

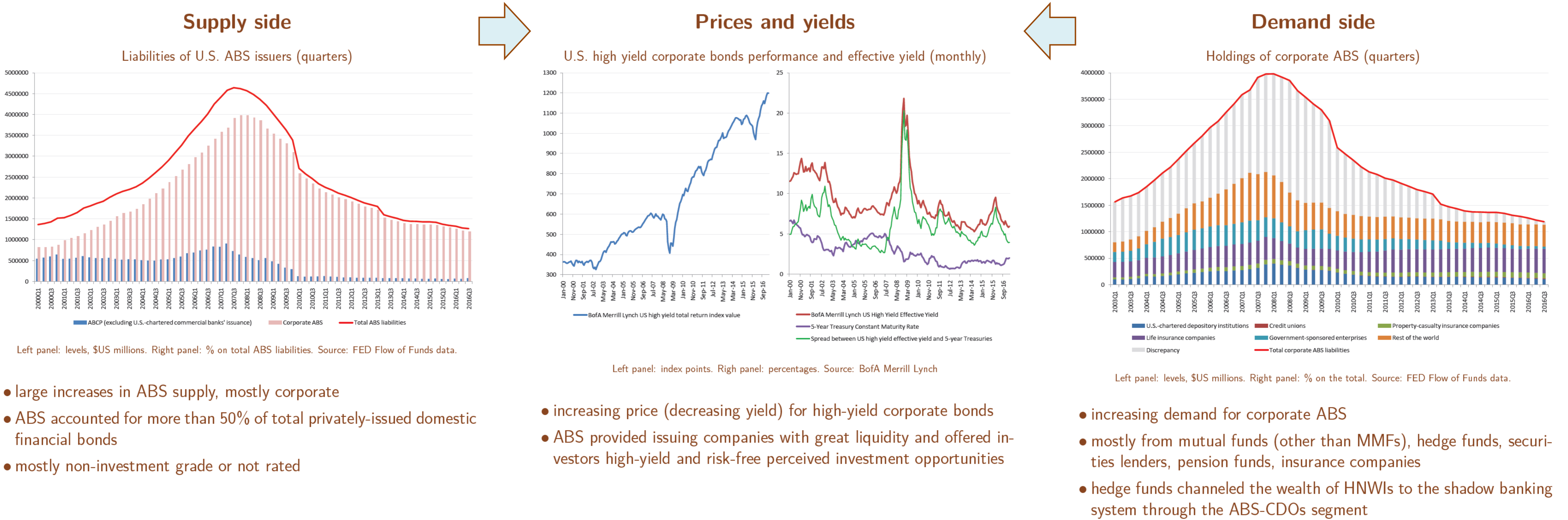
A Securitization-based Model of Shadow Banking with Surplus Extraction and Credit Risk Transfer

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Background: a reconstruction of the dynamics in the US market for ABS (2000-2016)



1 CONTRIBUTION TO THE DEBATE

Theoretical: we develop a model, based on the framework of Gennaioli et al. (2013), that captures aspects related to

- securitization and credit risk transfer
- search for yield motive and pro-cyclicality of shadow banking

Supporting evidence: we reconstruct the dynamics of the U.S. market for privately issued ABS during 2000-2016 (analyzing a vast bulk of data mostly from FED Flow of Funds) in order to capture the risk-taking behavior that had broadly characterized the pre-crisis period

Main results:

- ABS are issued to meet the demand for high-yield and safe-perceived investment opportunities
- securitization allows credit risk transfer
- shadow banking is pro-cyclical

2 MODEL SETUP

- Two dates $t = 0, 1$
- A measure one of risk-neutral intermediaries, acting both as originators and SPVs
- A measure one of investors, consisting of pessimistic (α) and optimistic ($1 - \alpha$) types
- Aggregate risk related to future macroeconomic conditions (growth, downturn, recession), $\varphi_\omega \in [0, 1]$, with $\omega \in \Omega \equiv \{g, d, r\}$
- State contingent idiosyncratic risk related to risky investments, $(1 - \pi_\omega) \in [0, 1]$, with $\pi_g > \pi_d > \pi_r$

TIMING

$t = 0$, investment decisions and trade of securities

$t = 1$, the state of the world ω is revealed, output is produced and distributed to agents

INTERMEDIARIES

- raise funds through riskless debt claims (D) promising to repay $r \geq 1$
- use their equity w_{int} and the resources raised to originate:
 - ▶ prime loans $I_H \leq 1$ yielding a sure return R
 - ▶ sub-prime loans I_L yielding $\begin{cases} \pi_\omega \cdot A \\ (1 - \pi_\omega) \cdot 0 \end{cases}$
- securitize their whole portfolio of sub-prime loans, in order to diversify the idiosyncratic risk

ASSUMPTION: credit risk is **fully diversified** when ABS are traded among intermediaries (Gennaioli et al. 2013).

INVESTORS: pessimistic and optimistic types

At $t = 0$ invest their wealth w in riskless debt (D) or ABS (T_L)

At $t = 1$ receive payoffs (state contingent if $T_L > 0$)

Type	Expected return on ABS	Reserv. prices
α	$\pi_r A$ (lowest)	$\Rightarrow PL_{L,(1-\alpha)} > PL_\alpha$
$(1 - \alpha)$	$\pi_g A$ (highest)	

Their sentiment on future macroeconomic conditions affects the **reservation prices** related to their demand for ABS: the optimistic ones are willing to pay higher prices than the pessimistic ones.

3 RESULTS

TRADE of ABS

Feasible between intermediaries and optimistic investors:

- ▶ optimistic investors are attracted to the high-yield opportunity of investing in ABS, and thus offer intermediaries a rent extraction incentive
- ▶ intermediaries are attracted to the high-willingness to pay of optimistic investors and want to extract the highest feasible surplus

The following cases may arise

- intermediaries trade ABS among themselves (**NO rent extraction**)
- intermediaries trade ABS only with optimistic investors (**MAX rent extraction**)
- intermediaries trade ABS among themselves and with optimistic investors (**NO rent extraction**)

EQUILIBRIUM at $t = 0$

Scenario 1 $w + w_{int} \leq 1$	Scenario 2 $w + w_{int} > 1$
Only prime loans are financed	Prime loans are exhausted, and risky loans are financed
No securitization	Intermediaries: - issue and securitize risky loans - sell ABS to optimistic investors and transfer idiosyncratic risk - clear the ABS market if needed

PAYOFFS at $t = 1$

GAINS	LOSSES
Investors	Related to aggregate risk
• return on riskless debt claims (certain)	• suffered by optimistic investors and intermediaries on their portfolio of ABS if "bad" states occur (d or r)
• <i>optimistic ones</i> : capital gain on ABS if the growth state occurs (state contingent)	
Intermediaries	Related to idiosyncratic risk
• proceeds from the sale of ABS (certain)	• suffered by those optimistic investors whose underlying risky loans default, whatever the state of the world is
• capital gain on ABS if the growth state occurs (state contingent)	

4 CONCLUSIONS

Backing the search for yield motive: optimistic investors are eager to invest in the high-yield investment opportunities (ABS) manufactured by the shadow banking system, while intermediaries use ABS to extract the largest possible surplus from investors and offload credit risk

Backing the risk transfer motive: idiosyncratic risk is transferred to optimistic investors who suffer the related losses

Shadow banking is pro-cyclical: it affects the economy positively in "good" times, while negatively in "bad" times