009b, esp. pp. 215–216). Alternative chronology: see text.

From Lopez-Salido and Nelson, "Postwar Financial Crises and Economic Recoveries"


1.15
1.10
1.05
1.00
0.95
Average of postwar recoveries before 1975
Real GDP in 1975 recovery
-8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8
Quarters from trough of real GDP


1.15
1.10
1.05
1.00
0.95
Average of postwar recoveries before 1983
Real GDP in 1983 recovery
-8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8
Quarters from trough of real GDP

Are Recoveries Weaker after Crisis Recessions?

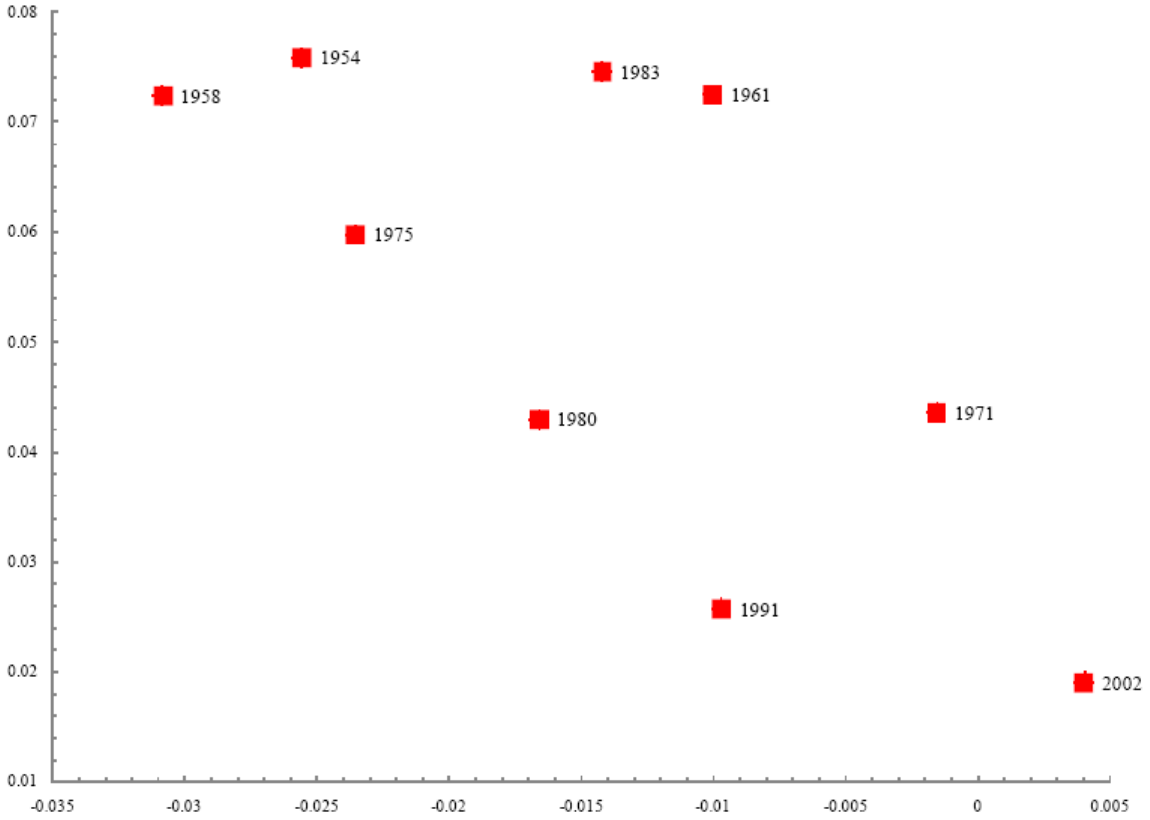


Figure 7: Scatter of growth in first year of recovery (y-axis) against growth in year to recession trough (x-axis), U.S. postwar recoveries from 1954 to 2002. Source: Computed from real GDP in Federal Reserve Bank of St. Louis' FRED portal. Growth rates measured as log-differences.

Table 4. Economic recovery regressions
Dependent variable: Real GDP growth in the first year of recovery

All recoveries 1954 – 2002 (# of observations = 9)

Variable	Simple Regressions			Multiple Regressions	
Constant	0.0149 (0.0020)	0.0136 (0.0024)	0.0087 (0.0023)	0.0098 (0.0022)	0.0090 (0.0026)
Financial crisis dummy–Reinhart-Rogoff (DRR_t)	−0.00795 (0.0055)	–	–	−0.0064 (0.0041)	–
Financial crisis dummy–alternative chronology (DAC_t)	–	−0.00025 (0.0042)	–	–	−0.0064 (0.0041)
Average growth in the final four quarters of prior recession	–	–	−1.3606 (0.5213)	−1.2486 (0.4806)	−1.3806 (0.5608)
R^2	0.233	0.001	0.493	0.639	0.503
SEE	0.0051	0.0059	0.0042	0.0038	0.0045

From Lopez-Salido and Nelson, “Postwar Financial Crises and Economic Recoveries”

V. Jalil, "A New History of Banking Panics in the United States, 1825-1929: Construction and Implications"

Previous panic series

- Bordo-Wheelock
- Thorp
- Reinhart-Rogoff (2 versions)
- Gorton
- Sprague
- Wicker
- Kemmerer
- DeLong-Summers

Table 1 Eight Panic Series , 1825-1929 [Excerpts: 3 series, 1825-1889]

Bordo-Wheelock	Thorp	Reinhart-Rogoff: Table A3	Reinhart--Rogoff: Table A5
Banking Panic	Panic	Banking Crisis	Banking Crisis
1790-1933	1790-1925	1800-2007	1800-2007
1825	1825	1825	Jan 1825
1833	1833		
		1836	
1837	1837		March 1837 - 1838
1839	1839		
			March 1841
	1847		
1857	1857	1857	Aug 1857
			Dec 1861
			April 1864
1873	1873	1873	Sept 1873
1878 (financial distress)			
1884 (financial distress)		1884	May 1884

From: Jalil, "A New History of Banking Panics in the United States, 1825-1929"

Jalil's definition of a panic

- A banking panic occurs when there is a widespread rush by private agents to liquidate deposits out of fear that the deposits will suddenly decline in value or become illiquid. (p. 15, paraphrased)

- "A banking panic occurs when there is an increase in the demand for currency relative to deposits that sparks bank runs and bank suspensions." (p. 15)

- "A banking panic occurs when there is a loss of depositor confidence that sparks runs on financial institutions and bank suspensions." (p. 18)

Implementing the definition

- Use articles in *Niles Weekly* Register, *the Merchants' Magazine and Commercial* Review, and *The Commercial and Financial Chronicle*.
- A banking panic requires accounts of a cluster of bank suspensions and runs.
- A cluster means 3 or more, and excludes ones mentioned in articles that do not reference other suspensions or runs or general panic.
- A panic ends if there are no references to panics or suspensions for a full calendar month.
- A panic is major if it is mentioned on the front page of the newspaper and if its geographic scope is greater than a single state and its immediately bordering states.

Table II New Series on Banking Panics, 1825-1929

Major Banking Panic	Minor Banking Panic
Nov 1833 - Apr 1834	
Mar - May 1837	
Oct 1839	
	Jan - April 1841 (PA, DE, MD, NC, VA, IL)
	Mar 1842 (PA)
	May - Jun 1842 (New Orleans)
	Oct 1851 (NY, NJ, MD)
	Sep 1854 - Feb 1855 (OH, IN, MI, WI, IA, MO, NY, CA)
Aug - Oct 1857	
	Nov 1860 (suspension of specie payments by banks in the South)
	Dec 1861 (generalized suspension of specie payments)
Sep 1873	
	May 1884 (NYC, PA, NJ)
	Nov 1890 (New York City)
May - Aug 1893	
	Dec 1896 (IL, MN, WI)
	Dec 1899 (Boston and New York City)
	Jun - Jul 1901 (New York: Buffalo and NYC)
	Oct 1903 (PA, MD)
	Dec 1905 (Chicago)
Oct - Nov 1907	
	Jan 1908 (New York City)
	Aug - Sep 1920 (Boston)
	Nov 1920 - Feb 1921 (North Dakota)
	Jul 1926 (FL, GA)
	Mar 1927 (FL)
	Jul - Aug 1929 (FL)

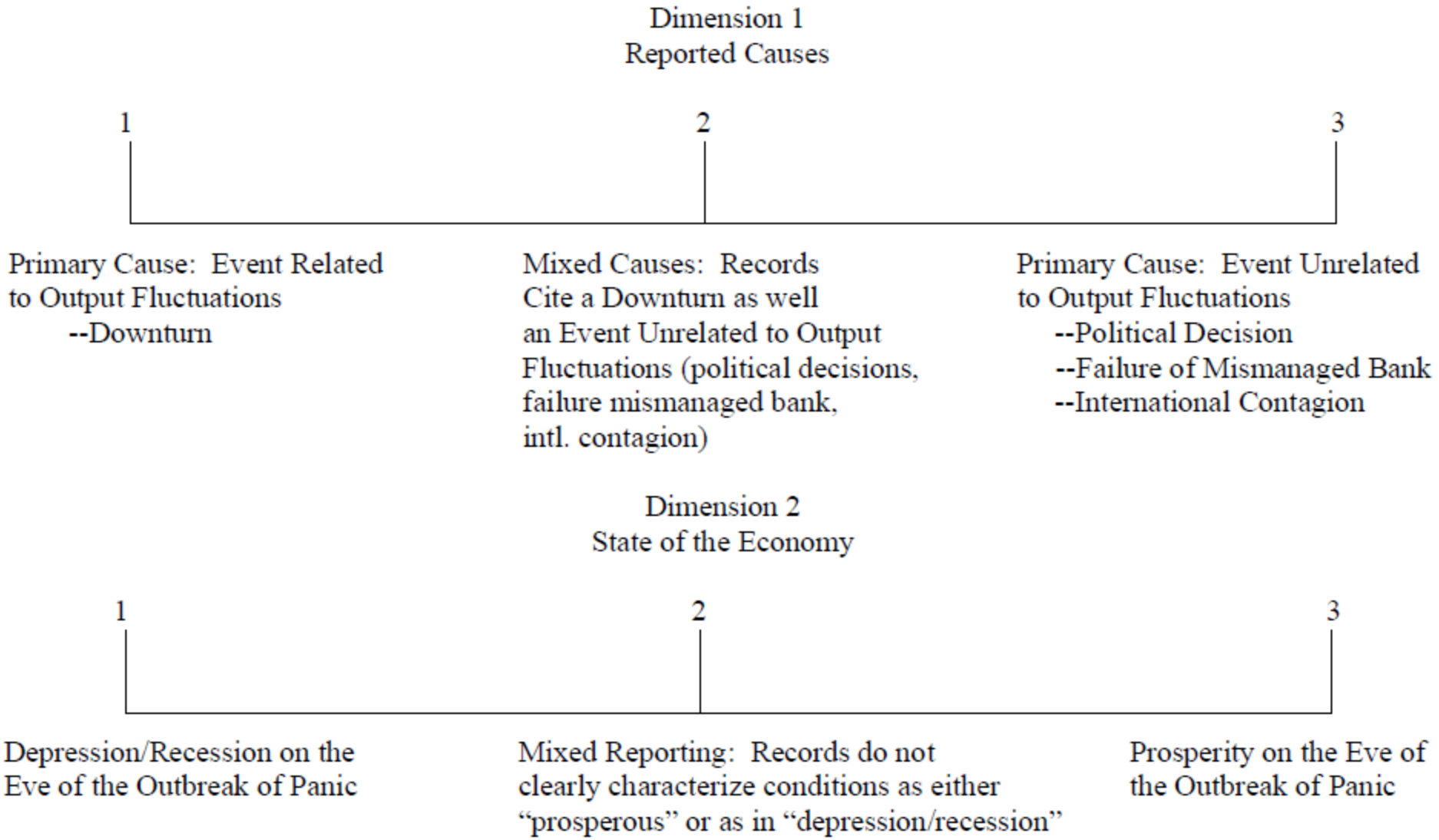
From: Jalil, "A New History of Banking Panics in the United States, 1825-1929"

Table VI
Correlation of Major Banking Panics and Downturns

Panic	Percent Change in Davis Index
1833	-4.5% from 1833 to 1834
1837	-1.4% from 1837 to 1838
1839	-4.7% from 1839 to 1840
1857	-8.0% from 1856 to 1858
1873	-6.0% from 1873 to 1875
1893	-15.3% from 1892 to 1894
1907	-15.6% from 1907 to 1909

From: Jalil, "A New History of Banking Panics in the United States, 1825-1929"

Figure I Classification Algorithm



From: Jalil, "A New History of Banking Panics in the United States, 1825-1929"

Table VII
Classification of Panics

Panic	Dimension 1	Dimension 2
1833	3	3
1837	No Rank	No Rank
1839	No Rank	No Rank
1857	3	3
1873	3	3
1893	3	1
1907	2	1

From: Jalil, "A New History of Banking Panics in the United States, 1825-1929"

Panic of 1857: Failure of Mismanaged Bank

The catalyst for the Panic of 1857 was the failure of the Ohio Life Insurance Company. Its failure was attributed to mismanagement and fraudulent activities.[44] The collapse of this banking firm triggered the panic. The Ohio Life was considered one of the most reputable firms in the nation and initially, the cause of its failure was unknown. Its demise shocked the financial community and sparked runs on banks throughout the country. Over the succeeding weeks, fear spread and the panic gained in intensity. The news reports identify this contagion of fear following the failure of the Ohio Life as the cause of the panic.

From: Jalil, "A New History of Banking Panics in the United States, 1825-1929"

Jalil's specification

$$\Delta y_t = a_0 + \sum_{k=0}^{3} b_k P_{t-k} + \sum_{j=1}^{3} c_j \Delta y_{t-j} + e_t$$

From: Jalil, "A New History of Banking Panics in the United States, 1825-1929"

Table VIII
The Impact of Banking Panics on Industrial Production

Specification 1: Panic Dummy = {Panics with 3 on Dimension 1}

Panic Shock			Change in Industrial Production		
Lag	Coefficient	Standard Error	Lag	Coefficient	Standard Error
0	-0.0395	0.0359	0	----------	----------
1	-0.1024	0.0359	1	0.0315	0.1113
2	0.0240	0.0376	2	-0.1358	0.1142
3	-0.0526	0.0378	3	0.0452	0.1094

R^2=0.14

Specification 2: Panic Dummy = {Panics with 2 or 3 on Dimension 1}

Panic Shock			Change in Industrial Production		
Lag	Coefficient	Standard Error	Lag	Coefficient	Standard Error
0	-0.0351	0.0301	0	----------	----------
1	-0.1300	0.0303	1	0.0787	0.1103
2	0.0437	0.0332	2	-0.1537	0.1132
3	-0.0583	0.0340	3	0.0642	0.1014

R^2=0.25

Specification 3: Panic Dummy = {Panics with 3 on Both Dimensions}

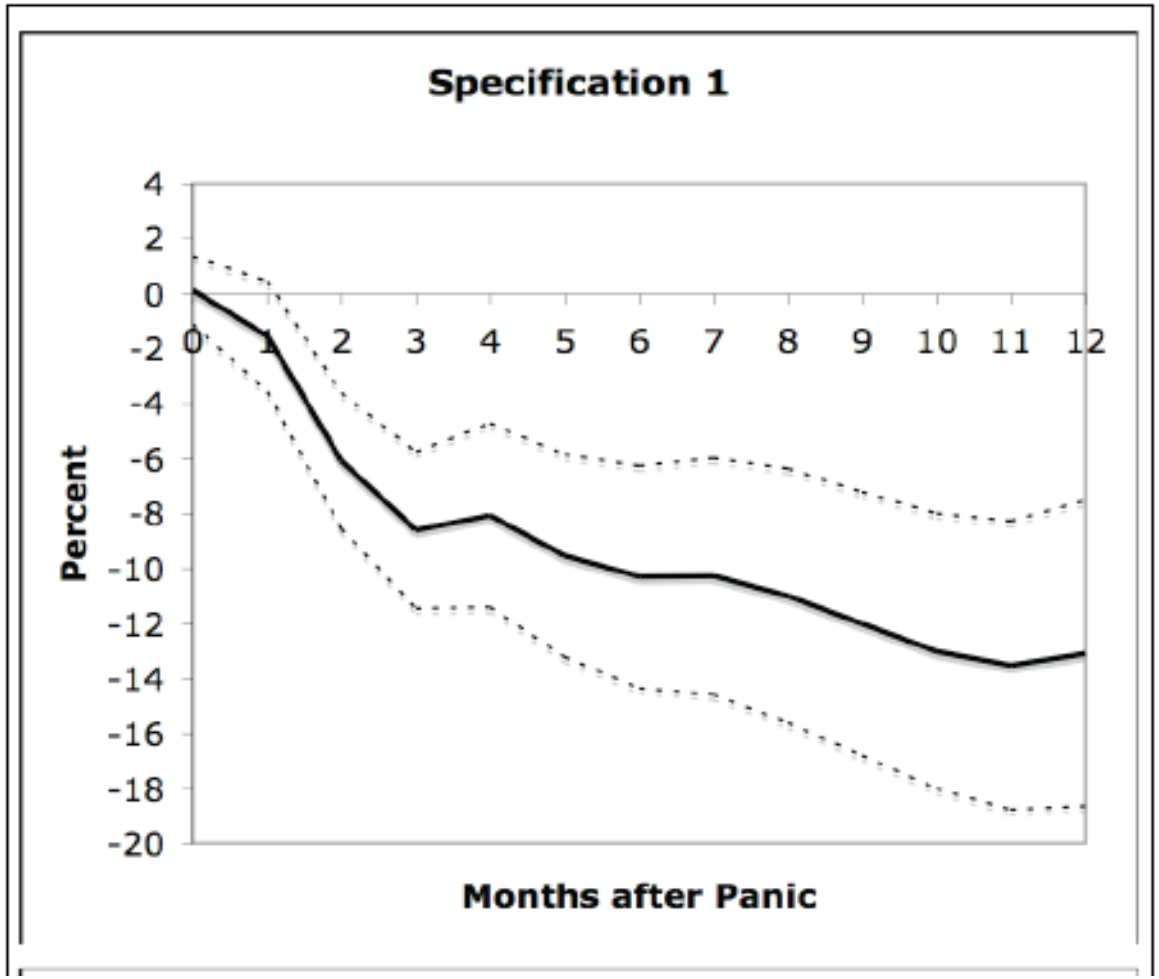
Panic Shock			Change in Industrial Production		
Lag	Coefficient	Standard Error	Lag	Coefficient	Standard Error
0	0.0046	0.0426	0	----------	----------
1	-0.0910	0.0425	1	0.0234	0.1123
2	0.0071	0.0436	2	-0.1224	0.1155
3	-0.0299	0.0437	3	0.0581	0.1127

R^2=0.07

From: Jalil, "A New History of Banking Panics in the United States, 1825-1929"

Figure IV

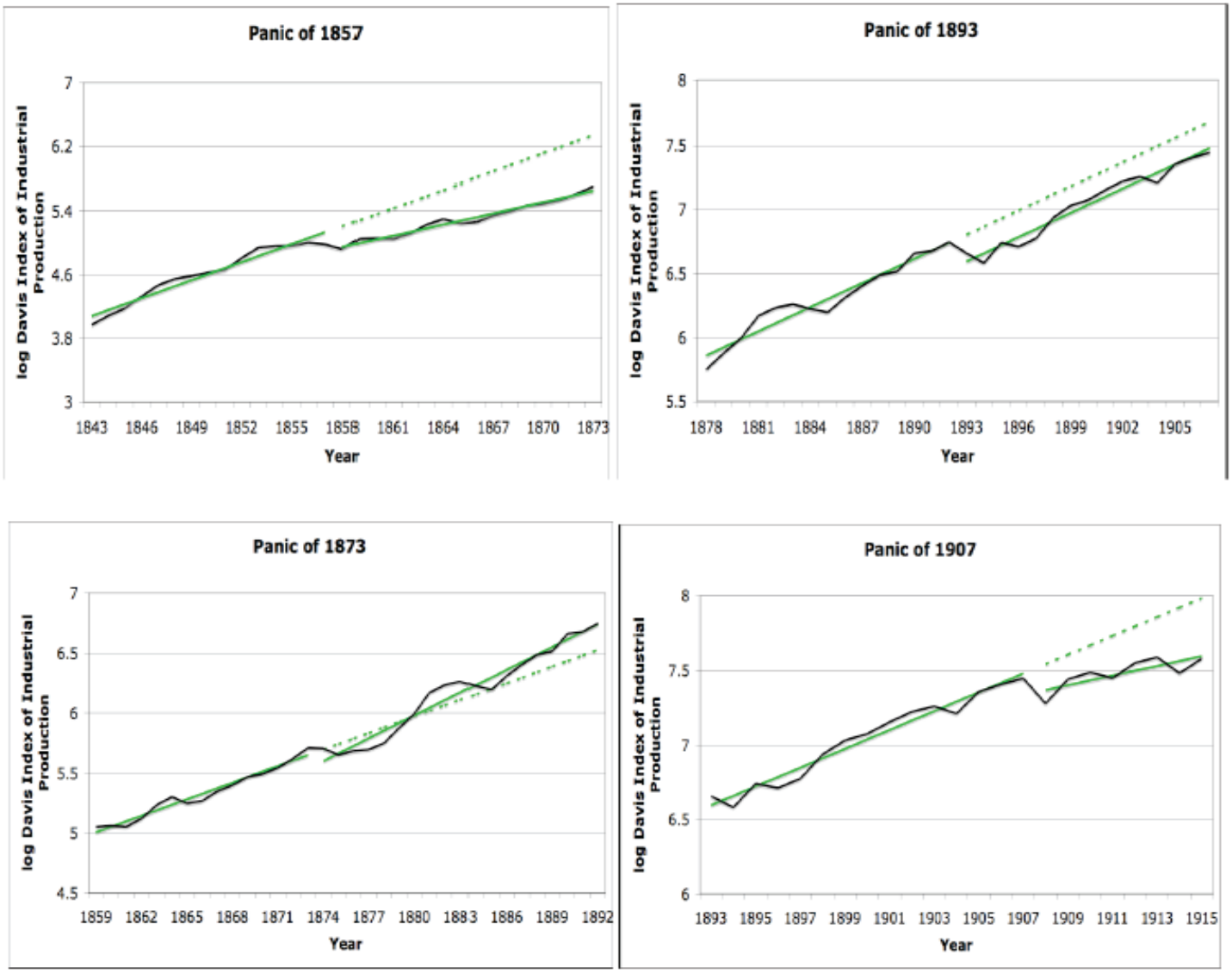
The Impact of a Major Banking Panic on the Price Level



From: Jalil, "A New History of Banking Panics in the United States, 1825-1929"

Figure VI

Actual and Projected Trend Lines (Panics of 1857, 1873, 1893, and 1907)



From: Jalil, "A New History of Banking Panics in the United States, 1825-1929"