

Securitization, housing market and banking sector behavior in a Stock-Flow Consistent model

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Outline

- 1 Active Banking
 - Securitization
- 2 The model
 - Diagrams and matrices
 - Behaviours
- 3 Experiments
- 4 Conclusion

Filling the black box of private banking

SFC and private banking

The way private banks behave "remain a black box... So in order to open this black box, some Post Keynesian more inspired by H. Minsky [1975] than N. Kaldor, propose to generalize the Keynes theory of liquidity preference to private banks" [Le Heron and Mouakil, 2008, p. 406].

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Securitization

Evidence suggests that financial intermediaries tend to keep their net worth intact and adjust the size of total assets, blowing their balance sheets in order to generate profits [Shin, 2009].

Minsky [1975]

Minsky's various stages

- 1 "the debtor: the fundamental paper emitter and source of cash flow income that validate the securities"
- 2 "paper creator" structures the credit and accepts the promise of the debtor to repay
- 3 "investment banker finds and negotiate with the paper creator and buys the paper"
- 4 "the trustee", the "servicing organization" and the "maker of a secondary market" (i.e. investment bank).
- 5 "funders": households and intermediaries between banks and ultimate households.

Litterature

"originate and distribute" model of banking management

"because a substantial part of the risk will be borne by other financial institutions, banks essentially faced only the 'pipeline' risk of holding a loan for some month until the risk were passed on so they had little incentive to take particular care in approving loan applications and monitoring loans" [Brunnermeier, 2009, p. 82].

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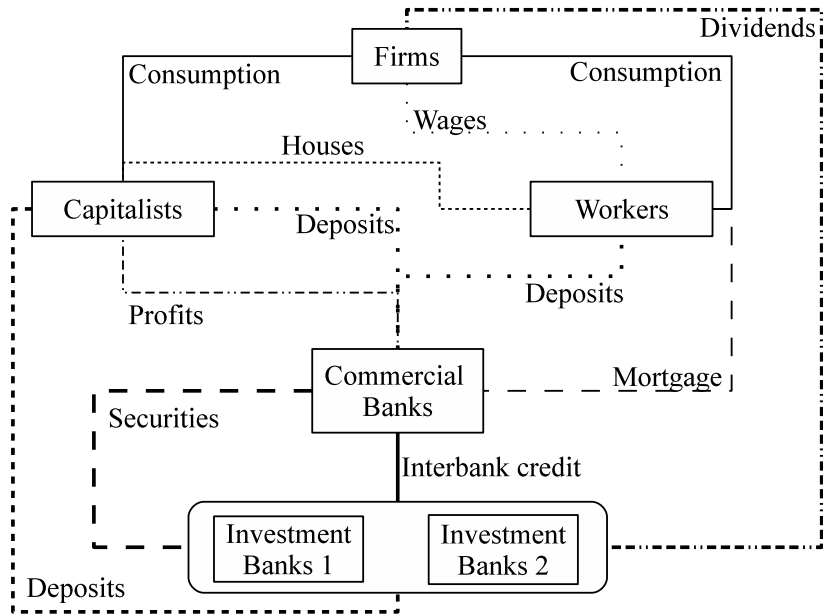
distorted incentives of securitization process

- ▶ multi-layered agency problem: several players act and important frictions exist between them [Ashcraft and Schuermann, 2008].
- ▶ agency problem: the only purpose of corporations is to get the firm's managers to maximize profits on behalf of shareholders [Crotty, 2009].
- ▶ 'hot potato' hypothesis: "there is always a greater fool in the chain who will buy the bad loan" [Shin, 2009, p. 312].
- ▶ leverage and credit feeding "inflation balloon[s]" [Shin, 2009].

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Flow diagram



Transaction Flow Matrix

	Workers		Capitalists		Firms		Commercial Banks		Investment Banks 1		Investment Banks 2		Σ
	Current (i)	Capital (ii)	Current (iii)	Capital (iv)	Current (v)	Capital (vi)	Current (vii)	Capital (viii)	Current (ix)	Capital (x)	Current (xi)	Capital (xii)	
Consumption	$-C_w$		$-C_c$		C								0
Investment					$+I$	$-I$							0
Wages	$+WB$				$-WB$								0
Rent	$-rent_{H,-1}$		$+rent_{H,-1}$										0
Interests on Loans					$-i_{L,-1}L_{,-1}$		$+i_{L,-1}L_{,-1}$						0
Interests on Mortgages	$-i_{M,-1}M_{,-1}$						$+i_{M,-1}M_{,-1}$						0
Interests on Interbank Profits							$+i_{C,-1}C_{b,-1}$		$-i_{C,-1}C_{1,-1}$		$-i_{C,-1}C_{2,-1}$		0
Dividends on Equities					$-FD_Q$				$+FD_{Q,1}$		$+FD_{Q,2}$		0
Dividends on Securities							$-i_{s,-1}S_{b,-1}$		$+FD_{S,1}$		$+FD_{S,2}$		0
Banks Profits			$+F_b + F_{i1} + F_{i2}$				$-F_b$		$-F_{i1}$		$-F_{i2}$		0
Retained earnings					$-FU$	$+FU$							0
Savings	$-SAW_w$	$+SAW_w$	$-SAW_c$	$+SAW_c$									0
Capital Gains		$+CG_w$		$+CG_c$		$+CG_f$		$+CG_b$		$+CG_{i1}$		$+CG_{i2}$	0
Δ Housing		$-p_H \Delta H_w$		$-p_H \Delta H_c$	$+p_H \Delta H$	$-p_H \Delta H_w$							0
Δ Deposits Commercial		$-\Delta D_{w,b}$		$-\Delta D_{c,b}$				$+\Delta D_b$					0
Δ Deposits Investment 1				$-\Delta D_{i1}$					$+\Delta D_{i1}$				0
Δ Deposits Investment 2				$-\Delta D_{i2}$								$+\Delta D_{i2}$	0
Δ Loans						$+\Delta L$		$-\Delta L$					0
Δ Equities				$-p_Q \Delta Q_c$		$+p_Q \Delta Q_f$				$-p_Q \Delta Q_{i1}$		$-p_Q \Delta Q_{i2}$	0
Δ Interbank Credit								$-\Delta C_b$		$+\Delta C_{i1}$		$+\Delta C_{i2}$	0
Δ Securities				$-p_S \Delta S_c$				$+p_S \Delta S_b$		$-p_S \Delta S_{i1}$		$-p_S \Delta S_{i2}$	0
Δ Mortgage		$+\Delta M$						$-\Delta M$					0
Σ	0	0	0	0	0	0	0	0	0	0	0	0	0

Balance Sheet

	Workers (1)	Capitalists (2)	Firms (3)	Commercial Banks (4)	Investment Banks 1 (5)	Investment Banks 2 (6)	Real Assets	Σ
Capital			$+K$				$-K$	0
Real Estate	$+p_H H_w$	$+p_H H_c$					$-p_H H$	0
Commercial Banks Deposits	$+D_{w,b}$	$+D_{c,b}$		$-D_b$				0
Investment Banks Deposits		$+D_{i1}$ $+D_{i2}$			$-D_{i1}$	$-D_{i2}$		0 0
Loans			$-L$	$+L$				0
Equities			$-p_q Q_f$		$+p_q Q_{i1}$	$+p_q Q_{i2}$		0
Interbank credit				$+C_b$	$-C_{i1}$	$-C_{i2}$		0
Mortgages	$-M$			$+M$				0
Securities				$-p_s S_b$	$+p_s S_{i1}$	$+p_s S_{i2}$		0
Net Worth	$-NW_w$	$-NW_c$	$-NW_f$	$-NW_b$	$-NW_{i1}$	$-NW_{i2}$	$+p_H H + K$	0

Households

Workers

- ▶ Wage income, pay taxes
- ▶ Consumption depends on income, wealth, mortgage, emulation and persistence
- ▶ Wealth composed of houses, cash deposits
- ▶ Mortgage depends on leverage

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Capitalists

- ▶ Capital income
- ▶ Consumption la Haig-Simon's
- ▶ Portfolio choice for deposits (3) and houses

Banks

Commercial

- ▶ Grant loans and mortgage on demand (+ interbank credit)
- ▶ Securitize mortgage and sell securities to investment banks
- ▶ Profits (mark-up interests) distributed to capitalists

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Investment (2)

- ▶ Use leverage to buy equities and securities
- ▶ Expectation on deposits, if needed interbank credit
- ▶ Profits distributed to capitalists

Firms

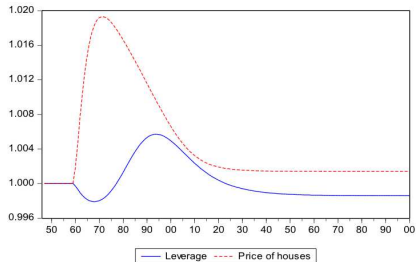
- ▶ Invest, produce
- ▶ pay wages, distribute profits, pay taxes
- ▶ Housing market:
 - ▶ Zezza [2008]
 - ▶ Eatwell et al. [2008] demand for house: expectation on price and debt service ratio

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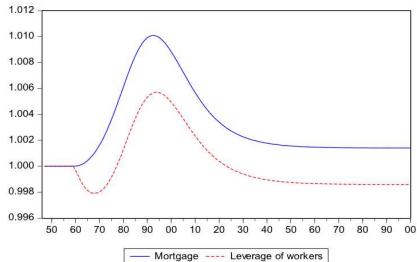
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Preliminary Results

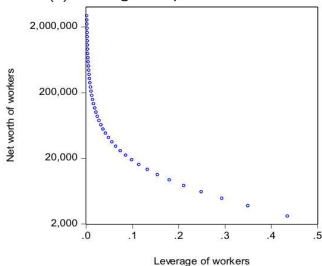
(a) Demand of houses



(b) House price effect on mortgages



(c) Leverage and price of houses



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Conclusion and further work

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- ▶ Procyclical leverage
- ▶ Importance of intra-sectorial flows
- ▶ Difficulty of aggregation and calibration

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Further work

- ▶ Growth model
- ▶ Central Bank and Government
- ▶ Agent-Based version?

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