BACK TO THE FUTURE: BACKTESTING SYSTEMIC RISK MEASURES DURING HISTORICAL BANK RUNS AND THE GREAT DEPRESSION

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SUMMARY

- **This paper studies the performance of two well-known systemic risk measures (CoVaR & SRISK) over the pre-FDIC panics (1866 - 1933)**
  - Performance is measured at two levels:
    - *Individual institution*
    - *Aggregate level*
  - The severity of systemic risk is proxied by the deposits declines during systemic episodes
- **The results show that CoVaR & SRISK help identifying systemic institutions during distress periods but are not effective in predicting financial crises**

SUMMARY

- **The paper addresses a very relevant and timely question for policy makers**
  - Will the current systemic risk measures be able to identify the next crisis?
- **Being able to answer this question is important because the financial system evolves in response to post-crisis changes**

Railroad boom & Pre-FDIC panics

Real Estate boom & Recent financial crisis

Next??

COMMENT I: TYPE I ERROR

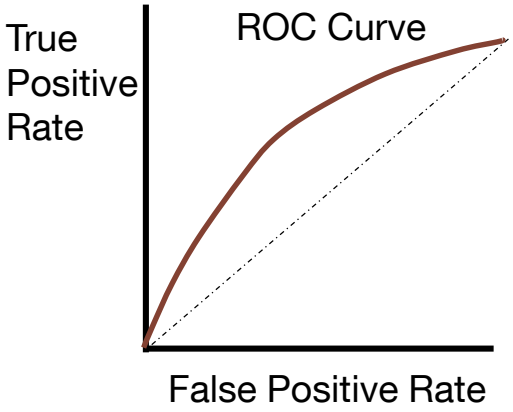
- **In the analysis at individual institution level the authors study: i) the relation between changes in deposits and the systemic risk measures; ii) cross-sectional rank correlations**
- **Policymakers are concerned about the type I error of the risk measures (i.e., those cases in which the systemic risk measure is high but the institution is not SI)**

Panic	Bank	Depos	CoVaR	
			Value	Rank
1873	Fourth National Bank	-24.87	3.65	7
(-27%)	Central National	-13.11	3.81	6
	Import and Traders National Bank	-6.61	0.98	14
	Mercantile National Bank	-5.13	0.00	42
	Merchants National Bank	-4.12	3.94	5
	Commonwealth Bank	-4.11	0.87	17
	National Bank Commerce	-3.95	15.43	1
	Ninth National	-2.81	-0.01	46
	American Exchange National	-2.65	10.51	3
	First National Bank	-2.50	0.04	35

- **Banks with rank 2 & 4 do not appear in the list!**
- **They are clear examples of type I error since they get among the highest CoVaR but they do not suffer the largest withdrawal of deposits**

COMMENT I: TYPE I ERROR

- **Type I error is crucial because it has economic implications for the bank**
  - Policymakers assign higher capital buffers to the SIFI
- **The authors could analyze the performance of the systemic risk measures in regards to the type I error**
- **They could use a ROC curve analysis to check the performance of their classification model at various thresholds settings**



- The Area Under ROC (AUROC) tells how much the model is capable of distinguishing between SIFI and non-SIFI

COMMENT II: PRE-FDIC PANICS VS NBER CONTRACTIONS

- **The authors study the performance of the systemic risk measures around NBER contractions *not* associated with financial panics**
  - The results convey that systemic risk measures flag deposit declines whether it is a financial panic or not
- **There is an overlapping between the pre-FDIC panics and NBER contractions**

NBER	Pre-FDIC	NBER	Pre-FDIC
1873 – 1975	1873	1913 – 1914	1914
1883 – 1885	1884	1918 – 1919	
1892 – 1896	1893	1920 – 1921	
1903 – 1904		1923 – 1924	
1907 – 1908	1907	1926 – 1927	
1910 – 1911		1929 – 1933	1931

COMMENT II: PRE-FDIC PANICS VS NBER CONTRACTIONS

- **Results might be driven by the pre-FDIC panics**
  - Thus, the authors should rule out from their analysis the coincident event to avoid confounding events
- **If results still remained, they should discus the implication of their finding**
  - Are the systemic risk measures just capturing systemic risk?

COMMENT III: DEFINITION OF DEPENDENT VARIABLE

- **Predictions on individual bank deposit losses correspond to Eq (8):**

$$\Delta \mathrm{Dep}_{\mathrm{it}} = \beta SRM_{it-l} + \sum_{k=1}^{p} \gamma_k x_{kit-l} + \eta_i + \nu_t + \mu_{it} \quad (8)$$

  - Where $\Delta Dep_{it} = \frac{Max\ deposit\ contraction\ of\ bank\ i}{\sum_{j=1}^{N} Max\ deposit\ contraction\ of\ bank\ j}$

- **Is the standardization of the deposit withdrawn really needed?**
- **Let's suppose two scenarios of an economy and two crisis**

		Scenario 1		Scenario 2	
Crisis	Bank	Max D.C	ΔDep_{it}	Max D.C	ΔDep_{it}
I	A	25%	1	25%	0.5
	B	0%	0	25%	0.5
II	A	5%	1	5%	0.5
	B	0%	0	5%	0.5

- Is Bank A less SI under scenario 2? NO
- Should Bank A get a comparable level of systemic risk in crisis I and II? NO

COMMENT IV: FINANCIAL CRISIS PREDICTION CHALLENGE

- **The authors use individual institution systemic risk measures to study whether an aggregation of them have predicting power on financial crisis**
  - The results show that they are poor predictors
  - This finding is consistent with previous literature (Rodriguez-Moreno & Peña, 2013)
  - Reasoning behind these findings:

"[a]ggregate risk facing the system is much higher than the simple sum of the individual risks attending financial institutions, products and markets"

J. Caruana (2010)

- **If this agg measures do not fit well the recent crisis, it is hard to think that they will fill well in other crisis**
  - Maybe the authors should focus on the SIFI ranking challenge

MINOR COMMENTS

- Reporting the adjusted R-squared is highly recommended since the authors compare regressions with different number of explanatory variables
- Caption of Figure 2 should indicate that flat points correspond to missing observations of deposits
- The authors could elaborate more on whether banks under study operate just in NY and the kind of deposits they consider

Thanks for your attention

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