Enhancing Loan Quality through Transparency: Evidence from the European Central Bank Loan Level Reporting Initiative

Bank of France

October 23, 2015

Aytekin Ertan, LBS
Maria Loumioti, USC
Regina Wittenberg-Moerman, USC

Research question

- Can transparency alleviate agency costs in loan securitization and improve loan quality?

USC MARSHALL SCHOOL OF BUSINESS

Motivation

- **Loan securitization is an important credit market innovation that allows banks to diversify credit risk and firms to gain easier access to credit (e.g., Nadauld and Weisbach 2011, Benmelech, Dlugosz and Ivashina 2012, Bord and Santos 2014, Loumioti and Vasvari 2015)**

- **Securitization was blamed for playing a detrimental role in the financial crisis by giving rise to severe *agency problems* in loan underwriting, screening and monitoring (i.e., <u>insufficient screening and information collection</u> [Keys et al. 2010, Garmaise 2015, Demyanyk and Hermert 2015], <u>lower monitoring incentives</u> [Kara et al. 2011, Wang and Xia 2015]).**

Motivation

- In the aftermath of the crisis, market participants called for greater *transparency* that would facilitate better assessment and pricing of banks' credit risk-taking.

- However, whether transparency can effectively influence banks' behavior and credit practices and alleviate risk-taking in securitized transactions has yet to be empirically explored.

Setting

- Starting from 2013, banks that pledge their ABS as collateral for ECB repo borrowing are required to quarterly report to ECB the structure and performance of the loans in these ABS deals.
- Reporting is standardized and follows a predetermined format that is set by ECB.
- If a bank fails to report, it is barred from ECB repo borrowing.

- Reporting and monitoring of the bank data is administered by an independent entity, the European DataWarehouse (ED).

Hypothesis

Greater transparency will incentivize banks to issue and securitize better quality loans.

Information collection

- The *comprehensive* and *recurring* information collection required by the new standards will result in a greater information set being available to lenders when making credit decisions.
- In turn, this will enhance banks' screening efforts and underwriting standards.

Market discipline

- Detailed loan-level disclosure should assist investors to more accurately assess the riskiness of securitized loan portfolios.
- These disclosures are standardized and will therefore allow investors to compare underwriting standards and securitized loan performance across banks.

Confounding factors

- Over the past few years the ECB – the primary investor in SME loan-backed ABSs – has lowered credit standards in an effort to support highly-leveraged banks (ECB Euro Money Survey [2012])
  - Thus banks may not feel pressed to improve their securitized loan quality.

- The inherent complexity in securitized portfolio structures may deter investors from effectively processing loan-level information.
  - Investors expressed concerns with respect to integrating and utilizing loan-level data to achieve efficient and consistent analysis of ABS deals.

- Greater information collection on loan and borrower performance might not translate to better credit decisions by loan officers.
  - To enhance credit decision quality, banks may also need to invest in training personnel and improving their monitoring and control systems.

Sample

- We focus on small- and medium-sized enterprise (SME) loan securitizations.

Sample selection	
	Observations
Securitized loans originated in 2009Q1-2014Q2 and reported in 2013Q1-2014Q2 from 37 banks	3,845,770
Obscure/Codified data provider bank name	271,203
Missing interest rate, loan amount and/or maturity	448,527
Recording date is after loan maturity date or before loan start date	164,823
Total	**2,961,217**

- 974,717 loans to 606,396 SMEs issued by 37 banks from 2009 to 2014.
- Loans are securitized in 73 ABS deals of banks in Portugal, Spain, France, Belgium, Italy, Germany and The Netherlands.

Transparency and securitized loan quality

	(I)	(II)	(III)	(IV)
	Default=1	*Delinquent amount*	*Number of days in delinquency*	*Loss given default*
Transparency loan	**-0.020*** **	**-0.195***	**-0.042** **	**-0.024** **
	(-2.79)	**(-1.70)**	**(-1.98)**	**(-2.11)**
Interest rate	0.011***	0.305***	0.041***	0.004**
	(9.41)	(7.86)	(7.34)	(2.29)
Secured	0.017***	0.193	0.051**	-0.053*
	(4.30)	(1.05)	(2.39)	(-1.66)
Years to maturity	-0.002	-1.405***	-0.007	-0.038***
	(-0.68)	(-5.41)	(-0.56)	(-4.83)
Securitized loan amount	0.001	0.816***	0.063**	0.013
	(1.14)	(2.60)	(2.10)	(0.68)
Lending relationship	-0.009***	-0.154***	-0.016***	-0.012*
	(-3.20)	(-2.61)	(-2.58)	(-1.79)
Loan purpose FE	YES	YES	YES	YES
Loan type FE	YES	YES	YES	YES
Borrower industry FE	YES	YES	YES	YES
Borrower type FE	YES	YES	YES	YES
Reporting quarter FE	YES	YES	YES	YES
ABS deal FE	YES	YES	YES	YES
N	2,729,323	2,961,217	2,961,217	2,961,217
Pseudo -R^2	14.07%			
Adj.-R^2		4.43%	7.37%	44.21%

Transparency and securitized loan quality

- Are the results driven by time –varying supply of better loans?
- Are the results driven by ECB monitoring of banks?

Transparency and securitized loan quality: Loans originated in 2013Q1-Q2

	(I)	(II)	(III)	(IV)
	Default=1	*Delinquent amount*	*Number of days in delinquency*	*Loss given default*
Transparency loan	**-0.009*** **	**-0.104***	**-0.029*** **	**-0.003**
	(-3.28)	**(-1.92)**	**(-3.14)**	**(-0.70)**
Interest rate	0.004***	0.086***	0.023***	0.003
	(6.04)	(2.59)	(3.26)	(0.40)
Secured	0.003***	0.029	0.003	-0.059
	(2.49)	(0.55)	(0.46)	(-1.16)
Years to maturity	-0.005***	-0.313***	-0.020***	-0.046***
	(-4.22)	(-3.16)	(-3.11)	(-5.54)
Securitized loan amount	0.013	-0.835	0.048	0.090***
	(0.43)	(-1.24)	(3.33)	(3.59)
Lending relationship	-0.004***	-0.066**	-0.006	-0.019
	(-2.61)	(-2.04)	(-0.74)	(-1.18)
Loan purpose FE	YES	YES	YES	YES
Loan type FE	YES	YES	YES	YES
Borrower industry FE	YES	YES	YES	YES
Borrower type FE	YES	YES	YES	YES
Reporting quarter FE	YES	YES	YES	YES
ABS deal FE	YES	YES	YES	YES
N	161,216	167,985	167,985	167,985
Pseudo -R^2	44.30%			
Adj.-R^2		7.55%	5.09%	24.67%

Transparency and securitized loan quality: Banks with ECB repo financing pre 2013

	(I) Default=1	(II) *Delinquent amount*	(III) *Number of days in delinquency*	(IV) *Loss given default*
Transparency loan	**-0.021*** **	**-0.195** **	**-0.043***	**-0.026** **
	(-2.68)	**(-1.96)**	**(-1.87)**	**(-2.00)**
Interest rate	0.011***	0.305***	0.049***	0.037**
	(6.15)	(7.86)	(9.50)	(2.17)
Secured	0.018***	0.193	0.071**	-0.041
	(3.99)	(1.05)	(2.29)	(-0.86)
Years to maturity	-0.001	-1.405***	-0.016	-0.045***
	(-0.43)	(-5.41)	(-1.09)	(-4.09)
Securitized loan amount	0.012	0.816***	0.093**	0.004
	(1.00)	(2.60)	(2.45)	(0.22)
Lending relationship	-0.009***	-0.154***	-0.021***	-0.012
	(-2.69)	(-2.61)	(-2.78)	(-1.35)
Loan purpose FE	YES	YES	YES	YES
Loan type FE	YES	YES	YES	YES
Borrower industry FE	YES	YES	YES	YES
Borrower type FE	YES	YES	YES	YES
Reporting quarter FE	YES	YES	YES	YES
ABS deal FE	YES	YES	YES	YES
N	1,968,479	2,200,333	2,200,333	2,200,333
Pseudo -R^2	15.21%			
Adj.-R^2		5.24%	7.27%	35.69%

Transparency and securitized loan quality: *The role of information collection*

	(I)	(II)	(III)	(IV)
	Default	*Delinquent amount*	*Number of days in delinquency*	*Loss given default*
Transparency loan	-0.027***	-0.188***	-0.054**	-0.023**
	(-2.75)	(-2.86)	(-2.45)	(-2.31)
Information collection	0.414***	1.503***	3.428***	0.901*
	(3.37)	(3.68)	(2.81)	(1.75)
Transparency loan*Information collection	**-0.265*** **	**-1.605** **	**-0.509*** **	**-0.044**
	(-2.68)	**(-2.44)**	**(-2.77)**	**(-1.01)**
Loan characteristics	YES	YES	YES	YES
Loan purpose FE	YES	YES	YES	YES
Loan type FE	YES	YES	YES	YES
Borrower industry FE	YES	YES	YES	YES
Borrower type FE	YES	YES	YES	YES
Reporting quarter FE	YES	YES	YES	YES
ABS deal FE	YES	YES	YES	YES
N	2,729,323	2,961,217	2,961,217	2,961,217
Pseudo-R^2	15.43%			
Adj.-R^2		10.17%	8.23%	42.02%

Transparency and securitized loan quality: *Market discipline*

	(I) Default=1	(II) Delinquent amount	(III) Number of days in delinquency	(IV) Loss given default
Transparency loan	-0.016***	-0.155**	-0.020**	-0.020**
	(-3.28)	(-2.27)	(-1.99)	(-2.18)
Peers' transparency	-0.078	-0.020	-0.027	0.007
	(-1.45)	(-0.43)	(-0.57)	(0.19)
Transparency loan* Peers' transparency	**-0.009****	**-0.021*****	**-0.010****	**-0.005**
	(-2.10)	**(-2.75)**	**(-2.74)**	**(-0.72)**
Loan characteristics	YES	YES	YES	YES
Loan purpose FE	YES	YES	YES	YES
Loan type FE	YES	YES	YES	YES
Borrower industry FE	YES	YES	YES	YES
Borrower type FE	YES	YES	YES	YES
Reporting quarter FE	YES	YES	YES	YES
ABS deal FE	YES	YES	YES	YES
N	2,729,363	2,961,217	2,961,217	2,961,217
Pseudo-R^2	13.83%			
Adj.-R^2		5.89%	7.47%	41.40%

Supplementary analyses

- **Do banks strategically select which ABSs to pledge to the ECB as collateral for repo financing?**
  - A bank may opt to collateralize and report better performing ABSs (i.e., ABSs secured by better quality SME loans), while retaining low quality ABSs on its balance sheet.

- **Do banks sell worse quality ABSs to investors?**

- **Can our findings be attributed to bank misreporting (banks reporting stronger than actual loan performance)?**

Transparency and CDS spreads

	(I) Participating banks		(II) Matched sample	
	1-yr CDS spread	*5-yr CDS spread*	*1-yr CDS spread*	*5-yr CDS spread*
Post-transparency	**-0.005****	**-0.006****	0.003	0.004
	(-2.32)	**(-1.78)**	(0.40)	(0.76)
Reporting Bank*Post-transparency			**-0.005**	**-0.010****
			(-1.32)	**(-2.33)**
Controls	YES	YES	YES	YES
Quarter FE	YES	YES	YES	YES
Bank FE	YES	YES	YES	YES
N	152	152	311	311
Adj.-R^2	81.23%	88.52%	81.70%	86.87%

Transparency and Bank's financial performance

	(I) Participating banks		(II) Matched sample	
	Loan loss provisions	*Loan impairments*	*Loan loss provisions*	*Loan impairments*
Post-transparency	**-0.024****	**-0.017**	0.001	0.010
	(-0.60)	**(-1.10)**	(0.01)	(0.40)
Reporting Bank*Post-transparency			**-0.060****	**-0.044****
			(-2.01)	**(-1.72)**
Controls	YES	YES	YES	YES
Quarter FE	YES	YES	YES	YES
Bank FE	YES	YES	YES	YES
N	280	280	560	560
Adj.-R^2	53.60%	73.60%	66.40%	60.65%

Transparency and prices of un-retained ABSs

	(I) *ABS credit rating at origination*	(II) *ABS price*
Post-transparency	**-1.009***** **(-1.68)**	**0.017**** **(2.34)**
Controls	YES	YES
Bank FE	YES	NO
ABS quarter of origination FE	YES	YES
Trade quarter FE	NO	YES
ABS deal FE	NO	YES
N	155	735
Adj.-R^2	72.44%	69.31%

Transparency and securitized loan quality

- **Are the results driven by EU-wide or national regulatory changes in accounting for securitization risk and reporting securitized transactions?**

- CRD IV: more stringent requirements for banks to directly or indirectly retain higher share of their securitized deals as well as for calculating risk provisions in their securitized positions for capital adequacy compliance purposes (effective date: Jan 1, 2014).
- Regulation 1060/2009/EC: credit rating agencies are required to disclose more details of their standardized credit rating methodology and processes (effective date: Sep 2009).
- Reg ECB/2008/30: banks engaging in securitization activities are required to report to ECB various characteristics on their SPEs' assets and liabilities (effective date: 2010Q3) → Spain adopted more transparent reporting.
- Dutch securitization forum adopting standardized documentation for securitized debt transactions (effective date: Jan 2013).

Transparency, loan performance and the effect of regulatory changes

- Restrict sample to loans originated over the 2011Q1–2013Q3 period: most major regulatory changes had taken place prior to the beginning of this period and CRD IV went into effect after it.
- Exclude loans by Spanish (most transparent national reporting environment) and Dutch banks (concurrent regulatory change).

	(I) *Default*	(II) *Delinquent amount*	(III) *Number of days in delinquency*	(IV) *Loss given default*
Transparency loan	**-0.011*** (-3.48)**	**-0.093 (-1.40)**	**-0.029* (-1.82)**	**-0.013*** (-3.01)**
Loan characteristics	YES	YES	YES	YES
Loan purpose FE	YES	YES	YES	YES
Loan type FE	YES	YES	YES	YES
Borrower industry FE	YES	YES	YES	YES
Borrower type FE	YES	YES	YES	YES
Reporting quarter FE	YES	YES	YES	YES
ABS deal FE	YES	YES	YES	YES
N	1,049,883	1,068,797	1,068,797	1,068,797
Pseudo-R^2	23.71%			
Adj.-R^2		5.45%	7.20%	35.29%

Transparency and securitized loan quality

- **Are the results driven by supervisory pressures and international authorities' scrutiny (e.g., EC, ECB, IMF)?**
  - Spain and Portugal have entered Economic and Financial Assistance Programmes in 2011 and 2012.
  - Italy also received rescue funds from the European Union (i.e., the European Financial Stability Facility) in 2011.
  - EC, IMF and the ECB have been launching regular review missions to these countries to analyze economic, fiscal and financial developments.
  - Banks' financial stability and long-term sustainability became tightly linked to the rescue funds.
  - The improvement in loan quality may be attributed to banks' tightening their lending standards under greater uncertainty over their countries' long-term financial stability (e.g., Becker and Ivashina [2014]).

Transparency, loan quality and the and the effect of international monitoring pressure

	(I) Default=1	(II) Delinquent amount	(III) Number of days in delinquency	(IV) Loss given default
Transparency loan	**-0.012*******	**-0.096****	**-0.035*******	**-0.019***
	(-3.43)	**(-1.99)**	**(-3.18)**	**(-1.79)**
Financial stability	0.003	0.042	0.011	0.002
	(1.19)	(1.38)	(1.03)	(0.48)
Transparency loan* Financial stability	**-0.013****	**-0.011**	**-0.018****	**0.005**
	(-2.24)	**(-1.52)**	**(-1.98)**	**(1.16)**
Interest rate	0.009***	0.162***	0.037***	0.006**
	(7.26)	(9.85)	(6.11)	(2.07)
Secured	0.011***	0.087	0.031*	-0.057
	(2.64)	(1.53)	(1.72)	(-1.36)
Years to maturity	-0.001	-0.450***	-0.008	-0.042***
	(-0.36)	(-3.77)	(-0.69)	(-5.83)
Securitized loan amount	0.007	0.134	0.046**	0.049***
	(1.42)	(0.40)	(2.02)	(3.02)
Lending relationship	-0.007***	-0.043	-0.010	-0.013
	(-2.81)	(-1.28)	(-1.48)	(-1.45)
Loan purpose FE	YES	YES	YES	YES
Loan type FE	YES	YES	YES	YES
Borrower industry FE	YES	YES	YES	YES
Borrower type FE	YES	YES	YES	YES
Reporting quarter FE	YES	YES	YES	YES
ABS deal FE	YES	YES	YES	YES
N	1,282,203	1,482,599	1,482,599	1,482,599
Pseudo -R^2	18.13%			
Adj.-R^2		9.58%	7.23%	41.63%

USC MARSHALL SCHOOL OF BUSINESS

Conclusions

- Loans originated under the transparency regime are of better quality in terms of their default probability, loss given borrower's default and late principal and interest payments.

- Banks with better information collection as well as banks operating in more transparent credit markets experienced greater improvement in loan quality under the transparency regime.

The agency costs and risk taking inherent in securitization can be alleviated by increasing transparency.

- Our results do not imply social welfare benefits, as the economic benefits of transparency may not outweigh its costs (e.g., Dang et al. 2014).

Contribution (1)

- **We add to the literature that explores the agency costs in loan securitization (e.g., Keys et al. 2010, Keys et al. [2012], Benmelech and Dlugosz [2009], Benmelech et al. [2012], Garmaise [2015]).**
  - *By showing that higher transparency can alleviate inefficiencies inherent in structured finance.*

- **We contribute to the literature on the role of transparent reporting in the banking industry (e.g., Beatty and Liao [2014], Granja [2014], Bushman [2014], Acharya and Ryan [2015], Costello et al. [2015]) and on the role of banks' financial reporting quality in alleviating risk-taking (e.g., Nier and Baumann [2006], Bushman and Williams [2015])**
  - *By documenting a direct link between reporting transparency via loan-level disclosures and the quality of banks' lending decisions.*

Contribution (2)

- **We contribute to studies on the role of banks' transparent reporting in credit crises (e.g., Laux and Leuz [2010], Barth and Landsman [2010], Laux [2012], Bischof and Daske [2013], Bischof et al. [2015]).**
  - *By stressing the role of transparency in alleviating risk-taking behavior.*

- **We extend we extend the emerging literature on the role of transparency in improving operational decisions and organizational performance (Christensen, Floyd and Maffett [2014], Buell, Kim and Tsay [2015], Mohan, Buell and John [2015]).**
- *By delineating two important channels through which transparency leads to better credit practices.*
- *We show that both the information collection and the market discipline channels are instrumental in insuring higher loan quality.*

Thank you