



IV SPECIAL FEATURES

A SECURITISATION, BANK RISK-TAKING AND LOAN SUPPLY IN THE EURO AREA

This special feature examines whether securitisation activity and banks' risk-taking have had any impact on euro area banks' lending behaviour.¹ It finds this to be the case. In particular, based on a sample covering around 3,000 intermediaries over the first seven years of EMU, it is found that the favourable financial condition of banks together with strong securitisation activity seem to have diminished the importance of the bank lending channel and strengthened the ability of banks to supply loans. However, it is also found that this capacity depends upon business cycle conditions and, notably, upon banks' risk positions. In other words, deterioration in either could have an adverse affect on bank loan supply.

INTRODUCTION

From virtual non-existence, securitisation activity expanded considerably in the euro area after the introduction of the euro (see Chart A.1). While this has been part of a global pattern, a number of euro area-specific factors have also played important roles in explaining the rise of securitisation activity. Among these, the closer integration of euro area

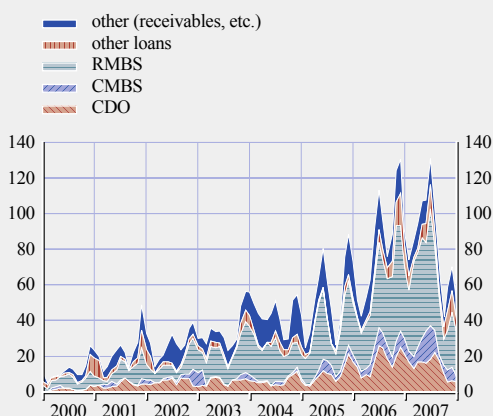
financial markets and a move towards a more market-based financial system have been of great consequence.

Securitisation allows banks to repackage the cash-flows generated by illiquid loans (and other financial claims) into tradable securities. By selling these securities into the financial markets, banks can shed the underlying credit risk while, at the same time, they can free up capital for further lending. Consequently, as securitisation is rowing in importance, banks are maintaining their key role as loan originators but their function as primary holders of the associated credit risk is declining in importance. In addition, securitisation has probably altered the monitoring function performed by banks.² In particular, by passing securities on from banks' balance sheets to the markets there could be fewer incentives for loan originators to screen borrowers. In the short term, this would contribute to an increase in bank lending. However, in the long term, the change in incentives could lead to higher default rates on bank loans.³ In this vein, there is evidence from the United States suggesting that due to securitisation there has been laxer screening and looser lending standards in recent years, thereby altering how loan growth develops at a given interest rate level.

There are a number of ways in which securitisation activity can affect bank risk-taking incentives.⁴ However, the direction in which securitisation activity affects bank risk-taking is not clear cut. It is important to make an assessment of this since

Chart A.1 Euro-denominated asset-backed securities (ABS) issuance

(Jan. 2000 – Jan. 2008; three-month moving sum; monthly data)



Source: Dealogic.

- 1 This special feature draws heavily on Y. Altunbas, L. Gambacorta and D. Marqués (2007), "Securitisation and the bank lending channel", Bank of Italy Working Paper No. 653, and Y. Altunbas, L. Gambacorta and D. Marqués (2008), "Banks' risk and monetary policy", mimeo.
- 2 See D.W. Diamond (1984), "Financial intermediation and delegated monitoring", *Review of Economic Studies*, Vol. 51, No. 3, and B. Holmström and J. Tirole (1997), "Financial intermediation, loanable funds, and the real sector", *Quarterly Journal of Economics*, Vol. 112, No. 3.
- 3 See J. Stiglitz (2007), "House of Cards", *The Guardian*, 9 October, B. Keys, T. Mukherjee, A. Seru and V. Vig (2008), "Did securitization lead to lax screening? Evidence from subprime loans 2001-2006", mimeo, and G. Dell'Árccia, D. Igan and L. Laeven (2008), "Credit booms and lending standards: Evidence from the subprime mortgage market", mimeo.
- 4 See R. Rajan (2006), "Has financial development made the world riskier?", NBER Working Paper No. 11728.

it is likely to have significant financial stability implications. On the one hand, securitisation activity allows banks to shift risks outside their balance sheet and achieve portfolio and funding diversification more easily.⁵ On the other hand, it could also be a way to take on additional risks either by granting riskier credit or simply by acquiring more credit risk on the market.

Developments in securitisation activity and bank risk-taking incentives are likely to have contributed to a change in the way that banks grant credit to borrowers and in how they react to changes in interest rates. In particular, these changes in the role of banks would have a bearing on the importance of the “bank lending” or the “narrow” credit channel. Put simply, the bank lending channel focuses on how banks’ financial conditions have an impact on their ability and willingness to grant credit to borrowers and on how they respond to monetary policy changes.⁶

Given the importance of the banking sector as a provider of funds to households and non-financial corporations in the euro area, adverse effects on banks’ ability to supply loans (for example, as a result of financial market turmoil) may have serious repercussions on the euro area real economy. Empirically, however, it is difficult to measure the effect of banking sector financial conditions on loan supply by using aggregate data as it not easy to disentangle demand and supply factors. To date, this “identification problem” has been solved by claiming that certain bank-specific characteristics (such as size, liquidity and capitalisation) influence loan supply, while treating loan demand as being largely independent of them. After a monetary tightening, the loan supply response will, in principle, be less severe for large, liquid and well-capitalised banks.⁷ For instance, large and well-capitalised banks have greater access to markets for unsecured funding, while liquid banks may simply draw down cash and securities to mitigate the effects of a drop in deposits.

From an empirical perspective, securitisation activity has probably altered those bank characteristics usually emphasised in the literature to identify shifts in loan supply.⁸ The size indicator

is probably less significant because securitisation activity can considerably reduce the amount of loans on banks’ balance sheets. Liquidity can also be affected by securitisation because of the short-term inflows from the sale of asset-backed securities that modify the standard liquidity ratio. Securitisation activity may also reduce the required regulatory capital and make the standard capital-to-asset ratio a poor approximation of the relevant capital constraints faced by banks in this regard, as it would be easier for banks to alter their risk profile.⁹ More broadly, securitisation provides banks with additional flexibility to deal with changes in market conditions associated with monetary policy movements.

In addition to the role of securitisation, empirically it is important to measure bank risk positions as accurately as possible. Risk-taking by banks – or the perceived creditworthiness of banks – is likely to play an important role in the transmission mechanism of monetary policy, and should therefore be considered and incorporated empirically.¹⁰

- 5 See ECB (2008), “Securitisation in the euro area”, Monthly Bulletin, February.
- 6 See B. Bernanke (2008), “The financial accelerator and the credit channel”, Remarks at the conference on “The credit channel of monetary policy in the twenty-first century”, Federal Reserve Bank of Atlanta. For a link between monetary policy and credit risk-taking, see G. Jiménez, S. Ongena, J.L. Peydro and J. Saurina (2007), “Hazardous times for monetary policy: What do twenty-three million bank loans say about the effects of monetary policy on credit risk?”, CEPR Discussion Paper No. 6514.
- 7 For evidence on the bank lending channel, see T. Chami and T.F. Cosimano (2001), “Monetary policy with a touch of Basel”, IMF Working Paper No. 01/151, and S.J. Van den Heuvel (2007), “Does bank capital matter for monetary transmission”, *Federal Reserve Bank of New York Economic Policy Review*, May. For empirical evidence on the bank lending channel, see, for instance, L. Gambacorta and P. Mistrulli (2003), “Bank capital and lending behaviour: empirical evidence for Italy”, Bank of Italy Economic Research Paper No. 486.
- 8 With regard to the effect of securitisation on banks, see, for instance, W. Jiangli and M. Pritsker (2008), “The impacts of securitization on US bank holding companies”, mimeo. See also A. Martin-Oliver and J. Saurina (2007), “Why do banks securitize assets?”, mimeo.
- 9 In principle however, please note that the objective is to consider whether the general availability of securitisation as an additional source of funding matters for banks’ lending policy.
- 10 See B. Bernanke (2008), op. cit., C. Borio and H. Zhu (2007), “Capital regulation, risk-taking and monetary policy: A missing link in the transmission mechanism?”, presentation at the ECB conference on “The implications of changes in banking and financing on the monetary policy transmission”, Frankfurt, 29-30 November 2007.

MODEL AND DATA

This special feature focuses on the effect of securitisation activity and bank risk on the bank lending channel in the euro area in recent years.¹¹ The model builds on existing evidence¹² and specifically accounts for securitisation activity. A loan equation is constructed using extensive microeconomic data. In this equation, the lending growth rate $\Delta \ln(\text{Loans})$ is regressed on nominal (*GDP*) growth rates (to control for country-specific loan demand shifts). The introduction of this variable captures cyclical macroeconomic movements and serves to isolate the monetary policy component of interest rate changes (Δi_M).

The econometric specification also includes bank-specific characteristics, including size (*SIZE*), measured as the log of total assets, liquidity (*LIQ*) and capital position (*CAP*). In addition, the securitisation activity indicator (*SEC*) denotes the flow of securitised lending in year *t* divided by total assets at the end of the previous year.

Importantly, to proxy for banks' risk, two control variables are also inserted. The first variable represents loan loss provisions as a percentage of loans (*LLP*). This variable represents an ex-post accounting measure of credit risk. The second is given by the one-year expected default frequency (*EDF*) which is a widely used forward-looking estimator of credit risk computed by Moody's KMV.¹³

The econometric specification also includes four interactions between changes in the interest rate controlled by the monetary policy authority and bank-specific characteristics.

The model is given in the following equation:

$$\begin{aligned} \Delta \ln(\text{Loans})_{i,t} = & \alpha \Delta \ln(\text{Loans})_{i,t-1} + \sum_{j=0}^1 \delta_j \Delta \ln(\text{GDPN})_{i,t-j} + \\ & \sum_{j=0}^1 \beta_j \Delta i_{M,t-j} + \sum_{j=0}^1 \phi_j \Delta i_{M,t-j} * \text{SEC}_{i,t-1} + \sum_{j=0}^1 \sigma_j \Delta i_{M,t-j} * \text{SIZE}_{i,t-1} + \\ & \sum_{j=0}^1 \lambda_j \Delta i_{M,t-j} * \text{LIQ}_{i,t-1} + \sum_{j=0}^1 \chi_j \Delta i_{M,t-j} * \text{CAP}_{i,t-1} + \eta \text{SEC}_{i,t-1} + \\ & \kappa \text{SIZE}_{i,t-1} + \theta \text{LIQ}_{i,t-1} + \xi \text{CAP}_{i,t-1} + \tau \text{LLP}_{i,t-1} + \psi \text{EDF}_{i,t-1} + \varepsilon_{i,t} \end{aligned}$$

with $i=1, \dots, N$, $k=1, \dots, 12$ and $t=1, \dots, T$ where *N* is the number of banks, *k* is the country and *T* is the final year.

The sample includes annual micro balance sheet data for around 3,000 of the largest euro area banks over the period between the introduction of the euro in 1999 and 2005. The data source is Bankscope, a commercial database from Bureau van Dijk. The sample covers around three-quarters of bank lending to euro area residents. Banks' balance sheet information is matched with securitisation activity from each issuer at the individual deal-by-deal level. Securitisation data are obtained from Dealogic, a commercial data distributor, and these are complemented with data from Standard and Poor's (S&P). Securitisation data cover the bulk of public ABS issued in Europe as well as funded cash (balance-sheet) CDOs issued by euro area originators.¹⁴

RESULTS

The empirical results suggest that changes in economic activity have a positive and significant

11 Incentives for bank risk-taking might have been changing in the euro area in recent years due to a number of factors. Apart from securitisation and other forms of financial innovation, these would include changes in bank competition due to deregulation (and prudential re-regulation such as Basel II), increased pressure from shareholders to provide shareholder value or a greater reliance on market sources of funding. Overall, bank risk and securitisation considerations need to be carefully modelled when considering their possible effect on the supply of bank loans.

12 See I. Angeloni, B. Mojon and A. Kashyap (2003), *Monetary policy transmission in the euro area*, Cambridge University Press, and M. Ehrmann, L. Gambacorta, J. Martinez Pagés, P. Sevestre and A. Worms (2003), "The effects of monetary policy in the euro area", *Oxford Review of Economic Policy*, Vol. 19, No. 1.

13 EDFs are calculated by using financial market data, balance sheet information and Moody's proprietary bankruptcy database. The use of this measure allows the transfer of credit risk as perceived by the markets to be captured. EDF information is not available for all banks. From 1999 to 2005 the sum of total assets of banks for which Moody's KMV constructs EDF figures accounted for around 52% of the total assets of banks in the sample considered in this analysis. For banks that do not have an EDF, their default probability was approximated in two ways: 1) by means of a cluster analysis by year, country, bank's size and category; 2) estimating the missing values of the EDF using a regression model.

14 Securities need to meet two main criteria to be included. First, the bank originating the loans must pass them from their balance sheet through to the markets via asset-backed securities and, second, the bank must receive funding from investors from the sale of those securities.

effect on lending; better economic conditions increase the number of projects that become profitable in terms of expected net present value and hence increase the demand for bank credit from borrowers.

Banks' characteristics seem to have a bearing on bank lending. For instance, the riskiness of the credit portfolio has a negative effect on banks' capacity to increase lending. Other things being equal, higher loan loss provisions reduce profits and, therefore, have negative consequences for loan supply. A similar effect is detected for the expected default frequency. The mechanism suggests that banks' risk conditions matter for the supply of loans and it probably works by means of "market discipline" including the capacity of banks to issue riskier unsecured debt (i.e. bonds or CDs) which might be easier for less risky banks because they have more capacity to absorb future losses.¹⁵ Securitisation activity reduces banks' funding needs and it is positively related to supplied lending.

The effect of liquidity and capital on lending indicates that liquid and well-capitalised banks have more opportunities to expand their loan portfolio.¹⁶

In terms of the effects of the bank lending channel, during the period of this study under normal circumstances securitisation activity and low levels of credit risk significantly reduce the effectiveness of the bank lending channel. At the same time it is important to bear in mind that during most of the sample period there was a stable macroeconomic environment with relatively low and stable interest rates, relatively low levels of non-financial sector loan delinquencies and a strong rate of growth in financial innovation. Nevertheless, the results suggest that even during this rather benign period, banks' risk positions mattered significantly for their lending behaviour. Moreover, the "buffering" effect of financial innovation on credit portfolios seems to have depended strongly upon banks' risk positions as well as on business cycle conditions. In this respect, simulation results¹⁷ based on the

empirical model suggest that an extreme deterioration of bank risk, capital and securitisation conditions could indeed lead to significant impacts on loan supply.

CONCLUDING REMARKS

Based on an extensive database of micro balance sheet information for the largest banks in the euro area which has been matched with information on banks' risk and securitisation activity, this special feature arrives at two important conclusions. First, the spectacular increase in securitisation activity in the euro area, coupled with the low level of bank risk and favourable financial conditions of banks, seem to have had a positive effect on the supply of credit after the introduction of the euro. Second, the effect depends on other factors and, crucially, on financial stability considerations. In particular, benign financial conditions of banks seem to have had a "sheltering" or "buffering" effect on bank loan supply. This effect, however, is found to be dependent both on banks' risk positions and on the stage of the economic cycle. In other words, the importance of the bank lending channel changes over time and deterioration in the business cycle or the financial condition of banks could have an adverse affect on bank loan supply.

15 Empirical evidence shows that lower capital levels are associated with higher prices for unsecured liabilities. See, for example, M.J. Flannery and J. Sorescu (1996), "Evidence of Bank Market Discipline in Subordinated Debenture Yields: 1983-1991", *Journal of Finance*, Vol. 51, No. 4.

16 On the contrary, consistent with Ehrmann et al. (2003), the effect for size is negative, and the role of size as an indicator of informational asymmetries appears to be quite poor. Several features of banking markets in the euro area (low number of banking failures, decreasing role of the government, presence of comprehensive deposit insurance schemes, network arrangements in groups, strong relationship lending between small banks and small firms) seem to diminish the usefulness of size as an indicator of (lower) informational friction.

17 Subject to a number of caveats such as the assumption of linearity on the impacts of banks' risk on loan supply.