Credit Securitization as Sustainable Finance Channel? – Evidence from Synthetic Capital Relief Trades*

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Securitization can serve different purposes. We employ a novel data set of synthetic transactions aiming at releasing capital, so-called synthetic capital relief trades (SCRTs). Our study examines bank characteristics driving SCRT issuances as well as the impact of these transactions on banks and the loan supply in the economy. *Ex ante*, we find higher total capital ratios not to incentivize banks' SCRT issuances, while non-performing loans ratios have a negative effect. *Ex post*, we observe that SCRT issuances lead to a significant increase in the supply of syndicated green loans, while the overall supply of syndicated loans is not expanded. These green loans are riskier than the existing loan portfolio finally raising banks' non-performing loans ratios. The total capital ratios are not affected by SCRTs, evidencing that capital arbitrage as known from before the Global Financial Crisis seems no longer to be possible. Our results have important policy implications. Banks use SCRTs to eventually increase green lending, which can be seen as one potential remedy to overcome the green finance gap, while adverse effects of SCRTs seem to be prevented.

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1 Introduction

The implementation of worldwide sustainability goals, like the Agenda 2030 formulated by the UN comprising 17 so-called Sustainable Development Goals (United Nations (UN), 2015), requires substantial investments. From a governmental point of view, for example, infrastructure investments are needed to ensure that green electricity reaches the places of need. Businesses will have to limit their use of resources, for instance, by switching to more sustainable production processes and more sustainable products. Purchasing greener cars and insulating homes are just two of the challenges facing households. All of these investments require exceptional amounts of capital. Despite their central role in financing, banks will presumably not be able to provide sufficient funds only with their traditional transformation of savings into loans. It is therefore important to look for alternatives, including the increased use of credit securitization.

Information asymmetry suggests that loans are non-marketable (Diamond, 1984). Nevertheless, loan sales have been established over time, among others in the form of Asset Backed Securities (ABS), and have become a substantial market, not the least due to particular contractual features (Gorton and Pennacchi, 1995). However, securitization is known to have amplified the Global Financial Crisis 2007/2009 (GFC) or have enabled it in the first place (e.g. Mian and Sufi, 2009; Keys et al., 2010; Purnanandam, 2011; Arentsen et al., 2014). Besides incentive problems inducing banks to a so-called originate-to-distribute behavior for loans with bad quality, certain transactions led to capital savings that were not matched by corresponding reductions in actual economic risk. Exploiting such regulatory arbitrage is in principle attractive for all banks. Therefore, considerable tightening of the regulatory framework in the aftermath of the GFC aimed to eliminate negative externalities emitted by securitization (e.g. European Parliament and the Council, 2017; 111th US Congress, 2010), which is one of two important institutional developments.

The second development is that the European Central Bank (ECB) started an extensive liquidity provision in 2011, including the eligibility of ABS as collateral in repurchase

agreements (repos) and buying ABS as part of the ABS Purchase Programme (ABSPP) (European Central Bank (ECB), 2015). Both developments stimulated the segmentation of the European securitization market into two categories of ABS transactions: Liquidity generating transactions and Capital Relief Trades, CRTs henceforth, that are explicitly designed to reduce a bank's capital requirements, along with its risks. This can be achieved in two different ways. By selling receivables in a traditional, i.e. True Sale, securitization transaction, banks transfer the ownership and thus the economic interest of these receivables. Thus, they can additionally raise liquidity that is then available to finance further investments. But risks can also be hedged and capital requirements reduced by the use of derivatives and guarantees. This process is referred to as synthetic securitization (European Parliament and the Council, 2017, Art. 2).

Earlier literature has pointed out that a reduction in risks and capital requirements is just the first step. It may be accompanied with taking new risks when reinvesting. Some banks may end up with more risk (e.g., Franke and Krahnen, 2007; Haensel and Krahnen, 2007; Michalak and Uhde, 2010; Casu et al., 2011; Michalak and Uhde, 2012; González et al., 2016; Bakoush et al., 2020) and, when regulatory arbitrage was not eliminated yet, still a lower capital requirement than before. Similarly, selling certain risks in a synthetic transaction enables banks to assume new risks, for instance via derivative transactions or through investing liquidity obtained elsewhere.

For the new regime, i.e. after the elimination of regulatory arbitrage, CRTs can still be used to adjust risks and capital requirements to desired levels. Thus, it is of particular importance, but has not been analyzed to date, which characteristics ex ante now induce banks since the GFC to utilize CRTs and what effects can be observed ex post. Here we focus on *synthetic* CRTs, SCRTs henceforth, as they are arguably the pure instrument for the purpose of risk and capital management. Some practitioners actually accept only synthetic deals as CRTs (Structured Credit Investor (SCI), 2018). With this paper, we are among the first to analyze SCRTs and shed light on one of the few academically unexplored financial markets. First, we investigate whether banks' engagement in SCRTs

as originator is determined by their capitalization and risk of their loan portfolio *ex ante*. Second, we analyze the *ex post* consequences of originating banks' SCRT activities on various risk related variables as well as (green) loan origination to the economy. For our analysis, we use a commercial dataset, hardly been used in scientific work so far, which explicitly marks SCRTs.

With respect to the *ex ante* determinants, the name SCRT suggests that institutions with more capital tend to conduct SCRTs less frequently. The cost of the transaction may be too high for them compared to the capital savings, or they may have no need for capital relief at all. However, it turns out that there is no significant relation between the total capital ratio (TCR), calculated as the sum of Tier 1 and Tier 2 capital divided by total risk weighted assets (RWA), and banks' likelihood to engage in SCRTs nor the number of SCRTs conducted or the loan volume securitized via SCRTs. Larger banks, presumably due to larger eligible portfolios and less relevant fixed costs of securitization, are significantly more likely to use SCRTs. By contrast, more profitable banks in terms of a higher return on equity (ROE), and also banks with more non-performing loans (NPLs), i.e. higher risk of their loan portfolio, are significantly less likely. Our results with respect to the risk of the loan portfolio are particularly interesting, as we find an opposite relation as one would expect from prior literature analyzing ABS transactions before the GFC. This indicates that stricter regulatory rules since then seem to effectively reduce an originate-to-distribute behavior of bad loans by banks. Apparently, despite their name, SCRTs are not so much an instrument of capital management (any more).

This observation is backed by the lack of significant changes in the TCR of banks after a SCRT *ex post*. What are SCRTs good for if not for capital management? Banks may use the freed capital for more or riskier loans. We find no significant relation between the SCRT activity of banks and the subsequent number or volume of overall (syndicated) corporate loans one and two years later. Interestingly, when focusing only on *green* corporate loans, i.e. credits to finance environmentally-friendly projects with a use-of-proceeds principle, we observe a statistically and economically significant positive effect. This finding is

important for policy-makers and the society as a whole, as it indicates that banks restructure their loan portfolio by switching to green loans with the help of SCRTs. By this we shed light on the green loan market, where existing literature is considerably scarcer than on their capital market counterpart, i.e. green bonds. What is the rational for SCRTs, if total loans remain unchanged, but green loans rise? SCRTs would make sense, if green loans were more risky compared to the existing loans in banks' portfolios. In line, banks' NPL ratios significantly increase two years (but not one year) after SCRT origination or when the volume of SCRTs was larger two years (but not one year) ago. As we provide further evidence that the relation between SCRT activity and increasing NPL ratios two years after SCRTs can be mainly explained by green loan issuance, this explanation is a consistent story. Our findings ex ante and ex post are robust in different specifications, including alternative measurement of banks' loan portfolio risk.

The reason why banks are interested in increasing their green loans may be some social pressure, but this question is beyond our scope here. In a nutshell, the formerly, from some people's view, suspicious SCRTs now turn into an important instrument for financing the implementation of sustainability goals.

With our analysis, we contribute to at least three strands of the existing literature. First, we add to the literature on determinants of securitization issuances (Bannier and Hänsel, 2008; Affinito and Tagliaferri, 2010; Cardone-Riportella et al., 2010; Casu et al., 2013; Farruggio and Uhde, 2015). Second, our study contributes to the literature on the implications of securitizations on banks' accounting and risk figures (Michalak and Uhde, 2012; Nadauld and Weisbach, 2012; Carbo-Valverde and Rodríguez-Fernández, 2015; Kaya and Masetti, 2019) Third, we add to the literature analyzing the issuance of green loans by banks (Kim et al., 2023).

The remainder of this paper is organized as follows: Section 2 summarizes related literature. Section 3 introduces our data sources, and Section 4 the methodology of our analysis. We present our results in Section 5 and test them for robustness in Section 6 before concluding with a summary and an outlook in Section 7.

2 Literature Review and Hypotheses Development

By selling ABS tranches on the capital market or purchasing guarantees covering potential losses from loan defaults, banks can achieve at least three objectives: The management and enhancement of their liquidity, their (regulatory) capital ratio, as well as a reduction of their credit risk position (e.g., Affinito and Tagliaferri, 2010; Loutskina, 2011). In this way, securitization provides an important contribution to bank funding and credit risk diversification, as well as to enhanced bank lending and optimal risk allocation in the economy (e.g., Pennacchi, 1988; Loutskina, 2011). However, securitization is subject to various forms of asymmetric information between the bank that originates the loans and and the investors that buy the securities (e.g. Mian and Sufi, 2009; Keys et al., 2010; Purnanandam, 2011; Arentsen et al., 2014). While the originating bank gains detailed information on the loans and the borrowers in the screening process as well as in the lifetime of the loans when monitoring the borrowers, this information is usually not public.

In our study, we focus on SCRTs, which affect, by construction, the equity and credit risk positions of banks, but do not provide additional liquidity for the bank.[1] In line, we focus on the part of the literature dealing with securitization used for capital and risk management in this section. Building on the findings in the literature, we develop hypotheses, which we empirically test in Section 5. Importantly, since the last two decades, the institutional framework in the ABS market as well as the regulatory requirements for banks significantly differ over time and locations. Especially, there is only little literature on determinants and consequences of ABS transactions focusing on the European ABS market after the GFC and Euro zone debt crises and the related ECB interventions.

[1] Besides SCRTs, there are true sale transactions. By selling the generated ABS tranches in these transactions on the capital market, banks generate liquidity for refinancing. In this context, liquidity generation is a major determinant of those ABS issuances (e.g., Bannier and Hänsel, 2008; Altunbas et al., 2009; Affinito and Tagliaferri, 2010; Cardone-Riportella et al., 2010; Casu et al., 2011; Loutskina, 2011). This is especially prevalent for banks with liquidity constraints or more difficult capital market access (Almazan et al., 2015). The individual transaction construction and potentially supplied guarantees by the issuing bank determine, whether these transactions also provide capital relief by selling these loans out of banks' balance sheets.

Consequently, we present only studies which contain data sets that have a minimum level of comparability to the current situation in the European market.

Focusing on the motives for issuing ABS, securitization enables banks to actively exclude credit risk from their balance sheet (in case of synthetic transactions by buying the respective insurance). The actual use of securitization by the bank management as a tool to manage credit risk is supported in empirical studies as the default risk of the loan portfolio significantly increases banks' activity in the securitization market (e.g., Bannier and Hänsel, 2008; Affinito and Tagliaferri, 2010). In contrast, there are a number of studies, which do not find a significant effect of banks' credit risk position on the probability of a securitization issuance (e.g., Martín-Oliver and Saurina, 2007; Cardone-Riportella et al., 2010; Farruggio and Uhde, 2015). Banks having a high loan portfolio quality and, thus, a low credit default risk on their balance sheet can realize positive reputation in the market when securitizing high-quality portfolios (Ambrose et al., 2005). Closely related to banks' credit default risk as an important determinant of issuing an ABS transaction, banks' equity position is of importance for the issuance decision. For the period prior to the Global Financial Crisis, especially undercapitalized banks are found to be stronger incentivized to issue a securitization transaction in order to relief their equity position (e.g., Affinito and Tagliaferri, 2010; Casu et al., 2013).

Additionally, banks' performance, their efficiency, as well as their size are shown to be factors incentivizing bank management to issue ABS. Haensel and Krahnen (2007) and Cardone-Riportella et al. (2010) find that better performing and more efficient banks securitize their assets more often. As larger banks have more expertise in risk management as well as a higher degree of capital market access, size is positively affecting banks' probability of being an active supplier in the ABS market (e.g., Haensel and Krahnen, 2007; Cardone-Riportella et al., 2010; Farruggio and Uhde, 2015).

As SCRTs mainly affect banks capital position and the risk of the loan portfolio, we derive the following hypothesis H1 for the banks' decision of issuing a SCTR:

- H1: *Ex ante*, banks are more extensively involved in SCRTs if they have

  a) lower capital ratios.

  b) riskier loan portfolios.

After the SCRT transaction has been conducted, significant impacts on banks' equity and NPL ratios as well as on the business activities are identified in former studies. On the individual banks' level, there is mixed evidence on bank risk as a consequence of securitizing a part of the loan portfolio. On the one hand, there is evidence that banks take even greater risks after the issuance than before, which offsets the risk-reducing effect of divestment (e.g., Franke and Krahnen, 2007; Haensel and Krahnen, 2007; Michalak and Uhde, 2010; Casu et al., 2011; Michalak and Uhde, 2012; González et al., 2016; Bakoush et al., 2020). On the other hand, the elimination of loan default risk from bank balance sheet (traditional True Sale transactions) or the assurance against it (synthetic securitization), respectively, relieves banks equity and risk positions and leads to more financial stability (e.g., Jiangli and Pritsker, 2008; Keffala et al., 2020). Focusing on the time dimension of subsequent banks' risk profile, the default risk of large European banks decreases in the year after the securitization issue, whereas it increases again in the following year (Battaglia et al., 2021).

Based on these findings in the literature, we derive our hypothesis H2 for banks' capital and loan risk positions:

- H2: *Ex post*, banks who are more extensively involved in SCRTs

  a) have higher capital ratios.

  b) have less risky loan portfolios in the short run, but with reversion in the long run.

Lastly, we focus on banks' business activities, especially on the loan supply. Of all impacts of securitizations on banks, this focuses especially on the most important role of banks for

the overall economy. For the US market and traditional true-sale securitization transactions, securitization by making available additional liquidity can enable banks to provide more loan financing for individuals and corporates, which is offered at better conditions, i.e. lower interest rates (e.g., Loutskina and Strahan, 2009; Loutskina, 2011; Nadauld and Weisbach, 2012; Kaya and Masetti, 2019). Importantly, the expansion of lending only depends on the total volume of securitized loans, not on their type (Loutskina, 2011; Kaya and Masetti, 2019). A key finding for our study is that, in the European banking sector, the positive effect of securitization on the loan supply is derived through the channel of regulatory capital relief, whereas in the U.S. it arises through the liquidity effect of the conversion of typically illiquid loans to liquid assets (Loutskina, 2011; Carbo-Valverde and Rodríguez-Fernández, 2015; Kaya and Masetti, 2019). Beyond that, there are no studies examining the impact of synthetic CRTs on the banks loan supply in the economy, With respect to the remaining consequences of securitization on bank characteristics, higher profitability of the loan portfolios and a seizing of profitable new business opportunities is shown (Bartov, 1993; Beatty et al., 1995; Karaoglu, 2005; Bakoush et al., 2020).

The studies above predominantly provide evidence on banks' loan supply as a consequence of securitization a number of years ago. Taking into account the current debate about a more climate-friendly economy, banks increasingly focus on financing the transition into a more sustainable economy. Consequently, we also focus on the literature on green financing.

Existing papers investigate the role of banks as providers of credit to firms with different environmental performance. Kacperczyk and Peydró (2022) find that banks committing to a reduction of carbon emissions provide relatively more (less) loan volume to their existing corporate borrowers with low (high) emissions. Houston and Shan (2022) provide evidence that banks tend to give credit to companies with ESG ratings similar to their own. Anginer et al. (2023) show empirically that banks charge, on average, higher interest rates and require stricter covenants and higher collateral from corporate borrowers that have been involved in adverse climate-related events before. Firms with better environmental

performance are generally found to have lower credit risk compared to firms with worse environmental performance (e.g., Barth et al., 2022; Höck et al., 2020; Sautner et al., 2022).

However, Höck et al. (2020) find that this relation holds only for companies with high credit worthiness. Furthermore, empirical results by Beyene et al. (2021) suggest that fossil fuel firms substitute bond financing by bank loans because banks, unlike bond markets, do not price the risk of stranded assets. While the contributions mentioned investigate the role of firm-level environmental performance of (potential) borrowers and the credit risk related in banks' lending decisions, we are more interested in project-level financing via *green loans*. Under green loans, we understand loan contracts where the resulting funds are exclusively to be used for environmental projects by the borrower (use-of-proceeds principle). While the literature on the capital-market counterpart of green loans, i.e. *green bonds* is quite extensive already (e.g., Zerbib, 2019; Tang and Zhang, 2020; Flammer, 2021; Baker et al., 2022), contributions on green loans are rather scarce (recent contribution by e.g. Kim et al., 2023).

Other studies analyze the outcomes of green lending for borrowers and lenders. Zhou et al. (2022) investigate green lending by Chinese banks. They find that a higher share of green credit in the overall credit portfolio is related to lower credit risk for large, state-controlled banks, a positive relation for smaller city and regional banks. Green financing, especially green bonds, are found to lead issuing companies to subsequently improve their environmental ratings and reduce their emissions (Flammer, 2021). Houston and Shan (2022) show empirically that firms improve their ESG performance if they lend from banks with relatively better ESG perfomances and that companies might be affected by disturbances in their lending-relations if they continue with unwanted ESG practices. Kacperczyk and Peydró (2022) find that as a consequence of less credit being allocated to firms with high carbon emissions, these companies do not improve their environmental performance afterwards but instead seemingly engage in greenwashing.

Interrelating the results of the expanded loan supply by banks as a consequence of securitization transactions and the recent results of green lending activities lead us to the following hypothesis H3 on the banks' usage of the capital relief in their loan supply:

- H3: *Ex post*, banks who are more extensively involved in SCRTs

  a) issue more green loans.

  b) issue a higher total number of loans, if the (endogenous) transaction size of the capital relief trade is larger than the adequate lending opportunities in green credits.

3 Data

To assess the research questions empirically, data is retrieved from three main sources. The first source is Fitch Connect. In our analysis, we focus on European banks because here, the role of banks in providing financing to the economy is particularly important. A list of European banks with individual total average assets per bank over USD 50 billion as of December 31, 2021 is accessed. For the banks in the list, a variety of static and dynamic variables is downloaded from Fitch Connect. This includes basic information such as Fitch ID or name as well as annual data from 2012 to 2021 on balance sheet and income statement items and regulatory figures. Accounting measures that are not expressed in USD are converted with each year end's exchange rate. The Total Capital Ratio (TCR) and the Ratio of Non-Performing Loans to Total Loans (NPL) are central for our analysis. Additionally, on the bank level, the Ratio of Deposits to Total Assets (DTA), Ratio of Liquid Assets to Total Assets (LATA), the Logarithm of Total Assets (LN_TA), the Ratio of Gross Loans to Total Assets (LTA), the Ratio of Non-Interest Operating Income to Total Assets (NII) and the Return on Equity (ROE) are relevant controls for our regressions. For robustness checks, the Ratio of Loan Loss Provisions to Total Loans (LLPL) is furthermore relevant. For precise definitions of the variables, please refer to Appendix A.1 (Table A1). Some of the entities included in the Fitch Connect list are erroneously declared as commercial or investment banks even though they do not operate as banks. Examples are central banks, stock exchanges or associations of banks. These entities are manually eliminated from the list. Additionally, all banks from Russia and Turkey are eliminated because their economies and banking systems differ largely from all other countries in various structural and regulatory aspects and could bias the results. A list of the names of all banks finally included in the sample is provided in Appendix A.2 (Table A2) and a list of the number of banks per country in Appendix A.3 (Table A3). A manual, rough overview of the numeric variables indicates that some infrequent and extreme outliers (e.g. TCR values much higher than 100 % which are thus not within an expected value range) might distort regression results. The variables from Fitch Connect

used as explanatory variables in the following analyses are therefore consistently winsorized for each variable to the top and bottom 1 %.

The second data set is provided by Structured Credit Investor (SCI) comprising tranche-level information on CRTs since 2005.[2] It comprises information on approximately 400 CRTs conducted by around 100 originating banks, including information on whether a trade is a synthetic or True Sale transaction. We generate a dummy variable *SCRT* indicating for each bank-year combination, whether the respective bank did at least one SCRT in the respective year (*SCRT = 1*) or not (*SCRT = 0*). Furthermore, we extract from the SCI data set the number of SCRT transactions conducted by each bank in a given year (*SCRT_COUNT*) and the natural logarithm of the total SCRT deal volume for each bank-year combination (*LN_SCRT_VOL*). *LN_SCRT_VOL* is winsorized to the top and bottom 1 %. Analogously, we extract a dummy (*CRT*), count (*CRT_COUNT*) and logarithmized volume (*LN_CRT_VOL*) variable for all, i.e. synthetic, True Sale and unknown dealtype CRTs for later robustness checks.

The third data set is received from Refinitiv LoanConnector Dealscan. It provides detailed information on terms and conditions of over 200,000 worldwide (syndicated) corporate loan transactions. From this data set, we extract four variables for our analysis: The annual number of all corporate loan transactions a respective bank has issued or where it has participated in the underwriting group, respectively, (*LOAN_COUNT*) and the natural logarithm of the corresponding annual credit volume (*LN_LOAN_VOL*). Besides that, we analogously extract the annual number (*GREEN_LOAN_COUNT*) and natural logarithm of the annual volume (*LN_GREEN_LOAN_VOL*) of corporate loans that are labeled as "green loans" within the Dealscan data set for each bank. *LN_LOAN_VOL* and *LN_GREEN_LOAN_VOL* are winsorized to the top and bottom 1 %.

The data used in our analysis is additionally augmented by macro variables. We access country-level data on the annual growth rate of the harmonized consumer price index (CPI)

[2] The classification of a certain transaction as a CRT is not fully transparent to researchers. However, as SCI sells access to this data, it should be its commercial interest to supply a correct and unbiased classification, and we have not come across any peculiar classification.

and the annual growth rate of the real gross domestic product (GDP) via EUROSTAT.[3] Furthermore, interest rate data on the one-year EURIBOR (IR) is provided by Refinitiv.

To combine the information from the Fitch Connect and SCI data set, they are matched based on bank names. For each of the banks included in the SCI data set, the Fitch ID is retrieved by searching for the bank name in the Fitch Connect database. Here, we try to correct missing matches that exist e.g. due to slightly different spellings as well as in rare cases of name changes, mergers and acquisitions. The data is deliberately not consolidated on the group level, because in principle every subsidiary has to fulfill regulatory requirements, e.g. with respect to minimum capital, on an individual basis (European Parliament and the Council, 2013, Art. 6) and thus motivations for and consequences of securitization transactions have to be analyzed accordingly on this level.[4] The variables from Dealscan are matched to the data set by bank names. The macro variables are finally matched according to the country of the banks' respective headquarter.

In total, we obtain a panel data set containing accounting, regulatory, loan origination and securitization information for 225 banks from 23 countries between 2012 and 2021 on an annual basis with up to 2,250 bank-year observations for each variable.

Table 1 provides summary statistics for the data set which is partly winsorized as described above. It contains the number of observations (N), the arithmetic mean (Mean) , the standard deviation (SD) and the 5 %, 50 % and 95 % percentiles of the respective variables.

The dummy variable *SCRT* (*CRT*) has a mean of 0.05 (0.06) which means that in 5 % (6 %) of the bank-year observations, a certain bank has conducted at least one SCRT (CRT) in a given year. The mean value of the variable *SCRT_COUNT* (*CRT_COUNT*) can be interpreted in a way that on average, per bank-year observation 0.08 (0.12) SCRT (CRT) deals are conducted. Re-transforming the unconditional mean of *LN_SCRT_VOL*

[3] We use the GDP and CPI data on the UK for Jersey and on Switzerland for Liechtenstein, because in both cases, no separate numbers are available.

[4] So-called "waivers", where e.g. capital requirements have to be fulfilled only on a group level, are in principle possible under very strict conditions (European Parliament and the Council, 2013, Art. 7 - 10). However, because of these strict requirements, in practice "waivers" are a rare exception.

Table 1: Summary statistics

	N	Mean	SD	5 %	50 %	95 %
Synthetic securitization variables						
SCRT	2,250			0.00	0.00	0.00
SCRT_COUNT	2,250			0.00	0.00	0.00
LN_SCRT_VOL	2,236			0.00	0.00	0.00
Overall securitization variables						
CRT	2,250			0.00	0.00	1.00
CRT_COUNT	2,250			0.00	0.00	1.00
LN_CRT_VOL	2,228			0.00	0.00	4.40
Bank level determinants						
TCR	1,788			12.10	18.40	35.00
NPL	1,790			0.10	2.51	14.96
Bank level controls						
DTA	2,054			5.13	62.32	89.36
LATA	2,094			2.32	18.68	62.11
LN_TA	2,108			10.46	11.60	14.10
LTA	2,076			8.90	59.59	89.25
NII	2,099			-0.05	0.67	2.34
ROE	2,074			-6.88	6.73	19.65
LLPL	1,873			0.06	1.39	8.50
Macro controls						
CPI	2,180			-0.55	1.10	3.00
GDP	2,180			-3.90	1.60	5.65
IR	2,250			-0.50	-0.10	0.56
Green loan origination variables						
GREEN_LOAN_COUNT	2,250			0.00	0.00	2.00
LN_GREEN_LOAN_VOL	2,128			0.00	0.00	0.00
Overall loan origination variables						
LOAN_COUNT	2,250			0.00	0.00	249.00
LN_LOAN_VOL	1,952			0.00	0.00	8.86

Note: This table reports the number of observations (N), the arithmetic mean (Mean), the standard deviation (SD) and the 5 %, 50 % and 95 % percentiles for the relevant variables of the data set. LN_SCRT_VOL, LN_CRT_VOL, TCR, NPL, DTA, LATA, LN_TA, LTA, NII, ROE, LLPL, LN_GREEN_LOAN_VOL and LN_LOAN_VOL are winsorized to the top and bottom 1 %.

(*LN_CRT_VOL*) refers to a deal volume of USD 1.27 (1.35) million per bank and year, on average. The average total capital ratio lies at roughly 21 %. The mean values as well as the percentiles of *NPL*, *DTA*, *LATA*, *LTA*, *NII*, *ROE*, *CPI*, *GDP*, *IR* and *LLPL* are within expected and plausible ranges. The mean (median) of *LN_TA* is 11.86 (11.60). Re-transformed, this value refers to total assets of USD 141 (109) billion. In the sample, a bank has on average provided firms with credit in 40 syndicated transactions per year, as reflected by the mean of *LOAN_COUNT*. Interestingly, for more than 50 % of the bank-year observations, no syndicated corporate credit (that is reported by Dealscan) has been issued. Re-transforming the unconditional mean of *LN_LOAN_VOL* refers to a corporate credit issuance volume of USD 10.70 million per bank and year, on average. This number is substantially higher than for green loans (*LN_GREEN_LOAN_VOL*), where the same procedure leads to a unconditional mean of USD 1.25 million. Last, a word on *GREEN_LOAN_COUNT* is in order. The activity of the banks in our sample in the market for green loans is generally very low, with only 0.46 green loans issued per bank-year observation, on average.

4 Methodology

To investigate the research questions and to test the corresponding hypotheses, different econometric models are employed. These models can be broadly divided into two major categories, the first capturing the ex ante determinants of banks' SCRT activity and the second investigating the ex post consequences of it.

Firstly, to analyze the ex ante determinants, a regression model is set up with a dependent variable *SCRT_VAR* referring to different dimensions of conducting SCRTs. *SCRT_VAR* is replaced either by *SCRT*, *SCRT_COUNT* or *LN_SCRT_VOL*, depending on the model specification. This means that we analyze the determinants of the binary decision whether a SCRT transaction is conducted at all, of the number of SCRT transactions conducted and of the SCRT deal volume. In our ex ante analyses, we are particularly interested in the variables TCR and NPL as potential *Determinants* of SCRTs. We add how strongly a bank's refinancing depends on deposits (*DTA*), bank size (*LN_TA*), the relative importance of the credit business for a bank's business model (*LTA*), liquidity (*LATA*), the non-interest income reliance (*NII*) and profitability (*ROE*) as bank-level as well as *CPI*, *GPD*, and *IR* as macro *Controls*. Because some time is needed to prepare a SCRT and in order to partly encounter potential endogeneity issues, all explanatory variables are lagged by one year. This results in the regression equation

$$SCRT\_VAR_{i,t} = \alpha + \sum_{j=1}^{m} \beta_j \cdot Determinant_{i,j,t-1} + \sum_{k=1}^{n} \gamma_k \cdot Control_{i,k,t-1} + \epsilon_{i,t} \quad (4.1)$$

where α is a constant and ϵ the error term. i is the bank index, j the determinants' index, k the controls' index and t the time index. We control for year- and country-fixed effects. In the specification where *SCRT* is used as dependent variable, a probit model is estimated, whereas in the other specifications OLS regressions are applied. The pairwise correlations between the explanatory variables are generally rather moderate (see Appendix A.4 (Table A4)). Only the absolute pairwise correlation between *LTA* and *LATA*

is comparably high but still low enough to assume that multicollinearity is most likely not a concerning problem in the model.

Secondly, to investigate the ex post consequences, i.e. how capital adequacy and risk measures as well as loan origination are affected by the SCRT activity of a bank τ years ago, we employ the following regression equation:

$$Measure_{i,t} = \alpha + \beta \cdot SCRT\_VAR_{i,t-\tau} + \sum_{k=1}^{n} \gamma_k \cdot Control_{k,i,t} + \epsilon_{i,t} \tag{4.2}$$

Here, the variable $SCRT\_VAR$ is used as an explanatory variable in an OLS regression model. Again, $SCRT\_VAR$ is replaced by either $SCRT$, $SCRT\_COUNT$ or LN_SCRT_VOL. As in equation (4.1), we control for relevant bank and macro variables. In this set of models, the dependent variable ($Measure$) is replaced by the relative changes (in percentage points) of different bank capitalization- and risk-related variables, namely $\Delta\, TCR$, ΔNPL, $\Delta LATA$, and ΔLTA or by variables measuring a bank's loan origination, namely $LOAN\_COUNT$, $GREEN\_LOAN\_COUNT$, LN_LOAN_VOL or $LN\_GREEN\_LOAN\_VOL$. The notation is otherwise equivalent to equation (4.1). Additionally, it is controlled for year- and bank[5] fixed effects.

[5] In the ex ante analysis, we are especially interested in analyzing, which banks from the whole sample securitize SCRTs and how the decision is determined. To do so, it is controlled for country fixed effects to take into account unobserved influences on the SCRT activity that might stem e.g. from different national regulatory peculiarities. Potential bank-related determinants are already largely modeled as variables. However, in the ex post analysis, we want to investigate the consequences of SCRTs for a securitizing bank. Here, bank fixed effects are deliberately employed to control for potential unobserved influences.

5 Empirical Results

In this section, we first present the results of the models investigating the ex ante determinants of banks' SCRT activity. Tables 2 - 4 provide the regression results of equation (4.1) in different specifications with respect to dependent and independent variables.

Table 2: Ex ante analysis - SCRT decision determinants

	Dependent variable: SCRT		
	(M.A1)	(M.A2)	(M.A3)
TCR_{t-1}	−0.015		−0.017
	(0.391)		(0.352)
NPL_{t-1}		−0.050***	−0.051***
		(0.003)	(0.002)
DTA_{t-1}	0.004	0.002	0.002
	(0.404)	(0.614)	(0.653)
$LATA_{t-1}$	−0.001	−0.000	−0.001
	(0.910)	(0.998)	(0.928)
LN_TA_{t-1}	0.856***	0.884***	0.853***
	(0.000)	(0.000)	(0.000)
LTA_{t-1}	0.002	0.006	0.004
	(0.745)	(0.346)	(0.509)
NII_{t-1}	0.056	0.075	0.058
	(0.610)	(0.494)	(0.611)
ROE_{t-1}	−0.016 **	−0.025***	−0.024***
	(0.019)	(0.001)	(0.002)
CPI_{t-1}	−0.052	−0.029	−0.019
	(0.729)	(0.846)	(0.897)
GDP_{t-1}	0.013	0.028	0.027
	(0.757)	(0.526)	(0.555)
IR_{t-1}	−1.060 **	−1.001 **	−1.056 **
	(0.028)	(0.037)	(0.033)
Year FE	Y	Y	Y
Country FE	Y	Y	Y
Obs.	1,355	1,348	1,224
Pseudo R^2	0.294	0.299	0.284

Note: This table reports the coefficients and p-values in parentheses of the probit regression models with the synthetic CRT dummy (SCRT) as dependent variable and the independent variables listed. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

First, *SCRT* is used as dependent variable (Table 2). Each of the models (M.A1) and (M.A2) uses one of the potential determinants of primary interest and the full set of controls. Model (M.A3) uses both determinants and represents our full model. Banks' capitalization expressed by *TCR* is insignificantly related to *SCRT* in the two models where it is included. This is counter-intuitive with respect to the primary target of SCRTs and shows that SCRTs are presumably not intended as a remedy for weekly-capitalized banks. *NPL* is negatively and significantly at a 99 % significance level related to *SCRT* in both relevant models. This means that a lower quality of the loan portfolio, expressed by higher *NPL*, is decreasing the likelihood that a bank engages in SCRTs, which is not what one would expect from the prevailing view in existing literature. In accordance with prior literature, in all models *SCRT* is found to be significantly and positively related to bank size as expressed by *LN_TA*. The relation between *SCRT* and *ROE* is negative and significant. All three models are characterized by a substantial explanatory power as expressed by Pseudo R^2 values of at least 28 %.[6]

Second, *SCRT_COUNT* (Table 3) and, third, *LN_SCRT_VOL* (Table 4) are analyzed as dependent variables in an otherwise equivalent set of model specifications. The relation between *TCR* and *SCRT_COUNT* is insignificant in both relevant model specifications. The same result is found for the relation between *TCR* and *LN_SCRT_VOL*. Thus, a bank's capitalization is found not to be a determinant of the overall decision to conduct SCRTs, the number or total volume of the SCRT deals conducted. Together, this means that H1a is not supported. Interestingly, the relation between *NPL* and *SCRT_COUNT* and *LN_SCRT_VOL* is found to be negative and significant in all relevant specifications at a 99 % or 95 % significance level, respectively. This result is again in contrast to existing literature where especially prior to the Global Financial Crisis, mostly a positive relation is found and leads, together with the evidence from Table 2, to H2b being rejected. One potential explanation for this result might be that banks presumably shy away from realizing the loan losses involved when selling NPL in traditional true sales. Additionally, compared to the time prior to the Global Financial Crisis, substantially more

[6] Because in the present regression model, a probit specification is used, the coefficients cannot be interpreted in the usual way as magnitudes of the effect.

Table 3: Ex ante analysis - SCRT deal count determinants

	Dependent variable: SCRT_COUNT		
	(M.B1)	(M.B2)	(M.B3)
TCR_{t-1}	−0.000		−0.001
	(0.849)		(0.303)
NPL_{t-1}		−0.011***	−0.012***
		(0.006)	(0.005)
DTA_{t-1}	0.001	0.000	0.000
	(0.427)	(0.649)	(0.689)
$LATA_{t-1}$	−0.002	−0.002	−0.003
	(0.183)	(0.371)	(0.237)
LN_TA_{t-1}	0.106***	0.117***	0.127***
	(0.003)	(0.001)	(0.001)
LTA_{t-1}	−0.003 **	−0.002	−0.003 *
	(0.024)	(0.148)	(0.096)
NII_{t-1}	−0.005	−0.002	−0.006
	(0.761)	(0.908)	(0.721)
ROE_{t-1}	0.000	−0.001	−0.001
	(0.930)	(0.239)	(0.336)
CPI_{t-1}	0.005	0.006	0.007
	(0.800)	(0.779)	(0.762)
GDP_{t-1}	−0.002	0.000	0.000
	(0.756)	(0.982)	(0.976)
IR_{t-1}	−0.081	−0.084	−0.090
	(0.206)	(0.196)	(0.183)
Year FE	Y	Y	Y
Country FE	Y	Y	Y
Obs.	1,549	1,534	1,399
Overall R^2	0.113	0.115	0.123

Note: This table reports the coefficients and p-values in parentheses of the OLS regression models with synthetic CRT count (SCRT_COUNT) as dependent variable and the independent variables listed. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

Table 4: Ex ante analysis - SCRT deal volume determinants

	Dependent variable: LN_SCRT_VOL		
	(M.C1)	(M.C2)	(M.C3)
TCR_{t-1}	−0.000		−0.001
	(0.990)		(0.709)
NPL_{t-1}		−0.026 **	−0.028 **
		(0.027)	(0.026)
DTA_{t-1}	0.002	0.001	0.001
	(0.354)	(0.676)	(0.634)
$LATA_{t-1}$	−0.006	−0.004	−0.006
	(0.202)	(0.450)	(0.310)
LN_TA_{t-1}	0.270***	0.301***	0.329***
	(0.001)	(0.000)	(0.000)
LTA_{t-1}	−0.006 *	−0.004	−0.005
	(0.076)	(0.361)	(0.290)
NII_{t-1}	0.002	0.001	−0.001
	(0.978)	(0.989)	(0.983)
ROE_{t-1}	−0.003	−0.006	−0.006
	(0.568)	(0.253)	(0.268)
CPI_{t-1}	−0.016	−0.016	−0.019
	(0.791)	(0.791)	(0.776)
GDP_{t-1}	0.016	0.021	0.022
	(0.559)	(0.433)	(0.441)
IR_{t-1}	−0.335	−0.346	−0.369
	(0.130)	(0.113)	(0.111)
Year FE	Y	Y	Y
Country FE	Y	Y	Y
Obs.	1,536	1,521	1,386
Overall R^2	0.125	0.127	0.134

Note: This table reports the coefficients and p-values in parentheses of the OLS regression models with the logarithmized synthetic CRT volume (LN_SCRT_VOL) as dependent variable and the independent variables listed. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

extensive and stricter regulations on ABS transactions are in place now (e.g. with respect to risk retention European Parliament and the Council, 2017, Art. 6). In that sense, our result might also be interpreted in a way that these attempts to reduce negative externalities are indeed effective. *LN_TA* is again positively and significantly related to both *SCRT_COUNT* and *LN_SCRT_VOL* in all model specifications. *ROE* is not found to be a significant determinant of *SCRT_COUNT* and *LN_SCRT_VOL*.

Next, we present the findings from the models investigating the ex post effects of banks' SCRT activity on capital adequacy, risk and accounting measures as well as loan origination (equation (4.2)). The results are depicted in Tables 5 - 9 and in the Appendix.

Table 5: Ex post analysis - Effects on TCR ratio

	Dependent variable: $\Delta\, TCR$					
	(M.D1)	(M.D2)	(M.D3)	(M.D4)	(M.D5)	(M.D6)
$SCRT_{t-1}$	0.167					
	(0.633)					
$SCRT_{t-2}$		0.063				
		(0.833)				
$SCRT\_COUNT_{t-1}$			0.082			
			(0.379)			
$SCRT\_COUNT_{t-2}$				−0.089		
				(0.509)		
$LN\_SCRT\_VOL_{t-1}$					0.002	
					(0.980)	
$LN\_SCRT\_VOL_{t-2}$						0.053
						(0.414)
NPL_{t-1}	−0.015	0.000	−0.015	−0.000	−0.018	0.004
	(0.638)	(0.990)	(0.627)	(0.991)	(0.582)	(0.896)
$LATA_{t-1}$	0.028	0.026	0.027	0.026	0.026	0.028
	(0.310)	(0.270)	(0.312)	(0.267)	(0.329)	(0.251)
LTA_{t-1}	−0.007	−0.006	−0.007	−0.007	−0.007	−0.006
	(0.720)	(0.751)	(0.715)	(0.734)	(0.696)	(0.771)
DTA_{t-1}	−0.035	−0.026	−0.035	−0.026	−0.036	−0.027
	(0.161)	(0.224)	(0.161)	(0.222)	(0.160)	(0.202)
LN_TA_{t-1}	0.316	0.211	0.319	0.201	0.280	0.220
	(0.542)	(0.706)	(0.538)	(0.720)	(0.589)	(0.697)
NII_{t-1}	−0.081	−0.311	−0.080	−0.301	−0.044	−0.349
	(0.852)	(0.403)	(0.855)	(0.418)	(0.919)	(0.351)
ROE_{t-1}	−0.029**	−0.037**	−0.029**	−0.038**	−0.030**	−0.037**
	(0.044)	(0.025)	(0.044)	(0.025)	(0.039)	(0.027)
CPI_{t-1}	−0.411	−0.205	−0.413	−0.207	−0.409	−0.209
	(0.220)	(0.310)	(0.219)	(0.307)	(0.223)	(0.307)
GDP_{t-1}	0.058	0.091	0.057	0.090	0.059	0.090
	(0.231)	(0.124)	(0.233)	(0.127)	(0.219)	(0.131)
IR_{t-1}	1.581	−0.079	1.584	−0.088	1.560	−0.027
	(0.156)	(0.884)	(0.156)	(0.870)	(0.164)	(0.960)
Year FE	Y	Y	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y	Y	Y
Obs.	1,382	1,244	1,382	1,244	1,372	1,234
Overall R^2	0.087	0.144	0.087	0.144	0.087	0.144

Note: This table reports the coefficients and p-values in parentheses of the OLS regression models with the change in percentage points of the total capital ratio ($\Delta\, TCR$) as dependent variable and the independent variables listed. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

Table 6: Ex post analysis - Effects on NPL ratio

	Dependent variable: $\Delta\, NPL$					
	(M.E1)	(M.E2)	(M.E3)	(M.E4)	(M.E5)	(M.E6)
$SCRT_{t-1}$	0.370					
	(0.328)					
$SCRT_{t-2}$		0.508 *				
		(0.088)				
$SCRT\_COUNT_{t-1}$			0.132			
			(0.219)			
$SCRT\_COUNT_{t-2}$				0.215		
				(0.107)		
$LN\_SCRT\_VOL_{t-1}$					0.096	
					(0.201)	
$LN\_SCRT\_VOL_{t-2}$						0.132 **
						(0.039)
TCR_{t-1}	0.003	0.002	0.003	0.002	0.002	0.002
	(0.783)	(0.865)	(0.780)	(0.854)	(0.814)	(0.833)
$LATA_{t-1}$	−0.002	0.001	−0.003	0.000	−0.001	0.002
	(0.859)	(0.923)	(0.844)	(0.984)	(0.922)	(0.909)
LTA_{t-1}	0.101***	0.109***	0.100***	0.109***	0.101***	0.109***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
DTA_{t-1}	−0.058***	−0.059***	−0.057***	−0.058***	−0.058***	−0.060***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
LN_TA_{t-1}	−0.091	−0.079	−0.083	−0.070	−0.058	−0.068
	(0.843)	(0.879)	(0.856)	(0.893)	(0.900)	(0.896)
NII_{t-1}	−1.417 **	−1.666 **	−1.414 **	−1.675 **	−1.460 **	−1.697 **
	(0.021)	(0.024)	(0.021)	(0.023)	(0.018)	(0.022)
ROE_{t-1}	0.011	0.006	0.011	0.006	0.011	0.007
	(0.548)	(0.829)	(0.542)	(0.825)	(0.537)	(0.806)
CPI_{t-1}	0.209	0.092	0.203	0.095	0.205	0.097
	(0.128)	(0.633)	(0.138)	(0.621)	(0.137)	(0.620)
GDP_{t-1}	−0.100 *	−0.066	−0.101 *	−0.065	−0.099 *	−0.064
	(0.060)	(0.194)	(0.055)	(0.203)	(0.064)	(0.217)
IR_{t-1}	1.246***	0.846 *	1.253***	0.828 *	1.270***	0.858 *
	(0.007)	(0.057)	(0.007)	(0.060)	(0.006)	(0.056)
Year FE	Y	Y	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y	Y	Y
Obs.	1,377	1,238	1,377	1,238	1,367	1,228
Overall R^2	0.212	0.216	0.211	0.216	0.213	0.217

Note: This table reports the coefficients and p-values in parentheses of the OLS regression models with the change in percentage points of the ratio of non-performing loans to total loans ($\Delta\, NPL$) as dependent variable and the independent variables listed. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

Table 5 provides the regression results of implementations of equation (4.2) where ΔTCR is used as dependent variable. ΔTCR is hereby related to $SCRT$ ((M.D1) and (M.D2)), $SCRT\_COUNT$ ((M.D3) and (M.D4)) or LN_SCRT_VOL ((M.D5) and (M.D6)). The explanatory variable capturing banks' SCRT activity is lagged by one period in model specifications (M.D1), (M.D3) and (M.D5) and by two periods in (M.D2), (M.D4) and (M.D6). Control variables are lagged by one period. None of the coefficients capturing the ex post relation between SCRT activity and ΔTCR is significant. Thus, we find no evidence that SCRTs fulfill their seeming target of increasing banks' regulatory capital ratios and thus reject H2a.

In Table 6 we report the results of an analogous setting of regression models as in Table 5 but with ΔNPL as dependent variable. Here, we find that in two ((M.E2) and (M.E6) of the three models where the variables measuring SCRT activity by banks are lagged by two years, the respective coefficients relating them to ΔNPL are positive and significant on a 10 % or 5 % level. In the remaining model ((M.E4), the relation is still almost significant with a p-value of 10.7 %. In all models, where SCRT variables are lagged by one period, the relation between ΔNPL and $SCRT$, $SCRT\_COUNT$ or LN_SCRT_VOL is insignificant. This is particularly interesting, as it shows that SCRT activity seems to be related to subsequent increases in ΔNPL after two, but not after one year. This could be driven by the fact that banks engage in new and more risky credit contracts some time after SCRTs are conducted. This relation is analyzed in more detail later on. In every case, H2b is to be rejected, because we find evidence supporting a risk-enhancing effect of SCRTs.

We furthermore analogously relate the variables capturing SCRT activity to $\Delta LATA$ and ΔLTA. Results can be found in Appendix A.5 (Table A5 and A6). The results show that SCRT activity is not found to significantly drive the two ratios in any of the model specifications.

In summary, the results of our ex post analysis suggest that originating a SCRT does not significantly alter bank capitalization, which is counter-intuitive with respect to the

seeming target of these transactions. No change in liquidity and the share of loans in the banks' balance sheets is furthermore found. Only the share of non-performing loans seems to increase subsequent to SCRT activity. Our findings are in line with banks applying SCRTs to eventually increase their lending, because such a behavior would simultaneously explain the constancy of TCR, $LATA$ and LTA. However, banks seem to replace the loans sold with riskier loans, what we investigate in more detail in the following. With respect to TCR, banks could also use SCRTs to keep target capital ratios rather than increasing TCR.

After having analyzed the results of the implementations of equation (4.2) using ΔTCR, ΔNPL, $\Delta LATA$ and ΔLTA as dependent variable, we present the results of the models investigating the relation between SCRT activity and loan origination in the following. The models depicted in Table 7 relate *SCRT_COUNT* to *GREEN_LOAN_COUNT* ((M.F1) and (M.F2)) and *LN_SCRT_VOL* to *LN_GREEN_LOAN_VOL* ((M.F3) and (M.F4)). Here, the SCRT-related explanatory variables are lagged by 1 ((M.F1) and (M.F3)) or 2 ((M.F2) and (M.F4)) periods, respectively. All coefficients capturing the relation analyzed are positive and significant on a 10 % ((M.F1)), 5 % ((M.F2) and (M.F3)) or 1 % ((M.F4)) significance level. This means, that higher SCRT activity is related to higher subsequent green corporate lending by the securitizing bank and H3a is accepted. Economically, the effect is stronger for the SCRT activity two years ago. One SCRT deal is approximately related to the issuance of one green loan.

As one might argue that the results reported in Table 7 are driven by the fact that banks replace the loans securitized in a SCRT by new loans and issue both conventional and green loans with a equal probability to do so, we further investigate the relation between SCRT activity and overall corporate loan origination. Table 8 reports the results of the models equivalent to those in Table 7 but where *GREEN_LOAN_COUNT* is replaced by *LOAN_COUNT* and *LN_GREEN_LOAN_VOL* by *LN_LOAN_VOL*. None of the coefficients relating SCRT activity and overall loan origination is statistically significant. This means that increased SCRT activity is not generally related to higher *overall* corpo-

Table 7: Ex post analysis - Effects on green syndicated loan issuance

	GREEN_LOAN_COUNT		LN_GREEN_LOAN_VOL	
	(M.F1)	(M.F2)	(M.F3)	(M.F4)
$SCRT\_COUNT_{t-1}$	1.048 *			
	(0.088)			
$SCRT\_COUNT_{t-2}$		1.215 **		
		(0.030)		
$LN\_SCRT\_VOL_{t-1}$			0.198 **	
			(0.015)	
$LN\_SCRT\_VOL_{t-2}$				0.220***
				(0.005)
TCR_{t-1}	0.002	0.007	−0.004	−0.002
	(0.879)	(0.627)	(0.578)	(0.737)
NPL_{t-1}	−0.017	−0.018	−0.031 **	−0.034 **
	(0.533)	(0.538)	(0.023)	(0.040)
$LATA_{t-1}$	−0.006	−0.007	0.008	0.010
	(0.758)	(0.747)	(0.302)	(0.207)
LTA_{t-1}	0.015	0.020	0.003	0.002
	(0.440)	(0.293)	(0.808)	(0.824)
DTA_{t-1}	0.017	0.016	0.004	−0.002
	(0.253)	(0.372)	(0.666)	(0.837)
LN_TA_{t-1}	−0.603	−0.646	−0.365	−0.332
	(0.154)	(0.176)	(0.272)	(0.323)
NII_{t-1}	0.274	0.064	0.060	0.021
	(0.484)	(0.874)	(0.744)	(0.914)
ROE_{t-1}	0.001	0.008	0.001	0.003
	(0.854)	(0.442)	(0.815)	(0.623)
CPI_{t-1}	0.059	0.210	−0.056	−0.038
	(0.472)	(0.120)	(0.142)	(0.482)
GDP_{t-1}	−0.099 **	−0.102 **	−0.011	−0.012
	(0.031)	(0.025)	(0.443)	(0.382)
IR_{t-1}	−1.464***	−1.470***	−0.595***	−0.553***
	(0.006)	(0.009)	(0.002)	(0.002)
Year FE	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y
Obs.	1,399	1,260	1,282	1,143
Overall R^2	0.467	0.516	0.525	0.579

Note: This table reports the coefficients and p-values in parentheses of the OLS regression models with the green loan count (GREEN_LOAN_COUNT) or the logarithmized green loan volume (LN_GREEN_LOAN_VOL) as dependent and the independent variables listed. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

rate loan origination but to higher issuance of corporate *green* loan origination and that we reject H3b.

In our final ex post analysis we investigate, whether the positive relation between SCRT activity and subsequent change in NPL (Table 6) might be driven by the increased issuance of corporate green loans. To do so, we relate ΔNPL to the green loan issuance one and the SCRT activity two years ago. The results can be found in Table 9. Model (M.H1) is an extension of model (M.E4) and (M.H2) of (M.E6). In both models the coefficients relating green loan issuance to ΔNPL are positive and significant on a 10 % and 5 % significance level, respectively. However, the coefficients relating SCRT activity to ΔNPL are both insignificant. Compared to the corresponding coefficients in Table 6, the economic magnitude is now lower and the p-values are higher. In (M.H2), the coefficient looses its significance compared to (M.H6). One might be surprised, why green loans are related to more risk in the credit portfolio. The prevailing view in existing literature (see Section (2) is that higher ESG performance of borrowers is related to lower credit risk. Nevertheless, these findings are not necessarily in contrast to ours. If banks issue green loans, they can still face higher risk of the credit portfolio if they issue these loans to firms with generally higher credit risk, e.g. new borrowers. Futhermore, existing literature analyses either the role of firm-level ESG performance on firm-level credit risk (e.g., Barth et al., 2022; Höck et al., 2020; Sautner et al., 2022) or compares prices of green bonds relative to comparable bonds (e.g., Zerbib, 2019; Baker et al., 2022) but does rarely consider project financing.

Table 8: Ex post analysis - Effects on overall syndicated loan issuance

	LOAN_COUNT		LN_LOAN_VOL	
	(M.G1)	(M.G2)	(M.G3)	(M.G4)
$SCRT\_COUNT_{t-1}$	0.175			
	(0.974)			
$SCRT\_COUNT_{t-2}$		−3.254		
		(0.587)		
$LN\_SCRT\_VOL_{t-1}$			0.008	
			(0.797)	
$LN\_SCRT\_VOL_{t-2}$				0.011
				(0.688)
TCR_{t-1}	−0.054	−0.021	−0.005	−0.007
	(0.762)	(0.916)	(0.429)	(0.364)
NPL_{t-1}	−0.608 *	−0.611	−0.018	−0.019
	(0.085)	(0.155)	(0.221)	(0.186)
$LATA_{t-1}$	−0.163	−0.164	0.011	0.012
	(0.614)	(0.654)	(0.223)	(0.199)
LTA_{t-1}	−0.547 *	−0.579 *	0.003	0.005
	(0.058)	(0.061)	(0.785)	(0.685)
DTA_{t-1}	−0.006	−0.159	−0.002	−0.006
	(0.972)	(0.475)	(0.841)	(0.457)
LN_TA_{t-1}	4.082	3.172	0.226	0.283
	(0.706)	(0.796)	(0.499)	(0.358)
NII_{t-1}	−4.573	−5.350	−0.045	−0.092
	(0.398)	(0.415)	(0.799)	(0.552)
ROE_{t-1}	0.113	0.116	0.002	0.001
	(0.350)	(0.423)	(0.756)	(0.870)
CPI_{t-1}	0.443	2.441	0.056	0.072
	(0.782)	(0.187)	(0.239)	(0.299)
GDP_{t-1}	1.259**	1.227 *	0.015	0.018
	(0.049)	(0.062)	(0.395)	(0.313)
IR_{t-1}	−7.722	15.776**	0.183	0.639***
	(0.219)	(0.026)	(0.367)	(0.004)
Year FE	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y
Obs.	1,399	1,260	1,208	1,081
Overall R^2	0.950	0.953	0.936	0.941

Note: This table reports the coefficients and p-values in parentheses of the OLS regression models with the loan count (LOAN_COUNT) or the logarithmized loan volume (LN_LOAN_VOL) as dependent and the independent variables listed. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

Table 9: Ex post analysis - Effects on NPL ratio - Securitization vs. green loan issuance

	Dependent variable: $\Delta\, NPL$	
	(M.H1)	(M.H2)
$\text{GREEN\_LOAN\_COUNT}_{t-1}$	0.055 *	
	(0.067)	
SCRT_COUNT_{t-2}	0.152	
	(0.278)	
$\text{LN\_GREEN\_LOAN\_VOL}_{t-1}$		0.261***
		(0.000)
LN_SCRT_VOL_{t-2}		0.117
		(0.227)
TCR_{t-1}	0.002	0.001
	(0.891)	(0.944)
LATA_{t-1}	0.000	−0.002
	(0.995)	(0.913)
LTA_{t-1}	0.107***	0.110***
	(0.001)	(0.001)
DTA_{t-1}	−0.060***	−0.070***
	(0.001)	(0.001)
LN_TA_{t-1}	−0.051	0.222
	(0.922)	(0.715)
NII_{t-1}	−1.671 **	−1.677 **
	(0.023)	(0.026)
ROE_{t-1}	0.006	0.007
	(0.822)	(0.828)
CPI_{t-1}	0.094	0.080
	(0.625)	(0.696)
GDP_{t-1}	−0.058	−0.054
	(0.263)	(0.306)
IR_{t-1}	0.893 **	1.122 **
	(0.047)	(0.025)
Year FE	Y	Y
Bank FE	Y	Y
Obs.	1,238	1,142
Overall R^2	0.218	0.235

Note: This table reports the coefficients and p-values in parentheses of the OLS regression models with the change in percentage points of the ratio of non-performing loans to total loans ($\Delta\, NPL$) as dependent variable and the independent variables listed in an extended setting. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

6 Robustness

6.1 Alternative Measurement of Credit Risk

One potential concern could be that our results rely on the measurement of bank's loan portfolio default risk by *NPL*. We test our findings on the ex ante relationship between *NPL* and SCRT activity of banks for robustness by replacing *NPL* by *LLPL*. We do this for each of the full models in Tables 2 - 4, i.e. model (M.A3), (M.B3) and (M.C3). *LLPL* can be seen as an alternative measure of a bank's loan portfolio risk. Results can be found in Appendix A.6 (Table A7). In all three models, the relationship between *LLPL* and *SCRT*, *SCRT_COUNT* and *LN_SCRT_VOL*, respectively, is negative and significant on a 1 % significance level. This supports the robustness of our findings above.

Second, we test the findings of the ex post relationship between SCRT activity and the loan portfolio quality. In Section 5 we find banks to have increased NPL ratios subsequent to SCRTs. We check this finding for robustness, by replacing ΔNPL with $\Delta LLPL$. The corresponding results can be found in Appendix A.6 (Table A8). In five out of six model specifications, the relation between SCRT activity and $\Delta LLPL$ is positive and significant at least on a 10 % significance level, supporting our findings described above. However, the economic magnitude of the effect is generally lower.

Third, we check the results, that the rise in ΔNPL can rather be explained by green loan issuance than by securitization activity, for robustness by replacing ΔNPL by $\Delta LLPL$. The corresponding results can be found in Appendix A.6 (Table A9). Again, the coefficients relating green loan issuance to $\Delta LLPL$ are positive and significant, whereas the SCRT-related variables have in both cases no significant explanatory power and higher p-values than in models (M.APP.D4) and (M.APP.D6).

All in all, our results are robust to replacing NPL by $LLPL$ as an alternative measure of loan portfolio risk.

6.2 Alternative Scope of Capital Relief Trades

We deliberately only include *synthetic* CRTs in our main models in order to conduct our analyses using a very clearly defined instrument. In this section, we test to which extent our results hold when re-performing our analyses using all CRT transactions, including synthetic and True Sale CRTs as well as CRTs of unknown deal types.

We start by re-performing the full models in Tables 2 - 4, i.e. model (M.A3), (M.B3) and (M.C3), from our ex ante analyses. The results can be found in in Appendix A.6 (Table A10). As in our main analyses, NPL and the variables reflecting CRT activity by banks are negatively and significantly related in all specifications with similar magnitudes and significance levels. Interestingly, the likelihood to engage in CRTs (but neither their count nor volume) is now negatively and significantly related to banks capitalization, measured by TCR, indicating that capitalization might drive a bank's decision to engage in True Sale CRTs.

Looking at the ex post relation between CRT activity and ΔTCR, we find the results from our main analysis qualitatively unchanged, i.e. we find no significant relation (Appendix A.6 (Table A11)). Again, CRT activity is related to higher subsequent ΔNPL A.6 (Table A12)). When using all forms of CRTs, the relation is significant in four out of six model specifications with roughly similar economic magnitude but the relation is more present one instead of two years after the CRT occurrence. In unreported results we can additionally show that $\Delta LATA$ and ΔLTA are, as in our main analysis, not significantly related to CRT activity.

Our results with respect to loan origination do not change qualitatively when including all CRTs, not only SCRTs, in our regressions. Again, CRT activty if found to ex post increase only green (Appendix A.6 (Table A13)) but not overall (Appendix A.6 (Table A14)) corporate loan issuance. Again, increases in ΔNPL subsequent to CRTs are driven by green loan issuance rather than CRT activity itself (Appendix A.6 (Table A15)). The coefficients relating CRT_COUNT or LN_CRT_VOL to ΔNPL are in both specifications of lower

economic magnitude, have smaller p-values and are statistically not significant when green loan issuance is included as explanatory variable (models (M.APP.K1) and (M.APP.K2)) compared to the model specification without green loan issuance as independent variable (models (M.APP.H4) and (M.APP.H6)).

All in all, we find our results to be robust to a broader scope of CRTs were synthetic and True Sale deals as well as transaction of unknown deal type are included.

7 Conclusions

The accomplishment of global climate-related goals hinges on a number of factors, including sustainable real investments of firms as well as individuals' expenditures. Bank loans are often needed to finance these outlays and therefore sufficiently capitalized and liquid banks are a must-have. For some time now, securitization has been an important instrument for transforming otherwise illiquid loans into liquid securities and for allocating risks. Banks can use this tool to adjust their risk exposure, to receive liquidity, or to improve their regulatory capital ratios. Either way securitizations widen banks' scope for further lending and thereby contribute to growth, economic wealth, and the transformation to a greener, sustainable economy. In the run-up to the financial crisis, securitization was discredited due to the abuse of the instrument. Information asymmetries were exploited and incentives misaligned, leading to a breakdown of the respective markets. In the aftermath of the crisis and despite regulatory improvements closing former loopholes, up to now, these markets have not recovered as desired given their commercial relevance. Securitization is only rarely considered as potential remedy to overcome the green finance gap. Against this background it is important to understand more deeply determinants and effects of different variants of this instrument.

This empirical study focuses on transactions hitherto under-researched from an academic perspective. We employ a novel data set on synthetic capital relief trades (SCRTs) aimed at releasing capital. *Ex ante*, we relate banks' use of SCRTs as originators to their capitalization and loan portfolio risk. One would expect that banks with a lower total capital ratio should be more likely to conduct a SCRT. However, we find no significant relation here, indicating that banks originating SCRTs follow other motives than improving regulatory capital ratios. It also seems plausible, looking at literature on securitization prior to the GFC, that banks with higher NPL ratios will use SCRTs more intensively to reduce their credit risk and to improve their capital ratios. But the opposite seems to be true. The NPL ratio ex ante is negatively and significantly related to the likelihood of a SCRT as well as to the number and volumes of SCRTs. This observation entails important political

messages. First, if it is intended to stabilize a banking system by removing NPLs from the banking sector, this will not work via SCRTs as long as these are voluntary. Second, this result indicates that under today's stricter regulatory regime, banks do not follow the originate-to-distribute behavior for bad loans anymore.

Ex post, we analyze the consequences of originating banks' SCRT activities on various risk related variables as well as on their lending. We find that SCRT activity leaves the liquid assets over total assets, loans over total assets, and total capital ratios unchanged, the last observation supporting our view that SCRT origination is seemingly not used for capital management. However, NPL ratios are ex post positively related to banks' previous SCRT activity, especially two years after the transactions. These results suggest that banks, by and large, use SCRTs not to increase their lending, but to shift towards riskier loans, because such a behavior would simultaneously explain the findings on all four of the previously mentioned variables. Next, we conduct a deeper analysis. We find that banks subsequently to SCRTs seem to particularly increase the issuance of *green* corporate loans, but not of overall corporate loans. Moreover, we provide evidence that this issuance of green loans explains the relation between SCRT activity and increasing NPL ratios two years after SCRT origination. Finally, we show robustness of our findings ex ante and ex post for different specifications, including alternative measures of banks' loan portfolio risk.

From a political perspective, our findings are overall good news. SCRTs are a way to sell credit-related bank risks to the capital market, and thereby are able to help financing environmentally-friendly firm projects and thus to partly alleviate the green finance gap. However, regulators should keep an eye on increased risks of banks' loan portfolios as a potential consequence.

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A Appendix

A.1 Variables Description

Table A1: Variable description

Variable	Description	Unit
Synthetic securitization variables		
SCRT	Dummy variable indicating whether the respective bank conducted a *synthetic* CRT as originator in the respective year (1) or not (0).	0/1
SCRT_COUNT	Number of *synthetic* CRT deals the respective bank conducted as originator in the respective year.	units
LN_SCRT_VOL	(Natural) logarithm of the total *synthetic* CRT deal volume the respective bank conducted as originator in the respective year.	ln(mio. USD)
Overall securitization variables		
CRT	Dummy variable indicating whether the respective bank conducted a CRT as originator in the respective year (1) or not (0).	0/1
CRT_COUNT	Number of CRT deals the respective bank conducted as originator in the respective year.	units
LN_CRT_VOL	(Natural) logarithm of the total CRT deal volume the respective bank conducted as originator in the respective year.	ln(mio. USD)
Bank level determinants		
TCR	Total capital ratio calculated as the sum of Tier 1 and Tier 2 capital divided by total risk weighted assets (RWA).	%
NPL	Share of non-performing loans in total loans.	%
Bank level controls		
DTA	Total deposits divided by total assets.	%
LATA	Liquid assets divided by total assets.	%
LN_TA	(Natural) logarithm of the total assets.	ln(mio. USD)
LTA	Total gross loans divided by total assets.	%

NII	Total non-interest operating income divided by total assets.	%
ROE	Return on equity, i.e. net income divided by average common equity.	%
LLPL	Loan loss provisions divided by total loans.	%
Macro controls		
CPI	Annual growth rate of the harmonized consumer price index in the country of a bank's headquarter.	%
GDP	Annual growth rate of real gross domestic product in the country of a bank's headquarter.	%
IR	Interest rate measured by 1-year EURIBOR.	%
Green loan origination variables		
GREEN_LOAN_COUNT	Number of green syndicated loans where the respective bank has participated in the underwriting group in the respective year.	units
LN_GREEN_LOAN_COUNT	(Natural) logarithm of the total contributed credit volume of the respective bank in the underwriting groups of green syndicated loans where it has participated in the respective year.	ln(mio. USD)
Overall loan origination variables		
LOAN_COUNT	Number of overall syndicated loans where the respective bank has participated in the underwriting group in the respective year.	units
LN_LOAN_VOL	(Natural) logarithm of the total contributed credit volume of the respective bank in the underwriting groups of overall syndicated loans where it has participated in the respective year.	ln(mio. USD)

Note: This table reports the names, descriptions and units of the variables used in the analysis.

A.2 List of Banks in the Sample

Table A2: List of banks in the sample

No.	Bank
1	Aareal Bank AG
2	ABANCA Corporacion Bancaria, S.A.
3	ABH Financial Limited
4	ABN AMRO Bank N.V.
5	Accord Mortgages Limited
6	AIB Group Public Limited Company
7	Allied Irish Banks, plc
8	Alpha Bank S.A.
9	Alpha Services and Holdings S.A.
10	Argenta Bank- en Verzekeringsgroep NV
11	Argenta Spaarbank N.V.
12	Banca Mediolanum S.p.A.
13	Banca Monte dei Paschi di Siena S.p.A.
14	Banca Nazionale del Lavoro S.P.A.
15	Banca Popolare di Sondrio - Societa per Azioni
16	Banco Bilbao Vizcaya Argentaria, S.A.
17	Banco BPM S.p.A.
18	Banco Comercial Portugues, S.A.
19	Banco de Sabadell, S.A.
20	Banco Santander Totta S.A.
21	Banco Santander, S.A.
22	BancoPosta RFC
23	Bank Julius Baer & Co. AG
24	Bank of Ireland
25	Bank of Ireland Group plc
26	Bank of Scotland Plc
27	Bankia S.A.
28	Bankinter, S.A.
29	Banque Cantonale Vaudoise
30	Banque et Caisse d'Epargne de l'Etat
31	Banque Federative du Credit Mutuel S.A.
32	Barclays Bank Ireland Plc
33	Barclays Bank plc
34	Barclays Bank UK PLC

35 Barclays plc
36 Basler Kantonalbank
37 Bausparkasse Schwaebisch Hall AG
38 BAWAG Group AG
39 BAWAG P.S.K.
40 Bayerische Landesbank
41 Belfius Bank SA/NV
42 Berliner Sparkasse
43 BFA, Tenedora de Acciones, S.A.U.
44 BGL BNP Paribas
45 BNG Bank N.V.
46 BNP Paribas Fortis SA/NV
47 BNP Paribas Personal Finance
48 BNP Paribas S.A.
49 BNP Paribas Securities Services
50 BPCE S.A.
51 BPER Banca S.p.A.
52 Bpifrance
53 BRED Banque Populaire
54 CA Consumer Finance
55 Caceis Bank
56 CACEIS SA
57 Caisse d'Epargne et de Prevoyance de Rhone Alpes
58 Caisse d'Epargne et de Prevoyance Ile-de-France
59 Caisse Federale de Credit Mutuel
60 Caisse Francaise de Financement Local
61 Caisse Regionale de Credit Agricole Mutuel de Paris et d'Ile de France
62 Caixa Geral de Depositos, S.A.
63 CaixaBank, S.A.
64 Ceska Sporitelna, a.s.
65 Ceskoslovenska Obchodni Banka a.s. (CSOB)
66 Citibank Holdings Ireland Limited
67 Citigroup Global Markets Europe AG
68 Clydesdale Bank PLC
69 Commerzbank AG
70 Compagnie de Financement Foncier
71 Cooperatieve Rabobank U.A.
72 Coventry Building Society

73	Credit Agricole
74	Credit Agricole Corporate and Investment Bank
75	Credit Agricole Italia S.p.A.
76	Credit Agricole S.A.
77	Credit du Nord S.A.
78	Credit Foncier de France S.A.
79	Credit Industriel et Commercial
80	Credit Mutuel
81	Credit Mutuel Alliance Federale
82	Credit Mutuel Arkea
83	Credit Suisse (Schweiz) AG
84	Credit Suisse AG
85	Credit Suisse Group AG
86	Credit Suisse International
87	Credito Emiliano Holding SpA
88	Credito Emiliano S.p.A.
89	Danske Bank A/S
90	de Volksbank N.V.
91	DekaBank Deutsche Girozentrale
92	Deutsche Apotheker- und Aerztebank eG
93	Deutsche Bank AG
94	Deutsche Kreditbank AG
95	Deutsche Pfandbriefbank AG
96	Dexia Credit Local S.A.
97	Dexia S.A.
98	DNB ASA
99	DNB Bank ASA
100	DZ BANK AG Deutsche Zentral-Genossenschaftsbank
101	DZ HYP AG
102	Erste Group Bank AG
103	Erwerbsgesellschaft der S-Finanzgruppe mbH & Co KG
104	Eurobank Ergasias Services and Holdings S.A.
105	Eurobank S.A.
106	Fideuram - Intesa Sanpaolo Private Banking
107	FMS Wertmanagement AoeR
108	Groupe BPCE
109	Hamburger Sparkasse AG (Haspa)
110	HASPA Finanzholding

111 HBOS plc
112 HSBC Bank plc
113 HSBC Continental Europe S.A.
114 HSBC Holdings plc
115 HSBC UK Bank plc
116 Ibercaja Banco, S.A.
117 Iccrea Banca S.P.A.
118 ING Bank N.V.
119 ING Belgium NV/SA
120 ING Groep N.V.
121 ING Holding Deutschland GmbH
122 ING-DiBa AG
123 Intesa Sanpaolo S.p.A.
124 Investec Group
125 J.P. Morgan Capital Holdings Limited
126 J.P. Morgan SE
127 Julius Baer Group Ltd
128 Jyske Bank A/S
129 KBC Bank NV
130 KBC Group NV
131 KfW
132 Komercni Banka, a.s.
133 Kommunalbanken AS
134 Kutxabank, S.A.
135 La Banque Postale S.A.
136 Landesbank Baden-Wuerttemberg
137 Landesbank Hessen-Thueringen Girozentrale
138 Landeskreditbank Baden-Wuerttemberg - Foerderbank
139 Landwirtschaftliche Rentenbank
140 Le Credit Lyonnais
141 LGT Group Foundation
142 Liberbank S.A.
143 Lloyds Bank Corporate Markets plc
144 Lloyds Bank plc
145 Lloyds Banking Group plc
146 Luzerner Kantonalbank AG
147 Lyonnaise de Banque
148 Mediobanca - Banca di Credito Finanziario SPA

149 Migrosbank AG
150 Muenchener Hypothekenbank eG
151 Municipality Finance PLC
152 National Bank of Greece S.A.
153 National Westminster Bank Plc
154 Nationwide Building Society
155 Natixis S.A.
156 NatWest Group plc
157 NatWest Markets Plc
158 Nederlandse Waterschapsbank N.V.
159 Nomura International plc
160 Norddeutsche Landesbank Girozentrale
161 Nordea Bank Abp
162 Nordea Hypotek AB (publ)
163 Nordea Kredit Realkreditaktieselskab
164 Novo Banco, S.A.
165 NRW.BANK
166 Nykredit A/S
167 Nykredit Realkredit A/S
168 OP Corporate Bank Plc
169 OP Financial Group
170 OTP Bank Plc.
171 Pfandbriefbank schweizerischer Hypothekarinstitute
172 Pfandbriefzentrale der schweizerischen Kantonalbanken AG
173 Pictet Group
174 Piraeus Bank S.A.
175 Piraeus Financial Holdings S.A.
176 Postfinance AG
177 Powszechna Kasa Oszczednosci Bank Polski S.A.
178 PPF Group N.V.
179 Raiffeisen Bank International AG
180 Raiffeisen Group
181 Raiffeisen Schweiz Genossenschaft
182 Raiffeisenlandesbank Oberoesterreich Aktiengesellschaft
183 RBC Europe Limited
184 RCI Banque S.A.
185 Realkredit Danmark A/S
186 Royal Bank of Scotland International (Holdings) Ltd.

187 Royal Bank of Scotland International Limited
188 Santander Bank Polska S.A.
189 Santander Consumer Bank AG
190 Santander Consumer Finance, S.A.
191 Santander Totta, SGPS, S.A.
192 Santander UK Group Holdings plc
193 Santander UK plc
194 SBAB Bank AB (publ)
195 Skandinaviska Enskilda Banken AB (publ)
196 Societe Generale International Limited
197 Societe Generale S.A.
198 Stadshypotek AB (publ)
199 Standard Chartered Bank
200 Standard Chartered PLC
201 State Street Bank International GmbH
202 State Street Europe Holdings Germany S.a.r.l. & Co. KG
203 Storebrand Group
204 Svenska Handelsbanken AB
205 Swedbank AB
206 Swedbank Mortgage AB
207 Swiss Post Ltd
208 The Mortgage Works (UK) plc
209 The Royal Bank of Scotland Public Limited Company
210 Totalkredit A/S
211 TSB Bank plc
212 TSB Banking Group PLC
213 UBS AG
214 UBS Europe SE
215 UBS Group AG
216 UBS Switzerland AG
217 Unicaja Banco, S.A.
218 UniCredit Bank AG
219 UniCredit Bank Austria AG
220 UniCredit S.p.A.
221 Unione di Banche Italiane S.p.A.
222 Volkswagen Bank GmbH
223 Volkswagen Leasing GmbH
224 Yorkshire Building Society

225	Zuercher Kantonalbank

Note: This table reports all banks in the sample in alphabetic order.

A.3 Banks by Country

Table A3: Number of banks in the sample per country

Country	Number of banks in the sample
GERMANY	35
FRANCE	34
UNITED KINGDOM	33
SWITZERLAND	20
ITALY	16
SPAIN	13
BELGIUM	8
NETHERLANDS	8
GREECE	7
DENMARK	7
SWEDEN	7
AUSTRIA	6
IRELAND	6
PORTUGAL	5
NORWAY	4
FINLAND	4
CZECH REPUBLIC	3
JERSEY	2
LUXEMBOURG	2
POLAND	2
LIECHTENSTEIN	1
HUNGARY	1
CYPRUS	1

Note: This table reports the number of banks in the sample by country.

A.4 Correlation of Key Variables

Table A4: Correlation matrix of key variables

	TCR	NPL	DTA	LATA	LN_TA	LTA	NII	ROE	CPI	GDP	IR
TCR	1.000										
NPL	-0.231	1.000									
DTA	-0.193	0.152	1.000								
LATA	0.028	-0.251	-0.191	1.000							
LN_TA	-0.035	-0.071	-0.300	0.232	1.000						
LTA	0.055	0.175	0.243	-0.781	-0.328	1.000					
NII	-0.213	0.041	0.241	0.228	-0.101	-0.332	1.000				
ROE	0.130	-0.329	0.049	0.023	-0.103	0.030	0.227	1.000			
CPI	0.045	-0.168	-0.052	0.018	0.104	-0.033	-0.099	0.054	1.000		
GDP	0.071	-0.091	0.032	0.055	-0.042	-0.000	-0.011	0.137	0.188	1.000	
IR	-0.176	0.136	-0.122	-0.056	0.032	0.034	-0.026	-0.062	0.028	-0.037	1.000

Note: This table reports the pairwise pearson correlation coefficients of the sample variables listed.

A.5 Additional Regression Results

Table A5: Ex post analysis - Effects on LATA ratio

	Dependent variable: $\Delta\ LATA$					
	(M.APP.A1)	(M.APP.A2)	(M.APP.A3)	(M.APP.A4)	(M.APP.A5)	(M.APP.A6)
$SCRT_{t-1}$	−0.384					
	(0.640)					
$SCRT_{t-2}$		0.301				
		(0.670)				
$SCRT\_COUNT_{t-1}$			0.090			
			(0.750)			
$SCRT\_COUNT_{t-2}$				0.078		
				(0.757)		
$LN\_SCRT\_VOL_{t-1}$					−0.071	
					(0.705)	
$LN\_SCRT\_VOL_{t-2}$						0.107
						(0.433)
TCR_{t-1}	0.007	0.004	0.007	0.005	0.006	0.006
	(0.729)	(0.854)	(0.723)	(0.852)	(0.745)	(0.807)
NPL_{t-1}	−0.079	−0.155***	−0.077	−0.156***	−0.082	−0.155***
	(0.151)	(0.007)	(0.161)	(0.006)	(0.134)	(0.007)
LTA_{t-1}	0.146***	0.207***	0.148***	0.208***	0.149***	0.207***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
DTA_{t-1}	−0.018	−0.067	−0.019	−0.067	−0.018	−0.068
	(0.638)	(0.236)	(0.624)	(0.238)	(0.628)	(0.231)
LN_TA_{t-1}	0.975	0.254	0.965	0.256	0.907	0.216
	(0.525)	(0.890)	(0.528)	(0.890)	(0.557)	(0.908)
NII_{t-1}	1.279	1.418	1.278	1.418	1.331	1.407
	(0.213)	(0.253)	(0.214)	(0.253)	(0.197)	(0.260)
ROE_{t-1}	−0.014	−0.004	−0.014	−0.004	−0.016	−0.005
	(0.486)	(0.874)	(0.487)	(0.873)	(0.430)	(0.849)
CPI_{t-1}	−0.609 **	−0.676 *	−0.601 **	−0.674 *	−0.614 **	−0.686 *
	(0.013)	(0.056)	(0.014)	(0.056)	(0.012)	(0.054)
GDP_{t-1}	−0.157	−0.240	−0.153	−0.240	−0.156	−0.243
	(0.261)	(0.110)	(0.272)	(0.111)	(0.266)	(0.108)
IR_{t-1}	0.627	−1.348	0.616	−1.360	0.582	−1.316
	(0.485)	(0.174)	(0.492)	(0.168)	(0.518)	(0.192)
Year FE	Y	Y	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y	Y	Y
Obs.	1,394	1,255	1,394	1,255	1,384	1,245
Overall R^2	0.255	0.261	0.254	0.261	0.256	0.262

Note: This table reports the coefficients and p-values in parentheses of the OLS regression models with the change in percentage points of the ratio of liquid assets to total assets ($\Delta\ LATA$) as dependent variable and the independent variables listed. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

Table A6: Ex post analysis - Effects on LTA ratio

	Dependent variable: $\Delta\, LTA$					
	(M.APP.B1)	(M.APP.B2)	(M.APP.B3)	(M.APP.B4)	(M.APP.B5)	(M.APP.B6)
$SCRT_{t-1}$	0.379					
	(0.602)					
$SCRT_{t-2}$		−0.259				
		(0.738)				
$SCRT\_COUNT_{t-1}$			−0.106			
			(0.807)			
$SCRT\_COUNT_{t-2}$				0.097		
				(0.710)		
$LN\_SCRT\_VOL_{t-1}$					0.067	
					(0.676)	
$LN\_SCRT\_VOL_{t-2}$						−0.005
						(0.977)
TCR_{t-1}	0.039	0.035	0.039	0.035	0.039	0.036
	(0.244)	(0.329)	(0.243)	(0.332)	(0.247)	(0.326)
NPL_{t-1}	0.001	0.066	−0.002	0.068	0.002	0.070
	(0.992)	(0.414)	(0.978)	(0.399)	(0.982)	(0.391)
$LATA_{t-1}$	0.116***	0.142***	0.117***	0.142***	0.117***	0.144***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)
DTA_{t-1}	−0.043	−0.053	−0.043	−0.053	−0.043	−0.055
	(0.172)	(0.133)	(0.176)	(0.134)	(0.172)	(0.121)
LN_TA_{t-1}	0.800	0.177	0.809	0.193	0.868	0.211
	(0.542)	(0.892)	(0.537)	(0.883)	(0.511)	(0.872)
NII_{t-1}	−0.595	−0.949	−0.594	−0.963	−0.635	−0.980
	(0.443)	(0.260)	(0.443)	(0.252)	(0.415)	(0.246)
ROE_{t-1}	0.014	0.008	0.014	0.008	0.016	0.009
	(0.656)	(0.839)	(0.654)	(0.831)	(0.629)	(0.810)
CPI_{t-1}	0.274	0.465	0.264	0.466	0.275	0.482
	(0.188)	(0.111)	(0.201)	(0.111)	(0.186)	(0.101)
GDP_{t-1}	0.022	−0.061	0.019	−0.058	0.019	−0.059
	(0.794)	(0.533)	(0.830)	(0.548)	(0.828)	(0.547)
IR_{t-1}	1.319	0.327	1.329	0.348	1.366	0.397
	(0.123)	(0.713)	(0.121)	(0.695)	(0.111)	(0.660)
Year FE	Y	Y	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y	Y	Y
Obs.	1,394	1,255	1,394	1,255	1,384	1,245
Overall R^2	0.268	0.261	0.268	0.261	0.270	0.261

Note: This table reports the coefficients and p-values in parentheses of the OLS regression models with the change in percentage points of the ratio of total loans to total assets ($\Delta\, LTA$) as dependent variable and the independent variables listed. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

A.6 Robustness

Table A7: Ex ante analysis - Robustness - LLPL

	SCRT	SCRT_COUNT	LN_SCRT_VOL
	(M.APP.C1)	(M.APP.C2)	(M.APP.C3)
TCR_{t-1}	−0.018	−0.001	−0.001
	(0.333)	(0.286)	(0.677)
$LLPL_{t-1}$	−0.117***	−0.022 **	−0.052 **
	(0.002)	(0.012)	(0.028)
DTA_{t-1}	0.003	0.001	0.002
	(0.477)	(0.584)	(0.518)
$LATA_{t-1}$	−0.000	−0.003	−0.006
	(0.971)	(0.203)	(0.270)
LN_TA_{t-1}	0.882***	0.122 ***	0.319 ***
	(0.000)	(0.001)	(0.000)
LTA_{t-1}	0.004	−0.003 *	−0.005
	(0.564)	(0.077)	(0.259)
NII_{t-1}	0.040	−0.002	0.010
	(0.719)	(0.909)	(0.879)
ROE_{t-1}	−0.028***	−0.002	−0.007
	(0.001)	(0.236)	(0.207)
CPI_{t-1}	−0.006	0.007	−0.016
	(0.968)	(0.751)	(0.805)
GDP_{t-1}	0.028	−0.000	0.021
	(0.555)	(0.957)	(0.474)
IR_{t-1}	−1.086 **	−0.087	−0.355
	(0.032)	(0.194)	(0.121)
Year FE	Y	Y	Y
Country FE	Y	Y	Y
Obs.	1,259	1,446	1,433
Pseudo R^2	0.292		
Overall R^2		0.121	0.133

Note: This table reports the coefficients and p-values in parentheses of the probit (M.APP.C1) and OLS regression models (M.APP.C2 and M.APP.C3) with the synthetic CRT dummy (SCRT), the synthetic CRT count (SCRT_COUNT) or the logarithmized synthetic CRT volume (LN_SCRT_VOL) as dependent variable and the independent variables listed. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

Table A8: Ex post analysis - Robustness - Effects on LLPL ratio

	Dependent variable: $\Delta\ LLPL$					
	(M.APP.D1)	(M.APP.D2)	(M.APP.D3)	(M.APP.D4)	(M.APP.D5)	(M.APP.D6)
$SCRT_{t-1}$	0.261 *					
	(0.098)					
$SCRT_{t-2}$		0.315 *				
		(0.069)				
$SCRT\_COUNT_{t-1}$			0.111 **			
			(0.028)			
$SCRT\_COUNT_{t-2}$				0.080		
				(0.260)		
$LN\_SCRT\_VOL_{t-1}$					0.073 **	
					(0.013)	
$LN\_SCRT\_VOL_{t-2}$						0.066 *
						(0.090)
TCR_{t-1}	0.001	0.002	0.001	0.002	0.001	0.002
	(0.755)	(0.689)	(0.749)	(0.675)	(0.795)	(0.661)
$LATA_{t-1}$	0.007	0.006	0.007	0.006	0.007	0.007
	(0.257)	(0.401)	(0.271)	(0.456)	(0.209)	(0.381)
LTA_{t-1}	0.048***	0.050***	0.047***	0.049***	0.048***	0.050***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
DTA_{t-1}	−0.028***	−0.028***	−0.028***	−0.028***	−0.028***	−0.029***
	(0.001)	(0.003)	(0.001)	(0.004)	(0.001)	(0.003)
LN_TA_{t-1}	−0.055	−0.137	−0.050	−0.137	−0.035	−0.134
	(0.826)	(0.640)	(0.842)	(0.641)	(0.891)	(0.649)
NII_{t-1}	−0.761 **	−0.893 **	−0.759 **	−0.895 **	−0.783 **	−0.903 **
	(0.016)	(0.017)	(0.017)	(0.018)	(0.014)	(0.017)
ROE_{t-1}	0.015 *	0.013	0.015 *	0.013	0.015 *	0.014
	(0.081)	(0.303)	(0.079)	(0.302)	(0.080)	(0.297)
CPI_{t-1}	0.092	0.035	0.089	0.036	0.089	0.039
	(0.233)	(0.741)	(0.251)	(0.733)	(0.252)	(0.717)
GDP_{t-1}	−0.071***	−0.046 *	−0.072***	−0.046 *	−0.070***	−0.046 *
	(0.005)	(0.060)	(0.004)	(0.061)	(0.005)	(0.066)
IR_{t-1}	0.830***	0.570 **	0.834***	0.556 **	0.848***	0.572 **
	(0.001)	(0.020)	(0.001)	(0.022)	(0.001)	(0.021)
Year FE	Y	Y	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y	Y	Y
Obs.	1,427	1,283	1,427	1,283	1,417	1,273
Overall R^2	0.217	0.228	0.217	0.227	0.219	0.228

Note: This table reports the coefficients and p-values in parentheses of the OLS regression models with the change in percentage points of the ratio of loan loss provisions to total loans ($\Delta\ LLPL$) as dependent variable and the independent variables listed. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

Table A9: Ex post analysis - Robustness - Effects on LLPL ratio - Securitization vs. green loan issuance

	Dependent variable: $\Delta\, LLPL$	
	(M.APP.E1)	(M.APP.E2)
GREEN_LOAN_COUNT$_{t-1}$	0.027 *	
	(0.081)	
SCRT_COUNT$_{t-2}$	0.049	
	(0.502)	
LN_GREEN_LOAN_VOL$_{t-1}$		0.124 ***
		(0.003)
LN_SCRT_VOL$_{t-2}$		0.069
		(0.127)
TCR$_{t-1}$	0.002	0.001
	(0.711)	(0.854)
LATA$_{t-1}$	0.006	0.007
	(0.469)	(0.311)
LTA$_{t-1}$	0.049***	0.050 ***
	(0.001)	(0.001)
DTA$_{t-1}$	−0.028***	−0.033 ***
	(0.003)	(0.002)
LN_TA$_{t-1}$	−0.127	−0.023
	(0.667)	(0.950)
NII$_{t-1}$	−0.893 **	−0.908 **
	(0.017)	(0.018)
ROE$_{t-1}$	0.014	0.011
	(0.300)	(0.457)
CPI$_{t-1}$	0.035	0.036
	(0.739)	(0.749)
GDP$_{t-1}$	−0.043 *	−0.041
	(0.089)	(0.109)
IR$_{t-1}$	0.586 **	0.716 ***
	(0.017)	(0.009)
Year FE	Y	Y
Bank FE	Y	Y
Obs.	1,283	1,187
Overall R^2	0.229	0.247

Note: This table reports the coefficients and p-values in parentheses of the OLS regression models with the change in percentage points of the ratio of loan loss provisions to total loans ($\Delta\, LLPL$) as dependent variable and the independent variables listed in an extended setting. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

Table A10: Ex ante analysis - Robustness - All CRTs

	CRT	CRT_COUNT	LN_CRT_VOL
	(M.APP.F1)	(M.APP.F2)	(M.APP.F3)
TCR_{t-1}	−0.042 *	−0.001	−0.004
	(0.076)	(0.368)	(0.273)
NPL_{t-1}	−0.038 **	−0.017 ***	−0.042 ***
	(0.029)	(0.002)	(0.008)
DTA_{t-1}	−0.003	0.001	0.003
	(0.539)	(0.314)	(0.284)
$LATA_{t-1}$	−0.006	−0.004	−0.009
	(0.421)	(0.198)	(0.198)
LN_TA_{t-1}	0.844***	0.197 ***	0.417 ***
	(0.000)	(0.001)	(0.000)
LTA_{t-1}	0.004	−0.003	−0.007
	(0.515)	(0.133)	(0.164)
NII_{t-1}	0.019	−0.008	−0.045
	(0.867)	(0.747)	(0.543)
ROE_{t-1}	−0.017 **	−0.002	−0.005
	(0.018)	(0.297)	(0.348)
CPI_{t-1}	−0.009	0.002	−0.016
	(0.950)	(0.932)	(0.828)
GDP_{t-1}	0.004	−0.008	0.019
	(0.930)	(0.470)	(0.536)
IR_{t-1}	−1.380***	−0.161 *	−0.470 *
	(0.005)	(0.052)	(0.062)
Year FE	Y	Y	Y
Country FE	Y	Y	Y
Obs.	1,224	1,399	1,380
Pseudo R^2	0.282		
Overall R^2		0.142	0.145

Note: This table reports the coefficients and p-values in parentheses of the probit (M.APP.F1) and OLS regression models (M.APP.F2 and M.APP.F3) with the CRT dummy (CRT), the CRT count (CRT_COUNT) or the logarithmized CRT volume (LN_CRT_VOL) as dependent variable and the independent variables listed. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

Table A11: Ex post analysis - Robustness - Effects on TCR ratio - All CRTs

	Dependent variable: $\Delta\, TCR$					
	(M.APP.G1)	(M.APP.G2)	(M.APP.G3)	(M.APP.G4)	(M.APP.G5)	(M.APP.G6)
CRT_{t-1}	0.106					
	(0.734)					
CRT_{t-2}		0.033				
		(0.902)				
CRT_COUNT_{t-1}			0.062			
			(0.414)			
CRT_COUNT_{t-2}				−0.039		
				(0.723)		
$LN\_CRT\_VOL_{t-1}$					0.012	
					(0.852)	
$LN\_CRT\_VOL_{t-2}$						0.048
						(0.333)
NPL_{t-1}	−0.015	0.000	−0.016	−0.000	−0.016	0.004
	(0.630)	(0.995)	(0.624)	(0.999)	(0.622)	(0.882)
$LATA_{t-1}$	0.028	0.026	0.027	0.026	0.027	0.027
	(0.309)	(0.270)	(0.311)	(0.269)	(0.321)	(0.269)
LTA_{t-1}	−0.007	−0.006	−0.007	−0.007	−0.007	−0.006
	(0.713)	(0.750)	(0.711)	(0.742)	(0.727)	(0.754)
DTA_{t-1}	−0.035	−0.026	−0.035	−0.026	−0.036	−0.027
	(0.162)	(0.224)	(0.161)	(0.224)	(0.156)	(0.200)
LN_TA_{t-1}	0.317	0.210	0.319	0.206	0.267	0.215
	(0.541)	(0.707)	(0.538)	(0.713)	(0.606)	(0.705)
NII_{t-1}	−0.080	−0.310	−0.080	−0.305	−0.044	−0.342
	(0.853)	(0.404)	(0.854)	(0.412)	(0.919)	(0.362)
ROE_{t-1}	−0.030 **	−0.037 **	−0.029 **	−0.038 **	−0.030 **	−0.037 **
	(0.044)	(0.025)	(0.045)	(0.024)	(0.040)	(0.026)
CPI_{t-1}	−0.412	−0.205	−0.413	−0.207	−0.410	−0.228
	(0.218)	(0.310)	(0.219)	(0.307)	(0.223)	(0.256)
GDP_{t-1}	0.057	0.091	0.058	0.090	0.059	0.095
	(0.235)	(0.125)	(0.230)	(0.128)	(0.213)	(0.111)
IR_{t-1}	1.586	−0.081	1.587	−0.084	1.552	−0.041
	(0.156)	(0.881)	(0.156)	(0.876)	(0.168)	(0.940)
Year FE	Y	Y	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y	Y	Y
Obs.	1,382	1,244	1,382	1,244	1,366	1,229
Overall R^2	0.087	0.144	0.087	0.144	0.087	0.144

Note: This table reports the coefficients and p-values in parentheses of the OLS regression models with the change in percentage points of the total capital ratio ($\Delta\, TCR$) as dependent variable and the independent variables listed. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

Table A12: Ex post analysis - Robustness - Effects on NPL ratio - All CRTs

	Dependent variable: $\Delta\, NPL$					
	(M.APP.H1)	(M.APP.H2)	(M.APP.H3)	(M.APP.H4)	(M.APP.H5)	(M.APP.H6)
CRT_{t-1}	0.578 *					
	(0.051)					
CRT_{t-2}		0.445				
		(0.115)				
CRT_COUNT_{t-1}			0.128 *			
			(0.082)			
CRT_COUNT_{t-2}				0.138		
				(0.159)		
$LN\_CRT\_VOL_{t-1}$					0.125 **	
					(0.022)	
$LN\_CRT\_VOL_{t-2}$						0.129 **
						(0.023)
TCR_{t-1}	0.003	0.002	0.003	0.002	0.002	0.002
	(0.780)	(0.857)	(0.780)	(0.851)	(0.813)	(0.840)
$LATA_{t-1}$	−0.002	0.002	−0.003	0.000	−0.001	0.001
	(0.875)	(0.916)	(0.850)	(0.980)	(0.933)	(0.922)
LTA_{t-1}	0.101***	0.109***	0.100***	0.109***	0.102***	0.109***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
DTA_{t-1}	−0.059***	−0.059***	−0.058***	−0.059***	−0.059***	−0.061***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
LN_TA_{t-1}	−0.099	−0.083	−0.083	−0.077	−0.066	−0.089
	(0.829)	(0.872)	(0.856)	(0.882)	(0.886)	(0.864)
NII_{t-1}	−1.416 **	−1.663 **	−1.415 **	−1.670 **	−1.473 **	−1.708 **
	(0.021)	(0.024)	(0.021)	(0.024)	(0.017)	(0.021)
ROE_{t-1}	0.011	0.006	0.011	0.006	0.011	0.007
	(0.567)	(0.832)	(0.537)	(0.822)	(0.554)	(0.807)
CPI_{t-1}	0.211	0.094	0.204	0.096	0.205	0.098
	(0.123)	(0.624)	(0.137)	(0.618)	(0.136)	(0.616)
GDP_{t-1}	−0.099 *	−0.066	−0.100 *	−0.064	−0.099 *	−0.061
	(0.061)	(0.197)	(0.058)	(0.209)	(0.063)	(0.235)
IR_{t-1}	1.260***	0.841 *	1.258***	0.820 *	1.292***	0.835 *
	(0.007)	(0.058)	(0.007)	(0.062)	(0.006)	(0.062)
Year FE	Y	Y	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y	Y	Y
Obs.	1,377	1,238	1,377	1,238	1,361	1,223
Overall R^2	0.213	0.216	0.212	0.215	0.215	0.217

Note: This table reports the coefficients and p-values in parentheses of the OLS regression models with the change in percentage points of the ratio of non-performing loans to total loans ($\Delta\, NPL$) as dependent variable and the independent variables listed. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

Table A13: Ex post analysis - Robustness - Effects on green syndicated loan issuance - All CRTs

	GREEN_LOAN_COUNT		LN_GREEN_LOAN_VOL	
	(M.APP.I1)	(M.APP.I2)	(M.APP.I3)	(M.APP.I4)
CRT_COUNT_{t-1}	1.179 **			
	(0.036)			
CRT_COUNT_{t-2}		1.040 **		
		(0.018)		
$LN\_CRT\_VOL_{t-1}$			0.241***	
			(0.000)	
$LN\_CRT\_VOL_{t-2}$				0.227***
				(0.004)
TCR_{t-1}	0.002	0.007	−0.004	−0.002
	(0.862)	(0.608)	(0.581)	(0.737)
NPL_{t-1}	−0.016	−0.021	−0.027 **	−0.031 *
	(0.534)	(0.474)	(0.040)	(0.052)
$LATA_{t-1}$	−0.005	−0.007	0.008	0.009
	(0.783)	(0.738)	(0.285)	(0.246)
LTA_{t-1}	0.015	0.019	0.003	0.002
	(0.411)	(0.311)	(0.788)	(0.834)
DTA_{t-1}	0.014	0.014	0.004	−0.002
	(0.324)	(0.402)	(0.725)	(0.864)
LN_TA_{t-1}	−0.605	−0.659	−0.373	−0.347
	(0.144)	(0.158)	(0.259)	(0.299)
NII_{t-1}	0.266	0.072	0.048	0.001
	(0.482)	(0.859)	(0.766)	(0.994)
ROE_{t-1}	0.003	0.009	0.001	0.003
	(0.697)	(0.373)	(0.900)	(0.604)
CPI_{t-1}	0.064	0.224	−0.060	−0.035
	(0.448)	(0.105)	(0.118)	(0.478)
GDP_{t-1}	−0.087 **	−0.092 **	−0.011	−0.009
	(0.047)	(0.040)	(0.447)	(0.536)
IR_{t-1}	−1.414***	−1.501***	−0.539***	−0.560***
	(0.006)	(0.008)	(0.002)	(0.001)
Year FE	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y
Obs.	1,399	1,260	1,276	1,138
Overall R^2	0.486	0.520	0.536	0.584

Note: This table reports the coefficients and p-values in parentheses of the OLS regression models with the green loan count (GREEN_LOAN_COUNT) or the logarithmized green loan volume (LN_GREEN_LOAN_VOL) as dependent and the independent variables listed. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

Table A14: Ex post analysis - Robustness - Effects on overall syndicated loan issuance - All CRTs

	LOAN_COUNT		LN_LOAN_VOL	
	(M.APP.J1)	(M.APP.J2)	(M.APP.J3)	(M.APP.J4)
CRT_COUNT_{t-1}	−0.798			
	(0.895)			
CRT_COUNT_{t-2}		−3.236		
		(0.573)		
$LN\_CRT\_VOL_{t-1}$			0.001	
			(0.975)	
$LN\_CRT\_VOL_{t-2}$				0.016
				(0.577)
TCR_{t-1}	−0.055	−0.022	−0.005	−0.007
	(0.757)	(0.912)	(0.425)	(0.361)
NPL_{t-1}	−0.613 *	−0.604	−0.019	−0.018
	(0.084)	(0.154)	(0.203)	(0.199)
$LATA_{t-1}$	−0.162	−0.162	0.011	0.012
	(0.617)	(0.659)	(0.232)	(0.198)
LTA_{t-1}	−0.551 *	−0.578 *	0.002	0.005
	(0.060)	(0.060)	(0.816)	(0.692)
DTA_{t-1}	−0.003	−0.155	−0.002	−0.006
	(0.988)	(0.483)	(0.844)	(0.470)
LN_TA_{t-1}	4.090	3.160	0.230	0.287
	(0.706)	(0.797)	(0.492)	(0.354)
NII_{t-1}	−4.577	−5.322	−0.033	−0.095
	(0.399)	(0.414)	(0.851)	(0.541)
ROE_{t-1}	0.112	0.112	0.002	0.001
	(0.350)	(0.444)	(0.759)	(0.848)
CPI_{t-1}	0.430	2.390	0.057	0.072
	(0.789)	(0.200)	(0.238)	(0.300)
GDP_{t-1}	1.243 *	1.191 *	0.015	0.019
	(0.053)	(0.067)	(0.393)	(0.300)
IR_{t-1}	−7.743	15.840 **	0.181	0.642***
	(0.211)	(0.025)	(0.376)	(0.004)
Year FE	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y
Obs.	1,399	1,260	1,202	1,076
Overall R^2	0.950	0.953	0.935	0.941

Note: This table reports the coefficients and p-values in parentheses of the OLS regression models with the loan count (LOAN_COUNT) or the logarithmized loan volume (LN_LOAN_VOL) as dependent and the independent variables listed. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.

Table A15: Ex post analysis - Robustness - Effects on NPL ratio - Securitization vs. green loan issuance - All CRTs

	Dependent variable: $\Delta\, NPL$	
	(M.APP.K1)	(M.APP.K2)
$\text{GREEN\_LOAN\_COUNT}_{t-1}$	0.057 *	
	(0.061)	
CRT_COUNT_{t-2}	0.081	
	(0.459)	
$\text{LN\_GREEN\_LOAN\_VOL}_{t-1}$		0.253***
		(0.001)
LN_CRT_VOL_{t-2}		0.119
		(0.143)
TCR_{t-1}	0.002	0.001
	(0.890)	(0.956)
LATA_{t-1}	0.000	−0.003
	(0.990)	(0.866)
LTA_{t-1}	0.107***	0.109***
	(0.001)	(0.001)
DTA_{t-1}	−0.060***	−0.070***
	(0.001)	(0.001)
LN_TA_{t-1}	−0.058	0.203
	(0.912)	(0.737)
NII_{t-1}	−1.665 **	−1.673 **
	(0.023)	(0.026)
ROE_{t-1}	0.006	0.007
	(0.821)	(0.828)
CPI_{t-1}	0.094	0.080
	(0.625)	(0.697)
GDP_{t-1}	−0.058	−0.052
	(0.265)	(0.331)
IR_{t-1}	0.888 **	1.093 **
	(0.047)	(0.029)
Year FE	Y	Y
Bank FE	Y	Y
Obs.	1,238	1,137
Overall R^2	0.218	0.235

Note: This table reports the coefficients and p-values in parentheses of the OLS regression models with the change in percentage points of the ratio of non-performing loans to total loans ($\Delta\, NPL$) as dependent variable and the independent variables listed in an extended setting. Standard errors used are robust. ***, ** and * denote significance levels of 1, 5 and 10 %, respectively.