

Inequality and Finance in a Rent Economy

Alberto Botta, **Eugenio Caverzasi***, Alberto Russo,
Mauro Gallegati, Joseph E. Stiglitz

*Università Politecnica delle Marche, Ancona (Italy)

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Research question & Methodology

Research Question

Starting point: two well-known *stylised facts*

- the increase in income and wealth **inequality**
- the considerable expansion (and mutation) of the **financial sector**

Is there any *causal link* between the two?

Methodology

A *hybrid* AB-SFC macro model: all sectors are aggregated but the **households sector** (heterogeneous agents)

- *heterogeneity*: households have different wages
- *interaction*: interest payments of indebted households become income of the holders of financial assets
- tracking all the flows and their accumulation in stocks

	Households	Banks		SPV		IF		Firms		Govt.	Σ
		CA	KA	CA	KA	CA	KA	CA	KA		
Consumption	$-C$	0	0	0	0	0	0	$+C$	0	0	0
Publ. Exp.	0	0	0	0	0	0	0	$+G$	0	$-G$	0
Investment	0	0	0	0	0	0	0	$+I$	$-I$	0	0
Wages	$+W$	0	0	0	0	0	0	$-W$	0	0	0
Taxes	$-T_H$	0	0	0	0	0	0	$-T_F$	0	$+T$	0
Int. on Loans	$-r_h L_{ht-1}$	$+r(1-z)L$	0	$+rzL$	0	0	0	$-r_f L_{ft-1}$	0	0	0
Return on Deriv.	0	0	0	$-fCDO$	0	$+fCDO$	0	0	0	0	0
Return on Shares	$+RSH$	0	0	0	0	$-RSH$	0	0	0	0	0
Int. on Bonds	0	$+RB_B$	0	0	0	$+RB_{IF}$	0	0	0	$-RB$	0
Dividends	0	$-Div_B$	0	0	0	$+Div_B$	0	0	0	0	0
Profits	$+\Pi_H$	0	0	0	0	$-\Pi_{IF}$	$+\Pi_{IF}$	$-\Pi_F$	$+\Pi_F$	0	0
Change in the stocks of											
Deposits	$-\Delta D_H$	0	$+\Delta D$	0	0	0	$-\Delta D_{IF}$	0	$-\Delta D_F$	0	0
Loans	$+\Delta L_H$	0	$-\Delta(1-z)L$	0	$-\Delta zL$	0	0	0	$+\Delta L_F$	0	0
Derivatives	0	0	0	0	$+fCDO$	0	$-fCDO$	0	0	0	0
Shares	$-\Delta Sh$	0	0	0	0	0	$+\Delta Sh$	0	0	0	0
Bonds	0	0	$-\Delta B_B$	0	0	0	$-\Delta B_{IF}$	0	0	$+\Delta B$	0
Δ Total	0	0	0	0	0	0	0	0	0	0	0

Table A.2: Aggregate Transaction Flow Matrix (Initial Situation)

Key model mechanisms I

■ **Securitization is an endogenous dynamic:**

1. households demand shares supplied on demand by IFs
2. IFs demand CDOs supplied on demand by SPVs
3. SPVs demand securitized loans from CBs...

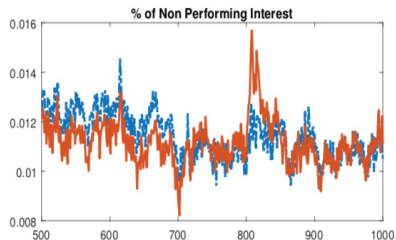
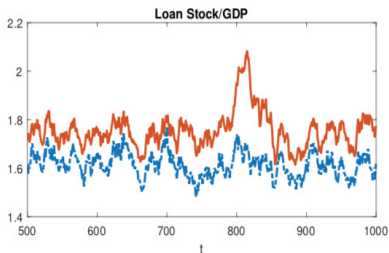
Change in the stocks of	Households		Banks		SPV		IF
Deposits	$-\Delta D_H$	0	$+\Delta D$	0	0	0	$-\Delta D_{IF}$
Loans	$+\Delta L_H$	0	$-\Delta(-z)L$		$-\Delta zL$	0	0
Derivatives	0	0	0	0	$+\Delta CDO$		$-\Delta CDO$
Shares	$-\Delta S_h$						$+\Delta S_h$
Bonds		0	$-\Delta B_B$	0	0	0	$-\Delta B_{IF}$
Δ Total	0	0	0	0	0	0	0

Diagrammatic annotations: Blue arrows show flows from IF to SPV (CDOs), from SPV to Banks (Loans), and from Banks to Households (Shares). Red circles highlight the terms $-\Delta zL$, $+\Delta CDO$, $-\Delta CDO$, $-\Delta S_h$, and $+\Delta S_h$.

■ **Credit market: endogenous credit booms and NPLs**

- ▶ the higher the demand for CDOs, the higher the demand for securitized loans;
- ▶ the more CBs securitize L, the more they will reduce their leverage and the more they will issue loans;
- ▶ the more the issuance of loans, the higher their riskiness and therefore the return on CDOs until NPLs rise.

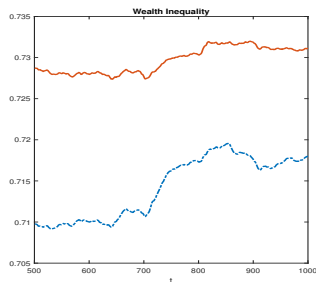
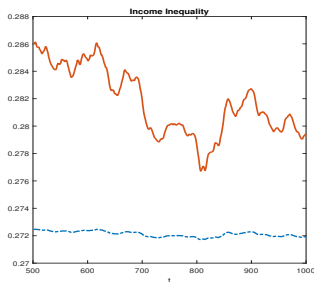
Non-performing loans and GDP growth rate



■ **Financial crisis (numerous NPLs) leads to an endogenous credit crunch**

- ▶ the return on CDOs (which depend on the interest paid on securitized loans) decreases
- ▶ shares are less attractive, IF's demand for Bonds goes up
- ▶ lower demand for securitized loans
- ▶ less credit supply *credit crunch*

The role of inequality



Inequality: a twofold role

1. *it feeds the dynamics with two sets of demand: (i) for credit from the poor; (ii) for financial assets from the rich.*
2. *it is fed by the dynamics as a flow of interest on loans out of the middle-to-low income classes goes to the rentiers who bought IF's shares (where the remuneration of shares depend on the return on CDOs and interest on bonds)*

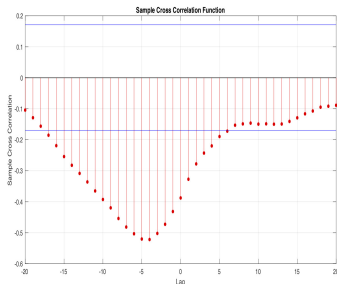
Some stylized facts

Albeit its qualitative nature, the model captures some interesting stylized facts:

- a clear-cut credit cycle: the amount of credit issued by banks increases together with GDP, and it first stops and then decreases when a crisis occurs.
- the amount of non performing loans picks in correspondence to the crisis, this reproduces what occurs in the real world and in particular mirrors what happened in the US during the last crisis.
- the share of securitised loans falls during the crisis.
- flight to quality: our simulations show the return on public bonds plunging after the crisis (as in 30y gov bonds)
- above-mentioned inequality and crisis dynamics,
- NPL-GDP growth cross -correlation

Non-performing loans and GDP growth rate

a) Simulated data



b) Real data (FRED)

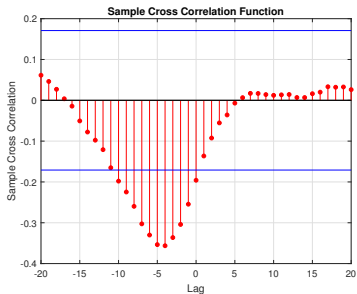


Figure: Red bars represent the correlation between non-performing loans and current GDP growth, blue horizontal lines define confidence intervals.