

Securitization, Financial Stability and Macroeconomy: Evidence from an international panel¹

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This draft: June 2014

Abstract: Using an international panel, we analyze the relationship between securitization and macroeconomic performance. Our findings suggest that economic growth is negatively related to country-level securitization activities, even before the 2007-2009 financial crisis. We explain this finding by securitization spurring consumption at the expense of capital formation. Consistent with this we find that the negative association only holds for securitization of consumer loans and that securitizing banks reduce corporate lending and increase consumer lending. We do not find an association between securitization and various measures of financial stability. Our results indicate that securitization can have important macroeconomic implications, which depend on the type of assets securitized. Policy makers should take this into account if they intend to revive securitization.

Keywords: Securitization, economic growth, financial stability

JEL Classification: O16; O40; G01; G21

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1. Introduction

“Over-the-counter (OTC) derivatives have come to play an exceptionally important role in our financial system and in our economy. These instruments allow users to unbundle risks and allocate them to the investors most willing and able to assume them. A growing number of financial and nonfinancial institutions have embraced derivatives as an integral part of their risk capital allocation and profit maximization. In particular, the profitability of derivative products has been a major factor in the significant gain in the finance industry's share of American corporate output during the past decade--a reflection of their value to nonfinancial industry. Indeed, this value added from derivatives itself derives from their ability to enhance the process of wealth creation throughout our economy.”

Alan Greenspan², 2000

“... I have found very little evidence that vast amounts of innovation in financial markets in recent years have had a visible effect on the productivity of the economy. ... it was quite good in the 1980s without credit-default swaps and without securitization and without CDOs. I do not know if something happened that suddenly made these innovations essential for growth. In fact, we had greater speed of growth and particularly did not put the whole economy at risk of collapse. That is the main concern that I think we all need to have.”

Paul Volcker³, 2009

Many economists agree that the 2007-2009 global financial crisis is one of the worst economic crises in the history; the former governor of Federal Reserve Greenspan even claimed that the crisis is worse than the Great Depression of the 1930s. The crisis started with the burst of the housing bubble in US, which was mainly created by financial innovation, namely securitization of subprime mortgages via complex financial instruments (Duca et al., 2010). Many banks had to write down large amounts of assets from their loan books, which in turn led to a credit crunch and some bankruptcies or bailouts -such as Lehman Brothers and Northern Rock. Despite associated problems, securitization technology is one of the most important financial innovations. It enables financial institutions to pool and repackage illiquid loans or other types of assets into liquid securities and then to sell these securities to different kinds of investors, such as other banks, insurance companies, pension funds, and mutual funds.

² Greenspan, A., 2000. Over-the-counter derivatives, testimony of the US Federal Reserve Bank Chairman, before the Committee on Agriculture, Nutrition and Forestry, United States Senate, February 10.

³ Volcker, P., 2009. Discussion at the Wall Street Journal's Future of Finance Initiative, December.

Before the recent financial crisis, securitization has been seen by many economists as a blessing. It creates extra liquidity to financial markets, which in turn stabilizes the credit supply (Loutskina and Strahan, 2009), provides new profit opportunities for financial institutions (Cebenoyan and Strahan, 2004) and enhances the allocation of risks by transferring risks from banks to outside investors (Stein, 2010).⁴ Yet, securitization had a significant impact on the financial sector long before the recent financial crisis by changing bank business models from “originate and hold” to “originate, repackage and sell”.⁵ Having by far the highest amount of securitization, the United States is the leading country in securitization activities. Nevertheless, many other countries –both developed and emerging economies- joined the securitization trend. Indeed, starting from mid 90’s there has been a dramatic increase in new entrants to the market, together with a greater variety of assets being securitized (Estrella, 2002; Lejot et al. 2008).

In this paper, using international data on aggregate securitization issuances from 1995 to 2012, we analyze the relationship between various securitization measures and macroeconomic outcomes, such as economic growth and financial stability. Our findings suggest that country-level economic activity is negatively correlated with the securitization activities, even before the recent global financial crisis. We show that securitization is associated with lower investment and higher consumption, especially for consumption related securitizations but not non-consumption related securitization. This finding is supported by a bank-level analysis, where securitization is positively associated with the consumer loans and negatively associated with corporate loans. Moreover, securitization’s relationship with financial stability at the country-level is weak and mostly driven by the recent global financial crisis.

⁴ Shin (2009) argues a downturn hurts not only final investors but also financial intermediaries, which do not pass all the bad loans to final investors. Acharya et al. (2013) also show that before the recent financial crisis banks effectively retained the risk by enabling recourse to bank balance sheets for those investors.

⁵ See Marques-Ibanez and Scheicher (2009) for a review of bank securitization activities.

There is a large literature about the causal relationship between financial development and economic growth, but until recently this literature did not pay much attention to securitization. Given its potential impact, the macroeconomic effects of securitization are rather under studied. We contribute to the literature on two dimensions. Firstly, from export receivables to natural resources the wide range of underlying assets used in securitization is related to almost every industry. This suggests that securitization may not only affect banks but also other industries, and the economy as a whole through possible externalities. Micro studies do not allow gauging the overall effects of securitization on the economy. We fill this gap in the literature by relating securitization to economic activity, investment and consumption with a macro perspective.

Secondly, on top of the two main views regarding the macroeconomic effects of financial innovation (*innovation-growth* and *innovation-fragility* views⁶), we contribute to this literature by emphasizing the possible impact of securitization on consumption and investment in the economy through a change in credit composition.⁷ By differentiating between consumer and non-consumer related securitization and showing different effects of alternative securitization types on economic growth and investment-consumption decision, we argue that securitization may have an alternative channel affecting the economy. More specifically, securitization may lead financial intermediaries to channel the available funds to activities generating consumption (housing, retail loans etc.) rather than investment (SME and corporate lending etc.).

Our results have policy implications especially in the current context in which policy makers are discussing the recovery of the securitization market. Recently the ECB and the Bank of England published a paper (2013) stating their intention to revive securitization in EU, with a

⁶ These views are recently discussed in Beck et al. (2012a), where they analyze the financial innovation through R&D expenditure.

⁷ Many papers acknowledge the possibility of securitization affecting banks portfolio choice so that banks want to hold “a more securitizable loan portfolio (which can be achieved by, e.g., issuing more mortgages and fewer commercial and industrial loans)” (Loutskina, 2011).

special emphasis on high quality ABS. Andy Haldane, head of financial stability at the Bank of England, emphasizes the importance of securitization for SME lending and compares the household credit securitization with SME lending securitization.⁸ This approach, partially, suggests that the policy makers are aware of the differences of different types of securitization. Our analysis confirms the importance of focusing on this distinction and emphasizes a macro approach to securitization -to fulfill policy makers' expectations regarding economic outcomes.

The remainder of this paper is organized as follows: chapter 2 provides a literature review of the relevant areas of economic research. Various microeconomic studies about securitization are presented together with financial development and economic growth literature, as we try to link these lines of research. The data is introduced in chapter 3. The empirical analysis is done in chapter 4 with a discussion of the empirical model and results. Chapter 5 concludes discussing possible policy implications.

2. Literature Review

Two seminal papers, Diamond and Dybvig (1983) and Diamond (1984), define two basic functions of banking, namely liquidity transformation and delegated monitoring. These two functions are part of basic functions of financial system summarized by Levine (1997), where other functions are optimal allocation of capital, mobilization of savings and ease of exchange. Financial innovation is continuously transforming the financial system and its relation to real economy, but it is not clear whether this transformation is beneficial for the system as a whole (Rajan, 2006). The securitization technology, as one of the most influential financial innovations, had a dramatic impact on financial system and its functions. Specifically, banks, which used to

⁸ Fleming, S. (2013, December 10). BoE policy maker backs 'bogeyman' of bundled debt. *Financial Times*. Retrieved from: <http://www.ft.com/intl/cms/s/0/fdeeb11e-61bb-11e3-916e-00144feabdc0.html#axzz331ogsK29>

be “originator and holder” of illiquid loans, became “originator and distributor” of these loans. Loutskina and Strahan (2009) find loan supply’s dependence on the financial condition of the lenders is reduced by securitization. Furthermore, Keys et al. (2010) demonstrate the adverse effects of securitization on screening incentives of lenders in their subprime loans. There is also some empirical evidence of lower credit standards associated with securitization, which is also in line with worse screening theory (Dell’Ariccia et al., 2012). These findings indicate a fundamental change in banks’ role in the financial system, which may also have macro consequences on economic growth, monetary policy or even financial crisis.

Why are the banks and other financial institutions securitizing? The main incentives for banks to securitize –or to change to the new “originate-to-distribute” model- are regulatory capital arbitrage,⁹ which lowers capital costs of banks and is not possible with Basel II regulation, gaining extra liquidity and more efficient risk sharing (Bannier and Hänsel, 2007). The expectation from securitization is new profit opportunities, lower cost of funding and better bank performance. The empirical findings, however, are rather mixed. On one hand, Panetta and Pozzolo (2010), for instance, find that the results of securitization are ex-post in line with the expectations in a cross-country bank level analysis. Again, using individual bank data Affinito and Tagliaferri (2010) find that banks once they securitize have higher profits and lower bad loans. On the other hand, in their study with U.S. bank data and propensity score matching technique, Casu et al. (2013) conclude that first-time securitizing banks would have comparable costs of funding, credit risk and profitability if they would not securitize. A crucial point is the

⁹ In practice, the originating bank usually takes two forms of regulatory capital arbitrage by either providing implicit recourse or undertaking asset substitution (Jones, 2000; Agostino and Mazzuca, 2011). Implicit recourse releases the regulatory capital without reducing actual risk because, while being required less capital for a smaller asset size, securitizing banks are re-assuming risk associated with the underlying assets that are initially transferred to the marketplace.

complexity of these financial instruments. Creating a high fixed cost to originate securities, this complexity is a barrier to enter the securitization market (Panetta and Pozzolo, 2010), but there are no effective barriers to buy these highly sophisticated securities and participate the market as a buyer rather than originator. The complexity of securities –making possible a wrong risk assessment and valuation by credit rating agencies- leads to global misallocation of credit (Levine, 2010). The positive incentives for securitization led some financial institutions to use the technology too aggressively and the complexity of this process contributed to the recent collapse of financial system (Caprio et al, 2010).

Another relevant line of research is concerned with macroeconomic linkages of securitization. The focus of this approach has been the effect of securitization on monetary policy transmission. It has been well documented that the securitization phenomenon influences the monetary policy transmission via liquidity and credit channels (Altunbas et al., 2009; Estrella, 2002).¹⁰ Goswami et al. (2009) argue that the relationship of monetary policy transmission and real economy has become much more complex and for national authorities it is now more difficult to control the economy. They also point out that the impact of interest rate changes on real output is affected by financial market deepening only due to securitization.

Regarding to the macroeconomic consequence of securitization, there is no existing literature that directly studies the effect of securitization on economic growth, to the best of our knowledge. The closely relevant strand of literature is financial development and economic growth. Starting from King and Levine (1993), the research of the credit-growth nexus has developed into a large literature that emphasizes the importance of financial development for economic performance (See Levine (2005) for a review). Some recent studies explore the channel for the growth story by decomposing bank credit into household credit and enterprise credit and studying the different

¹⁰ Or so called, bank lending channel.

growth effects respectively. Beck et al. (2012b) show that enterprise credit prompts economic growth whereas household credit has no effect, using a panel of 45 countries of both developed and developing economies over the period 1994 to 2005. In a similar study, Sassi and Gasmi (2014) use a sample of 27 European countries from 1995 to 2012 and show that enterprise credit is positively related to economic growth whereas household credit has a negative effect.

A recent line of research touches upon securitization's effect on bank incentives, and how alternative types of securitization may result in different financial outcomes. More specifically, Nadauld and Weisbach (2012) show that CLO securitization lower the price of corporate debt and thus lower the cost of capital. Benmelech et al. (2012) argue that securitization of corporate loans is fundamentally different from securitization of other asset classes and adverse selection problems in securitization of these types of loans are "less severe". On the consumer loan side, Agarwal et al. (2013) show that securitized residential loans are less efficient renegotiated compared to bank-held loans, leading to higher delinquencies.

The literature regarding securitization and bank lending focuses on the function of securitization as a new source of liquidity. By removing a part of loans off balance sheet, banks are able to use the proceeds from securitization to expand the capacity to originate new loans. Loutskina and Strahan (2009) find that securitization relaxes the constraint of loan supply based on banks financial strength. However, little is known about the use and allocation of the proceeds from securitization, especially about the type of new loans originated based on the proceeds. Maddaloni and Peydro (2011) find that the softening lending standard of both mortgage and consumer loans is amplified by securitization in Europe however it is not true for corporate loans. This finding may indicate that European banks may increase lending to household while do not increase credit to firms after securitization.

Lastly, another strand of literature focuses on the link between securitization and financial stability. Prior to the crisis, the prevailing idea is securitization plays a positive role by better risk sharing. Jiangli and Pritsker (2008) find securitization increases bank profitability and reduces insolvency risk measured by lower deposit premiums. However, the pessimistic view of the adverse effect of securitization became popular since the crisis. Hansel and Krahen (2007) find that the issue of CDOs raises the equity beta of the issuing bank, indicating securitization is related to the increase of bank risk appetite. Shin (2009) argues that securitization leads to higher leverage of the financial system as a whole and may not result in higher financial stability. Indeed, Nijskens and Wagner (2011) study CDS trading and CLO issuing banks before the 2007-2009 crisis and argue that banks may reduce individual credit risk but increases their systemic risk. Uhde and Michalak (2010) show that securitization is associated with higher systemic risk in Europe. More recently, Gennaioli et al. (2012) present a theoretical model, where securities are over issued due to some neglected risk. Their analysis results in financial fragility when these risks are realized.

3. Data

The data for this study is collected from a number of sources, namely AB Alert and CM Alert databases, World Development Indicators (WDI), Penn World Table 8, Global Financial Development Database (GFDD), Bankscope, and Laeven and Valencia (2013).

The variable of interest in our analysis is securitization. For the securitization data, we use the ABS Database and CMBS Database, which are maintained by private commercial providers Asset-Backed Alert and Commercial Mortgage Alert, respectively.¹¹ They include securities collateralized by assets of some kind and rated by at least one major rating agency. The main

¹¹ See Table A1 for securitization issuances by collateral countries after 1995.

types are public and private asset-backed securities, mortgage-backed securities and collateralized debt obligations (CDO), sponsored both by financial and non-financial firms. The data excludes, however, some important types of securitizations such as Fannie Mae and Freddie Mac issues or Asset back commercial papers (ABCP).¹²

These databases contain essential information on collateral location, type of underlying collateral, securitization amount and issuer. Thanks to the detailed data, we can differentiate between securitization with different underlying collateral, which is crucial for our purposes. More specifically, we classify securitization with consumer related underlying collaterals and business related collateral into two groups. We also generate two other groups (partially overlapping with earlier two groups), namely troubled asset securitizations¹³ and securitizations with real estate related collateral. The details of underlying collateral are provided in the appendix. Following Maddaloni and Peydro (2011), we create our securitization variable using the nationality of the securitized collateral.¹⁴

Figure 1 shows the trends of consumption related and non-consumption related securitization over the past two decades. Consumption related securitization has a larger share in the total securitization, especially until the global financial crisis. After 2007, both types of securitization collapsed and the large difference in issuances mostly disappeared. We also create two other variables to capture different aspects of securitization in a country. Number of different collateral types proxies for the sophistication of securitization technology. More specifically, this variable captures how many different asset types are used as securitization collateral, and thus, the

¹² ABCP discussed in Acharya and Schnabl (2010) with a macroeconomic perspective and in Acharya et al. (2013) with a focus on commercial banks and their conduits.

¹³ We define this type of securitization collateralized by ex ante low quality underlying asset pool, such as subprime loan pools, non-performing mortgages etc.

¹⁴ Here, collateral refers to the underlying assets of securitization issued by special purpose vehicles (SPVs), which are essentially assets of the originating bank.

technology is applicable in different industries. Number of securitizations variable, which is the total number of securitization issuances, provides an idea about how common securitization is in a country. Finally we match the securitization deals with individual bank observations and measure the share loan provided by these banks over total bank credit in a country. This variable should capture the access of banking systems to securitization technology.

We collect most macroeconomic variables, including the dependent variables regarding real economic activity –real GDP per capita growth and new firm formation-¹⁵ and banking system variables –bank Zscore, bank capital and liquidity reserves- from WDI database. We borrow the banking crisis dummy from Laeven and Valencia (2013) to control for the banking crisis during the sample period. To supplement our analysis, we also use the ratio of total consumption relative to investment from Penn World Table 8 as an alternative dependent variable in our analysis to capture the tradeoff between consumption and investment. The structure and foreign exposure of the national banking systems may have macroeconomic consequences, especially given that propagation of the recent financial crisis took place through cross-border exposures. Thus, in a robustness check, we include foreign claims over GDP and bank concentration as extra controls from GFDD, which does not include data for the year 2012.

We collect bank specific variables from Bankscope. We restrict our bank sample to six types of banks: Bank Holding & Holding Companies, Commercial Banks, Cooperative Banks, Investment Banks, Real Estate & Mortgage Banks and Savings Banks. To link the securitization information to bank specific variables, we match originators in the AB Alert with banks in Bankscope, if they share identical names and country of residence. We double check the matching process by manually referring to Moody's rating reports for each ABS issuance if rated

¹⁵ New firm density growth data is available for a small panel after 2004. Thus, we exclude this variable in the sample split regressions, where we will split the sample before and after global financial crisis.

by Moody, which presents information about all participants involved in the securitization transactions.¹⁶ All bank specific variables are winsorized as 1 and 99 percent levels.

Table 1a presents our macro sample, which consists of 97 countries, 60 of which had ever securitized over the period of 1995 to 2012. The average securitization over GDP is 0.45 percent. The average loan share of securitizing banks in the banking sector is 12 percent. When we compare the summary statistics of countries that securitize at least once with countries that never securitize, we find securitizing countries generally have lower GDP per capita growth, lower new firm density growth, lower capital formation and lower ratio of consumption to investment. Banks in securitizing countries have on average lower capital and liquid reserves. Table 1b presents the descriptive statistics of the bank-level sample. Comparing the summary statistics of securitizing and nonsecuritizing subsamples, we find that securitizing banks generally have higher consumer loan ratios but lower corporate loan ratios. In addition, securitizing banks are larger in size, having lower capital, liquidity, net interest margin and loans over assets, but higher ROE and loan loss reserves.

In Table 2, we present pairwise correlations of securitization variables and the dependent variables we use related to economic growth and financial stability. Securitization over GDP is negatively correlated with GDP per capita growth and total consumption over investment, at 10% and 1% significance levels. Although the correlation coefficients are also negative for new firm density growth and gross capital formation, they are not statistically significant. In the financial stability side, country-level bank capital to assets and liquid reserves are negatively and significantly correlated with securitization over GDP. This rather high correlation reflects the

¹⁶ More specifically, if the bank name in Bankscope is identical to the name of sponsor in ABS, and the country of the bank is the same as the country of the collateral, it is matched. If the collateral comes from another country or several banks share the same name, we double check the Moody rating report. Moody rates almost every ABS issuance and provides a report about the structure, rating and other background information of the securitization.

fact that securitization is mostly done by financial developed countries, which have lower bank capitalization and liquid reserves. Zscore, however, is not correlated with securitization over GDP.

4. Empirical analysis

In this section we set up the empirical models to capture the relationship between country-level securitization activities and various macroeconomic outcomes, economic growth and banking system stability. Our control variables are mostly from financial development literature. Throughout our analysis we employ panel fixed-effects regressions, relying only on within country variation to show the association between securitization and macroeconomic variables. In the first subsection, we discuss possible channels through which securitization may affect the economy as a whole. Then, we present the empirical model and results. Moreover, we provide a bank-level analysis regarding credit compositions and a discussion on the relationship of securitization and financial stability.

a. Securitization and macroeconomy: Channels and Hypotheses

Securitization may affect economic growth through a number of channels. In this paper we focus on a credit composition channel that securitization may also alter the credit composition of consumer and corporate loans, as consumer loans are easy to be securitized whereas corporate loans are more heterogeneous and difficult to be securitized (Loutskina, 2011). Consumer loans, especially mortgages, are homogenous and readily pooled as underlying assets for securitization. In addition, the features of repayment and amortization enable consumer loans to be ideal for bank securitization. By contrast, corporate loans which are information sensitive and relationship

based are far more difficult to pool and tranche in the securitization process. In the end, the securitization market for consumer loans especially mortgages has been much larger than that for CLOs. The feasibility of securitization may affect banks' incentive to originate loans ex ante.¹⁷ Besides, banks may use the proceeds from securitization to switch from corporate loans to consumer loans. Overall, securitization may alter banks' incentive to originate consumer and corporate loans, which have different implications for economic growth. Enterprise credit is growth promoting as loans to firms release the financial constraint and facilitate research and development. In the long run, technological progress fueled by the R&D investment is the determinant of economic growth according to the neoclassical growth theory. By contrast, household credit, which is largely used for consumption, has a limited role in encouraging economic growth. Even though the household credit may increase the utility of the household in the short run, the foregone investment opportunity may slow down the long run economic growth.

Based on the above analysis, we propose the following hypothesis:

H1: Countries with more securitization may have slower economic growth rates as securitization favors consumer loans to corporate loans.

Securitization may also affect economic growth through for instance the liquidity creation channel that securitization expands loan supply and relaxes financial constraints as in the classic financial development literature. We control for this effect by including financial development indicators into our empirical specifications. Other channels, such as risk sharing channel that

¹⁷Banks and financial intermediaries engaging in securitization may change their behavior in many ways. For example, Brown et al. (2013) show how Bulgarian banks adjust the terms of loans so that they are eligible for securitization

securitizing enables better risk sharing and diversification and therefore prompts growth,¹⁸ or information channel that securitization gives rise to adverse selection of cherry-picking loans and moral hazard of suboptimal monitoring services and slows down growth, cannot be controlled by country level control variables. Therefore we support our macro analysis of the credit composition channel by bank level analysis that shows securitizing banks increase consumer loans and reduce corporate loans, even though this channel does not necessarily have stability implications.

b. Securitization and macroeconomy: The model

We start our empirical analysis by employing the following country fixed effects panel data model:

$$y_{i,t} = \alpha_i + \beta' * Finance_{i,t} + \gamma * Securitization_{i,t} + \delta' * [Conditioning Set]_{i,t} + \theta_t + \varepsilon_i$$

where the alternative dependent variables $y_{i,t}$ are real per capita GDP growth for economic growth and new firm density growth for entrepreneurial activities. $Finance_{i,t}$ are financial development indicators controlling for domestic credit provision (domestic credit to GDP) and stock market development (stocks traded over GDP). These measures should capture the direct effects of securitization through liquidity enhancement. Our variable of interest is $Securitization_{i,t}$, which is total securitization issued in collateral country i in year t . In various specifications, we use alternative types of securitization. Moreover, the equation also includes θ , a set of period dummies to control time-specific factors. The conditioning set includes control variables widely used in the finance-growth models and controls for remaining factors influencing economic growth, such as inflation to control macroeconomic stability, education,

¹⁸Some seminal studies already explained theoretically and empirically how better risk sharing can increase economic growth (Acemoglu and Zilibotti, 1997; Athanasoulis and van Wincoop, 2000; Obsfeldt, 1994).

openness, banking crisis, which has been important especially in recent years and unemployment, to control for structural differences in respective countries.

In Table 3, we see that both GDP per capita growth and new firm density growth are negatively correlated with lagged securitization over GDP at 10% significance level. Although these coefficients are marginally significant, given the small size of securitization activities, they have a considerable association with GDP growth rates. More specifically, one standard deviation increase in securitization over GDP (1.46) is associated with 0.23% decrease in GDP per capita growth and 1.31% decrease in new firm density growth.¹⁹ Non-linearities do not seem to drive the results as log-transformed securitization activities are also significantly correlated. Most of the significant control variables are as expected. Higher trade activity increases GDP growth, whereas higher inflation, unemployment and banking crisis are correlated negatively with GDP growth. Interestingly domestic credit is negatively correlated, this may be caused by recent financial crisis or recently documented dark side of financial development (Arcand et al., 2012). Stock market development has a positive correlation with new firm entry growth. Loan share of securitizing banks does not matter for GDP per capita growth, but it has a large negative effect on new firm density growth.²⁰ The number of different collateral types is marginally significant with a negative coefficient in the GDP per capita growth regression and log number of securitization deals are significantly negative for both dependent variables, suggesting availability and sophistication of securitization technology is negatively correlated with economic activity.

¹⁹ These marginal effects account to around 6% of one standard deviation in GDP per capita growth and 8% of one standard deviation of new firm density growth.

²⁰ Although the coefficient of loan share of securitizing banks variable is large (around -17), one standard deviation change in this variable leads to change in new density growth, which is only 17% of one standard deviation in this variable.

In Table 4 we include various securitization types in a similar specification to see whether securitization types (or more specifically underlying collateral) matter for macroeconomic outcomes. Indeed, consumer related securitization, real estate related securitization and troubled asset securitization over GDP have significantly negative correlation with GDP per capita growth and new firm density growth. On the other hand, non-consumer related securitization is marginally significant with a positive sign in regression 2, indicating a positive relationship between this type of securitization and GDP per capita growth.

In Table 5, we add banking system controls, namely bank concentration –to control for bank competition and banking system structure- and foreign claim of BIS reporting banks over GDP – to control for foreign exposure of banking systems, which may be especially important during the financial crisis period. The results stay similar, although securitization over GDP variables become marginally insignificant, consumer, real estate and troubled asset securitization are still significant with negative coefficients. Non-consumer securitization over GDP is insignificant for both economic activity measures. Overall, these results indicate that the type of the securitization may actually matter: consumer related securitization is negatively related to economic activity, whereas non-consumer securitization has a positive correlation, which is not consistent.

All previous tables indicate a negative relationship between particular types of securitization and economic growth and new firm density growth. The fact that non-consumer related securitization is not correlated with economic growth suggests some differences in economic systems in response to these securitizations. Previous evidence from the literature suggest that corporate credit is more productive compared to household credit, which is mostly used for consumption purposes. Moreover, Maddaloni and Peydro (2011) shows securitization actually

affects banks lending tendencies in different ways, so that they favor consumption related credit provision (mortgages or consumer credit), which does not directly turn into investment. In Table 6, we show the aggregate investment behavior of economies in response to different types of securitization. The results confirm relationship between securitization and the investment/consumption tradeoff. Gross capital formation over GDP, which proxies the investment in the economy, goes down in response to securitization, except non-consumer related securitization and troubled asset securitization. Furthermore, total consumption relative to investment increases in response to the same types of securitization.

These results may be driven by the collapse of securitization during the recent financial crisis. In Tables 7 and 8, we split the sample into two subsamples, one before 2007 and the other after (and including) 2007, to see how the relationship between securitization and macroeconomic variables has changed. In Table 7, we see that the negative relationships before and after the financial crisis do not change. In Table 8, the relationship between different types of securitization and investment and relative consumption stays mostly the same before 2007 period only. After the recent financial crisis, however, investment's sensitivity to securitization cannot be observed except troubled asset securitization. The positive relationship between relative consumption and securitization persists also in this period –albeit less significant.

To conclude this subsection, it is important to acknowledge some limitations of our analysis. Our baseline methodology is panel fixed effects regressions, which rely on strong exogeneity assumptions. Without an explicit identification strategy, the results we present should be interpreted as correlations rather than causal relationships. Yet, relying only on within country variation, we avoid cross-country comparisons, which should highly reduce unobserved heterogeneity issues. Moreover, using lagged securitization variables should reduce reverse

causality concerns. It is also important to note that although we cannot rule out endogeneity completely many possible scenarios –for example lax regulatory environment- actually work against our findings (namely a negative relationship between securitization and economic growth). Still, these associations are only correlations. Thus, in the next subsection we support this investment/consumption channel argument through bank-level analysis. Due to the highly unbalanced bank-level loan portfolio data, we cannot create country-level credit composition, which would enable us to study the credit composition hypothesis directly.

c. Securitization and credit composition: Bank-level evidence

We use bank-level data to see whether credit composition of individual banks is associated with securitization issuance at banks. We mainly examine two variables to capture any changes in credit composition: the share of consumer loan in gross loans and the share of corporate loans in gross loans. We include various bank-level variables controlling the size, liquidity, capitalization, efficiency and riskiness of individual banks. We also control for country-level variables. Finally, we add bank and year fixed-effects. The model becomes:

$$\begin{aligned}
 & \text{Consumer (Corporate) loans over gross loans}_{i,t} \\
 & = \alpha_i + \gamma * \text{Securitization over Assets}_{i,t-1} + \delta' * [\text{Bank controls}]_{i,t-1} \\
 & + \beta' * [\text{Country controls}]_{i,t} + \theta_t + \varepsilon_i
 \end{aligned}$$

We report the regression output in Table 9. In the first specification we adopt the share of consumer loans in gross loans as the dependent variable. We find evidence in regression 1 that securitizing bank significantly increase the proportion of consumer loans in their loan portfolios. This indicates funds are channeled through bank loans to consumption, consistent with the finding in the macro part that securitization encourages consumption. In regression 2 we find no

evidence that banks increase loans with corporate purpose in response to securitization. In other words, proceeds from securitization that fund new loan origination do not significantly increase the available credit to production sector as the share in bank loan portfolio. Taken together the findings in regressions 1 and 2, we may conclude that securitizing banks reallocate the proceeds toward consumption loans rather than corporate and commercial loans based the evidence from the asset side of bank balance sheets.

We split our sample into pre-crisis and post-crisis periods. We present the results in regressions 3 and 4 and regressions 5 and 6, respectively. Regressions 3 and 4 show that during the pre-2007 period securitizing banks experience increase in the share of consumer loans and decrease in the share of corporate loans. The increase in consumer loans and decrease in corporate loans may be taken as a substitution effect. In particular, securitizing banks prefer consumer loans to corporate ones, which may be caused by the incentives due to the availability of securitization technology. Therefore, funds flow to consumption, which is less efficiently allocated in terms of productivity. When we turn to the post-crisis period, we do not observe any credit composition sensitivity to securitization.

d. Securitization and banking system stability

In this section, we use a similar panel data country fixed effects model to analyze the relationship between securitization and banking system stability. The model we use for financial stability analysis is similar to our previous model with a different set of control variables. In the baseline specification we control for bank concentration, foreign claim of BIS reporting banks over GDP and real interest rate for risk premium of the country. Our dependent variables are banking system averages of bank capital, liquid reserves and bank Zscore. Liquidity creation and

risk sharing roles of securitization should increase bank capital and liquid reserves. Yet, banks with this technology may also suffer lower capital and liquid reserves if they are hit by the losses incurred due to these off-balance sheet items,²¹ or they may choose to decrease their capital and liquidity because they can manage their risk better as they can transfer credit risk of, for example, their lower quality assets (Wagner, 2008).

The results in Table 10 suggest that the association between securitization and financial stability is quite weak in macro scale. Total securitization over GDP is negatively correlated with bank capital and bank Zscore only at 10% significance level. No particular type of securitization seems to drive the results. In regressions 9 to 12, analyzing the relationship between liquidity reserves and securitization variables are insignificant except troubled asset securitization, which has a negative and significant effect. When we split the sample as pre and post 2007 subsamples, in Table 11, we observe that there is almost no correlation between financial stability and securitization before 2007. Again, only troubled asset securitization has a positive and significant effect, this time on bank capital. After 2007 period, however, one can clearly observe the negative and highly significant effect of various securitization variables on bank capital and liquidity reserves, which are in line with losses from securitization argument. Only troubled asset securitization has a negative and significant effect bank Zscore. It is also important to note that not only statistical significance of these results are rather low, but also their economic significance. This may, however, be expected as securitizing banks constitutes only part of banking systems and these macro variables are country averages. The use of securitization technology, however, may have negative or positive externalities in term of stability of banking systems, which does not seem to be the case.

²¹ Acharya et al. (2013) provides evidence showing that the risk transfer techniques may not effectively transfer the risk. Alternatively, banks may hold equity tranches as loss absorbers.

Regarding the link of securitization and financial stability at bank-level, we find also mixed results from bank Z score, capital and liquid reserves in the whole sample period. We report the mixed results in regressions 1 to 3 in Table 12. Securitizing banks undergo deteriorating Z score however increase capital and liquid reserve. The negative impact of securitization on bank Z score vanishes once we split our sample, however the results of the strengthened capital and liquid reserve remain robust in both pre and post crisis, as can be seen in regressions 4 to 9. The increased capital and liquid reserve are in line with the prevailing arguments of regulatory capital arbitrage and liquidity creation in securitization literature. This also provides incentives for individual banks to securitize. Although these results also have similar limitations, which are discussed in the earlier sections, the difference between macro and micro analyses confirms the importance of a macro approach to evaluate securitization.

5. Conclusion

In this paper, we analyze the relationship between countries' use of securitization technology and real economic outcomes before and after recent financial crisis. We show that securitization is associated with lower GDP per capita growth well before financial crisis, without a significantly worsening in banking system stability, measured by aggregate bank Zscore, bank capitalization and liquid reserves. Different types of securitizations have different effects. More specifically, consumption related securitization is negatively related to economic growth, new firm density growth and investment, whereas non-consumption related securitization (CDO's, CLO's etc.) is neutral. These results provide clues of an alternative channel through which securitization affects real economy. We argue that the negative correlation may be explained by securitization's impact on capital allocation, channeling funds toward consumption rather than

investment –due to the changes in bank incentives. We also consider financial stability and show that securitization is not significantly associated with banking system stability in general, although some negative relationship emerged during recent global financial crisis. At the bank-level liquidity creation role of securitization seems to work, as higher securitization is associated with higher liquidity and capital for individual banks.

Given the recent policy discussion about reviving securitization in Europe, our empirical analysis provides crucial insights. Policy makers want to increase the use of securitization to prompt the banks to lend to businesses, which in turn lead to higher investment and economic growth. They clearly recognize the importance of “high-quality securitization”, that is securitization avoiding low quality underlying collateral, opacity and complexity. The negative effects of troubled asset securitization on economic outcomes in our analysis confirm the importance of this approach. Our analysis also suggests that the authorities should not only care about the quality of underlying collateral but also whether this collateral is coming from investment or consumption enhancing assets. Thus, in the future a macro approach to securitization is crucial to ensure securitizations’ positive contribution to the real economy.

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Appendix.

Figure A1. Composition of securitization: Consumption related and non-consumption related securitization

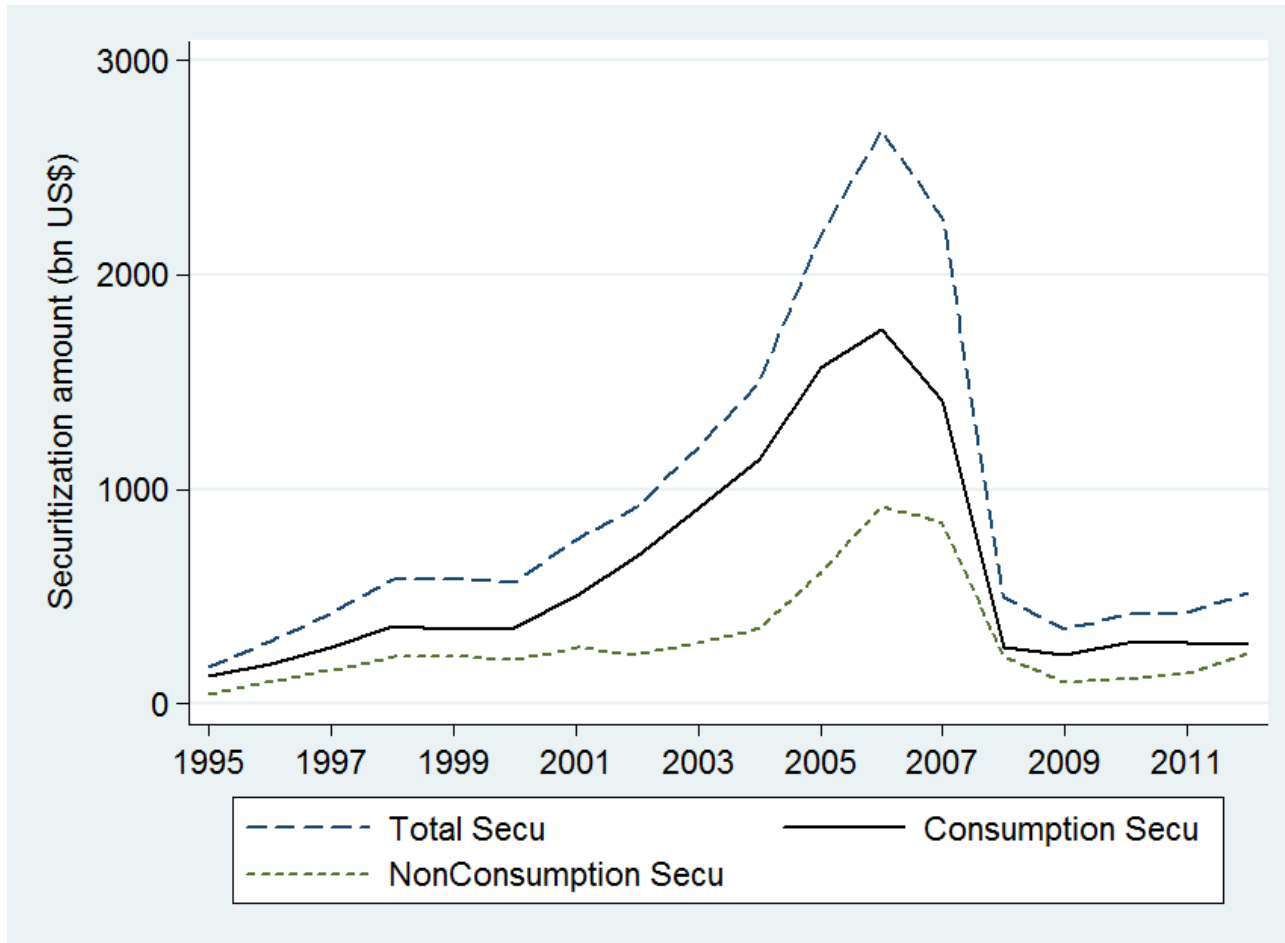


Table A1. Sample Countries and securitization activities

Total amount of securitization issuances in US dollars in collateral countries during the mentioned period.

Country	1995-2000	2001-2006	2007-2012	Country	1995-2000	2001-2006	2007-2012	Country	1995-2000	2001-2006	2007-2012
ARE	0	350	1599	ESP	20506	210705	178215	NOR	0	0	4370
ARG	2788	334	150	FIN	2540	997	637	NZL	1042	942	941
AUS	39912	181385	138601	FRA	44881	43744	21854	OMN	0	925	0
AUT	650	5785	4292	GBR	126893	827100	563392	PAK	250	0	0
BEL	5497	7596	12924	GRC	1100	13609	7198	PAN	186	150	1240
BHR	0	334	0	GTM	0	0	480	PER	550	1903	4094
BIH	0	0	110	HKG	2606	2122	2207	PHL	75	0	0
BLZ	0	45	0	IDN	886	0	9	POL	809	625	342
BRA	4093	6624	7977	IRL	0	711	29449	PRT	2400	38414	23143
CAN	17168	41527	43800	ISL	0	384	0	RUS	53	5219	6318
CHE	5943	7160	1515	ISR	0	37	0	SGP	225	4319	2345
CHL	150	40	0	ITA	20506	193268	88050	SLV	110	0	0
CHN	2117	403	0	JAM	125	100	50	SWE	2040	4346	4973
COL	887	206	0	JPN	44515	119289	160690	THA	753	664	421
CRI	0	63	0	KAZ	0	700	1400	TTO	0	150	0
CZE	0	218	0	KOR	3540	10697	6469	TUR	2489	9346	6463
DEU	25541	124317	162988	LUX	137	0	661	UKR	0	0	281
DNK	223	1132	21797	MEX	11780	1516	8105	USA	2189615	7181403	2773118
DOM	22	0	0	MYS	81	1344	315	VEN	4120	0	0
EGY	0	1554	0	NLD	21391	177768	159369	ZAF	361	7634	7355

Table A2. Variable definitions and data sources

Variable	Description	Source
GDP per capita growth	Real GDP per capita growth in percentages	WDI
New firm density growth	The new business entry density, which is the number of newly registered limited liability corporations per calendar year, normalized by working age population.	WDI
Gross capital formation	Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories.	WDI
Total consumption relative to investment	Total consumption with respect to gross capital formation at current PPPs	Penn World Table 8
Bank capital	Bank capital to assets is the ratio of bank capital and reserves to total assets of all nonfinancial and financial assets.	WDI
Liquid reserves	Ratio of bank liquid reserves to bank assets is the ratio of domestic currency holdings and deposits with the monetary authorities to claims on other governments, nonfinancial public enterprises, the private sector, and other banking institutions.	WDI
Bank Zscore	It captures the probability of default of a country's banking system. Z-score compares the buffer of a country's banking system (capitalization and returns) with the volatility of those returns. It is estimated as $(ROA+(equity/assets))/sd(ROA)$; $sd(ROA)$ is the standard deviation of ROA. ROA, equity, and assets are country-level aggregate figures.	GFDD
ROA	Commercial banks' after-tax net income to yearly averaged total assets.	GFDD
ROE	Commercial banks' after-tax net income to yearly averaged equity.	GFDD
Net interest margin	Accounting value of bank's net interest revenue as a share of its average interest-bearing (total earning) assets.	GFDD
Securitization over GDP	Total amount of all rated asset-backed issues, mortgage-backed issues, CDO's and securities collateralized by commercial and multi-family properties over GDP. Excludes Fannie Mae and Freddie Mac issues, municipality issues and commercial papers.*	AB Alert and CM Alert databases
Consumer securitization over GDP	Total amount of securitization collateralized by consumer related underlying assets (such as consumer loans, credit cards, mortgages etc.) over GDP*	AB Alert and CM Alert databases
Non-consumer securitization over GDP	Total amount of securitization collateralized by business related underlying assets (such as commercial mortgages, small business loans, bank loans etc.) over GDP*	AB Alert and CM Alert databases
Real estate securitization over GDP	Total amount of securitizations collateralized by real estate related assets (RMBS, CMBS, Home-equity loans etc.) over GDP*	AB Alert and CM Alert databases
Troubled asset securitization over GDP	Total amount of securitizations collateralized by low quality assets (such as subprime or non-performing loans) over GDP*	AB Alert and CM Alert databases
Collateral types	The number of different underlying collateral used in securitizations*	AB Alert and CM Alert databases
ln(Securitization deals)	Log of total number of securitization deals + 1*	AB Alert and CM Alert databases
Loan share of securitizing banks	The share of securitizing banks in banking system gross loans	AB Alert and CM Alert databases and Bankscope
Banking crisis	Dummy variable equals 1 if the country suffers from systemic banking crisis	Laeven and Valencia (2013)
Foreign claims over GDP	Consolidated foreign claims of BIS-reporting banks to GDP (%)	GFDD
Bank concentration	Assets of three largest commercial banks as a share of total commercial banking assets.	GFDD
Real interest rate	Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator. The terms and conditions attached to lending	WDI

	rates differ by country, however, limiting their comparability.	
Domestic credit to private sector	Domestic credit to private sector refers to financial resources provided to the private sector by financial corporations, such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment.	WDI
Ln(GDP per capita)	Log of Real per capita GDP in 2005 US dollars	WDI
Ln(GDP)	Log of GDP in 2005 US dollars	WDI
Inflation	Inflation, consumer prices (annual %)	WDI
Trade over GDP	Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.	WDI
Stocks traded over GDP	Stocks traded refers to the total value of shares traded during the period. This indicator complements the market capitalization ratio by showing whether market size is matched by trading.	WDI
Education	Gross secondary education enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown.	WDI
Unemployment	Unemployment refers to the share of the labor force that is without work but available for and seeking employment. Definitions of labor force and unemployment differ by country.	WDI
Consumer loan ratio	Share of consumer loans and retail loans in gross loans	Bankscope
Corporate Loan ratio	Share of corporate and commercial loans and other loans in gross loans	Bankscope
Zscore	The ratio of securitization amount over bank assets	Bankscope
Equity	Bank equity over total assets	Bankscope
Liquidity	Liquid reserves over short term funding	Bankscope
Securitization over Assets	The amount of securitization over total assets	Bankscope, AB Alert and CM Alert databases
Assets	Log of bank total assets	Bankscope
ROE	Return of equity	Bankscope
Net interest margin	A ratio of the net interest income expressed as a percentage of earning assets	Bankscope
Loans over Assets	The ratio of gross loans to total assets	Bankscope
Loan loss reserves	The ratio of loan loss reserves to gross loans	Bankscope

Notes: * See the appendix for the details of underlying collaterals. All securitization variables are lagged one period.

Table A3. Types of securitization

Collateral codes from the AB Alert database and how we classify different types of securitizations.

Consumer loans:		Non-consumer loans:
AL Auto Leases	AC Aircraft-lease receivables	NM Net interest margin
AS Auto loans (subprime) *	AF Auto-fleet leases	NR Natural resources
AU Auto loans (prime)	AK Airline-ticket receivables	PF Project finance
BO Boat loans	BZ Bank loans (CLOs)	RN Rent receipts
CN Consumer loans, unsecured	CA Catastrophic risk	RO Royalties
CR Credit cards	CB Collateralized debt obligation	RV Recreational-vehicle loans
DR Delinquent receivables *	CK Credit risk	RY Remittances (by immigrants)
HE Home-equity loans ^	CM Commercial MBS^	SA Servicer advance receivables
HI Home-improvement loans ^	CM Commercial MBS (non-performing)*^	SB Small-business loans
HL Home-equity lines of credit ^	EL Equipment loans	SC Small-business loans (Non-U.S.)
MH Manufactured housing loans ^	EQ Equipment leases	SE Legal settlements
MI Non-U.S. residential loans^	EX Export receiv. (Ex-Im Guarantee)	TL Tax liens
MO Motorcycle loans	EZ Export receivables (Other)	TM Timeshare loans
MR Reverse mortgages^	FE Miscellaneous	TO Toll-road receivables
NE High-LTV ("no-equity") loans*	FF Franchise fees	TP Transportation
NP Non-performing mortgages*^	FL Franchise loans	TR Trade receivables
RM Residential mortgages (includes Alt-A)^	FP Floorplan loans	TU Truck loans
SM Subprime mortgages*^	GC Guaranteed investment contract	UT Utility receivables
ST Student loans	HC Healthcare receivables	VI Viatical settlements
	IN Insurance-premium loans	WB Whole-business
	MU Municipal leases	WE Weather
	MZ Mutual fund (12b-1) fees	

Notes: Collateral codes are taken from AB Alert database. * counted as part of troubled asset securitization; ^ counted as real estate securitization.

Table 1a. Summary statistics for country-level and bank-level data

GDP per capita growth is the rate of real per capita GDP growth. *New firm density growth* is the new business entry density, which is the number of newly registered limited liability corporations per calendar year, normalized by working age population. *Gross capital formation* consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. *Total consumption over investment* is the total consumption with respect to gross capital formation at current PPPs. *Bank capital* is the ratio of bank capital and reserves to total assets of all nonfinancial and financial assets. *Liquid reserves* is the ratio of bank liquid reserves to bank assets. *Bank Z-score* compares the buffer of a country's banking system (capitalization and returns) with the volatility of those returns. It is estimated as $(ROA + (\text{equity}/\text{assets}))/\text{sd}(ROA)$; $\text{sd}(ROA)$ is the standard deviation of ROA. ROA, equity, and assets are country-level aggregate figures. *Securitization over GDP* is total securitization amount over GDP. *Collateral types* is the number of underlying collateral types and $\ln(\text{Securitization deals})$ is log of number of securitization issuances plus one. *Loan share of securitizing banks* is the share of securitizing banks in banking system gross loans. *Consumer securitization over GDP* is the total amount of securitization collateralized by consumer related underlying assets (such as consumer loans, credit cards, mortgages etc.) over GDP. *Non-consumer securitization over GDP* is the total amount of securitization collateralized by business related underlying assets (such as commercial mortgages, small business loans, bank loans etc.) over GDP. *Real estate securitization over GDP* is the total amount of securitizations collateralized by real estate related assets (RMBS, CMBS, Home-equity loans etc.) over GDP. *Troubled asset securitization over GDP* is the total amount of securitizations collateralized by low quality assets (such as subprime or non-performing loans) over GDP. *Domestic credit to private sector* refers to financial resources provided to the private sector by financial corporations. *Stocks traded over GDP* refers to the total value of shares traded during the period over GDP. *Trade over GDP* is total trade over GDP. *Inflation* is the rate of change in consumer price indices. *Education* is Gross secondary education enrollment ratio. *Unemployment* refers to the share of the labor force that is without work but available for and seeking employment. *Banking crisis* is a dummy variable that equals 1 if the country is in a banking crisis. *Foreign claims over GDP* is the consolidated foreign claims of BIS-reporting banks to GDP. *Bank concentration* is the assets of three largest commercial banks as a share of total commercial banking assets. $\ln(\text{GDP per capita})$ is log of GDP per capita in constant 2005 US dollars. $\ln(\text{GDP})$ is log of GDP in constant 2005 US dollars. *Real interest rate* is the lending interest rate adjusted for inflation as measured by the GDP deflator.

<i>Panel A:</i> Country-level	No.	Mean	Std Dev	1th	Median	99th
GDP per capita growth	1056	2.660	3.994	-8.836	2.776	12.590
New firm density growth	389	5.047	17.191	-35.620	4.036	53.904
Gross capital formation over GDP	1055	22.978	5.537	12.193	22.260	40.442
Total consumption over Investment	1029	4.099	2.281	1.109	3.548	13.930
Bank Capital	721	8.849	3.990	3.100	8.300	22.500
Liquid reserves	671	11.883	12.900	0.281	7.474	60.677
Bank Zscore	930	14.962	10.953	-2.560	12.960	46.490
Securitization over GDP	1056	0.449	1.457	0.000	0.000	7.999
Loan share of securitizing banks	533	0.123	0.170	0.000	0.006	0.679
Collateral types	1056	1.741	4.940	0.000	0.000	35.000
$\ln(\text{Securitization deals})$	1056	0.765	1.390	0.000	0.000	6.725
Consumer securitization over GDP	1056	0.291	1.072	0.000	0.000	6.307
Non-consumer securitization over GDP	1056	0.158	0.491	0.000	0.000	2.810
Synthetic securitization over GDP	1056	0.054	0.273	0.000	0.000	1.476
Real estate securitization over GDP	1056	0.269	1.057	0.000	0.000	5.962
Troubled asset securitization over GDP	1056	0.015	0.119	0.000	0.000	0.533
Domestic credit to private sector	1056	76.228	55.158	7.455	62.293	223.873
Stocks traded over GDP	1056	39.813	72.212	0.005	8.964	317.575
Trade over GDP	1056	91.681	53.778	22.090	82.047	327.165

Inflation	1056	6.942	33.986	-1.146	3.372	54.915
Education	1056	91.689	20.357	36.153	93.899	152.717
Unemployment	1056	8.640	5.501	0.800	7.500	32.200
Banking crisis	1056	0.137	0.344	0.000	0.000	1.000
Foreign claims over GDP	1009	55.403	68.309	0.210	30.640	313.350
Bank concentration	941	66.605	19.627	25.200	66.590	100.000
ln(GDP per capita)	1052	9.034	1.315	5.952	9.002	11.190

	Ever Securitized		Never Securitized		difference	t-statistic
	No.	Mean	No.	Mean		
Panel B: Country-level						
GDP per capita growth	658	2.298	398	3.259	-0.961	3.812***
New firm density growth	256	3.542	133	7.943	-4.401	2.410**
Gross capital formation over GDP	658	22.256	397	24.174	-1.918	5.528***
Total consumption over Investment	650	3.776	379	4.653	-0.877	6.046***
Bank Capital	486	7.882	235	10.849	-2.967	9.978***
Liquid reserves	404	8.604	267	16.845	-8.241	8.522***
Bank Zscore	578	14.494	352	15.731	-1.237	1.671*
Securitization over GDP	658	0.720	398	0.000	.	.
Loan share of securitizing banks	533	0.123	398	0.000	.	.
Collateral types	658	2.795	398	0.000	.	.
ln(Securitization deals)	658	1.228	398	0.000	.	.
Consumer securitization over GDP	658	0.467	398	0.000	.	.
Non-consumer securitization over GDP	658	0.254	398	0.000	.	.
Synthetic securitization over GDP	658	0.086	398	0.000	.	.
Real estate securitization over GDP	658	0.432	398	0.000	.	.
Troubled asset securitization over GDP	658	0.024	398	0.000	.	.
Domestic credit to private sector	658	92.155	398	49.895	42.260	-12.989***
Stocks traded over GDP	658	58.646	398	8.679	49.967	-11.562***
Trade over GDP	658	87.369	398	98.810	-11.441	3.367***
Inflation	658	4.865	398	10.376	-5.511	2.561**
Education	658	95.888	398	84.747	11.141	-8.935***
Unemployment	658	7.516	398	10.499	-2.983	8.849***
Banking crisis	658	0.166	398	0.090	0.076	-3.457***
Foreign claims over GDP	623	60.747	386	46.778	13.969	-3.171***
Bank concentration	583	65.205	358	68.886	-3.681	2.803***
ln(GDP per capita)	654	9.455	398	8.342	1.113	-14.587***

Table 1b. Summary statistics for bank-level data

Consumer loan ratio is the share of consumer loans and retail loans in gross loans. *Corporate loan ratio* is the share of corporate and commercial loans and other loans in gross loans. *Securitization over Assets* is the ratio of securitization amount over bank assets. *Assets* are log of bank total assets. *Zscore* refers to bank Z score, a standard measure of distance from insolvency. It is estimated as $(ROA + (\text{equity}/\text{assets}))/\text{sd}(ROA)$; $\text{sd}(ROA)$ is the standard deviation of ROA -calculated based on four year rolling window. *Equity* is bank equity over total assets. *Liquidity* is the liquid reserves over short term funding. *ROE* refers to return on equity. *Net Interest Margin* is the net interest income expressed as a percentage of earning assets. The ratio of *Loans over assets* describes the asset structure. *Loan loss reserves* indicate the proportion of total portfolio that has been provided for but not charged off.

<i>Panel A:</i> Bank-level	No.	Mean	Std Dev	1th	Median	99th
Consumer loan ratio	137064	0.096	0.141	0.000	0.055	0.915
Corporate Loan ratio	132486	0.822	0.263	0.025	0.933	1.000
Zscore	119813	3.651	1.358	0.415	3.612	6.952
Equity	136959	0.107	0.051	0.031	0.097	0.287
Liquidity	137027	0.122	0.177	0.013	0.083	0.676
Securitization over Assets	137064	0.001	0.133	0.000	0.000	0.000
Assets	137064	5.286	1.640	2.427	5.062	10.751
ROE	137024	0.078	0.187	-0.477	0.090	0.326
Net interest margin	137035	0.041	0.020	0.012	0.040	0.089
Loans over Assets	137064	0.635	0.159	0.172	0.655	0.917
Loan loss reserves	136856	0.016	0.025	0.002	0.013	0.077

<i>Panel B:</i> Bank-level	Ever Securitizing bank-year obs.		Never Securitizing bank-year obs.		Difference	T-statistics
	No.	Mean	No.	Mean		
Consumer loan ratio	1764	0.234	135300	0.094	0.140	41.487***
Corporate Loan ratio	1586	0.639	130900	0.824	-0.185	-27.862***
Zscore	1725	3.136	118088	3.658	-0.522	-15.875***
Equity	1758	0.093	135201	0.107	-0.014	-11.430***
Liquidity	1762	0.185	135265	0.121	0.064	15.029***
Securitization over Assets	1764	0.093	135300	0.000	0.093	29.171***
Assets	1764	9.511	135300	5.231	4.280	113.949***
ROE	1751	0.096	135273	0.078	0.018	3.998***
Net interest margin	1755	0.038	135280	0.041	-0.003	-6.216***
Loans over Assets	1764	0.611	135300	0.635	-0.024	-6.289***
Loan loss reserves	1756	0.028	135100	0.016	0.012	20.566***

Table 2. Pairwise correlations

GDP per capita growth is the rate of real per capita GDP growth. *New firm density growth* is the new business entry density, which is the number of newly registered limited liability corporations per calendar year, normalized by working age population. *Gross capital formation* consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. *Total consumption over investment* is the total consumption with respect to gross capital formation at current PPPs. *Securitization over GDP* is total securitization amount over GDP. *Collateral types* is the number of underlying collateral types and $\ln(\text{Securitization deals})$ is log of number of securitization issuances plus one. *Bank capital* is the ratio of bank capital and reserves to total assets of all nonfinancial and financial assets. *Liquid reserves* is the ratio of bank liquid reserves to bank assets. *Bank Z-score* compares the buffer of a country's banking system (capitalization and returns) with the volatility of those returns. It is estimated as $(\text{ROA}+(\text{equity}/\text{assets}))/\text{sd}(\text{ROA})$; $\text{sd}(\text{ROA})$ is the standard deviation of ROA. ROA, equity, and assets are country-level aggregate figures. *** p<0.01, ** p<0.05, * p<0.1.

	GDP per capita growth	New firm density growth	Gross capital formation	Total consumption over inv.	Securitization over GDP
GDP per capita growth	1				
New firm density growth	0.423***	1			
Gross capital formation	0.397***	0.111**	1		
Total consumption over investment	-0.120***	-0.107**	-0.443***	1	
Securitization over GDP	-0.053*	-0.023	-0.030	-0.088***	1

	Bank capital	Liquid reserves	Bank Zscore	Securitization over GDP
Bank capital	1			
Liquid reserves	0.373***	1		
Bank Zscore	0.075**	-0.043	1	
Securitization over GDP	-0.182***	-0.244***	0.001	1

Table 3. Securitization and the real economy

GDP per capita growth is the rate of real per capita GDP growth. *New firm density growth* is the new business entry density, which is the number of newly registered limited liability corporations per calendar year, normalized by working age population. *Securitization over GDP* is total securitization amount over GDP. *Loan share of securitizing banks* is the share of securitizing banks in banking system gross loans. *Collateral types* is the number of underlying collateral types and *ln(Securitization deals)* is log of number of securitization issuances plus one. *Domestic credit to private sector* refers to financial resources provided to the private sector by financial corporations. *Stocks traded over GDP* refers to the total value of shares traded during the period over GDP. *Trade over GDP* is total trade over GDP. *Inflation* is the rate of change in consumer price indices. *Education* is Gross secondary education enrollment ratio. *Unemployment* refers to the share of the labor force that is without work but available for and seeking employment. *Banking crisis* is a dummy variable that equals 1 if the country is in a banking crisis. All securitization related variables are lagged one period. Bank and year fixed effects are included in each specification. Robust P-values are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	GDP per capita growth					New firm density growth				
Securitization over GDP	-0.158*					-0.901*				
	(0.061)					(0.073)				
ln(Securitization over GDP)		-0.645*					-4.123*			
		(0.082)					(0.068)			
Loan share of securitizing banks			-1.375					-16.966**		
			(0.281)					(0.043)		
Collateral types				-0.105*					-1.039	
				(0.064)					(0.120)	
ln(Securitization deals)					-0.444**					-3.541**
					(0.031)					(0.032)
Domestic credit to private sector	-0.030***	-0.030***	-0.017**	-0.031***	-0.030***	-0.045	-0.043	0.004	-0.049	-0.050
	(0.001)	(0.001)	(0.034)	(0.001)	(0.001)	(0.601)	(0.621)	(0.936)	(0.575)	(0.555)
Stocks traded over GDP	0.001	0.001	-0.003	0.000	0.001	0.040**	0.039**	0.032**	0.038**	0.038**
	(0.820)	(0.837)	(0.340)	(0.913)	(0.812)	(0.043)	(0.042)	(0.037)	(0.047)	(0.046)
Trade over GDP	0.038***	0.038***	0.035***	0.039***	0.038***	0.099	0.100	0.052	0.100	0.100
	(0.004)	(0.003)	(0.006)	(0.002)	(0.004)	(0.467)	(0.468)	(0.673)	(0.463)	(0.471)
Inflation	-0.008**	-0.008**	-0.086**	-0.008**	-0.008**	-0.122	-0.117	-0.327	-0.094	-0.106
	(0.019)	(0.019)	(0.015)	(0.020)	(0.020)	(0.820)	(0.827)	(0.454)	(0.861)	(0.843)
Education	0.002	0.002	0.010	0.002	0.002	-0.155	-0.144	-0.239	-0.150	-0.111
	(0.879)	(0.907)	(0.427)	(0.900)	(0.898)	(0.634)	(0.660)	(0.490)	(0.646)	(0.738)
Unemployment	-0.207***	-0.210***	-0.282***	-0.212***	-0.215***	0.562	0.556	-0.184	0.681	0.585
	(0.001)	(0.000)	(0.003)	(0.001)	(0.000)	(0.290)	(0.298)	(0.751)	(0.189)	(0.274)

Banking crisis	-1.842***	-1.858***	-2.086***	-1.908***	-1.861***	2.122	1.982	1.842	1.472	1.530
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.541)	(0.563)	(0.677)	(0.664)	(0.649)
Number of observations	1056	1056	532	1056	1056	391	391	213	391	391
R^2	0.405	0.405	0.504	0.405	0.407	0.281	0.282	0.332	0.281	0.286
Number of countries	97	97	39	97	97	74	74	34	74	74

Table 4. Influence of the Securitization Type

GDP per capita growth is the rate of real per capita GDP growth. *New firm density growth* is the new business entry density, which is the number of newly registered limited liability corporations per calendar year, normalized by working age population. *Securitization over GDP* is total securitization amount over GDP. *Consumer securitization over GDP* is the total amount of securitization collateralized by consumer related underlying assets (such as consumer loans, credit cards, mortgages etc.) over GDP. *Non-consumer securitization over GDP* is the total amount of securitization collateralized by business related underlying assets (such as commercial mortgages, small business loans, bank loans etc.) over GDP. *Real estate securitization over GDP* is the total amount of securitizations collateralized by real estate related assets (RMBS, CMBS, Home-equity loans etc.) over GDP. *Troubled asset securitization over GDP* is the total amount of securitizations collateralized by low quality assets (such as subprime or non-performing loans) over GDP. *Domestic credit to private sector* refers to financial resources provided to the private sector by financial corporations. *Stocks traded over GDP* refers to the total value of shares traded during the period over GDP. *Trade over GDP* is total trade over GDP. *Inflation* is the rate of change in consumer price indices. *Education* is Gross secondary education enrollment ratio. *Unemployment* refers to the share of the labor force that is without work but available for and seeking employment. *Banking crisis* is a dummy variable that equals 1 if the country is in a banking crisis. All securitization related variables are lagged one period. Bank and year fixed effects are included in each specification. Robust P-values are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GDP per capita growth				New firm density growth			
Securitization over GDP	-0.158*				-0.901*			
	(0.061)				(0.073)			
Consumer securitization over GDP		-0.379***				-1.636***		
		(0.000)				(0.005)		
Non-consumer securitization over GDP		0.402*				0.876		
		(0.064)				(0.548)		
Real estate securitization over GDP			-0.249**				-1.303**	
			(0.011)				(0.017)	
Troubled asset securitization over GDP				-1.575***				-24.959***
				(0.000)				(0.000)
Domestic credit to private sector	-0.030***	-0.031***	-0.031***	-0.032***	-0.045	-0.047	-0.047	-0.046
	(0.001)	(0.000)	(0.001)	(0.001)	(0.601)	(0.569)	(0.577)	(0.604)
Stocks traded over GDP	0.001	0.001	0.001	0.001	0.040**	0.039**	0.040**	0.036**
	(0.820)	(0.877)	(0.803)	(0.897)	(0.043)	(0.044)	(0.041)	(0.039)
Trade over GDP	0.038***	0.037***	0.037***	0.039***	0.099	0.100	0.097	0.115
	(0.004)	(0.004)	(0.004)	(0.002)	(0.467)	(0.452)	(0.468)	(0.396)
Inflation	-0.008**	-0.008**	-0.008**	-0.008**	-0.122	-0.122	-0.128	-0.049
	(0.019)	(0.019)	(0.019)	(0.019)	(0.820)	(0.820)	(0.811)	(0.928)
Education	0.002	0.001	0.002	0.003	-0.155	-0.152	-0.152	-0.143

	(0.879)	(0.940)	(0.897)	(0.833)	(0.634)	(0.641)	(0.642)	(0.658)
Unemployment	-0.207***	-0.209***	-0.207***	-0.205***	0.562	0.523	0.557	0.652
	(0.001)	(0.001)	(0.001)	(0.001)	(0.290)	(0.334)	(0.293)	(0.212)
Banking crisis	-1.842***	-1.871***	-1.839***	-1.899***	2.122	2.187	2.175	1.548
	(0.000)	(0.000)	(0.000)	(0.000)	(0.541)	(0.533)	(0.531)	(0.652)
Number of observations	1056	1056	1056	1056	391	391	391	391
R^2	0.405	0.407	0.406	0.404	0.281	0.283	0.282	0.280
Number of countries	97	97	97	97	74	74	74	74

Table 5. Robustness to bank concentration and foreign exposure

GDP per capita growth is the rate of real per capita GDP growth. *New firm density growth* is the new business entry density, which is the number of newly registered limited liability corporations per calendar year, normalized by working age population. *Securitization over GDP* is total securitization amount over GDP. *Consumer securitization over GDP* is the total amount of securitization collateralized by consumer related underlying assets (such as consumer loans, credit cards, mortgages etc.) over GDP. *Non-consumer securitization over GDP* is the total amount of securitization collateralized by business related underlying assets (such as commercial mortgages, small business loans, bank loans etc.) over GDP. *Real estate securitization over GDP* is the total amount of securitizations collateralized by real estate related assets (RMBS, CMBS, Home-equity loans etc.) over GDP. *Troubled asset securitization over GDP* is the total amount of securitizations collateralized by low quality assets (such as subprime or non-performing loans) over GDP. *Domestic credit to private sector* refers to financial resources provided to the private sector by financial corporations. *Stocks traded over GDP* refers to the total value of shares traded during the period over GDP. *Trade over GDP* is total trade over GDP. *Inflation* is the rate of change in consumer price indices. *Education* is Gross secondary education enrollment ratio. *Unemployment* refers to the share of the labor force that is without work but available for and seeking employment. *Banking crisis* is a dummy variable that equals 1 if the country is in a banking crisis. *Foreign claims over GDP* is the consolidated foreign claims of BIS-reporting banks to GDP. *Bank concentration* is the assets of three largest commercial banks as a share of total commercial banking assets. All securitization related variables are lagged one period. Bank and year fixed effects are included in each specification. Robust P-values are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GDP per capita growth				New firm density growth			
Securitization over GDP	-0.123 (0.146)				-0.708 (0.122)			
Consumer securitization over GDP		-0.279*** (0.004)				-1.079** (0.042)		
Non-consumer securitization over GDP		0.275 (0.203)				0.208 (0.878)		
Real estate securitization over GDP			-0.179* (0.070)				-0.955* (0.053)	
Troubled asset securitization over GDP				-1.613*** (0.000)				-25.464*** (0.001)
Domestic credit to private sector	-0.038*** (0.000)	-0.038*** (0.000)	-0.038*** (0.000)	-0.039*** (0.000)	-0.285*** (0.009)	-0.285*** (0.009)	-0.287*** (0.009)	-0.293*** (0.008)
Stocks traded over GDP	-0.002 (0.632)	-0.002 (0.598)	-0.002 (0.644)	-0.002 (0.544)	0.029* (0.086)	0.029* (0.091)	0.029* (0.085)	0.026* (0.092)
Trade over GDP	0.049*** (0.002)	0.048*** (0.002)	0.048*** (0.002)	0.050*** (0.001)	0.263* (0.058)	0.262* (0.060)	0.261* (0.060)	0.282** (0.040)
Inflation	-0.008** (0.016)	-0.008** (0.016)	-0.008** (0.016)	-0.008** (0.016)	-0.328 (0.584)	-0.325 (0.589)	-0.327 (0.584)	-0.253 (0.671)
Education	0.006	0.005	0.006	0.006	-0.183	-0.179	-0.178	-0.164

	(0.621)	(0.669)	(0.634)	(0.598)	(0.587)	(0.595)	(0.596)	(0.623)
Unemployment	-0.196***	-0.198***	-0.196***	-0.196***	0.687	0.664	0.686	0.765
	(0.002)	(0.002)	(0.002)	(0.002)	(0.163)	(0.187)	(0.164)	(0.119)
Banking crisis	-1.668***	-1.693***	-1.671***	-1.709***	2.774	2.785	2.786	2.298
	(0.000)	(0.000)	(0.000)	(0.000)	(0.404)	(0.405)	(0.402)	(0.471)
Foreign claims over GDP	-0.010**	-0.010**	-0.010**	-0.010**	-0.043	-0.042	-0.043	-0.049
	(0.011)	(0.011)	(0.011)	(0.011)	(0.484)	(0.498)	(0.494)	(0.428)
Bank concentration	0.008	0.009	0.009	0.008	0.097	0.101	0.099	0.088
	(0.500)	(0.484)	(0.488)	(0.545)	(0.644)	(0.635)	(0.640)	(0.674)
Number of observations	924	924	924	924	368	368	368	368
R^2	0.435	0.437	0.436	0.436	0.318	0.319	0.319	0.318
Number of countries	91	91	91	91	71	71	71	71

Table 6. Securitization, Investment and Consumption

Gross capital formation consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. *Total consumption over investment* is the total consumption with respect to gross capital formation at current PPPs. *Securitization over GDP* is total securitization amount over GDP. *Consumer securitization over GDP* is the total amount of securitization collateralized by consumer related underlying assets (such as consumer loans, credit cards, mortgages etc.) over GDP. *Non-consumer securitization over GDP* is the total amount of securitization collateralized by business related underlying assets (such as commercial mortgages, small business loans, bank loans etc.) over GDP. *Real estate securitization over GDP* is the total amount of securitizations collateralized by real estate related assets (RMBS, CMBS, Home-equity loans etc.) over GDP. *Troubled asset securitization over GDP* is the total amount of securitizations collateralized by low quality assets (such as subprime or non-performing loans) over GDP. *Domestic credit to private sector* refers to financial resources provided to the private sector by financial corporations. *Stocks traded over GDP* refers to the total value of shares traded during the period over GDP. *Trade over GDP* is total trade over GDP. *Inflation* is the rate of change in consumer price indices. *Education* is Gross secondary education enrollment ratio. *Unemployment* refers to the share of the labor force that is without work but available for and seeking employment. *Banking crisis* is a dummy variable that equals 1 if the country is in a banking crisis. *Foreign claims over GDP* is the consolidated foreign claims of BIS-reporting banks to GDP. *Bank concentration* is the assets of three largest commercial banks as a share of total commercial banking assets. All securitization related variables are lagged one period. Bank and year fixed effects are included in each specification. Robust P-values are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Gross capital formation over GDP				Total consumption over Investment			
Securitization over GDP	-0.300*** (0.000)				0.066*** (0.003)			
Consumer securitization over GDP		-0.422*** (0.000)				0.106*** (0.002)		
Non-consumer securitization over GDP		0.008 (0.980)				-0.036 (0.524)		
Real estate securitization over GDP			-0.395*** (0.000)				0.089*** (0.001)	
Troubled asset securitization over GDP				-0.311 (0.528)				0.143 (0.223)
Domestic credit to private sector	0.036*** (0.000)	0.036*** (0.001)	0.035*** (0.001)	0.034*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.002)
Stocks traded over GDP	0.001 (0.898)	0.000 (0.931)	0.001 (0.909)	-0.001 (0.884)	0.001** (0.015)	0.001** (0.015)	0.001** (0.015)	0.002*** (0.009)
Trade over GDP	0.001 (0.962)	0.000 (0.979)	0.000 (0.986)	0.004 (0.828)	-0.002 (0.464)	-0.002 (0.491)	-0.002 (0.496)	-0.003 (0.344)
Inflation	-0.014***	-0.014***	-0.014***	-0.014***	0.007***	0.007***	0.007***	0.007***

	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education	0.030	0.030	0.030	0.032	-0.005	-0.005	-0.005	-0.005
	(0.287)	(0.297)	(0.292)	(0.278)	(0.385)	(0.406)	(0.393)	(0.363)
Unemployment	-0.752***	-0.753***	-0.751***	-0.746***	0.129***	0.130***	0.129***	0.128***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Banking crisis	-0.982	-0.997	-0.992	-1.078	0.240	0.245	0.241	0.262
	(0.141)	(0.137)	(0.137)	(0.111)	(0.232)	(0.223)	(0.228)	(0.189)
Number of observations	1065	1065	1065	1065	1039	1039	1039	1039
R^2	0.376	0.377	0.377	0.371	0.283	0.284	0.283	0.279
Number of countries	97	97	97	97	96	96	96	96

Table 7. Global Financial Crisis: The relationship before and after

GDP per capita growth is the rate of real per capita GDP growth. *New firm density growth* is the new business entry density, which is the number of newly registered limited liability corporations per calendar year, normalized by working age population. *Securitization over GDP* is total securitization amount over GDP. *Consumer securitization over GDP* is the total amount of securitization collateralized by consumer related underlying assets (such as consumer loans, credit cards, mortgages etc.) over GDP. *Non-consumer securitization over GDP* is the total amount of securitization collateralized by business related underlying assets (such as commercial mortgages, small business loans, bank loans etc.) over GDP. *Real estate securitization over GDP* is the total amount of securitizations collateralized by real estate related assets (RMBS, CMBS, Home-equity loans etc.) over GDP. *Troubled asset securitization over GDP* is the total amount of securitizations collateralized by low quality assets (such as subprime or non-performing loans) over GDP. *Domestic credit to private sector* refers to financial resources provided to the private sector by financial corporations. *Stocks traded over GDP* refers to the total value of shares traded during the period over GDP. *Trade over GDP* is total trade over GDP. *Inflation* is the rate of change in consumer price indices. *Education* is Gross secondary education enrollment ratio. *Unemployment* refers to the share of the labor force that is without work but available for and seeking employment. *Banking crisis* is a dummy variable that equals 1 if the country is in a banking crisis. *Foreign claims over GDP* is the consolidated foreign claims of BIS-reporting banks to GDP. *Bank concentration* is the assets of three largest commercial banks as a share of total commercial banking assets. In regressions 1 to 5, observations from years before 2007 and in regressions 6 to 10 from year after 2006 are used. All securitization related variables are lagged one period. Bank and year fixed effects are included in each specification. Robust P-values are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

	1995-2006				2006-2012			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GDP per capita growth							
Securitization over GDP	-0.405*** (0.003)				-0.254** (0.033)			
Consumer securitization over GDP		-0.495*** (0.006)				-0.518*** (0.000)		
Non-consumer securitization over GDP		-0.150 (0.608)				0.419 (0.163)		
Real estate securitization over GDP			-0.468*** (0.004)				-0.365*** (0.010)	
Troubled asset securitization over GDP				-1.105*** (0.001)				-2.523*** (0.000)
Domestic credit to private sector	-0.025*** (0.001)	-0.025*** (0.001)	-0.026*** (0.001)	-0.028*** (0.001)	-0.020 (0.396)	-0.025 (0.276)	-0.022 (0.336)	-0.020 (0.406)
Stocks traded over GDP	0.014* (0.051)	0.014* (0.054)	0.014* (0.053)	0.013* (0.065)	0.001 (0.742)	0.000 (0.999)	0.001 (0.743)	-0.000 (0.963)
Trade over GDP	0.039** (0.011)	0.038** (0.012)	0.038** (0.012)	0.040*** (0.008)	0.092* (0.099)	0.094* (0.088)	0.092* (0.096)	0.096* (0.079)

Inflation	-0.008**	-0.008**	-0.008**	-0.008**	-0.129*	-0.131*	-0.130*	-0.113
	(0.032)	(0.032)	(0.032)	(0.032)	(0.087)	(0.082)	(0.084)	(0.132)
Education	0.000	-0.001	-0.000	0.006	-0.032	-0.044	-0.035	-0.019
	(0.999)	(0.977)	(0.997)	(0.733)	(0.611)	(0.495)	(0.578)	(0.761)
Unemployment	-0.190**	-0.189**	-0.187**	-0.183**	-0.456***	-0.474***	-0.460***	-0.426***
	(0.014)	(0.014)	(0.016)	(0.021)	(0.000)	(0.000)	(0.000)	(0.001)
Banking crisis	-2.768***	-2.768***	-2.779***	-2.818***	-1.242	-1.285	-1.215	-1.304
	(0.000)	(0.000)	(0.000)	(0.000)	(0.132)	(0.116)	(0.138)	(0.108)
Number of observations	712	712	712	712	344	344	344	344
R^2	0.300	0.300	0.299	0.292	0.510	0.513	0.511	0.508
Number of countries	90	90	90	90	88	88	88	88

Table 8. Global Financial Crisis: Investment and Consumption

Gross capital formation consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. *Total consumption over investment* is the total consumption with respect to gross capital formation at current PPPs. *Securitization over GDP* is total securitization amount over GDP. *Consumer securitization over GDP* is the total amount of securitization collateralized by consumer related underlying assets (such as consumer loans, credit cards, mortgages etc.) over GDP. *Non-consumer securitization over GDP* is the total amount of securitization collateralized by business related underlying assets (such as commercial mortgages, small business loans, bank loans etc.) over GDP. *Real estate securitization over GDP* is the total amount of securitizations collateralized by real estate related assets (RMBS, CMBS, Home-equity loans etc.) over GDP. *Troubled asset securitization over GDP* is the total amount of securitizations collateralized by low quality assets (such as subprime or non-performing loans) over GDP. The control variables, which are included in the regression but not reported, are: *Domestic credit to private sector* refers to financial resources provided to the private sector by financial corporations. *Stocks traded over GDP* refers to the total value of shares traded during the period over GDP. *Trade over GDP* is total trade over GDP. *Inflation* is the rate of change in consumer price indices. *Education* is Gross secondary education enrollment ratio. *Unemployment* refers to the share of the labor force that is without work but available for and seeking employment. *Banking crisis* is a dummy variable that equals 1 if the country is in a banking crisis. *Foreign claims over GDP* is the consolidated foreign claims of BIS-reporting banks to GDP. *Bank concentration* is the assets of three largest commercial banks as a share of total commercial banking assets. In upper panel observations from years before 2007 and in lower panel from year after 2006 are used. All securitization related variables are lagged one period. Bank and year fixed effects are included in each specification. Robust P-values are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Year<2007	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Gross capital formation over GDP				Total consumption over Investment			
Securitization over GDP	-0.315*				0.116***			
	(0.079)				(0.002)			
Consumer securitization over GDP		-0.606**				0.164***		
		(0.019)				(0.001)		
Non-consumer securitization over GDP		0.510				-0.021		
		(0.489)				(0.894)		
Real estate securitization over GDP			-0.452**				0.147***	
			(0.031)				(0.001)	
Troubled asset securitization over GDP				-0.348				0.361***
				(0.522)				(0.002)
Number of observations	721	721	721	721	710	710	710	710
R ²	0.321	0.325	0.322	0.316	0.268	0.269	0.269	0.261
Number of countries	91	91	91	91	90	90	90	90

Year >= 2007	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Gross capital formation over GDP				Total consumption over Investment			
Securitization over GDP	-0.123 (0.145)				0.032* (0.069)			
Consumer securitization over GDP		-0.174 (0.173)				0.056* (0.063)		
Non-consumer securitization over GDP		0.007 (0.978)				-0.030 (0.589)		
Real estate securitization over GDP			-0.149 (0.169)				0.041* (0.068)	
Troubled asset securitization over GDP				-1.931*** (0.000)				0.079 (0.602)
Number of observations	344	344	344	344	329	329	329	329
R^2	0.593	0.593	0.593	0.593	0.411	0.412	0.411	0.410
Number of countries	89	89	89	89	88	88	88	88

Table 9. Securitization and loan composition: Evidence from bank-level regressions

Consumer loan ratio is the share of consumer loans and retail loans in gross loans. *Corporate loan ratio* is the share of corporate and commercial loans and other loans in gross loans. *Securitization over Assets* is the ratio of securitization amount over bank assets. *Assets* are log of bank total assets. *Equity* is bank equity over total assets. *Liquidity* is the liquid reserves over short term funding. *ROE* refers to return on equity. *Net Interest Margin* is the net interest income expressed as a percentage of earning assets. The ratio of *Loans over assets* describes the asset structure. *Loan loss reserves* indicate the proportion of total portfolio that has been provided for but not charged off. *GDP growth* is growth rate of GDP. *GDP* is gross domestic products denoted in 2005 constant USD. *Inflation* is the rate of change in consumer price indices. *Unemployment* refers to the share of the labor force that is without work but available for and seeking employment. *Domestic credit to private sector* refers to financial resources provided to the private sector by financial corporations. *Stocks traded over GDP* refers to the total value of shares traded during the period over GDP. *Trade over GDP* is total trade over GDP. *Banking crisis* is a dummy variable that equals 1 if the country is in a banking crisis. In regressions 4 to 6, observations from years before 2007 and in regressions 7 to 9 from year after 2006 are used. All bank-level controls including securitization are lagged one period. Bank and year fixed effects are included in each specification. Robust P-values are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

	Full sample		1995-2006		2007-2012	
	(1)	(2)	(3)	(4)	(5)	(6)
	Consumer loan ratio	Corporate Loan ratio	Consumer loan ratio	Corporate Loan ratio	Consumer loan ratio	Corporate Loan ratio
Securitization over Assets	0.001*** (0.001)	-0.000 (0.645)	0.001*** (0.003)	-0.001** (0.022)	-0.003 (0.265)	0.005 (0.712)
Assets	0.002 (0.346)	0.015*** (0.000)	-0.002 (0.194)	0.000 (0.892)	-0.001 (0.747)	0.015*** (0.004)
Equity	-0.029** (0.015)	0.083*** (0.000)	-0.022 (0.141)	0.010 (0.564)	-0.073*** (0.000)	0.251*** (0.000)
Liquidity	0.007 (0.162)	-0.019*** (0.006)	0.010* (0.068)	-0.010* (0.071)	0.010* (0.081)	-0.053*** (0.000)
ROE	-0.017*** (0.000)	-0.065*** (0.000)	-0.005 (0.558)	0.001 (0.903)	0.001 (0.798)	-0.097*** (0.000)
Net interest margin	0.638*** (0.000)	-1.468*** (0.000)	0.621*** (0.000)	-0.468*** (0.000)	0.223** (0.018)	-1.686*** (0.000)
Loans over Assets	-0.027*** (0.000)	0.040*** (0.000)	-0.024*** (0.001)	0.016** (0.039)	-0.028*** (0.000)	0.047*** (0.007)
Loan loss reserves	0.290*** (0.000)	0.165 (0.152)	0.063 (0.481)	-0.138 (0.204)	0.219** (0.021)	0.417*** (0.003)

GDP growth	-0.002** (0.031)	0.004*** (0.000)	0.000 (0.764)	0.003** (0.019)	-0.009*** (0.000)	0.004*** (0.000)
GDP	-0.150** (0.045)	-0.097 (0.304)	-0.099 (0.349)	-0.227* (0.051)	0.303*** (0.002)	-0.090 (0.453)
Inflation	-0.006*** (0.000)	0.000 (0.800)	-0.001 (0.657)	0.001 (0.765)	-0.022*** (0.000)	0.001 (0.520)
Unemployment	-0.012*** (0.000)	0.009*** (0.000)	-0.009*** (0.000)	0.007** (0.013)	0.004 (0.286)	0.002 (0.576)
Domestic credit	-0.001*** (0.000)	0.001*** (0.000)	-0.001** (0.024)	0.001*** (0.000)	0.000 (0.380)	-0.000 (0.375)
Stock trade over GDP	0.000 (0.252)	0.000 (0.189)	-0.000 (0.466)	0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Trade over GDP	-0.001* (0.082)	0.004*** (0.000)	-0.002** (0.021)	0.002 (0.140)	0.000 (0.788)	0.002*** (0.004)
Banking crisis	0.008 (0.281)	0.025** (0.038)	0.011 (0.360)	-0.021 (0.143)	-0.008 (0.565)	-0.028 (0.193)
Number of observations	136275	131943	81015	78401	55260	53542
R^2	0.199	0.114	0.123	0.067	0.190	0.075
Number of countries	14507	13750	13362	12831	11021	10414

Table 10. Securitization and Banking system stability

Bank capital is the ratio of bank capital and reserves to total assets of all nonfinancial and financial assets. *Liquid reserves* is the ratio of bank liquid reserves to bank assets. *Bank Z-score* compares the buffer of a country's banking system (capitalization and returns) with the volatility of those returns. It is estimated as $(ROA+(equity/assets))/sd(ROA)$; $sd(ROA)$ is the standard deviation of ROA. ROA, equity, and assets are country-level aggregate figures. *Securitization over GDP* is total securitization amount over GDP. *Consumer securitization over GDP* is the total amount of securitization collateralized by consumer related underlying assets (such as consumer loans, credit cards, mortgages etc.) over GDP. *Non-consumer securitization over GDP* is the total amount of securitization collateralized by business related underlying assets (such as commercial mortgages, small business loans, bank loans etc.) over GDP. *Real estate securitization over GDP* is the total amount of securitizations collateralized by real estate related assets (RMBS, CMBS, Home-equity loans etc.) over GDP. *Troubled asset securitization over GDP* is the total amount of securitizations collateralized by low quality assets (such as subprime or non-performing loans) over GDP. *Domestic credit to private sector* refers to financial resources provided to the private sector by financial corporations. *Stocks traded over GDP* refers to the total value of shares traded during the period over GDP. *Trade over GDP* is total trade over GDP. *Inflation* is the rate of change in consumer price indices. *Bank concentration* is the assets of three largest commercial banks as a share of total commercial banking assets. *Foreign claims over GDP* is the consolidated foreign claims of BIS-reporting banks to GDP. *Real interest rate* is the lending interest rate adjusted for inflation as measured by the GDP deflator. *Banking crisis* is a dummy variable that equals 1 if the country is in a banking crisis. All securitization related variables are lagged one period. Bank and year fixed effects are included in each specification. Robust P-values are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Bank Zscore			Bank Capital				Liquid Reserves				
Securitization over GDP	-0.254*				-0.105*				-0.112			
	(0.088)				(0.095)				(0.676)			
Consumer securitization over GDP		-0.467				-0.099				-0.574		
		(0.111)				(0.447)				(0.265)		
Non-consumer securitization over GDP		0.173				-0.119				0.878		
		(0.670)				(0.517)				(0.207)		
Real estate securitization over GDP			-0.271				-0.124				-0.161	
			(0.159)				(0.137)				(0.646)	
Troubled asset securitization over GDP				-1.540				-0.231				-3.635***
				(0.490)				(0.620)				(0.000)
Domestic credit to private sector	-0.026	-0.025	-0.027	-0.027	-0.019	-0.019	-0.019	-0.020	-0.171***	-0.170***	-0.171***	-0.169***
	(0.223)	(0.232)	(0.219)	(0.205)	(0.219)	(0.219)	(0.214)	(0.202)	(0.004)	(0.005)	(0.004)	(0.005)
Stocks traded over GDP	-0.002	-0.002	-0.002	-0.002	0.001	0.001	0.001	0.001	-0.016	-0.018	-0.016	-0.015
	(0.731)	(0.707)	(0.697)	(0.608)	(0.634)	(0.632)	(0.659)	(0.777)	(0.399)	(0.265)	(0.385)	(0.393)
Trade over GDP	-0.011	-0.011	-0.011	-0.011	-0.007	-0.007	-0.007	-0.006	0.013	0.013	0.013	0.013
	(0.220)	(0.204)	(0.221)	(0.240)	(0.585)	(0.585)	(0.586)	(0.627)	(0.339)	(0.330)	(0.338)	(0.334)

Inflation	0.000 (0.986)	0.001 (0.981)	0.000 (0.990)	0.001 (0.980)	0.040** (0.025)	0.040** (0.026)	0.040** (0.025)	0.040** (0.025)	0.013** (0.043)	0.013** (0.042)	0.013** (0.043)	0.013** (0.039)
Bank concentration	0.027 (0.416)	0.028 (0.399)	0.028 (0.414)	0.026 (0.444)	0.034 (0.115)	0.034 (0.116)	0.034 (0.115)	0.033 (0.126)	-0.042 (0.295)	-0.041 (0.307)	-0.042 (0.298)	-0.042 (0.301)
Foreign claims over GDP	-0.004 (0.832)	-0.004 (0.828)	-0.004 (0.831)	-0.004 (0.825)	-0.003 (0.717)	-0.003 (0.718)	-0.003 (0.718)	-0.003 (0.711)	-0.025 (0.239)	-0.025 (0.234)	-0.025 (0.241)	-0.025 (0.231)
Real interest rate	-0.003 (0.902)	-0.002 (0.912)	-0.003 (0.900)	-0.004 (0.861)	0.012 (0.392)	0.012 (0.393)	0.012 (0.394)	0.011 (0.442)	0.050 (0.431)	0.050 (0.429)	0.050 (0.430)	0.050 (0.427)
Banking crisis	-1.272*** (0.006)	-1.295*** (0.005)	-1.278*** (0.006)	-1.318*** (0.005)	-0.118 (0.865)	-0.117 (0.867)	-0.117 (0.867)	-0.126 (0.859)	-0.295 (0.894)	-0.385 (0.862)	-0.298 (0.893)	-0.485 (0.826)
Number of observations	1020	1020	1020	1020	697	697	697	697	670	670	670	670
R^2	0.036	0.037	0.035	0.034	0.064	0.064	0.064	0.062	0.100	0.101	0.100	0.102
Number of countries	96	96	96	96	79	79	79	79	74	74	74	74

Table 11. Global Financial Crisis: Securitization and Financial Stability

Bank capital is the ratio of bank capital and reserves to total assets of all nonfinancial and financial assets. *Liquid reserves* is the ratio of bank liquid reserves to bank assets. *Bank Z-score* compares the buffer of a country's banking system (capitalization and returns) with the volatility of those returns. It is estimated as $(ROA+(equity/assets))/sd(ROA)$; $sd(ROA)$ is the standard deviation of ROA. ROA, equity, and assets are country-level aggregate figures. *Securitization over GDP* is total securitization amount over GDP. *Consumer securitization over GDP* is the total amount of securitization collateralized by consumer related underlying assets (such as consumer loans, credit cards, mortgages etc.) over GDP. *Non-consumer securitization over GDP* is the total amount of securitization collateralized by business related underlying assets (such as commercial mortgages, small business loans, bank loans etc.) over GDP. *Real estate securitization over GDP* is the total amount of securitizations collateralized by real estate related assets (RMBS, CMBS, Home-equity loans etc.) over GDP. *Troubled asset securitization over GDP* is the total amount of securitizations collateralized by low quality assets (such as subprime or non-performing loans) over GDP. The control variables, which are included in the regression but not reported, are: *Domestic credit to private sector* refers to financial resources provided to the private sector by financial corporations. *Stocks traded over GDP* refers to the total value of shares traded during the period over GDP. *Trade over GDP* is total trade over GDP. *Inflation* is the rate of change in consumer price indices. *Bank concentration* is the assets of three largest commercial banks as a share of total commercial banking assets. *Foreign claims over GDP* is the consolidated foreign claims of BIS-reporting banks to GDP. *Real interest rate* is the lending interest rate adjusted for inflation as measured by the GDP deflator. *Banking crisis* is a dummy variable that equals 1 if the country is in a banking crisis. In upper panel observations from years before 2007 and in lower panel from year after 2006 are used. All securitization related variables are lagged one period. Bank and year fixed effects are included in each specification. Robust P-values are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Year<2007	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Bank Zscore			Bank Capital			Liquid reserves					
Securitization over GDP	-0.213 (0.597)				-0.052 (0.712)				0.281 (0.312)			
Consumer securitization over GDP		-0.486 (0.443)				-0.007 (0.975)				0.170 (0.670)		
Non-consumer securitization over GDP		0.349 (0.599)				-0.169 (0.454)				0.549 (0.441)		
Real estate securitization over GDP			-0.225 (0.671)				-0.030 (0.865)				0.246 (0.497)	
Troubled asset securitization over GDP				1.792 (0.421)				1.430** (0.037)				0.377 (0.810)
Year>=2007	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Bank Zscore			Bank Capital			Liquid reserves					
Securitization over GDP	-0.020 (0.792)				-0.124*** (0.001)				-0.573*** (0.000)			
Consumer securitization over GDP		0.068 (0.658)				-0.177* (0.073)				-0.226 (0.628)		
Non-consumer securitization over GDP		-0.192 (0.615)				-0.020 (0.919)				-1.228 (0.143)		

Real estate securitization over GDP	0.016 (0.875)		-0.146*** (0.003)		-0.704*** (0.004)
Troubled asset securitization over GDP		-1.449*** (0.006)		-1.059*** (0.000)	-2.661 (0.253)

Table 12. Securitization and Bank Stability

Zscore refers to bank Z score, a standard measure of distance from insolvency. It is estimated as $(ROA+(equity/assets))/sd(ROA)$; $sd(ROA)$ is the standard deviation of ROA -calculated based on four year rolling window. *Equity* is bank equity over total assets. *Liquidity* is the liquid reserves over short term funding. *Securitization over Assets* is the ratio of securitization amount over bank assets. *Assets* are log of bank total assets. *ROE* refers to return on equity. *Net Interest Margin* is the net interest income expressed as a percentage of earning assets. The ratio of *Loans over assets* describes the asset structure. *Loan loss reserves* indicate the proportion of total portfolio that has been provided for but not charged off. *GDP growth* is growth rate of GDP. *GDP* is gross domestic products denoted in 2005 constant USD. *Inflation* is the rate of change in consumer price indices. *Unemployment* refers to the share of the labor force that is without work but available for and seeking employment. *Domestic credit to private sector* refers to financial resources provided to the private sector by financial corporations. *Stocks traded over GDP* refers to the total value of shares traded during the period over GDP. *Trade over GDP* is total trade over GDP. *Banking crisis* is a dummy variable that equals 1 if the country is in a banking crisis. In regressions 4 to 6, observations from years before 2007 and in regressions 7 to 9 from year after 2006 are used. All bank-level controls including securitization are lagged one period. Bank and year fixed effects are included in each specification. Robust P-values are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

	Full sample			1995-2006			2007-2012		
	(1) Zscore	(2) Equity	(3) Liquidity	(4) Zscore	(5) Equity	(6) Liquidity	(7) Zscore	(8) Equity	(9) Liquidity
Securitization over Assets	-0.018*** (0.006)	0.001*** (0.000)	0.002*** (0.000)	-0.008 (0.122)	0.001*** (0.000)	0.001*** (0.001)	-0.090 (0.574)	0.005** (0.010)	0.022* (0.051)
Assets	0.224*** (0.000)	-0.012*** (0.000)	-0.023*** (0.000)	0.346*** (0.000)	-0.008*** (0.000)	-0.017*** (0.000)	0.169*** (0.000)	-0.028*** (0.000)	-0.032*** (0.000)
Equity	1.289*** (0.000)		0.094*** (0.000)	0.775*** (0.000)		0.165*** (0.000)	0.938*** (0.000)		0.038 (0.174)
Liquidity	-0.327*** (0.000)	0.047*** (0.000)		-0.139** (0.022)	0.041*** (0.000)		-0.120 (0.101)	0.040*** (0.000)	
ROE	3.107*** (0.000)	0.015*** (0.000)	-0.033*** (0.000)	2.034*** (0.000)	-0.007 (0.126)	-0.004 (0.733)	2.022*** (0.000)	0.042*** (0.000)	-0.044*** (0.000)
Net interest margin	0.503 (0.423)	0.254*** (0.000)	0.495*** (0.000)	-2.935*** (0.000)	0.202*** (0.000)	0.319** (0.021)	0.384 (0.681)	0.184*** (0.000)	0.320** (0.044)
Loans over Assets	-0.275*** (0.000)	-0.028*** (0.000)	-0.126*** (0.000)	0.209** (0.012)	-0.022*** (0.000)	-0.058*** (0.000)	-0.234** (0.028)	-0.032*** (0.000)	-0.096*** (0.000)
Loan loss reserves	-5.763*** (0.000)	0.090** (0.023)	0.244* (0.068)	-1.491** (0.034)	0.100* (0.060)	0.510*** (0.004)	-5.564*** (0.000)	0.028 (0.535)	0.170 (0.240)
GDP growth	0.006 (0.331)	-0.002*** (0.000)	0.002** (0.019)	-0.005 (0.533)	-0.001 (0.365)	0.001 (0.397)	0.031*** (0.001)	-0.001*** (0.006)	0.002 (0.183)
GDP	-0.509	0.022	-0.188***	-1.733**	-0.061	-0.047	0.095	-0.021	-0.261

	(0.197)	(0.347)	(0.008)	(0.017)	(0.101)	(0.707)	(0.889)	(0.629)	(0.119)
Inflation	-0.015***	0.001	0.001	-0.018**	0.001**	0.001	0.006	-0.000	-0.000
	(0.007)	(0.107)	(0.337)	(0.038)	(0.030)	(0.537)	(0.473)	(0.782)	(0.898)
Unemployment	-0.061***	-0.000	-0.003	-0.086***	0.001	-0.006**	-0.079***	-0.001	-0.008**
	(0.000)	(0.804)	(0.211)	(0.000)	(0.452)	(0.012)	(0.000)	(0.472)	(0.014)
Domestic credit	0.001	-0.000	-0.001***	0.002	-0.000	-0.001***	0.000	0.000	-0.001**
	(0.399)	(0.878)	(0.000)	(0.328)	(0.849)	(0.002)	(0.910)	(0.202)	(0.017)
Stock trade over GDP	-0.000	0.000	-0.000***	0.000	-0.000*	0.000	0.000	0.000*	-0.000***
	(0.315)	(0.660)	(0.005)	(0.505)	(0.075)	(0.870)	(0.338)	(0.059)	(0.002)
Trade over GDP	0.005*	0.000*	-0.000	-0.005	-0.000	-0.000	0.002	0.000	0.000
	(0.057)	(0.065)	(0.787)	(0.301)	(0.254)	(0.757)	(0.582)	(0.966)	(0.465)
Banking crisis	-0.136***	0.004*	-0.017**	-0.063	0.007	0.031	0.137	0.009*	-0.035**
	(0.002)	(0.081)	(0.021)	(0.581)	(0.257)	(0.116)	(0.170)	(0.063)	(0.030)
Number of observations	119035	136171	136238	70430	81004	80993	48605	55167	55245
R^2	0.142	0.103	0.088	0.059	0.076	0.057	0.143	0.164	0.110