Phoenix Miracles in Emerging Markets:

Recovering without credit from Systemic Financial Crises

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in Emerging Markets:

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from Systemic Financial Crises

Rebound

Really a Phoenix?

What finances the rebound?

PHOENIX MIRACLES: OUTLINE

I. Phoenix Miracles: Anatomy

II. Empirical Tests

III. Evidence from Micro Data

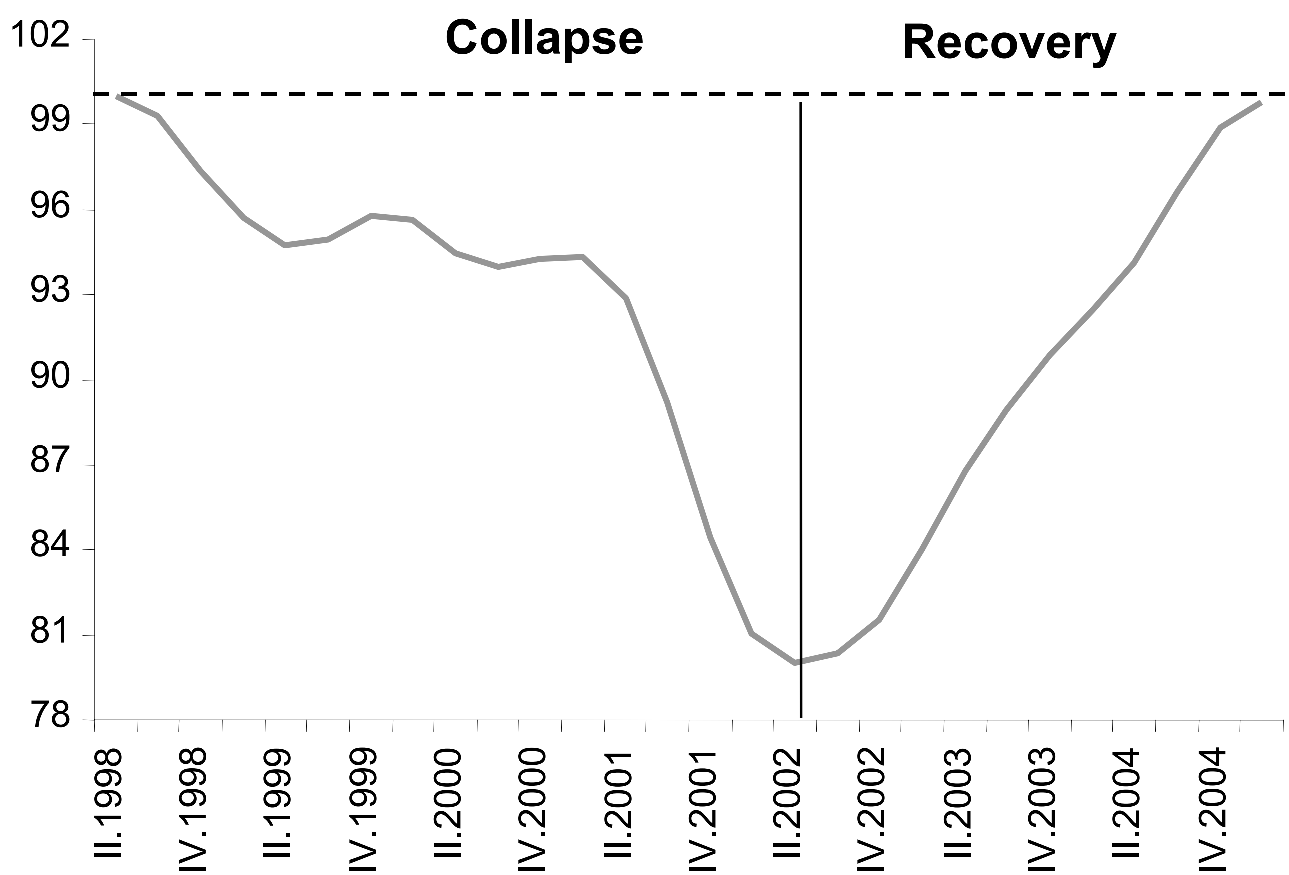
FOCUS

- We study the anatomy of post-collapse recoveries in financially integrated emerging markets (EM), i.e., how economies emerge from output collapses that occurred during episodes of systemic sudden stop (3S).
- We define 3S as a period characterized by a significant rise in the cost of international financing and a collapse in capital inflows that affects a large set of EM countries at about the same time.
- Our conjecture is that financial factors are key in explaining output collapse, and that financial “re-engineering” is key to understand trade-offs between liquidity and future growth.

MOTIVATION

“Phoenix Miracle” in Argentina

(s.a. GDP, II. 1998=100)



THE SAMPLE

➢ ***Sample***

Countries that are tracked by JP Morgan to construct its global Emerging Market Bond Index, or global EMBI (31 countries, integrated to world capital markets).

➢ ***Period***

1980-2004

➢ ***Definition of Output Collapse***

An output contraction in excess of 4.4% from peak to trough (the median of the sample)

➢ ***Definition of 3S (systemic sudden stop)***

Periods characterized by a significant rise in the cost of international financing and a collapse in capital inflows that affects a large set of EM countries at about the same time

➢ ***Results***

22 3S output collapses (out of 83 output contraction episodes)

- Large cumulative output contraction, greater than the median
- Coinciding with a 3S interval

Systemic Sudden Stop, 3S

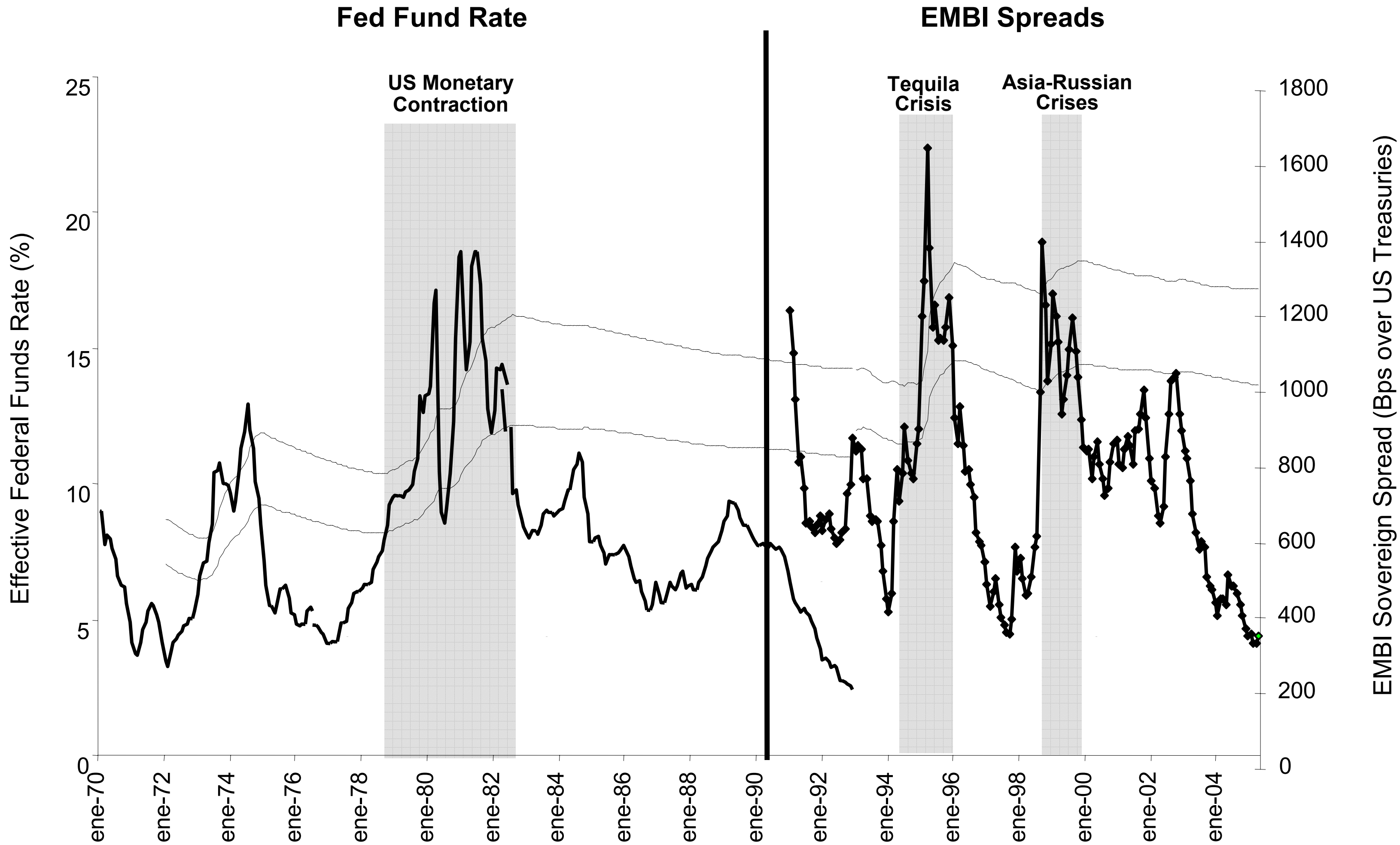
3S is the union of the following two (overlapping) time intervals:

1. **Global Sudden Stop Interval:**
   Rise in aggregate spreads (EMBI+) exceeding two standard deviations above the mean

2. **Country-specific Sudden Stop Interval, SS:**
   Period that contains a SS signal (a fall in capital inflows exceeding 2 std. deviations below the mean), in which the fall in capital flows exceeds 1 standard deviation

Episodes of Systemic Sudden Stops (3S)

Capital Market Conditions for EMs



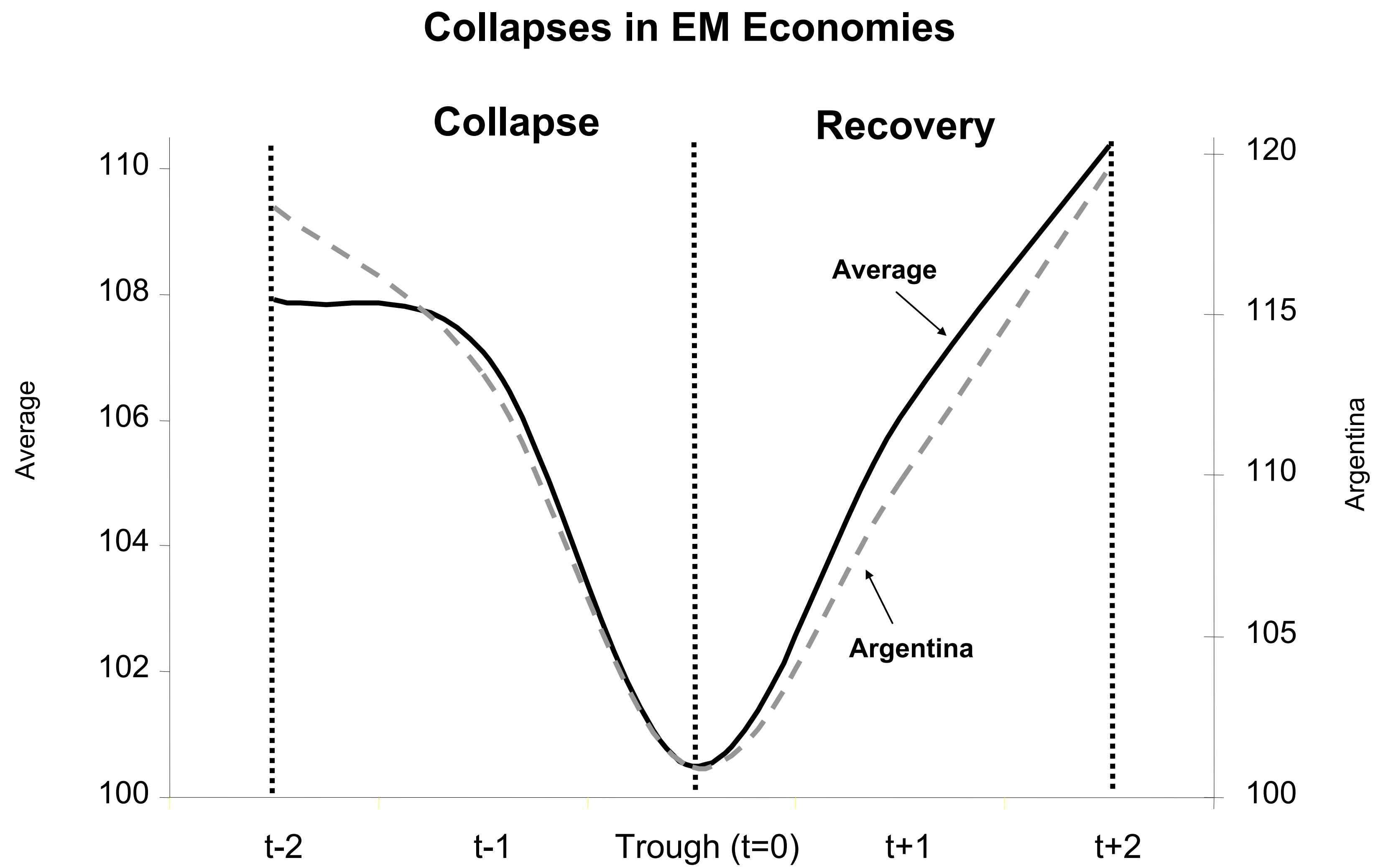
Systemic Capital Market Turmoil and Output Collapses 1980-2004

		Duration		Size of Contraction	
	Date	Contraction	Recovery	Output	Investment
Nigeria	1980	4	5	max -21.9%	-58.0%
Uruguay	1981	3	7	-20.0%	-56.8%
Argentina	1998	4	2	-18.4%	-56.3%
El Salvador	1980	2	10	-16.1%	-16.3%
Chile	1981	2	3	-13.7%	-61.2%
Indonesia	1997	1	5	-13.1%	-39.0%
Peru	1981	2	3	-12.3%	-44.1%
Thailand	1996	2	4	-11.7%	-61.7%
Argentina	1980	2	2	-10.4%	-31.9%
Malaysia	1997	1	2	-7.4%	-43.0%
Brazil	1980	3	2	-7.1%	-33.6%
South Korea	1997	1	1	-6.9%	-30.6%
Morocco	1994	1	1	-6.6%	-25.0%
Côte d'Ivoire	1982	2	2	-6.5%	-69.9% max
Ecuador	1998	1	2	-6.3%	-49.4%
Mexico	1994	1	2	-6.2%	-34.8%
South Africa	1981	2	1	-6.1%	-42.1%
Venezuela	1980	3	3	-6.1%	-47.4%
Turkey	1993	1	1	-5.5%	-29.5%
Russia	1997	1	1	-5.3%	-43.7%
Mexico	1981	2	2	-4.8%	-45.3%
Turkey	1998	1	1	min -4.7%	-8.9% min
Mean		**2**	**3**	**-9.9%**	**-42.2%**
Median		**2**	**2**	**-7.0%**	**-43.4%**

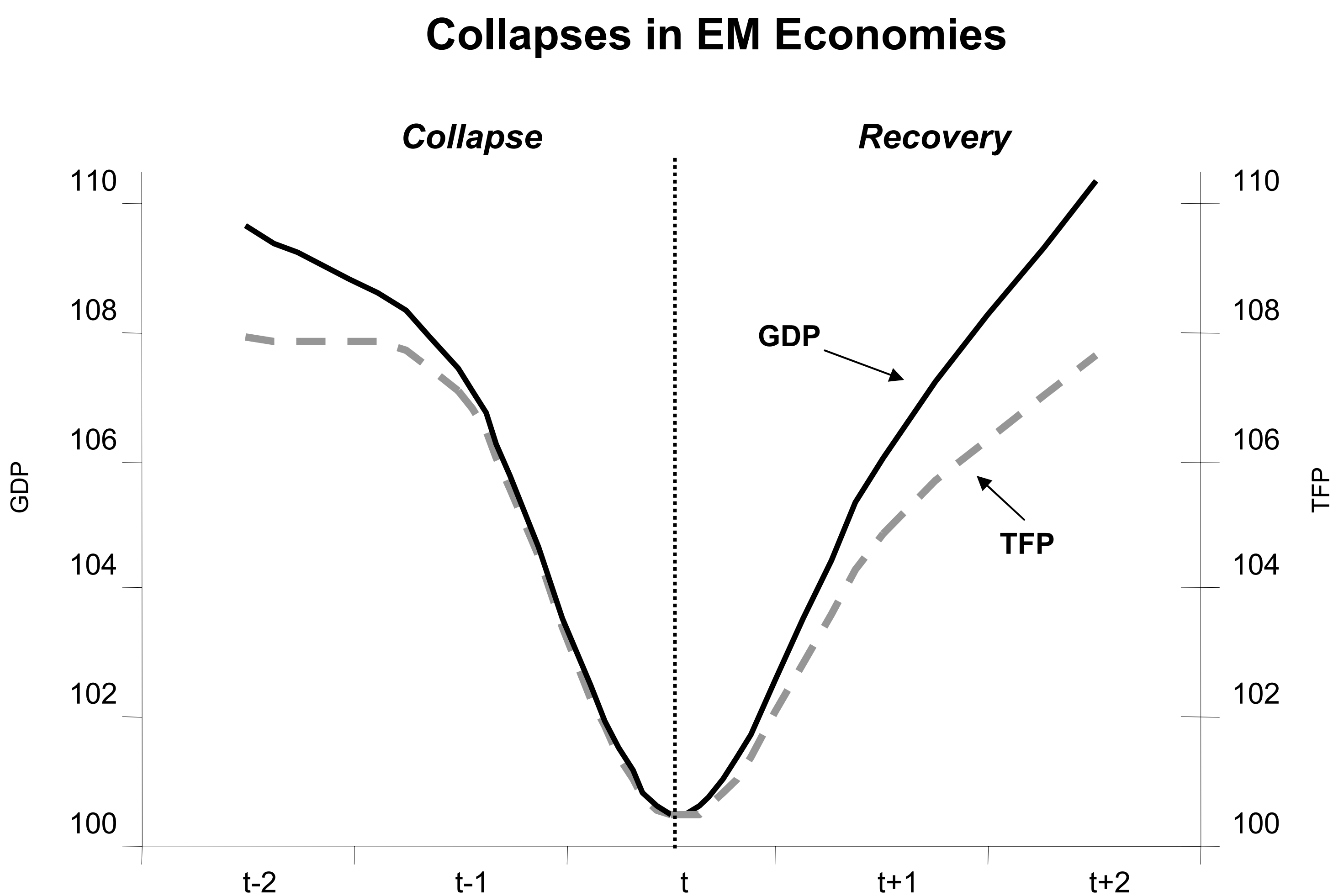
- There are 41 collapse episodes exceeding a cumulative fall of 4.4%, out of which 22 are systemic episodes
- We capture most well-known crises of the 1990s (Tequila, East Asian, and Russian Crisis), as well as episodes from the 1980s LAC Debt crisis

Output Behavior

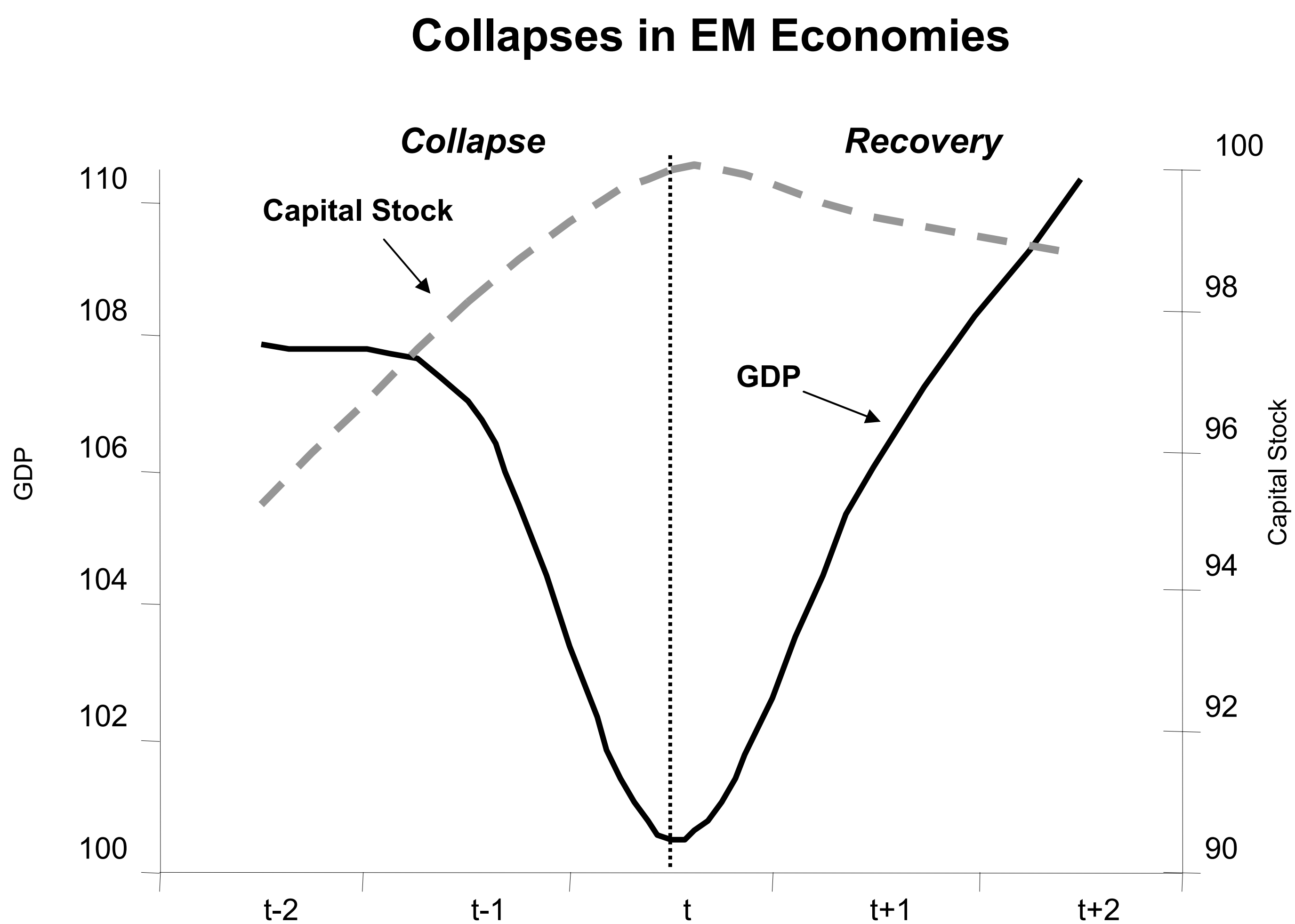
(Average 3S Episode, annual GDP)



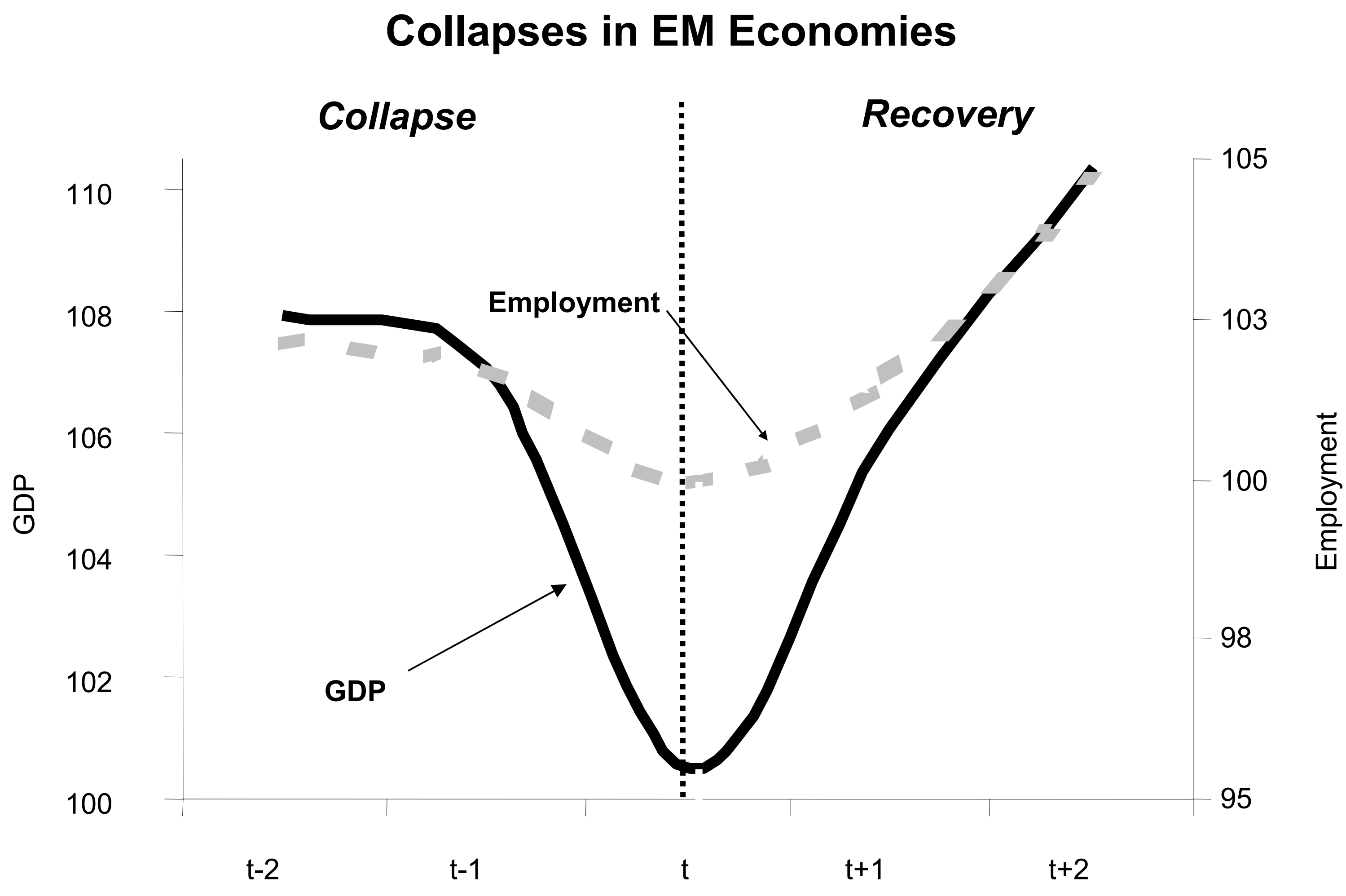
Total Factor Productivity
(Average 3S Episode)



Capital Stock
(Average 3S Episode)



Employment
(Average 3S Episode)

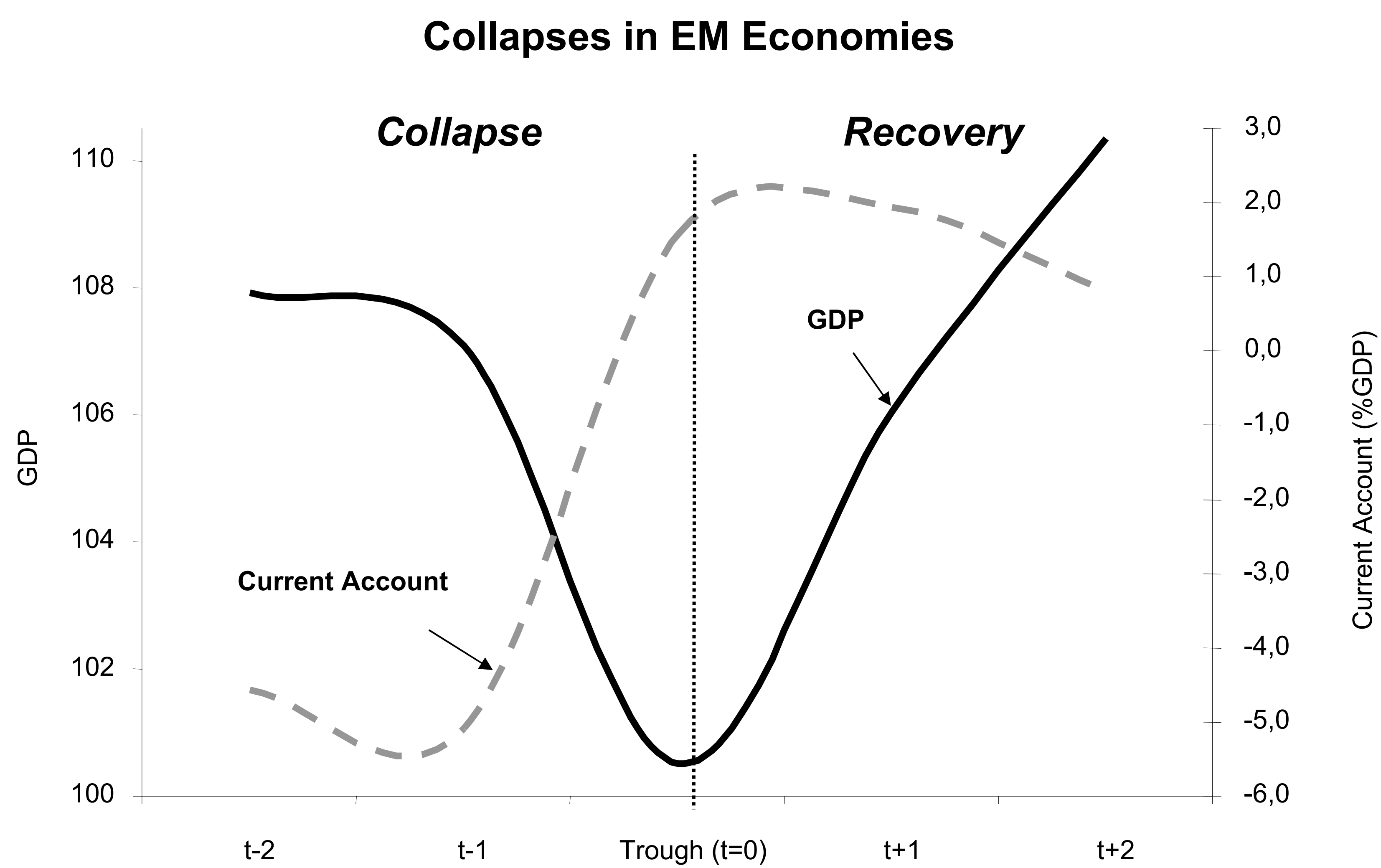


MAIN RESULTS

- ***The conditions under which the recovery materializes are extremely precarious:***
    - ***Virtually no recovery in external or domestic credit***

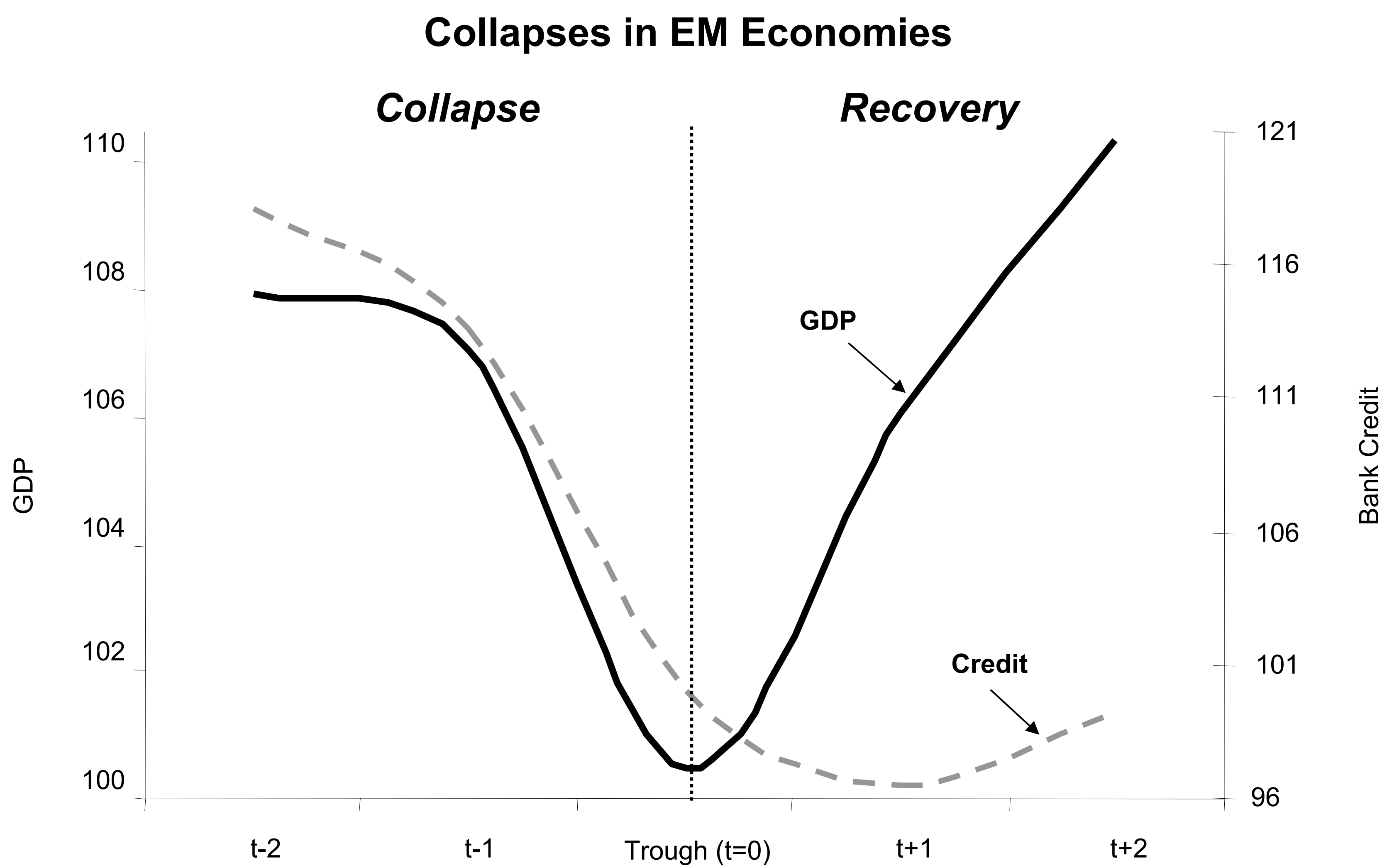
Current Account Dynamics

(in % of GDP, average 3S episode)



Bank Credit Dynamics

(deflated by CPI, average 3S episode)



MAIN RESULTS

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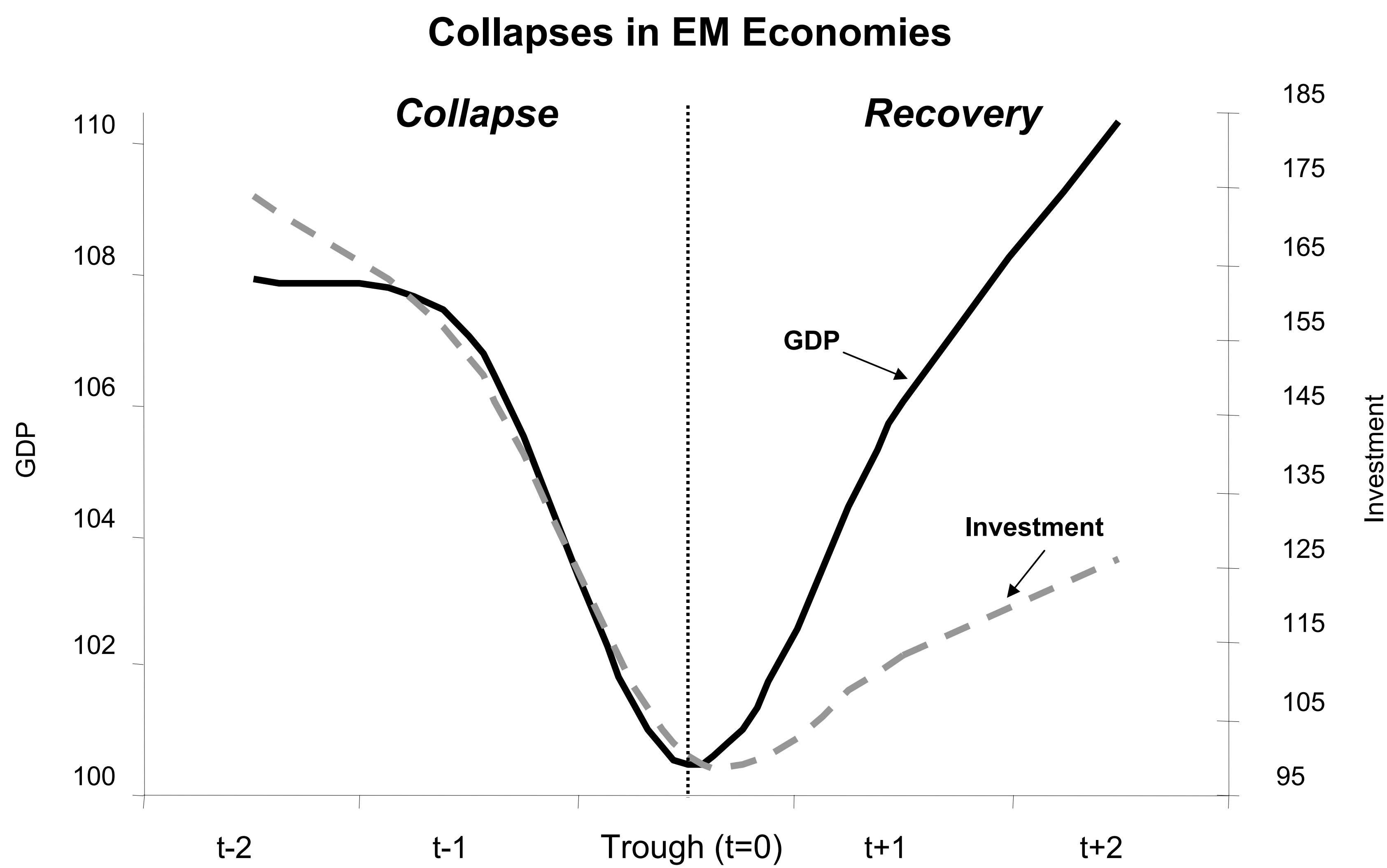
  - ***Very weak recovery of investment***

Investment Dynamics

(average 3S episode)



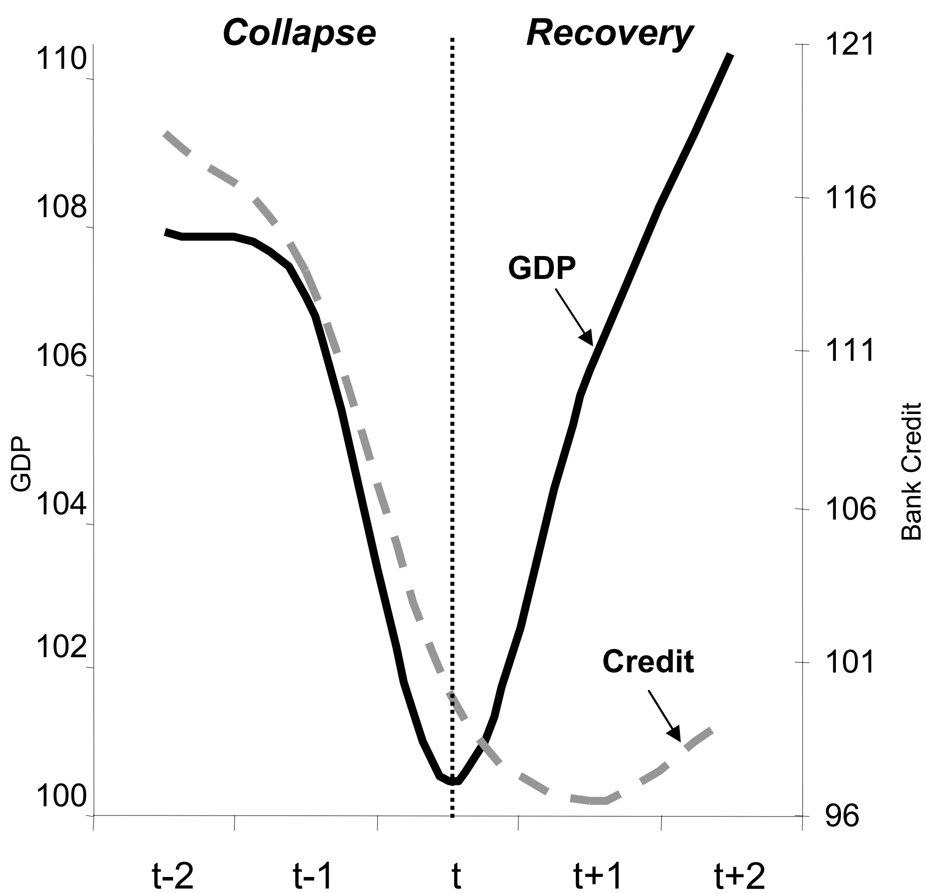
MAIN RESULTS

- ***The conditions under which the recovery materializes are extremely precarious:***
  - ***Virtually no recovery in external or domestic credit***
  - ***Very weak recovery of investment***
- ***Post-collapse recoveries in EM display striking parallels with the US Great Depression…***

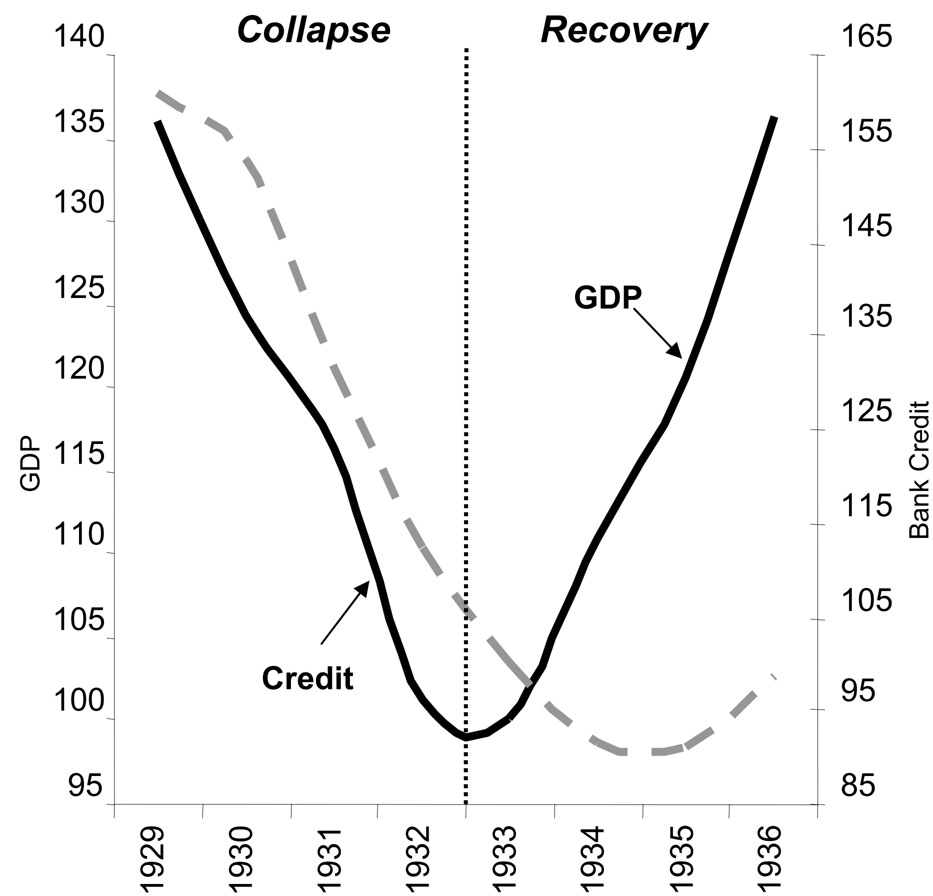
EM Collapses & the US Great Depression: Similarities

- Bank Credit -

Collapses in EM Economies



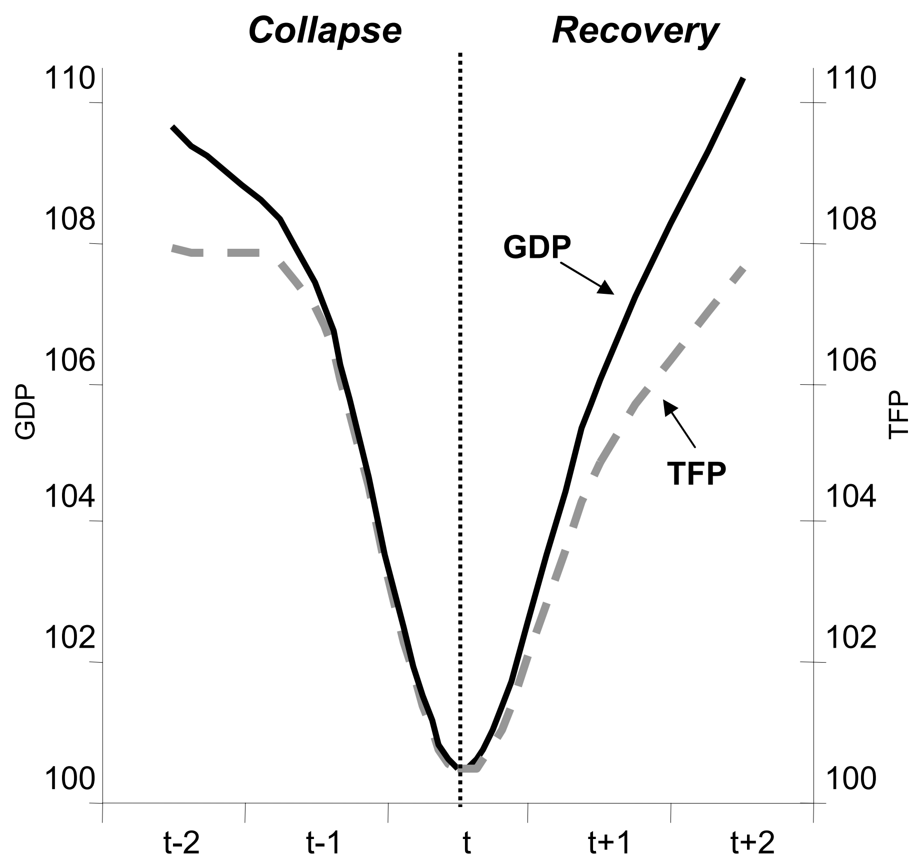
US Great Depression



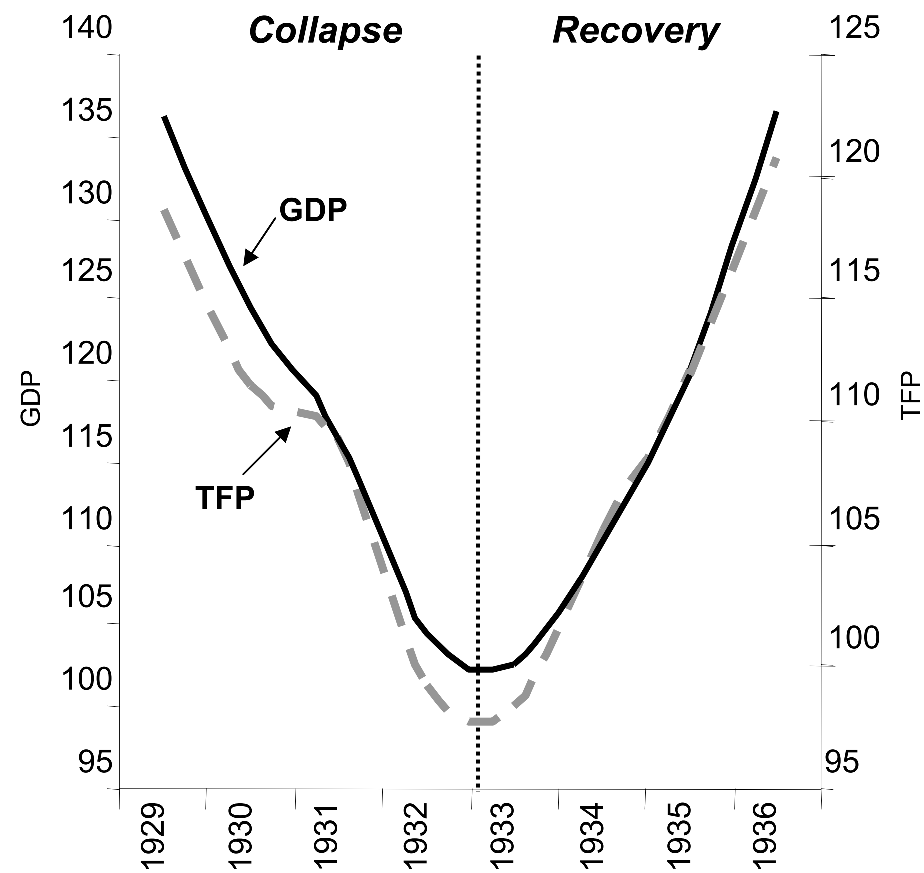
EM Collapses & the US Great Depression: Similarities

- Total Factor Productivity -

Collapses in EM Economies



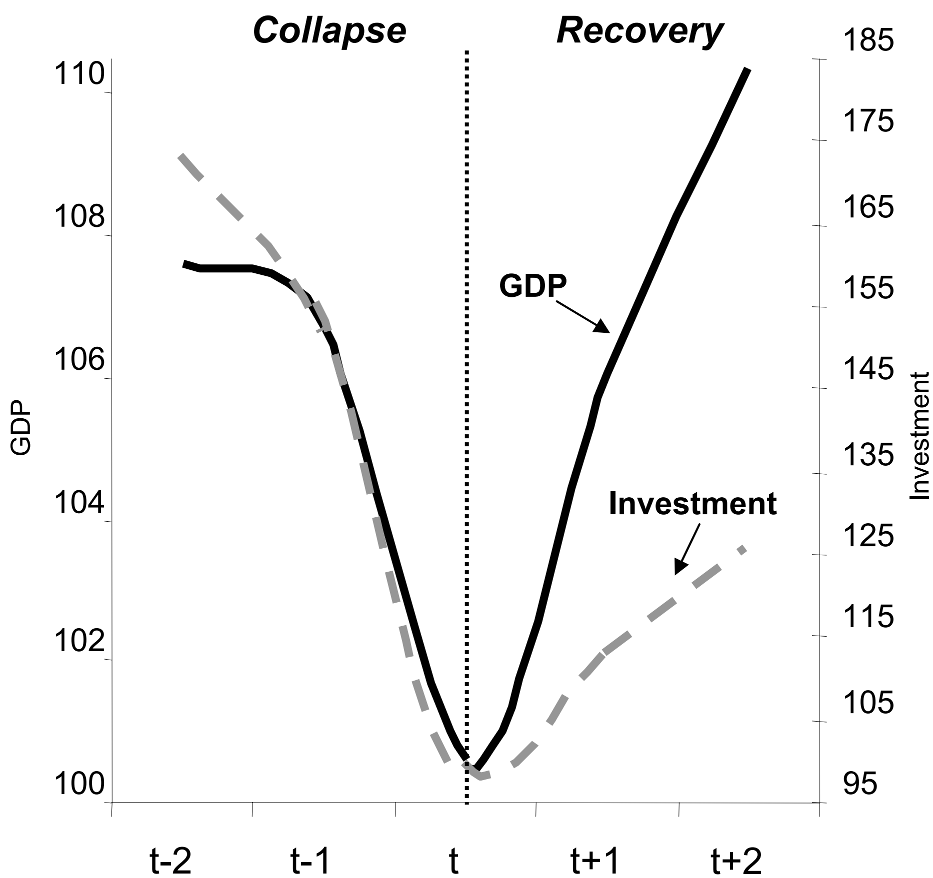
US Great Depression



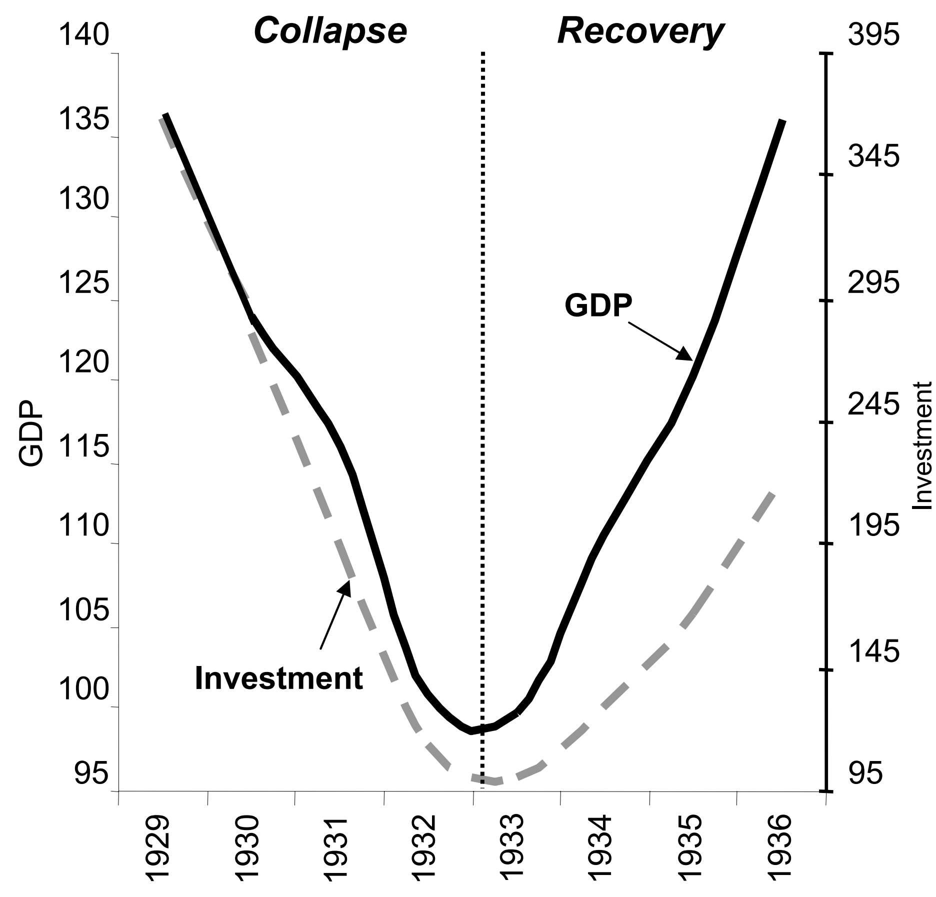
EM Collapses & the US Great Depression: Similarities

- Investment -

Collapses in EM Economies

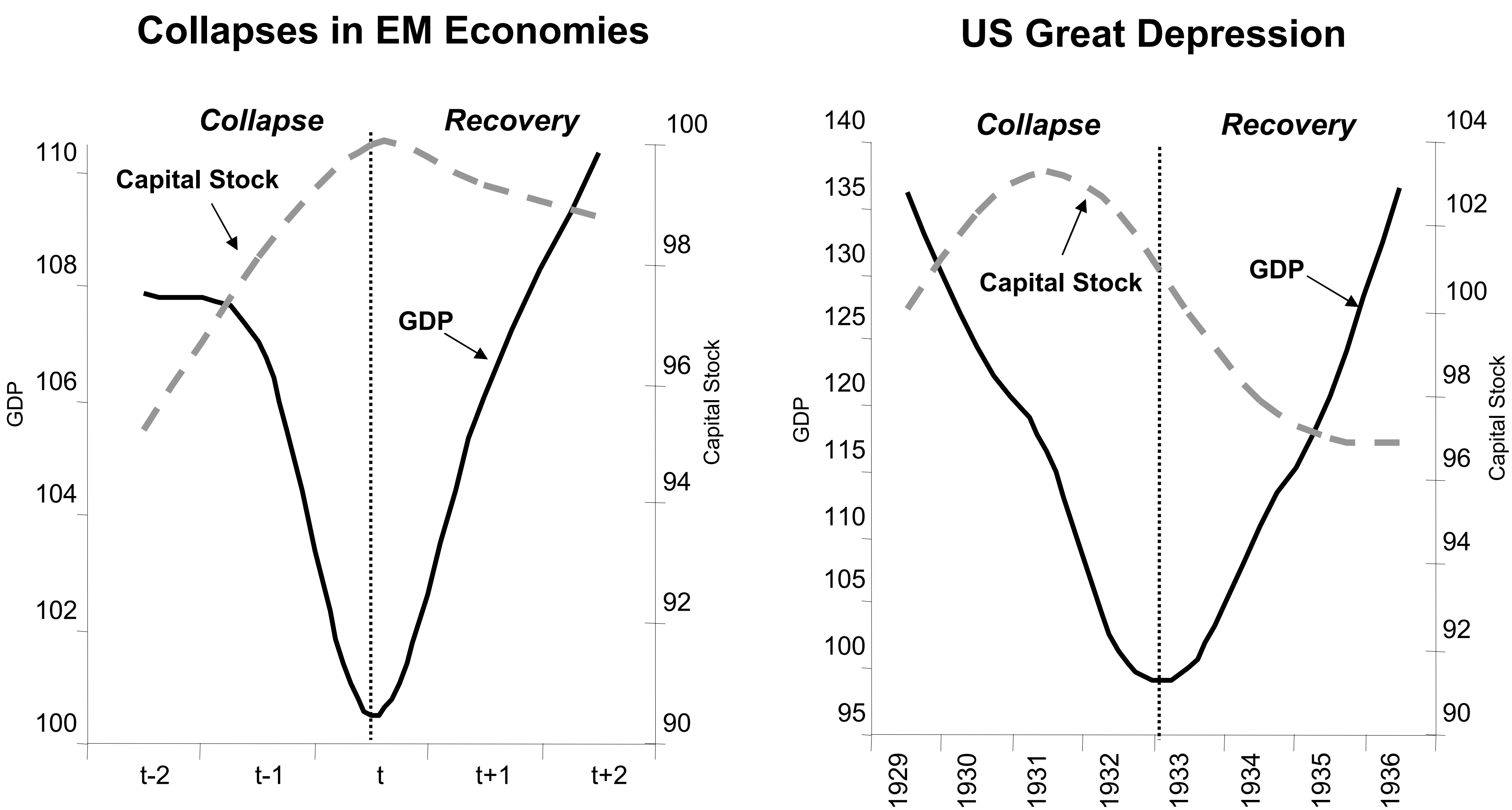


US Great Depression



EM Collapses & the US Great Depression: Similarities

- Capital Stock -

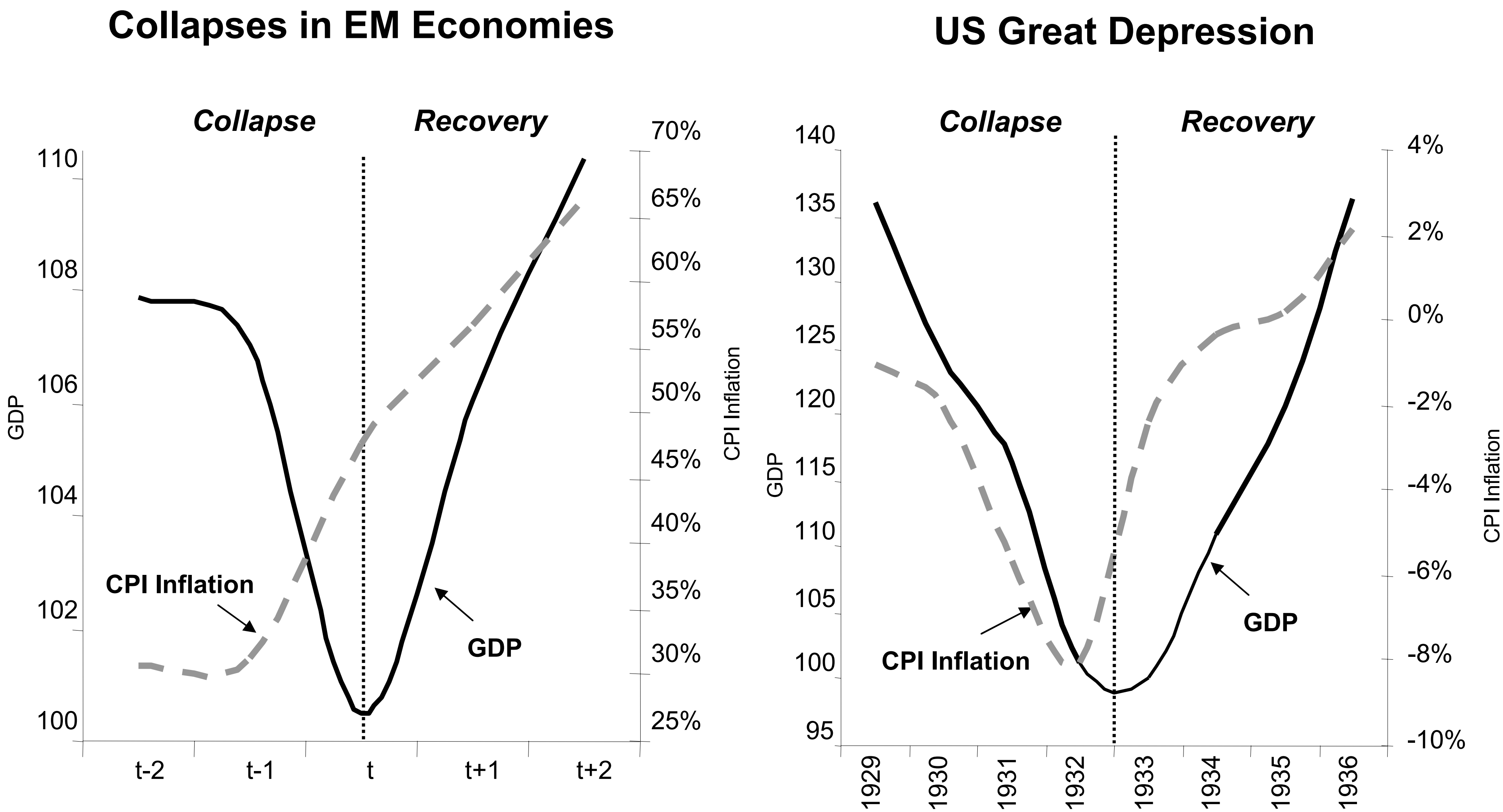


MAIN RESULTS

- ***The conditions under which the recovery materializes are extremely precarious:***
  - ***Virtually no recovery in external or domestic credit***
  - ***Very weak recovery of investment***
- ***Post-collapse recoveries in EM display striking parallels with the US Great Depression…***
- ***…but also substantial differences, which are revealing when examining the causes of output collapse***

EM Collapses & the US Great Depression: Differences

- CPI Inflation -

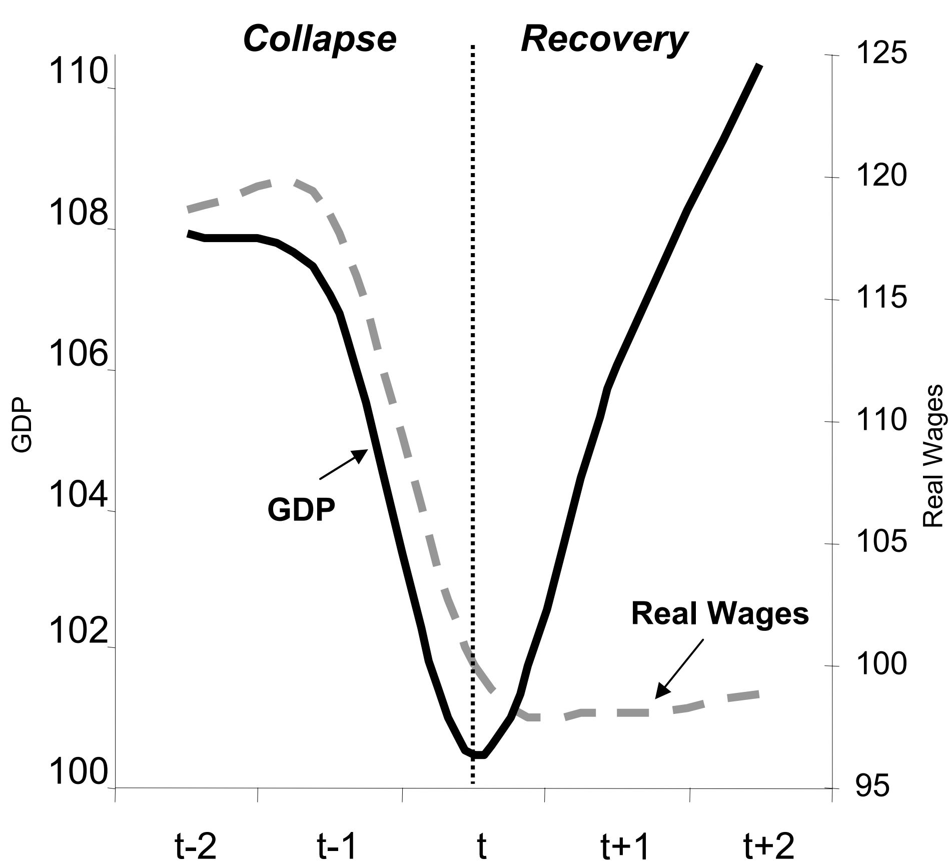


EM Collapses & the US Great Depression: Differences

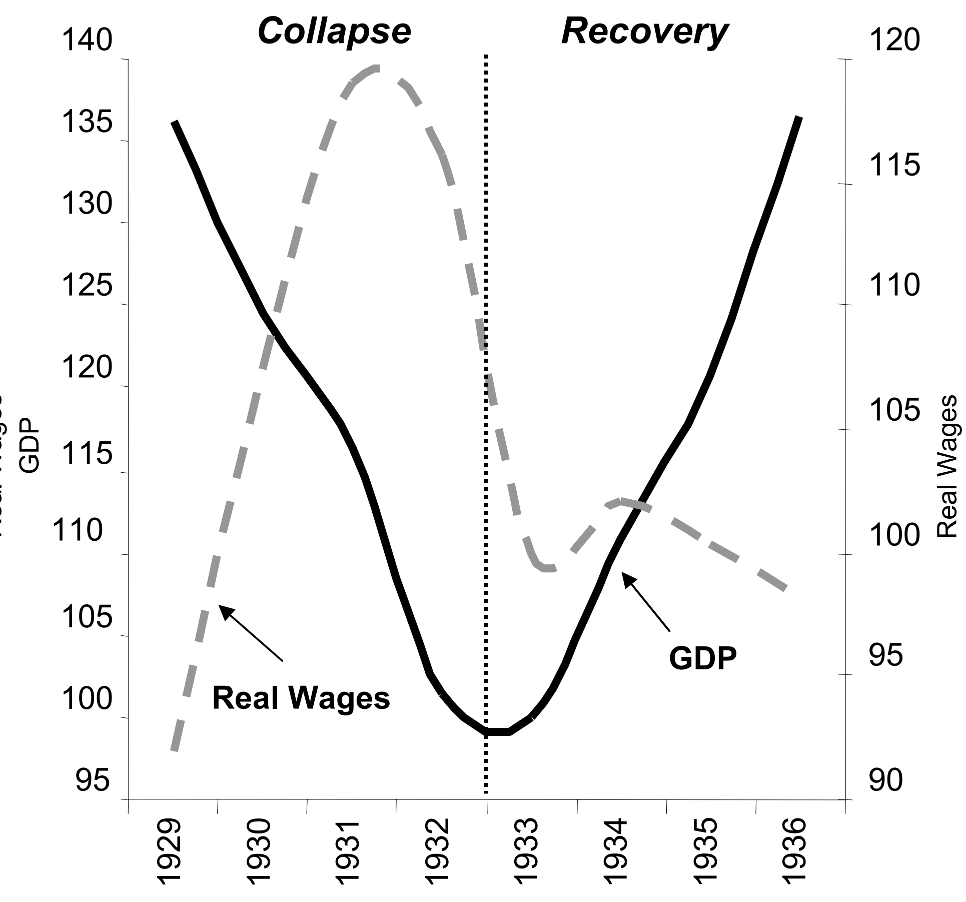
- Real Wages -

(deflated by WPI)

Collapses in EM Economies



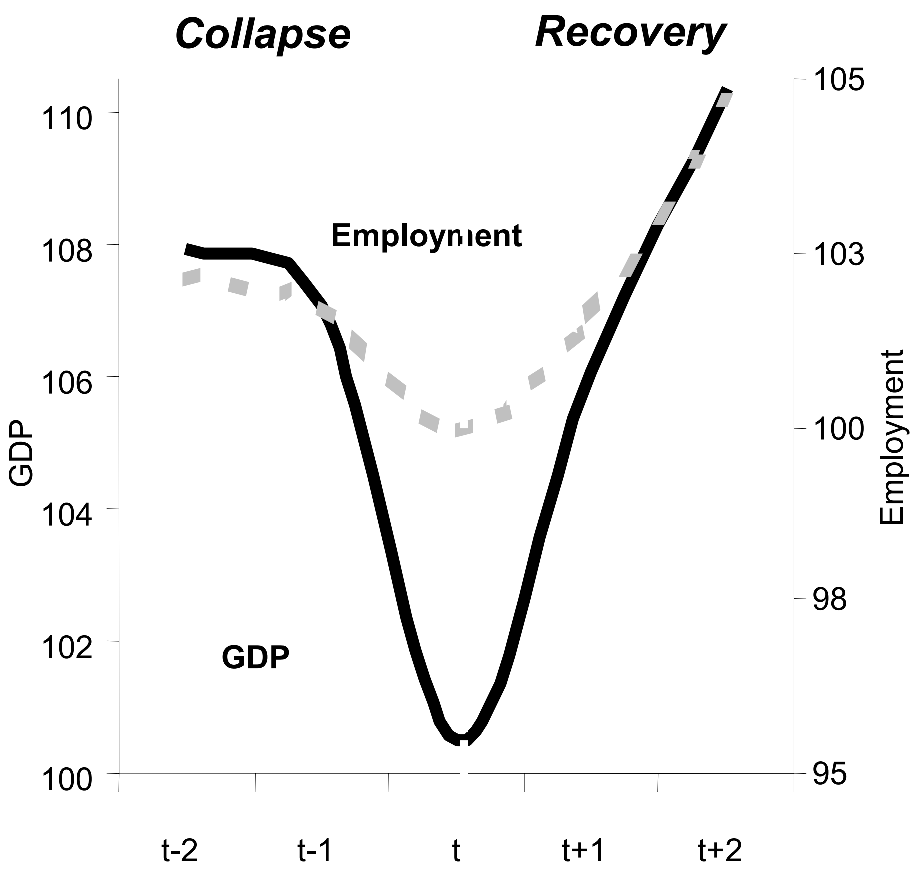
US Great Depression



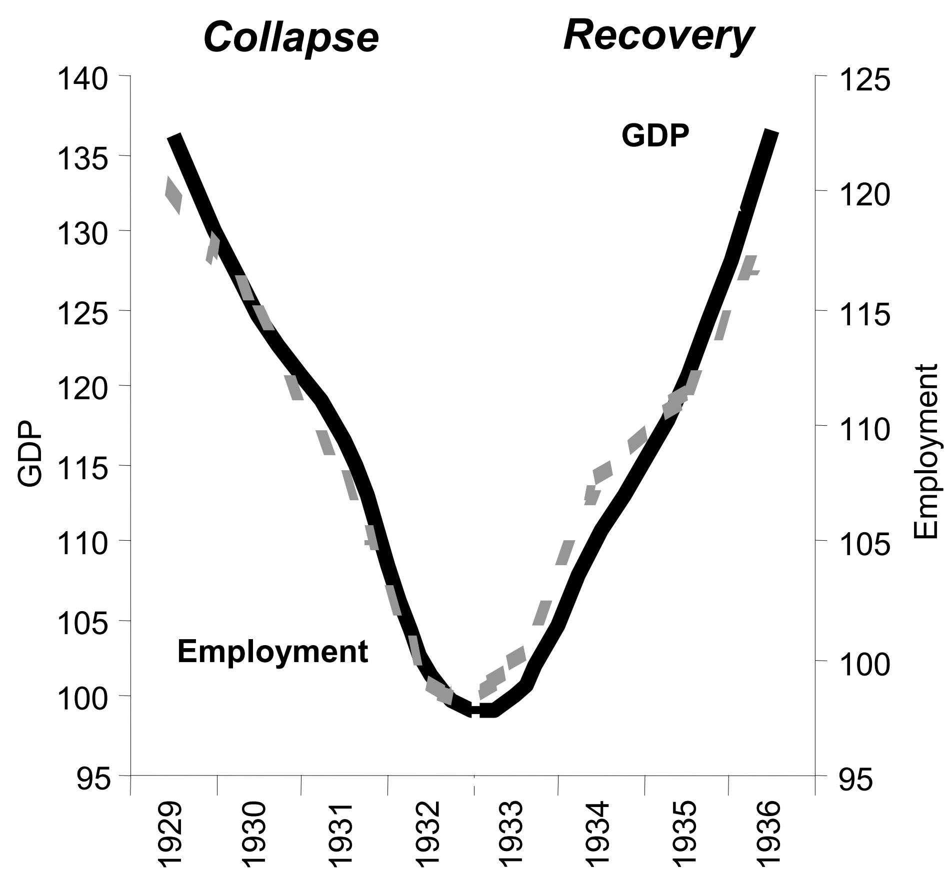
EM Collapses & the US Great Depression: Differences

- Employment -

Collapses in EM Economies



US Great Depression



Comparison with US Great Depression

- Two main frictions have been proposed to explain the Great Depression:
  - Sticky wages (an increase in real wages following deflation)
  - Fisherian Effects (non-contingent contracts)

- 3S Collapse episodes are different in that:
  - They are inflationary
  - They occur with a fall in real wages

- This suggests that the explanation of output collapses may lie on financial factors, particularly Fisherian Effects (but in EMs through balance-sheet effects via DLD)

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Phoenix Miracles: Bank Credit, Current Account and Investment

3S Collapse Episodes: Average Differences

along Pre-Crisis Peaks, Troughs, and Full Recovery Points

	Peak to Through	Trough to Recovery	Peak To Recovery
Credit/GDP	3.948	-20.014***	-16.768***
	[5.455]	[5.542]	[7.020]
	22	22	22
Current Account Balance/GDP	5.706***	-1.545	4.161***
	[1.689]	[1.078]	[1.359]
	22	22	22
Investment/GDP	-34.234***	20.210***	-23.240***
	[4.202]	[6.551]	[5.030]
	22	22	22

Standard errors in brackets. Number of episodes is also reported.
* significant at 10%; ** significant at 5%; *** significant at 1%

- Virtually no recovery in external (flow) or domestic (stock) credit
- Very weak recovery in investment

Phoenix Miracles: TFP, Capital Stock and Employment

3S Collapse Episodes: Average Differences along Pre-Crisis Peaks, Troughs, and Full Recovery Points

	Peak to Through	Trough to Recovery	Peak To Recovery
Total Factor Productivity	-9.497***	9.874***	-0.785
	[1.474]	[1.719]	[1.378]
	17	17	17
Capital Stock	3.735***	-3.177*	0.639
	[1.124]	[1.669]	[2.489]
	21	21	21
Employment	-2.041	6.533***	3.918
	[2.313]	[1.979]	[2.314]
	18	18	18

Standard errors in brackets. Number of episodes is also reported.
* significant at 10%; ** significant at 5%; *** significant at 1%

- TFP and capital at full recovery are not significantly different from their pre-crisis levels
- Employment, though somewhat higher at recovery than at pre-crisis peak, is not statistically significant

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Firm-level financing: Pre and Post-collapse Analysis

Net Sales = Production Costs + Gross Fixed Investment + Net Flows to Financial Sector + Net Flows to Other Firms + Net Flows to Shareholders + Net Non-operational Flows + Other

Firm-level rebound: Pooling

All Countries

	Peak	*Recovery*	*Change (R-P)*
Production Costs	86.867	89.488	2.622
	(0.354)***	(0.486)***	(0.480)***
Investment	22.483	8.146	-14.337
	(1.245)***	(0.857)***	(1.478)***
Net flows to the Financial Sector	-14.439	8.425	22.864
	(1.324)***	(1.374)***	(1.855)***
Net flows to Shareholders	-3.659	-0.557	3.102
	(0.592)***	(0.61)	(0.781)***
Net flows to other Firms	1.102	0.371	-0.731
	(0.311)***	(0.34)	(0.45)
Net Non-Operational Flows	6.201	-3.312	-9.513
	(1.035)***	(1.192)***	(1.541)***
Other Net Flows	1.445	-2.561	-4.007
	(0.365)***	(0.935)***	(0.991)***
Total	**100.0**	**100.0**	**0.0**
Investment + Flows to Financial Sector	8.044	16.571	8.527
	(0.971)***	(1.286)***	(1.590)***
Investment + Flows to Financial Sector + Non-Operational Flows	14.244	13.259	-0.986
	(0.787)***	(0.950)***	(1.18)
Observations	1040	1040	1040

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Conclusions

- Sudden Stops and Phoenix Miracles may be reflecting fundamental weaknesses in EMs domestic financial systems, which, combined with global shocks, give rise to major crises
- Output collapse episodes show that rebounds can be fast and take place in Phoenix-Miracle-like fashion
- Liquidity can be restored by a discontinuation of investment projects, so that liquidity and output increase, while investment collapses
- These processes are far from being effortless and/or costless: there are trade-offs between liquidity restoration and future growth

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