Digging into the Black Box of Portfolio Replenishment in Securitization: Evidence from the ABS Loan-Level Initiative.

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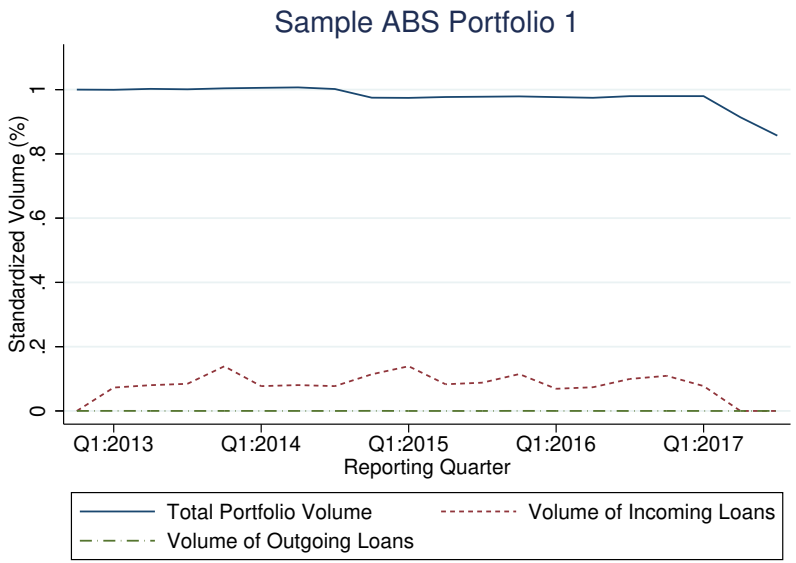
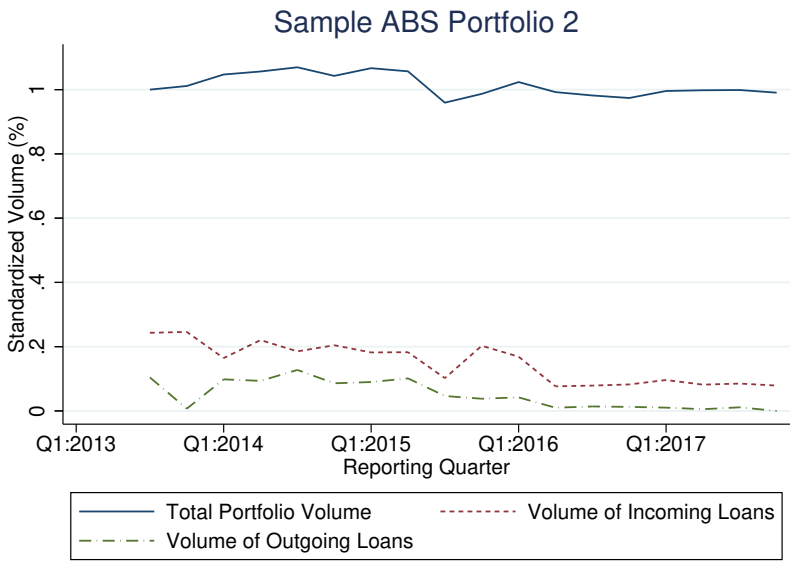
Outline

Relevance of portfolio replenishment in securitization

Why are ABS portfolios not static over time?





⇒ Portfolio replenishment due to maturing, prepaid, canceled, repurchased, and defaulted loans prior to ABS maturity (ECB, 2019)

Portfolio replenishment is addressed in ABS prospectuses:

- In total: 149 ABS prospectuses
- Replenishment addressed: $\approx 64\,\%$
- Loan eligibility criteria defined: $\approx 40\,\%$

"The originator and the issuer have agreed that on the closing date the originator will sell SME receivables meeting the eligibility criteria (as defined below) to the issuer upon the terms and subject to the conditions of the SME receivables sale agreement. On any additional purchase date, the originator may propose to **sell further advance SME receivables** *and the issuer will accept it provided that certain conditions are met."*

Source: Extract from a typical ABS prospectus.

$\Rightarrow$ Prospectuses only partially provide transparency for investors

Novel securitization framework limits portfolio replenishment for STS securitizations:

- STS: simple, transparent and standardized
- Objective: Re-establish a safe securitization market in Europe
- Became effective: January 1, 2019

"The underlying exposures transferred from, or assigned by, the seller to the SSPE[1] *shall meet predetermined, clear and documented eligibility criteria which do* **not allow for active portfolio management of those exposures on a discretionary basis.** [...] *Exposures transferred to the SSPE after the closing of the transaction shall meet the eligibility criteria applied to the initial underlying exposures."*

Source: Regulation (EU) 2017/2402, Article 20 (7).

[1] Securitization special-purpose entity.

Research questions:

1. **Loan-level analysis:**
   - Do loans which are added to ABS portfolios after the closing perform worse?
   - Are banks aware of the poor quality of those loans?
   - Does portfolio replenishment affect the overall portfolio performance?
2. **Bank-level analysis:**
   - Are there common bank characteristics that drive originators to make use of portfolio replenishment?

Data

1. **Loan-level sample:**
   - *Securitization data:* European DataWarehouse (ED)
   - *Asset class:* SME securitizations
   - *Observation period:* 2013 – 2017

   ⇒ *Quarterly data on loan-level characteristics:*
   8,906,985 observations, 1,608,270 loans, 95 ABS portfolios

2. **Bank-level sample:**
   - *Bank data:* Fitch Connect
   - *Selection procedure:* Originators from the loan-level sample
   - *Observation period:* 2013 – 2017

   ⇒ *Annual data on bank-level characteristics:*
   167 observations, 49 banks

1. **Loan-level analysis:**
   - *Incoming Loan:*
     Indicator variable equal to one for loans that are not included in the ABS transaction at the time it is reported to ED for the first time, and zero otherwise.

   ⇒ *Loan-level sample:* 46 % on average

2. **Bank-level analysis:**
   - *Percentage of Incoming Loans:*
     Weighted average of *Incoming Loan*.

   ⇒ *Bank-level sample:* 38 % on average

Loan-level analysis: Estimation strategy

Do loans which are added to ABS portfolios after the closing perform worse? Are banks aware of the poor quality?

$$\begin{aligned} \textit{Loan Performance}_{itp} &= \alpha + \beta \cdot \textit{Incoming Loan}_{it} \\ &+ \gamma \cdot \textit{Loan Controls}_{it} + \textit{Several FE} + \epsilon_{itp}. \end{aligned}$$

$$\begin{aligned} \textit{Incoming Loan}_{it} &= \alpha + \beta \cdot \textit{Loan Quality}_{itq} \\ &+ \gamma \cdot \textit{Loan Controls}_{it} + \textit{Several FE} + \epsilon_{itq}. \end{aligned}$$

- Loan performance measures: Default, Default amount, Delinquency, Delinquent amount, Number of days in delinquency
- Loan quality measures: PD, LGD, PD x LGD
- Robust SE clustered at the reporting quarter x ABS portfolio level

Loan-level analysis (I/III): Results

Do loans which are added to ABS portfolios after the closing perform worse?

	Default	Default Amount	Delinquency	Delinquent Amount	Number of Days in Del.
	(1)	(2)	(3)	(4)	(5)
Incoming Loan	0.00454***	0.0398***	0.0124***	0.0877***	0.0227***
	(0.0014)	(0.0138)	(0.0025)	(0.0202)	(0.0086)
Loan Controls	Yes	Yes	Yes	Yes	Yes
Rep. quarter x ABS portfolio FE	Yes	Yes	Yes	Yes	Yes
Loan origination year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Loan type FE	Yes	Yes	Yes	Yes	Yes
Borrower type FE	Yes	Yes	Yes	Yes	Yes
N	8,906,978	8,906,978	8,906,978	8,906,978	8,906,978
R^2	0.29	0.07	0.16	0.17	0.11

Marginal effects are reported.
Robust SE clustered w. r. t. the reporting quarter x ABS portfolio are in parentheses.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Loan-level analysis (II/III): Results

Are banks aware of the poor quality of Incoming Loans?

	Incoming Loan	Incoming Loan	Incoming Loan	Incoming Loan
	(1)	(2)	(3)	(4)
PD	0.289***			
	(0.0820)			
LGD		0.00110		
		(0.0179)		
PD x LGD			1.216***	
			(0.1787)	
PD x Default				0.471***
				(0.0891)
Loan Controls	Yes	Yes	Yes	Yes
Rep. quarter x ABS portfolio FE	Yes	Yes	Yes	Yes
Loan origination year FE	Yes	Yes	Yes	Yes
Industry & borrower type & loan type FE	Yes	Yes	Yes	Yes
N	8,906,978	8,906,978	8,906,978	8,906,978
R^2	0.70	0.70	0.70	0.70

Marginal effects are reported.
Robust SE clustered w. r. t. the reporting quarter x ABS portfolio are in parentheses.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Loan-level analysis (III/III): Results

Does portfolio replenishment affect the overall portfolio performance?

	Differences between *Incoming Loans* and *Outgoing Loans*				
	Default	**Default Amount**	**Delinquency**	**Delinquent Amount**	**Number of Days in Delinquency**
Nearest neighbor ($n = 1$)	0.0049***	0.0481***	0.0174***	0.0997***	0.0436***
	(0.0016)	(0.0171)	(0.0043)	(0.0331)	(0.0124)
Nearest neighbor ($n = 5$)	0.0043***	0.0467***	0.0187***	0.1100***	0.0453***
	(0.0012)	(0.0123)	(0.0032)	(0.0246)	(0.0093)
Nearest neighbor ($n = 10$)	0.0040***	0.0435***	0.0184***	0.1087***	0.0446***
	(0.0011)	(0.0114)	(0.0030)	(0.0232)	(0.0089)
Nearest neighbor ($n = 20$)	0.0040***	0.0430***	0.0186***	0.1091***	0.0442***
	(0.0012)	(0.0111)	(0.0030)	(0.0226)	(0.0087)
Nearest neighbor ($n = 50$)	0.0041***	0.0448***	0.0179***	0.1021***	0.0435***
	(0.0012)	(0.0108)	(0.0030)	(0.0224)	(0.0086)
N					1,004,318
Number of Incoming Loans					573,458
Number of Outgoings Loans					430,860

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust SE are in parentheses.

Bank-level analysis: Estimation strategy

Are there common bank characteristics that drive originators to make use of portfolio replenishment?

$$
\begin{aligned}
\textit{Percentage of Incoming Loans}_{it} &= \alpha + \beta_1 \cdot \textit{NPL ratio}_{it} + \beta_2 \cdot \textit{Equity ratio}_{it} \\
&+ \beta_3 \cdot \textit{Bank size}_{it} + \beta_4 \cdot \textit{Loan ratio}_{it} \\
&+ \beta_5 \cdot \textit{Liquidity}_{it} + \beta_6 \cdot \textit{CIR}_{it} + \beta_7 \cdot \textit{RoE}_{it} \\
&+ \beta_8 \cdot \textit{Loan growth}_{it} + \textit{Reporting year FE} \\
&+ \epsilon_{it}.
\end{aligned}
$$

- Fractional response regression model; e.g., Papke and Wooldridge (1996, JAE), Bastos (2010, JBF)
- Pooled regression
- Robust standard errors clustered at the originator level

Bank-level analysis: Results

	Percentage of Incoming Loans	Percentage of Incoming Loans	Percentage of Incoming Loans
NPL ratio	1.058*	1.382**	1.422***
	(0.5420)	(0.5373)	(0.4730)
Equity ratio	-5.185***	-4.520***	-3.993**
	(1.5767)	(1.5110)	(1.5793)
Replenishment		-0.208***	
		(0.0540)	
Eligibility criteria			-0.326***
			(0.0791)
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
N	167	163	163
R^2	0.1925	0.2527	0.2467

Marginal effects are reported.
Robust SE clustered w. r. t. the ABS originator are in parentheses.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Main findings

1. **Loan-level analysis:**
   - Loans added to ABS transactions after the closing exhibit *low performance*
   - Originators exploit existing leeway in portfolio replenishment by adding *low-quality* loans
   - This adversely affects overall ABS *portfolio performance*
2. **Bank-level analysis:**
   - Originators which are *undercapitalized* or exhibit *high NPL ratios* make particularly use of portfolio replenishment
   - The opposite is the case when originators mention portfolio replenishment or specify loan eligibility criteria in their *ABS prospectuses*

Relevance and policy implications:

$\Rightarrow$ Novel requirement by STS regulation as a step forward towards a trustworthy securitization market?

Thank you for your attention!