"When credit bites back: leverage, business cycles and crisis" O. Jordá, M.HP. Shularick and A.M. Taylor

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Summary of the contribution

- To analyse a new and wide database of 14 advanced countries between 1870-2008=200 recessions
- Study the effect of leverage on key macroeconomic variables
- A new stylized fact: more credit-intensive booms tend to be followed by
  1. deeper recessions
  2. slower recoveries
- Effects are especially pronounced in recessions that coincide with financial crises
- Financial factors play an important role in modern business cycles

Where does this paper fit in the framework of the literature?

- The Great Recession has renewed interest in the links between the real economy and credit markets
- In this "Age of Credit", the idea that credit matters as a propagator of economic shocks has strengthened
- A newly flourishing literature basically empirical and which has looked back at history
- The papers on this subject have several characteristics in common
  1. They provide considerable evidence that financial markets, credit in particular, play an important role in shaping the economic cycle
  2. All of them consider that recessions are known a priori, either by using historical records or by pinpointing them with non-parametric techniques

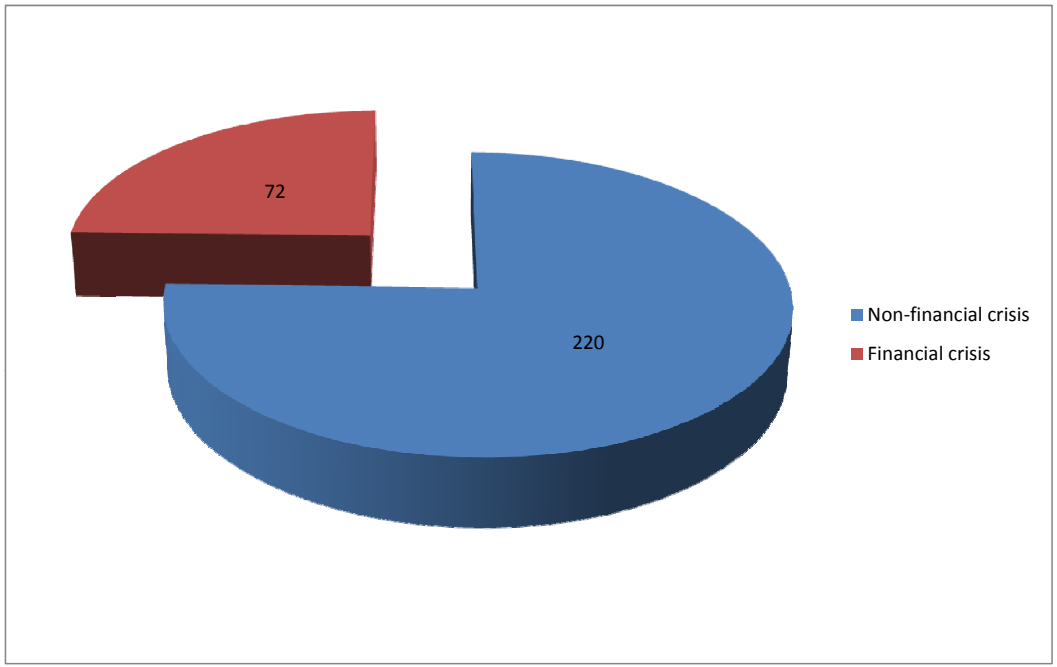
Comments

Our comments have two main bases:

1. Up to what point do financial factors matter in business cycles?
2. We have some caveats about the methodological approach
   - endogeneity
   - uncertainty
   - cumulation effect of credit

Up to what point do financial factors matter in business cycles?

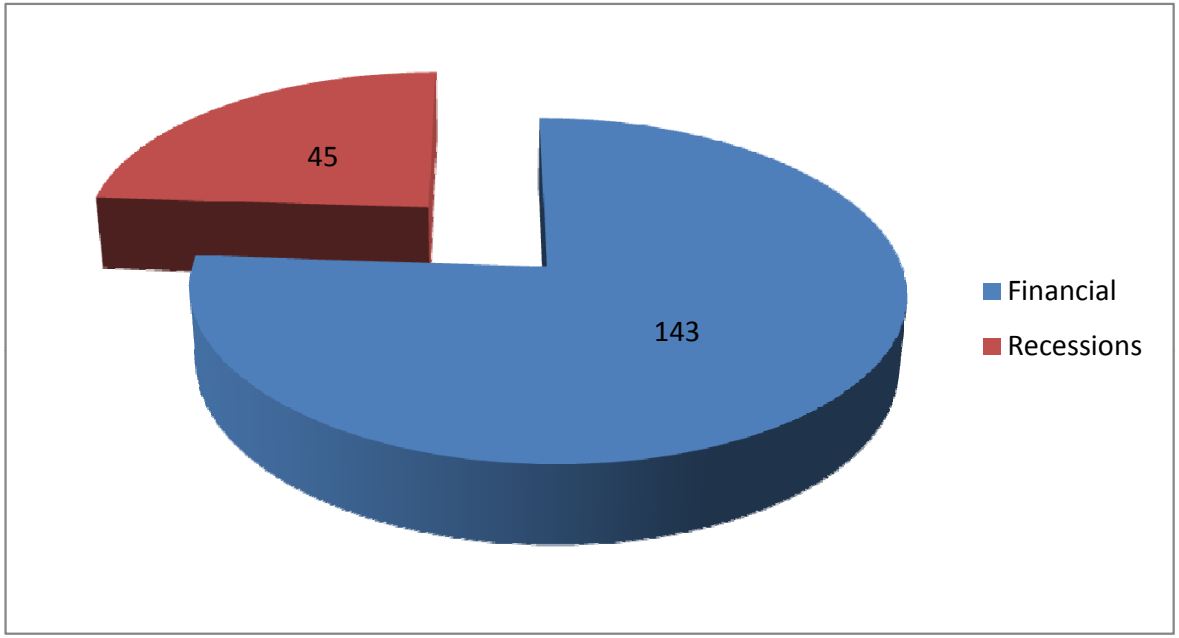
All major landmark events in modern macroeconomic history have been associated with a financial crisis
Jordà et al. (2011)



From 1850 to 2008 the proportion of financial crises in the total of recessions is small

Up to what point do financial factors matter in business cycles?

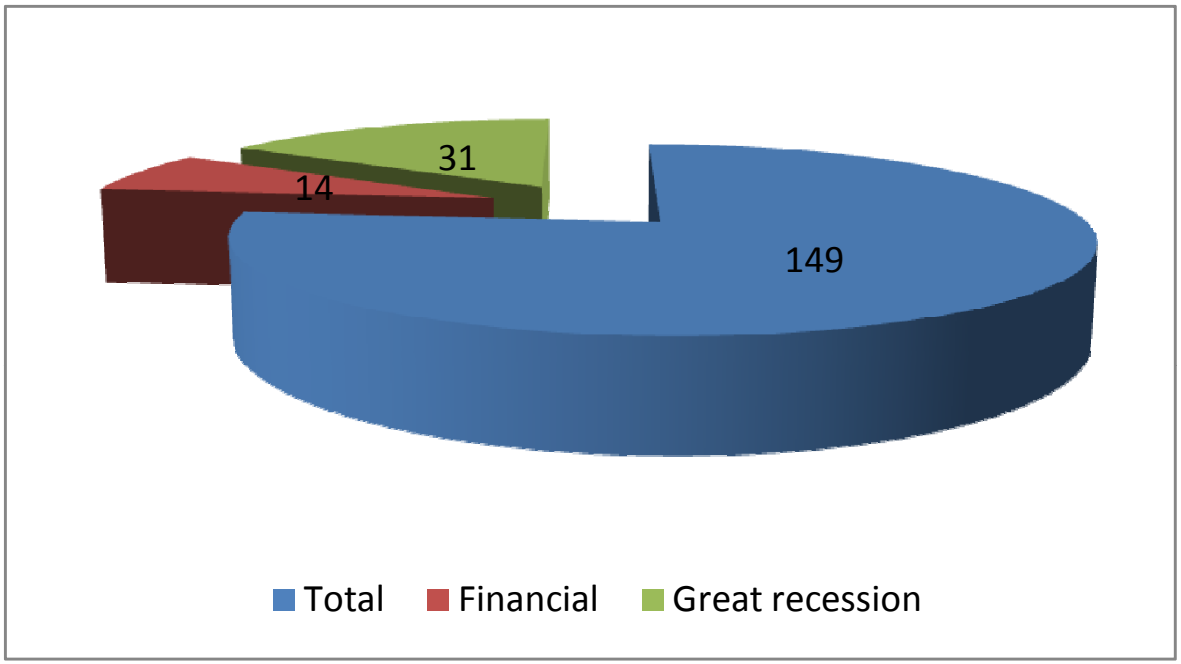
Gourinchas and Obsfeld (2011)



Only a minority of financial crises are transmitted to the real economy

Up to what point do financial factors matter in business cycles?

Gadea and Perez-Quiros (2012)



With a sample of OECD countries from 1950.1 to 2011.3 we find that:

1. only a small proportion of financial crises turn into real crises
2. the extent of the Great Recession has magnified the effect of credit

Methodological comments: endogeneity

- GDP growth is used to pinpoint the turning points
- These turning points are used to build the credit intensity variable
- Chronology of financial crises also incorporates information about financial variables, such as credit

$$\begin{bmatrix} \textit{GDP growth} \\ \textit{Consumption growth} \\ \textit{Duration} \\ \textit{Amplitude} \end{bmatrix} = f(\textit{credit intensity})$$

Methodological comments: uncertainty

- Financial crises and recessions are known a priori and so they are exogenous to the model
- The uncertainty of the phenomenon is not taken into account
- This approach is like an "anatomy of the crises", dissecting the crises once they have happened
- But...we do not know what happens in other cyclical phases with similar credit levels and without recessions or financial crises
- We can illustrate this point with the following example:

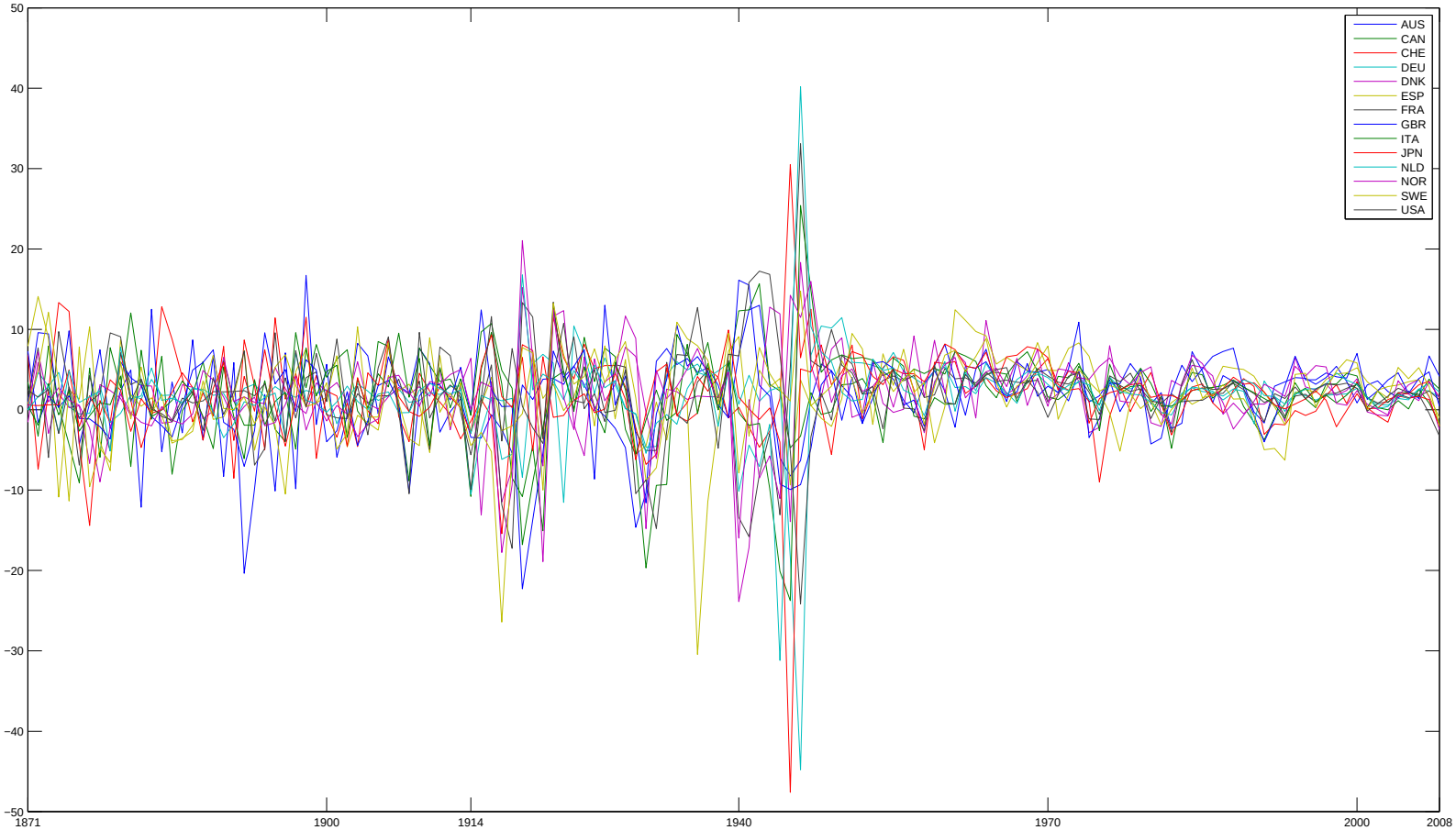
▸ Medical example

- We have some doubts about the ability of this method for policy making decisions

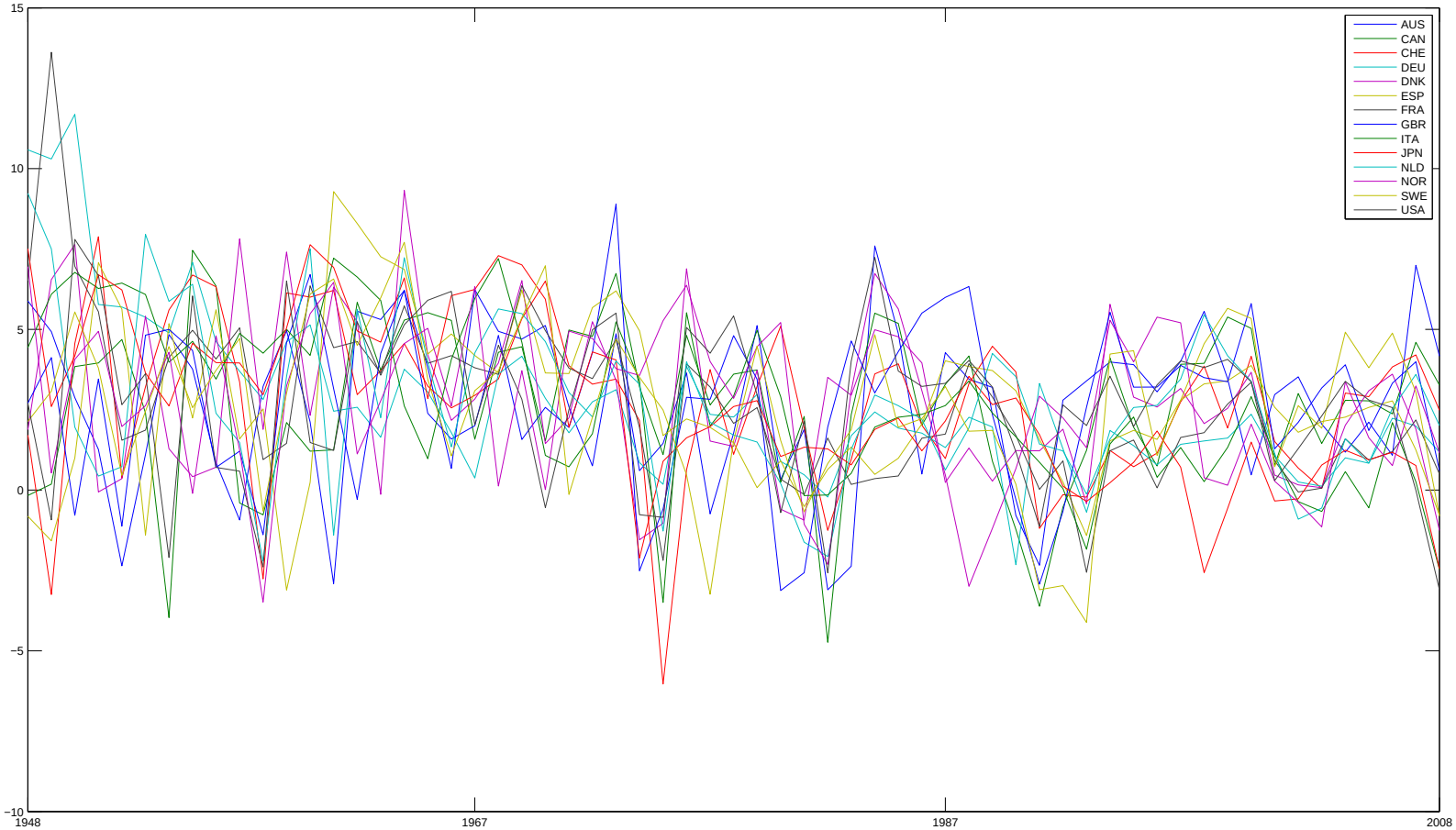
Empirical illustration

- We propose an alternative (Gadea and Pérez-Quiros, 2012)
- We present and empirical illustration with the same data (source: Shularick and Taylor, 2011)
- The key point of our proposal is to consider the cyclical phases and, especially, recessions in an environment of uncertainty
- So, we estimate, in the same model, how the evolution of credit affects both the probability of being in recession or expansion and the characteristics of these
- Parametric methods have proved particularly suitable, although they do not perform very well when the sample size is not big enough
- To solve this problem, we use all available information and consider the 14 countries as just one country

Empirical illustration



Empirical illustration



MS with two regimes in the mean and three in the variance

1. The first, high variance, is concentrated in 1870-1946
2. The second, medium variance, is in the period 1947-1985
3. The third, low variance, corresponds to the "Great moderation" period

TABLE I
COMPARING MS AND BB

	QPS
MODEL WITHOUT VARIANCE REGIMES	0.23
MODEL WITH 3 VARIANCE REGIMES	0.13
MODEL WITH 3 VARIANCE REGIMES	0.07

▸ Country examples

We introduce credit(level ratio, growth and cumulation) in a time-varying MS model allowing the transition probabilities to vary with credit

TABLE II

MS MODEL WITH 3 VARIANCE REGIMES

	μ_1	μ_2	σ	p	q
Regime 1	2.96 (1.03)	−8.74 (2.66)	100.09 (16.11)	0.85 (0.02)	0.56 (0.05)
Regime 2	3.95 (0.27)	−1.74 (0.46)	9.06 (1.22)	0.85 (0.02)	0.56 (0.05)
Regime 3	2.58 (0.13)	−0.21 (0.29)	2.17 (0.26)	0.85 (0.02)	0.56 (0.05)

Matrix of Markov transition probabilities of variance

$$\begin{bmatrix} 0.8034 & 0.0482 & 0.0198 \\ 0.1966 & 0.9227 & 0.0177 \\ 0.0000 & 0.0291 & 0.9626 \end{bmatrix}$$

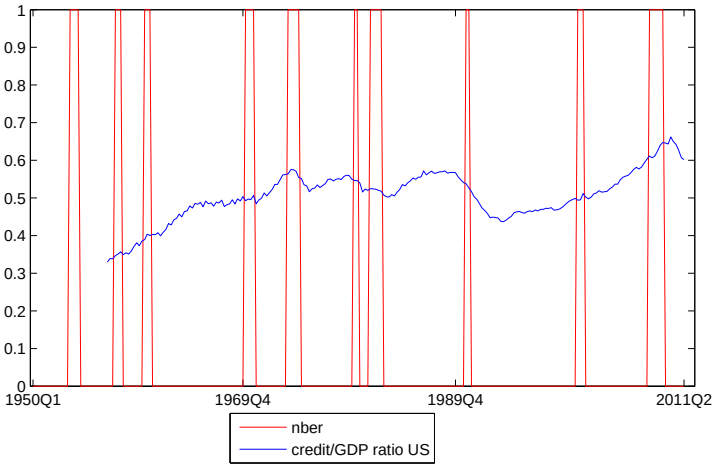
Effect of credit

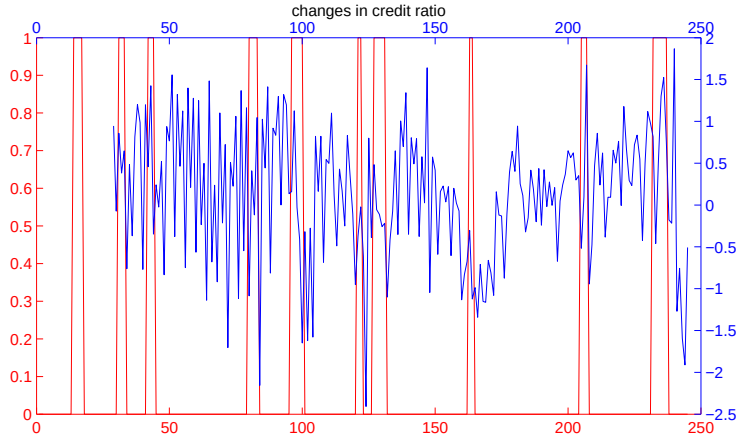
	p	q	α_1	α_2
Level	0.93 (0.001)	0.33 (0.080)	−0.02 (0.001)	0.14 (0.098)
Growth	0.85 (0.001)	0.48 (0.060)	0.005 (0.003)	0.010 (0.010)
Cumulation	0.97 (0.001)	0.68 (0.046)	0.0002 (0.0004)	−0.0047 (0.0057)

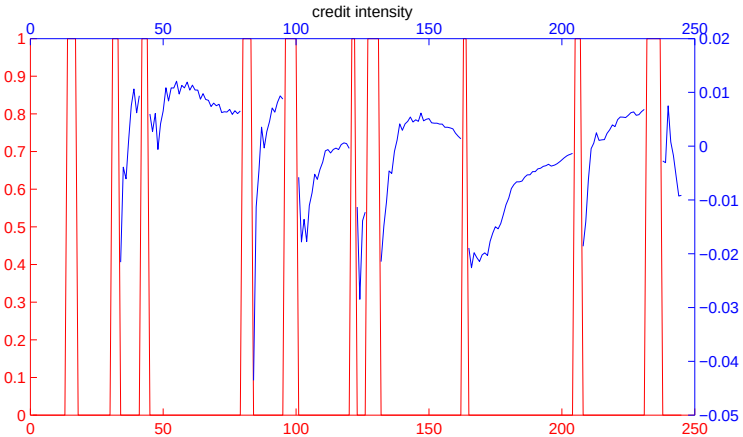
Methodological comments: cumulation effect of credit

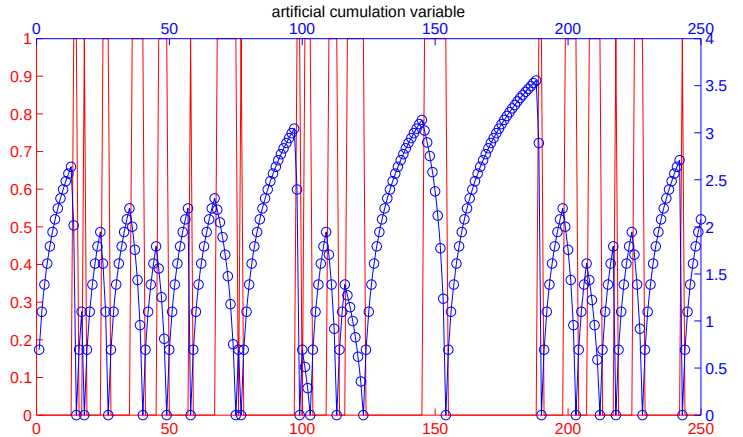
- We wonder if the apparent influence of credit is only due to this build-up behaviour
- We can get the same result with a random variable with a cumulative behaviour, which reproduces the typical "boom and bust" of economic fluctuations
- This result is valid for different measures of credit
  1. level
  2. changes in credit/GDP ratio
  3. credit intensity measured as the excess cumulated loan to GDP growth normalized by the duration of the expansion
- So, credit would have a passive role in the business cycle

Is the effect of credit a mirage?









Conclusions

- Is "excess credit" the "Achilles heel of capitalism"?
- Is credit an epiphenomenon?
- This paper has made a valuable contribution to our understanding of the complex relationships between the real and the financial cycle
- Nevertheless, it has some caveats that do not allow us to accurately gauge the effect of credit on business cycles
- In short, we think that this way of proceeding could magnify the true role of credit in the business cycle
- Most importantly, we are not sure about its utility for policy making decisions

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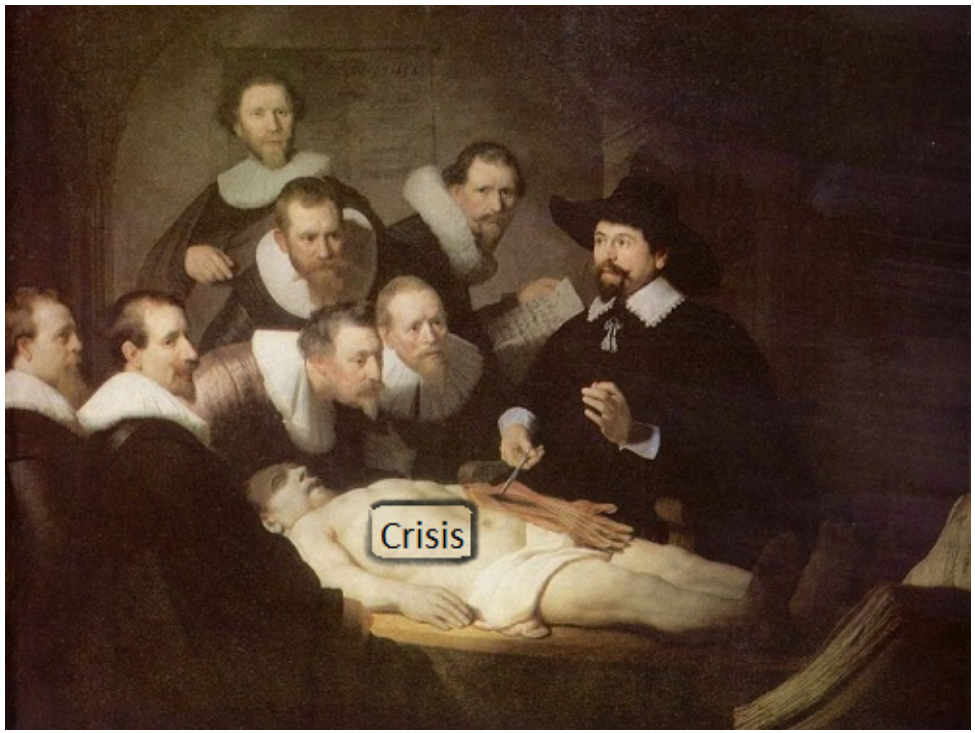
THANK YOU FOR YOUR ATTENTION!

Medical example

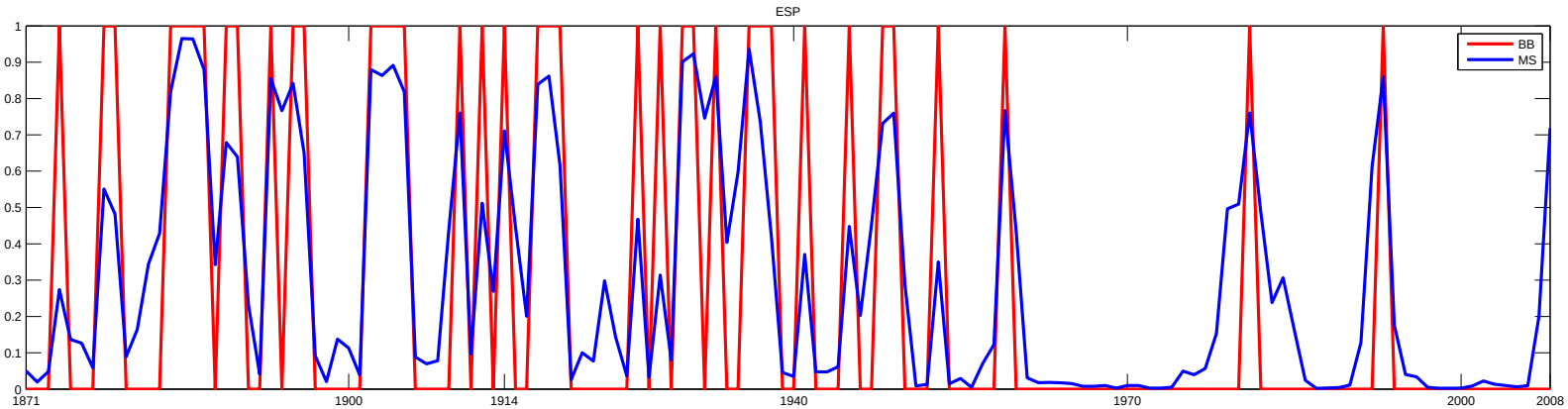


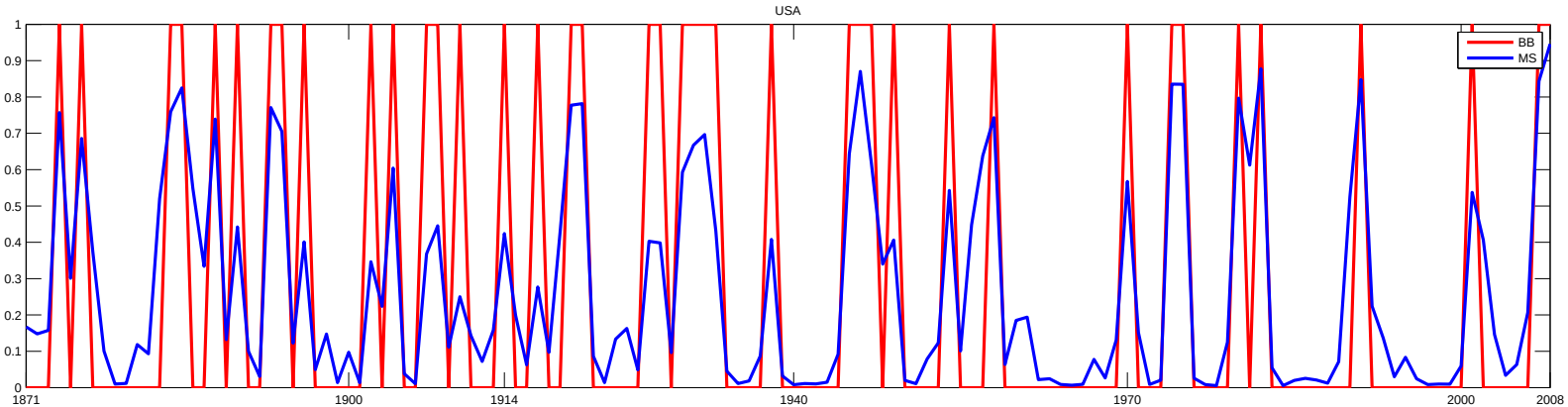
(a) Anatomy of the crisis

(b) Diagnosis of the crisis

Back

Country examples





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