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

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# Research question

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

# 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**).

- 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., insufficient screening [**Keys et al. 2010**]**,** insufficient information collection and misreporting [**Garmaise 2015, Demyanyk and Hermert 2015, Loumioti and Vasvari 2016**], lower monitoring incentives [**Kara et al. 2011, Wang and Xia 2015**]).

# Motivation

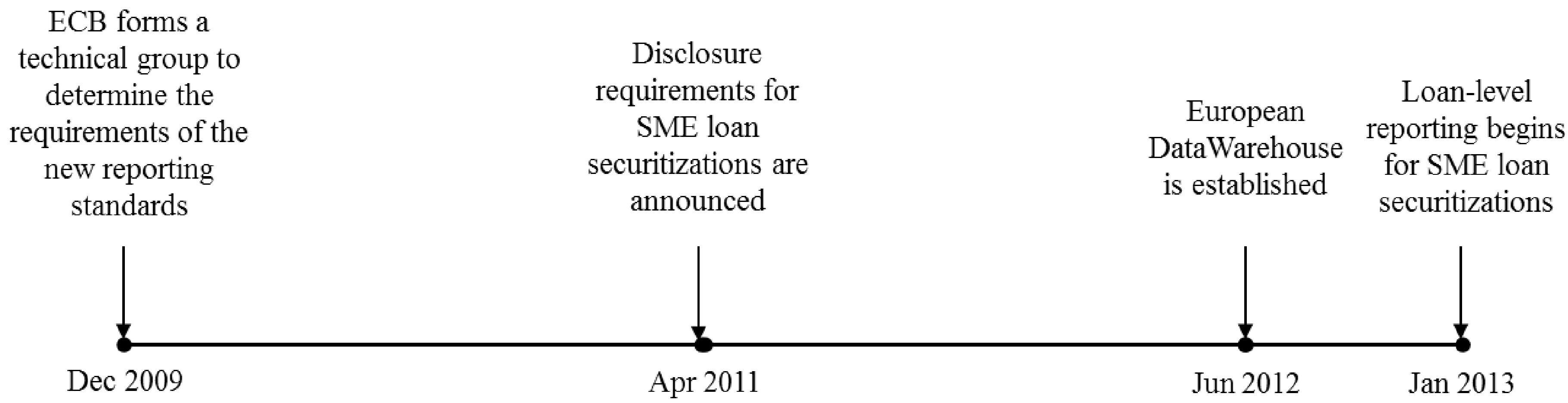
- In the aftermath of the crisis, market participants called for greater ***transparency*** that would facilitate better assessment and pricing of banks' credit risk-taking.

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

# Setting

- Starting from 2013, banks that borrow from the ECB repo facility using their ABS as collateral are required to quarterly report loan level data on ABS portfolio structure and performance to the ECB.
- Reporting is standardized and follows a predetermined format that is set by the ECB.
- Banks that fail to report are barred from ECB repo borrowing.
- Reporting and monitoring of the bank data is administered by an independent entity, the European DataWarehouse (ED).

# Timeline


ECB forms a technical group to determine the requirements of the new reporting standards
Disclosure requirements for SME loan securitizations are announced
European DataWarehouse is established
Loan-level reporting begins for SME loan securitizations
Dec 2009
Apr 2011
Jun 2012
Jan 2013

# 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 will assist investors to more accurately assess the riskiness of securitized loan portfolios and banks' overall credit practices.
- These disclosures are standardized and will therefore allow investors to compare underwriting standards and securitized loan performance across banks.

# Confounding factors

- Banks may not feel pressed to improve their securitized loan quality, since the ECB has lowered credit standards over the past few years (ECB Euro Money Survey [2012]).
- The inherent complexity in securitized loan portfolio structures may deter investors from effectively processing loan-level information.
- To enhance credit decision quality, banks may also need to invest in training personnel and improving their monitoring and control systems. Thus, greater information collection on loan and borrower performance might not translate to better credit decisions by loan officers.

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# Sample

- We focus on small- and medium-sized enterprise (SME) loan securitizations.
  - SME loan-backed ABS represent the second largest securitization market in the Eurozone (AFME data reports 2015).
  - SME loan-backed ABS are primarily retained by banks, i.e. they are an economically important repo collateral.
  - Both SME loan and ABS issuance are relatively stable in the post-crisis period.
  - SMEs are the ‘backbone’ of the EU economy.
- 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.

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# Transparency and securitized loan quality

| | (I) *Default* | (II) *Delinquent amount* | (III) *Number of days in delinquency* | (IV) *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* | *Delinquent amount* | *Number of days in delinquency* | *Loss given default* |
| ***Transparency loan*** | **-0.009*****<br>**(-3.28)** | **-0.104***<br>**(-1.92)** | **-0.029*****<br>**(-3.14)** | **-0.003**<br>**(-0.70)** |
| *Interest rate* | 0.004***<br>(6.04) | 0.086***<br>(2.59) | 0.023***<br>(3.26) | 0.003<br>(0.40) |
| *Secured* | 0.003***<br>(2.49) | 0.029<br>(0.55) | 0.003<br>(0.46) | -0.059<br>(-1.16) |
| *Years to maturity* | -0.005***<br>(-4.22) | -0.313***<br>(-3.16) | -0.020***<br>(-3.11) | -0.046***<br>(-5.54) |
| *Securitized loan amount* | 0.013<br>(0.43) | -0.835<br>(-1.24) | 0.048<br>(3.33) | 0.090***<br>(3.59) |
| *Lending relationship* | -0.004***<br>(-2.61) | -0.066**<br>(-2.04) | -0.006<br>(-0.74) | -0.019<br>(-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% |

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

| | (I) *Default* | (II) *Delinquent amount* | (III) *Number of days in delinquency* | (IV) *Loss given default* |
|---|---|---|---|---|
| ***Transparency loan*** | **-0.021*****<br>**(-2.68)** | **-0.195****<br>**(-1.96)** | **-0.043***<br>**(-1.87)** | **-0.026****<br>**(-2.00)** |
| *Interest rate* | 0.011***<br>(6.15) | 0.305***<br>(7.86) | 0.049***<br>(9.50) | 0.037**<br>(2.17) |
| *Secured* | 0.018***<br>(3.99) | 0.193<br>(1.05) | 0.071**<br>(2.29) | -0.041<br>(-0.86) |
| *Years to maturity* | -0.001<br>(-0.43) | -1.405***<br>(-5.41) | -0.016<br>(-1.09) | -0.045***<br>(-4.09) |
| *Securitized loan amount* | 0.012<br>(1.00) | 0.816***<br>(2.60) | 0.093**<br>(2.45) | 0.004<br>(0.22) |
| *Lending relationship* | -0.009***<br>(-2.69) | -0.154***<br>(-2.61) | -0.021***<br>(-2.78) | -0.012<br>(-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% |

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

| | (I) *Default* | (II) *Delinquent amount* | (III) *Number of days in delinquency* | (IV) *Loss given default* |
|---|---|---|---|---|
| *Transparency loan* | **-0.024***** | **-0.154*** | **-0.061**** | **-0.026*** |
| | **(-3.38)** | **(-1.71)** | **(-2.29)** | **(-1.77)** |
| *Information collection* | -0.886** | -9.843*** | -3.884*** | -0.193 |
| | (-2.71) | (-2.81) | (-3.22) | (-0.45) |
| ***Transparency loan* x *Information collection*** | **-0.324**** | **-2.208*** | **-0.604***** | **0.115** |
| | **(-2.25)** | **(-1.92)** | **(-2.72)** | **(1.31)** |
| *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-$R^2$* | 15.27% | 10.59% | 7.80% | 41.36% |
| *Adj.-$R^2$* | | 10.59% | 7.80% | 41.36% |

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# Transparency and securitized loan quality: *The role of market discipline*

| | (I) Default | (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) |
| *Market discipline* | -0.078 | -0.020 | -0.027 | 0.007 |
| | (-1.45) | (-0.43) | (-0.57) | (0.19) |
| ***Transparency loan* x *Market discipline*** | **-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% |

# Transparent reporting and the performance of banks' credit securities

- Banks may strategically select which loans to securitize or which ABS to pledge as collateral for ECB repo borrowing.
- Banks may opt to securitize their best performing loans, and hold worse performing ones as unsecuritized on their balance sheets. Similarly, they may collateralize and report better performing ABS (i.e., ABS secured by better quality SME loans).

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# 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* x *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 Bond yield to maturity

| | (I) Participating banks | (II) Matched sample |
|---|---|---|
| | *Bond yield to maturity* | |
| ***Post transparency*** | **-0.004**** | **-0.003**** |
| | **(-2.26)** | **(-1.96)** |
| ***Reporting bank×Post transparency*** | | **-0.029***** |
| | | **(-3.10)** |
| Controls | YES | YES |
| Quarter FE | YES | YES |
| Bank FE | YES | YES |
| Obs. | 1,192 | 2,384 |
| Adj.-$R^2$ | 42.54% | 43.50% |

# Transparency, credit risk and channels

| | (I) 1-yr CDS spread | | (II) 5-yr CDS spread | | (III) Bond yield to maturity | |
|---|---|---|---|---|---|---|
| ***Post transparency_ High Information collection*** | **-0.004*** | | **-0.008******* | | **-0.006******* | |
| | **(-1.61)** | | **(-2.78)** | | **(-3.80)** | |
| ***Post transparency_ Low Information collection*** | **-0.003** | | **-0.003****** | | **-0.003****** | |
| | **(-1.00)** | | **(-2.10)** | | **(-2.12)** | |
| ***Post transparency_ High Market discipline*** | | **-0.009******* | | **-0.009******* | | **-0.010******* |
| | | **(-2.55)** | | **(-4.14)** | | **(-5.04)** |
| ***Post transparency_ Low Market discipline*** | | **-0.003*** | | **-0.003****** | | **-0.002** |
| | | **(-1.87)** | | **(-2.08)** | | **(-1.11)** |
| Controls | YES | YES | YES | YES | YES | YES |
| Quarter FE | YES | YES | YES | YES | YES | YES |
| Bank FE | YES | YES | YES | YES | YES | YES |
| Comparison of coefficients: | F-test= 0.41 Prob.= 0.52 | F-test= 7.64 Prob.= 0.02 | F-test= 7.80 Prob.= 0.01 | F-test= 8.16 Prob.= 0.01 | F-test= 4.97 Prob.= 0.05 | F-test= 45.12 Prob.= 0.00 |
| Obs. | 152 | 152 | 152 | 152 | 1,192 | 1,192 |
| Adj.-$R^2$ | 90.01% | 89.46% | 90.44% | 89.03% | 47.79% | 48.46% |

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# Supplemental analyses

- Participating banks' bond bid ask spreads are lower under the transparency regime, suggesting that the ECB initiative offered new valuable insight to banks' investors.
- Our results are robust when:
  - Controlling for concurrent regulatory initiatives.
  - Controlling for international monitoring pressure.
- Our results become weaker or insignificant when we redefine the *Transparency loan* variable based on different points of the disclosure initiative's timeline.

# Conclusions

- Loans originated under the transparency regime are of better quality in terms of loan default probability, delinquencies and loss given default.
- Banks with greater information collection as well as banks operating under stronger market discipline 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.

# 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], Garmaise [2015]).
  - *By showing that higher transparency can alleviate inefficiencies in structured finance.*
- We contribute to the literature on the role of transparent reporting in alleviating risk-taking in the banking industry (e.g., Beatty and Liao [2014], Granja [2014], Bushman [2014], Acharya and Ryan [2015], Costello et al. [2015]).
  - *By documenting a direct link between reporting transparency via loan-level disclosures and the quality of banks' lending decisions.*

# Contribution (2)

- We extend the emerging literature on the role of transparency in improving operational decisions and organizational performance (e.g., 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.*

# THANK YOU