Does Monetary Policy Affect Bank Credit Standards?

Angela Maddaloni, José Luis Peydró, and Silvia Scopel[*]

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Abstract

Yes. By using the comprehensive Bank Lending Survey from the euro Area – where there are time and cross-country variation of the stance of monetary policy – this paper identifies the impact of monetary policy on banks' appetite for risk. We find robust evidence that lower overnight rates soften bank credit standards (CS), both for the average and also for the riskier loans. The softening of CS is over and above an improvement of the quality of borrower's industry and collateral (i.e. over and above the balance sheet channel of monetary policy). Banks especially soften their CS by reducing spreads on average loans, but also by reducing collateral requirements and covenants and by increasing loan amount and maturity. The softening of CS is for all types of loans but the impact is bigger for loans to non-financial corporations. We also find evidence that rates *too low for too long* soften even further CS, that securitization makes the impact of overnight rates on CS stronger, and that larger banks react less to overnight rates, especially in their lending to SMEs. Finally, we find that overnight rates are more important in explaining CS than long-term rates, term spread, house price growth or bank credit growth.

Keywords: monetary policy, risk-taking, credit and risk-taking channels of monetary policy, credit composition, business cycle, financial accelerators, financial stability, securitization

JEL: E44, E5, G21

NON-TECHNICAL SUMMARY

The aim of this paper is to analyze the impact of monetary policy on bank lending standards, and in particular how levels and changes of policy rates affect the willingness of bank to grant loans. The paper addresses also the issue of the different channels of transmission of monetary policy and in particular of how to identify the components of a broad credit channel – a bank lending channel, a balance sheet channel and a risk-taking channel.

The data used in the analysis are the answers to the Bank Lending Survey of the Eurosystem, in which a sample of banks in all the euro area countries are asked about their current and expected credit standards for loans (both to enterprises and to households) and about the current and expected demand for loans. The Survey was launched in January 2003 for 12 euro area countries and this is the first paper that analyzes in a systematic way these data.

The reported analysis suggests a series of results. First, there is robust evidence that lower overnight rates soften bank credit standards. The impact is stronger for loans to enterprises and milder for loans to households, nevertheless it remains statistically significant. Second, for borrowers with similar creditworthiness lower policy rates soften credit standards. This suggests that banks take higher credit risk when monetary policy is more accommodative. At the same time, these results point to the existence of an active balance sheets channel of transmission of monetary policy. Third, banks soften their credit standards by reducing all the conditions and terms of the loans. In particular, they reduce spreads on average and riskier loans, reduce collateral requirements, covenants and increase the amount and the maturity of

the loans. The last two results suggest that a "risk-taking channel" of monetary policy transmission may be active in the euro area.

A fourth result concerns differences in monetary policy stance across euro area countries and the notion that the length of time for which policy rates are kept at a certain level may be affecting banks' credit standards. Indeed, evidence reported in the paper suggests that interest rates *too low for too long* may soften even further credit standards. Finally the impact of securitization on credit standards is analyzed. The results imply that securitization makes the impact of interest rates on credit standards stronger.

I. Introduction

One of the key questions in economics is whether monetary policy has real effects and, if so, how it works. One important channel of transmission works through credit markets (Bernanke and Gertler, 1995).[2] Because of imperfect information, incomplete contracts and imperfect bank competition, monetary policy may affect banks' loan supply. In particular, expansive monetary policy may increase banks' loan supply directly (bank lending channel), or indirectly by improving borrowers' net worth and, hence, by reducing the agency costs of lending (balance sheet channel).[3] In addition, low interest rates may increase banks' appetite for risk, an effect that has been labeled as the "risk-taking channel" of monetary policy (following Borio and Zhu, 2007) and can be considered part of the credit channel (Diamond and Rajan, 2006, and Stiglitz and Greenwald, 2003).

Do overnight rates, or in general the stance of monetary policy, affect banks' appetite for risk? To answer this question, first we need to know how bank credit standards change over time. Second, we need to understand whether their change is due to a change in borrowers' quality (balance sheet channel), and whether the change is for all loans or only for the riskier, marginal, loans (i.e. a softening of lending standards could be because the quality of the borrowers is better, not because banks

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[2] See also Bernanke (2007), Bernanke and Blinder (1988 and 1992), Bernanke and Gertler (1989), Bernanke, Gertler, and Gilchrist (1996 and 1999), Gertler, and Gilchrist (1993 and 1994), and Kashyap and Stein (2000).

[3] It is difficult for firms, especially for the smaller ones, to substitute perfectly between bank loans and other type of finance. Also it is difficult for the larger firms (Stiglitz, 2001). In consequence, the impact of monetary policy on banks' loan supply implies a significant effect for the economy as a whole (see e.g. Bernanke and Gertler, 1995).

want to take higher risk). In addition, a key identification challenge when analyzing transmission channels is to disentangle credit demand from supply. To avoid this identification problem, and the sample selection identification issue, one could ask directly the banks on their lending standards evolution, and why and how banks change them. This is what we exploit by using the comprehensive Bank Lending Survey (BLS) from the euro Area, where there is time variation of overnight rates and also cross-country differences in the stance of monetary policy at each moment in time.

In the "balance sheet channel", higher interest rates, by reducing borrowers' net worth, may induce a flight to quality from financiers (Bernanke, Gertler and Gilchrist, 1996) or more lending to borrowers with more pledgeable assets (Matsuyama, 2007). On the other hand, when there is a reduction of overnight rates, financiers tend to lend more to borrowers that have seen their net worth rising. In this case, the potential softening of credit standards is *not* higher banks' appetite for risk.

Recent theoretical work describes the mechanisms of how changes in short-term interest rates may affect *risk-taking* by financial institutions. Lower interest rates may for example reduce the threat of deposit withdrawals (Diamond and Rajan, 2006), abate adverse selection problems in credit markets (Dell'Ariccia and Marquez, 2006), improve banks' net worth (Stiglitz and Greenwald, 2003), or may lead to a search-for-yield (Rajan, 2006), allowing banks to relax their credit standards. This softening happens not only for the riskier loans, which have an adjusted loan net present value (NPV) close to zero, but also for the average loans. On the other hand, higher interest rates increase the opportunity cost for banks to hold cash thus making risky alternatives less attractive (Smith, 2002). Higher interest rates could also reduce the

banks' net worth down to a point where a "gambling for resurrection" strategy becomes attractive (Kane, 1989, and Hellman, Murdock, and Stiglitz, 2000). Giving the conflicting theoretical implications, the impact of short-term interest rates on risk-taking is ultimately a critical empirical question.[4]

Motivated by these theoretical developments we study the impact of monetary policy on the risk-taking behavior of banks. Banks are not only the key financial intermediaries that ameliorate the information/ contract problems which are crucial for the real effects of monetary policy through credit markets (Bernanke and Gertler, 1995), but banks are also the main providers of credit in most economies and, in particular, in the euro area (see for example Hartmann, Maddaloni, Manganelli, 2003).

The analysis is based on data from the euro area Bank Lending Survey. When the survey was first implemented in January 2003 it included quarterly information from 12 euro area countries. To date, the July 2008 survey covers all 15 euro area countries. Over this period of time there is time variation of overnight rates in the euro area and there is also cross-country variation of the stance of monetary policy at each moment in time because of the non-perfect synchronization of business cycles. The main characteristic of this survey is that the 18 regular questions cover both loan demand and supply. Particular attention is given to whether credit standards and the willingness of banks to lend change over time, why they change and how. In addition,

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[4] For the testable predictions from theory of the impact of monetary policy on risk-taking, see Section II of Jiménez, Ongena, Peydró and Saurina (2008).

the questions distinguish between loans to enterprises and loans to households, with further disentangling between loans for house purchase and consumer credit[5].

We find robust evidence that overnight rates affect bank credit standards (CS). In particular, we find that lower level of overnight rates (EONIA) soften bank CS, both for the average and also for the riskier loans. Thus, the softening is over and above an improvement of the quality of borrower's industry and collateral (i.e. over and above the balance sheet channel of monetary policy). Our findings are both robust and economically relevant: we control for GDP growth, inflation, country risk and country fixed effects and, in some specifications, for time and bank fixed effects.[6] We also use as measures of the stance of monetary policy the variation of overnight nominal rates, the short-term real rates, or differences between overnight rates and Taylor-rule implied rates. Moreover, the results are economically significant since the impact of a change in the EONIA rate is significantly higher than a change in GDP growth.

We also find that banks soften their CS by reducing spreads on average loans, but also by reducing collateral requirements and covenants and by increasing loan amount and maturity. The softening of CS is for all types of loans but the impact is bigger for loans to non-financial corporations. We also find evidence that rates *too low for too long* soften even further CS, that securitization makes the impact of overnight rates on CS stronger, and that larger banks' CS react less to overnight rates, especially in lending to SMEs. In addition, we find that overnight rates are more important in

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[5] For a more detailed description of the survey, see Berg et al. (2005).

[6] We do not have bank identity information for the last five quarters of data. Therefore, in many regressions we use the complete sample without bank fixed effects and size. However, all the results of the paper go through as well when we restrict our sample and use bank level information as shown in Table 10. Note also that when we use bank characteristics and restrict our sample, we do not cover then for the crisis period that started in the summer of 2007 and, therefore, the results obtained in the paper are not due to the effects of current credit crunch.

explaining CS than long-term rates, term spread, house price growth and credit growth. Finally, disentangling between loan demand and supply motives, we find that expansive monetary policy increases the willingness of banks to give bigger loan amounts.

Jiménez, Ongena, Peydró and Saurina (2008) and Ioannidou, Ongena and Peydró (2007) are the first to investigate the impact of monetary policy on the risk-taking behavior by banks.[7] These papers use comprehensive and unique credit registers data from Spain and Bolivia respectively. Jiménez, Ongena, Peydró and Saurina (2008) using more than 20 years and millions of bank loan information find that lower short-term rates prior to loan origination imply higher credit risk-taking: not only more relaxing in lending standards but also loans with higher hazard rate. In addition, they find that a period of very low overnight rates followed by very high rates maximizes credit risk. Ioannidou, Ongena and Peydró (2007) find in a dollarized banking system (Bolivia) that not only do banks take more credit risk when overnight rates (federal funds rates) are low, but they also reduce the loan spreads. Our results complement these papers by using a survey on the bank credit standards. By obtaining the lending

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[7] Dell'Ariccia, Igan, and Laeven (2008) "provide hints" (sic) on the potential effects of monetary policy on banks' risk-taking. In line with our findings, their results are consistent with the idea that low interest rates in the U.S. may have loosened credit standards both directly and through their effect on real estate prices. Den Haan, Sumner, and Yamashiro (2007) find that restrictive monetary policy reduces consumer and real estate lending in particular and argue that high short-term rates could imply a decline in bank risk-taking. Gertler, and Gilchrist (1993), Gertler, and Gilchrist (1994) and other papers documenting the strength of the balance sheet channel by showing that contractionary monetary policy results in less bank lending to small firms, findings that are consistent not only with lower borrower net worth but also with less bank risk-taking. Indeed Black and Rosen (2008) show that a lowering of the federal funds rate lengthens loan maturity and reallocates lending from large to small firms. And, in a different setting, Bernanke and Kuttner (2005) find that higher unanticipated interest rates reduce equity prices. One of their interpretations of this finding is that tight money may reduce the willingness of stock investors to bear risk. Rigobon and Sack (2004) show that higher interest rates reduce equity prices, especially on NASDAQ where arguably more risky firms are listed. Manganelli and Wolswijk (2007) find evidence that lower short-term rates lower spreads between risky and safe bonds, and Axelson, Jenkinson, Strömberg and Weisbach (2007) on buyout spreads. See also Borio (2003), Borio and Lowe (2002), Stiglitz (2001), Stiglitz and Weiss (1981), Caballero (2006), Calomiris and Pornrojnangkool (2006), and Taylor (2007).

standards directly from the banks with the comprehensive set of questions addressing supply and demand determinants and conditions, we can solve the demand vs. supply identification problem (the sample selection identification problem). In addition, by studying the lending standards of different countries we can exploit cross-country differences.

There are also some papers that analyze the information content and the leading indicator properties of bank lending surveys from other countries (see e.g. Lown and Morgan, 2002 and 2006, and Lown, Morgan and Rohatgi, 2000). However, we are not aware of any paper in this literature that studies the impact of overnight rates on bank credit standards.[8]

The results have important policy implications regarding the link between monetary policy and financial stability, and regarding the root causes of the turbulences in credit markets since the summer of 2007 since we find that low levels of overnight rates caused the softening of CS over and above improvements in underlying economic fundamentals. In addition, we find that securitization reinforced the impact of expansive monetary policy on the softening of lending standards.

The rest of the paper proceeds as follows. Section II explains the data, introduces the variables employed in the empirical specifications and reviews the empirical strategy. Section III discusses the results and Section IV concludes.

II. Data and Empirical Strategy

A.   The Bank Lending Survey (BLS) data

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[8] This version of the paper is preliminary; therefore, the bibliography may be incomplete.

The main dataset used in the paper are the answers to the BLS received from euro area banks. The questionnaire covers loan supply and loan demand assessing credit standards and the willingness of banks to lend. The overall questionnaire consists of 18 regular questions where loans are classified according to "loans or credit lines to enterprises" and "loans to households." The latter loans are also disaggregated in "loans for house purchase" and "loans for consumer credit." Berg, van Rixtel, Ferrando, de Bondt and Scopel (2005) describes in detail the setup and the questions of the euro area Bank Lending Survey. The euro area results of the survey (which are a weighted average of the results obtained for each euro area country), are published every quarter on the website of the ECB (www.ecb.europa.eu), while national results are reported by each national central bank of the Eurosystem.

The BLS questionnaire includes both backward-looking and forward-looking questions in order to capture developments that have taken place and expectations regarding future developments in credit markets. The backward-looking questions cover the period from the last quarter of 2002 to the second quarter of 2008. Over this period we consistently have data for 12 euro area countries (Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain). The questions of the BLS are multiple-choice with 5 possible answers. In most of the analysis of the paper the BLS variables that we use are the net percentages, i.e. the percentage of banks in each country reporting an increase in the tightening of standards (for questions related to the supply of loans) or an increase in the demand (for questions related to the demand for loans). In the last part of the paper, as a robustness check and for further econometric identification, we use individual banks' answers and thus we can control for individual bank's characteristics. However, this sample is available only from the last quarter of 2002 to the third quarter of 2006.

For the purpose of this paper we concentrate only on few questions from the BLS that we describe in detail in Appendix I (See also Appendix II for the complete BLS questionnaire). The questions are related either to the previous three months or to the expected change in CS for the next three months. We find very similar results using either of the two set of questions and opt to report only the results related to actual changes.

B.   Macroeconomic and financial variables

We use several macroeconomic and financial variables in our analysis from 2002:q3 to 2008:q2[9]. All the series have quarterly frequency to be consistent with the results of the BLS. The main proxy for the monetary policy stance is the quarterly average of the EONIA overnight interest rate, as published by the ECB. The main macroeconomic controls we use are: the annual real GDP growth rate, the inflation rate, and a measure that proxies for country risk.[10] The inflation rate is defined as the quarterly average of the annual inflation rate. The country risk proxy is defined as the difference between the long-term rate for each country (based on the 10 year Treasury bond) and the corresponding long-term German rate. The source for GDP growth and inflation is Eurostat, whereas the source for the country risk is Thomson Financial Datastream.

To exploit the cross-sectional differences in the stance of monetary policy at each moment in time, we calculate for each country a Taylor-rule implied rate over the sample period and then we use the difference between this rate and the actual EONIA

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[9] See Appendix III for a detailed description of the variables used in the paper.

[10] In unreported regressions we have used as macroeconomic variables also expectations of GDP growth and inflation from Consensus Forecast. The results are qualitatively similar, but these variables are not available for all euro area countries over the period considered.

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rate as explanatory variable. We also define the periods of "expansive" monetary policy as the number of quarters in which the policy rate, measured by the EONIA rate, was below the Taylor-rule implied rate starting in 1999q1, i.e. when the single currency was implemented. These rules-implied rates are calculated following simple Taylor rules with coefficients 0.5 for inflation and output gap. Output gap and inflation are country specific, while the natural rate has been set at 2.1 and the inflation target at 1.9. [11]

We also directly use in some regressions long-term rates for each country based on the 10 year Treasury bond and the term spread, which is calculated as the difference in each country between the 10 year rate and 3-month rate (these data are from Thomson Financial Datastream and BIS respectively). We also use house prices growth and credit growth (the source is ECB, see Appendix for details).

One of the most notable innovation in banking markets over the last few years has been the use of securitization. Thus, we also construct a variable which proxies for securitization activity. This is the ratio between all the deals involving asset-backed securities and mortgage-backed securities (we take a 4-quarter moving sum), as reported by Dealogic, normalized by the volume of loans lagged of one quarter. [12] The securitization variable is country-specific since we have information about the

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[11] The output gap for each euro area country is the average of the output gap estimate from the European Commission, the OECD and the IMF. As a robustness check we have also used the Taylor rule specification in Gerdesmeier, Mongelli and Roffia (2007) with interest-rate smoothing. In particular, we use the estimated coefficients for the euro area and we plug them in a different Taylor-rule equation for each country. The results are qualitatively similar to the ones obtained with simple Taylor rules.

[12] The presumption is that loans are securitised by the banks with a quarter lag after they have been granted.

nationality of the collateral.[13] The volume of loans is available from the official ECB statistics.

In Table 1, the summary statistics and the cross-correlations across variables and across countries are shown. The average of the country variables are not weighted by the size of the countries. The correlations among the macro variables are not very strong.

Table 1c shows cross-country correlations for some of the variables. The answers given by the banks on credit standards applied to loans tend to be more correlated for loans to enterprises than for loans for house purchase. GDP growth has a higher correlation across countries, but in some cases, like Greece and Ireland, the correlation is very low. Finally, when looking at the differences between Taylor-rule implied rates and EONIA rates, Table 1c shows that there is significant cross-country variation. All in all, the dynamics of the lending standards and of the business cycles show significant heterogeneity across euro area countries.

C.   Empirical strategy

We want to analyze the impact of the stance of monetary policy on banks' appetite for risk. Therefore, we need both a good measure of banks' appetite for risk and of the stance of monetary policy.

We measure banks' appetite for risk using the bank credit standards. Since we use the information directly coming from banks we can avoid the typical identification problem on the credit channel literature of separating loan demand vs. loan supply

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[13] We are taking into account only deals for which the underlying collateral resides in one of the euro area countries. Thus, we do not include securitization from euro area banks of loans granted outside the euro area.

(i.e. sample selection), since we can control for the factors affecting both. In addition, as explained previously, the BLS gives us measures of bank credit standards both for riskier and also for average loans.[14] The survey indicates whether banks change the CS due to changes in underlying economic fundamentals and/or borrowers' quality. Hence, we can control for the balance sheet channel. Also, we can analyze *how* banks modify their credit standards by running a horse race between loan spreads, loan amount, collateral requirements, covenants and maturity, and also among the different type of loans (credit to SMEs vs. to large firms; long vs. short term loans; loans for house purchase; and consumer loans).

With regard to the monetary policy measure, we have some quarter variation on the level and changes of overnight rates in the euro area between 2002 and 2008. In addition, we also exploit the fact that the euro area is comprised of at least 12 countries with not perfect business cycle synchronization and with different levels of potential GDP growth rates and, therefore, we can exploit cross-country variation of the stance of monetary policy at each quarter.[15]

We estimate a GLS panel regression where the LHS variable is the change in credit standards, where higher level means tightening, and on the RHS we have a measure of the monetary policy stance. We normally use as measure of the monetary policy the level of overnight rates (EONIA) measured in the previous quarter.[16] Alternatively, we use the changes in overnight rates, or the differences between

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[14] An alternative explanation for the marginal (riskier) loans could be that, when overnight rates are lower, there is a softening of credit standards because quality possibly worsens as more, and more risky projects surpasses a 0 adjusted NPV hurdle. However, BLS also gives us information of lending standard for "average loans".

[15] See for example Camacho, Perez-Quiros and Saiz (2006).

[16] In Bernanke and Blinder (1992), and in Christiano, Eichenbaum, and Evans (1996), among others, the overnight interest rate is an indicator of the stance of monetary policy. The ECB targets the overnight rate as a measure of the stance of its monetary policy.

Taylor rates and overnight rates.[17] The normal panel we use is (country, quarter) with country fixed effects, but we also use a (bank, quarter) panel with bank fixed effects, though in this case we lose one year information as explained above. We also control for GDP growth, inflation, country risk and, in some specifications, we control for time (quarter) fixed effects. We also control in some regressions for the level of securitization, long-term interest rates, term spread, house price growth and credit growth. To further push for the causality of monetary policy on bank CS, we check whether the impact of the stance of monetary policy on bank CS depends on bank size (as in Kashyap and Stein, 2000, or Jiménez, Ongena, Peydró and Saurina, 2007), and also on the level of securitization.[18]

III. Results

In Table 2 we analyze the impact of EONIA on credit standards (CS) (Question 1 and 8 of BLS, see Appendix). The dependent variable "Changes in credit standards" is the net percentage of banks which have reported to have tightened vs. softening of their credit standards for the approval of loans. Running GLS panel regressions with country fixed effects and standard errors corrected for autocorrelation and correlation across countries, we find that the coefficient on EONIA is equal to 20.739***, which implies that higher level of overnight rates imply higher credit standards (i.e. a tightening of credit standards).[19] Once we introduce real GDP growth, inflation rate and a measure that proxies for country risk (the 10-year bond spread), results are still

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[17] In non-reported regressions we also used short-term real interest rates as a measure of the stance of monetary policy. Results are virtually the same.

[18] In future versions of the paper we will also run interactions with variables that proxy for the level of banking regulation to analyze whether the impact of monetary policy on risk-taking depends on banking regulation and supervision.

[19] *** Significant at 1%, ** significant at 5%, and * significant at 10%. For convenience we also indicate the significance levels of the coefficients in the text.

highly statistically significant (the coefficient on EONIA is 20.617***). The coefficient on GDP growth is -2.839*** which indicates that higher GDP growth soften also credit standards. Results are also highly economically significant: : a 1% change in EONIA has an impact on CS seven times higher than a 1% change in GDP growth, though the standard deviation of EONIA is more than double the standard deviation of GDP growth. The coefficients on inflation and country risk are not significant. From column 3 to 6 we report the results of the same regressions for loans to households for house purchase. The effect of EONIA on CS is stronger for loans to non-financial corporations than for loans for house purchase or for consumer credit. The impact of changes in the policy rates is stronger when we control also for the fraction of outstanding housing loans with variable rates (with maturity less than one year). The same result does not hold for loans for consumer credit, where the coefficient of EONIA is less or not significant (see columns 7 to 11).

Banks may soften their CS when overnight rates are lower because of the increase in borrowers' net worth and quality of collateral as suggested by Matsuyama (2007) or Bernanke, Gertler, and Gilchrist (1996 and 1999). In Table 2 we control for GDP growth and other important macroeconomic variables that in principle should control for the improvement of borrowers. In Table 3 we make a further step. We control for improvements in borrowers' net worth and collateral by introducing as controls some factors that banks thought were favoring the softening of CS (it corresponds to Question 2 of BLS, see Appendix). In table 3a we analyze credit standards to enterprise. From column 1 to 3 we introduce the answers banks gave to whether expectations regarding general economic activity, industry or firm specific outlook, and risk on the collateral demanded were affecting the change in CS. Despite of these controls we still find that the effect of EONIA on CS is highly significant

from a statistical and economical sense (coefficients are 11.417***, 13.876*** and 13.371***). Therefore, the effect of overnight rates on CS is not only due to the balance sheet channel of monetary policy (changes in the creditworthiness of borrower), but the results suggest that banks *truly* have a higher appetite for risk when monetary policy rates are lower.

In table 3a we also control for the possible improvement in bank capital, access to market financing and liquidity positions when rates are lower (column 4 to 6) as suggested by Diamond and Rajan (2006) and for the competition from other financial intermediaries and sources of finance (column 7 to 9) as suggested by Stiglitz and Greenwald (2003) and Dell'Ariccia and Marquez (2006). Despite these controls, EONIA still is significant in explaining changes in bank CS. Again, our results suggest that there are alternative channels by which banks take on higher risk when rates are lower as indicated by Rajan (2006), Borio and Zhu (2007) and Stiglitz and Greenwald (2003).

In table 3b we analyze credit standards for loans to households. In this case we control for the improvements of general economic conditions and for housing markets prospects and credit worthiness of consumers (it corresponds to Question 9 of BLS, see Appendix). In this case EONIA is significant in explaining changes in CS only in the case of loans for house purchase but not for loans to consumers.

Banks tighten their credit standards by varying the terms and conditions of their loans. In Table 4 we analyze first whether banks change their CS both for the average loans and also for the riskier loans, and second, which conditions they adjust more when they modify their CS (It corresponds to Question 3, 10 and 12 of the BLS, see Appendix). In Table 4a we report the results for changes in conditions and terms for

loans to enterprises. We find that EONIA is highly significant at explaining business loan spreads on both the average (23.346***) and the riskier loans (16.919***), but the coefficient on average loans is larger. We also find that banks adjust loan amounts (11.537***), collateral requirements (13.769***), loan covenants (13.83***) and maturity (15.084***). These results suggest that the effect of EONIA on CS is not only due to the fact that lower overnight rates increase the NPV of projects and that this increase is larger for projects with an NPV close to zero. They also suggest that the actual supply of loans granted is affected by changes in the size and in the maturity of the loans. In Table 4b and 4c we find similar results for loans to households.

In Table 4d we investigate even further the determinants of the size of loans granted to enterprises (the CS corresponds to question 3 of BLS, see Appendix). Column 1 shows that higher EONIA implies tougher standards with respect to the size of the loan (the coefficient is 11.008*** and a larger coefficient for the variable "size of the loan" means lower willingness of banks to lend larger amounts). In the following columns we report the results of the same regression where on the right hand side we control also for the demand for loans and in particular we use the answers to question 5 of the BLS related to factors affecting the demand. A higher level of overnight rates reduces loan amounts after controlling for loan demand. This result contributes to the literature on the credit channel of monetary policy by disentangling loan demand from supply in the impact of the stance of monetary policy on loan amounts (Bernanke, 2007; Bernanke and Blinder, 1992 and 1998; Bernanke and Gertler, 1989; Kashyap and Stein, 2000).

The overall credit standards may be affected also by the contemporaneous demand for loans. However, the factors related to the financing of banks, their capital position, the access to market financing and their liquidity position can be considered "pure supply factors." Thus, as a robustness check, we run the regressions with the usual macro variables where on the left hand side we have the answers to question 2 of the BLS related to banks cost of funds and balance sheet constraints. The results shown in Table 4e confirm that lower policy rates have a significant impact on relaxing credit standards. The channel of transmission is consistent with the arguments put forward in Adrian and Shin (2008).

In Table 5 we look at the demand for credit (it corresponds to Question 4 and 13 of the BLS, see Appendix). We can see that the effect of EONIA is significant only for credit demand from households. In particular, the impact is larger for loans for house purchase than for loan for consumer credit. Real GDP growth, instead, is a more important element for loan demand from non-financial firms and from households for consumer purchases than for house purchase. In Table 6 we control for factors which the banks reported to have affected credit demand (it corresponds to Question 5 and 14 of the BLS, see Appendix). When controlling for this factor changes in the demand of loans from enterprises is not affected by the level of interest rates (Table 6a), while the monetary stance has a significant impact on the demand for house mortgages (Table 6b).

So far we have used as policy rate the level of overnight rates. This measure of monetary policy is time-varying. However, to get cross-sectional variation in the monetary policy stance and, more importantly, to assess whether short term rates may

be considered low or high, we calculate the difference between the rate implied by a country-specific Taylor rule and the overnight rate.[20]

In Table 7, we first introduce time (quarter) fixed effects in addition to the country fixed effects. Hence we purely analyze cross-sectional differences in the stance of monetary policy eliminating time variations. As we can see from column 1, higher differences between Taylor and overnight rates (i.e. expansive monetary policy) imply a softening of CS for loans to households.[21] Next, we introduce an additional variable that captures whether the stance of monetary policy has been expansive for several quarters or not. In this case we take out the time dummies as we want to fully exploit the time dependence of the stance of monetary policy. As we can see in column 4 and 6, rates too-low-for-too-long imply an even further softening of CS especially for loans for house purchase.

The softening of CS could be due to long-term interest rates. In Table 8, column 1 and 3 show that short-term rates (coefficient equal to 17.697***) are more economically important than long-term rates (coefficient equal to 9.237***) in explaining CS.[22] It is not surprising since banks finance themselves mainly through short-term debt and this funding liquidity is what matters for risk-taking (Diamond and Rajan, 2006 and Adrian and Shin, 2008). We also find in column 2 and 4 that the term spread (coefficient equal to 6.823**) is not as economically important as short-term rates

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[20] Another way to do it is through real short-term interest rates. In this case, negative rates are low. In non-reported regressions, we find virtually the same results if we use real rates.

[21] The CS corresponds to Question 1 and 8 of BLS, see Appendix. In unreported regressions, using the Euribor rate as a proxy for the policy rate, the results are significant also for loans to non-financial corporations. The use of a different proxy for the policy rate can be justified by the fact that Taylor-rule rates are often estimated using interbank rates. Moreover since August 2007 EONIA and Euribor rates have shown a significant difference, which was not present in previous periods and which is likely to drive the differences in the results.

[22] The CS also corresponds to Question 1 and 8 of BLS, see Appendix.

(coefficient equal to 26.282***) in explaining CS. On the other hand, for loans for house purchase, the coefficient on long term rates is 9.492** whereas the coefficient on EONIA is 7.824**, which indicates that for very long projects (loan for house purchases) long-term rates are more important than short-ones.

In Table 9a we introduce the level of securitization at the country level. First, we note that securitization tends to lower credit standards, a result similar in flavor at the one obtained by Altunbas, Gambacorta and Marques (2007). In addition, as shown in column 2 where we add an interaction term, higher securitization makes the impact of the stance of monetary policy on risk-taking (CS) stronger thus suggesting that financial innovation may increase the volatility of the business cycle.[23] It also indicates that banks will soften the CS more when monetary policy is more expansive and securitization volumes are larger. Thus, two of the possible root causes of the current credit market crisis reinforce each other.[24] In the last columns we control for house price changes and credit growth and results are very similar.

In Table 10 column 1 we use the individual bank data and we run Ordered Probit panel regressions with bank fixed effects in addition to country fixed effects. Results virtually don't change despite of losing more than 4 quarters of data. The coefficient on EONIA is 1.229*** for loans to enterprises.[25] In column 2, we introduce bank size. We find that bigger banks soften more their CS, especially to SMEs (the coefficient on size is -1.16**). In column 6 we see that larger banks soften more their CS to

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[23] The CS also corresponds to Question 1 and 8 of BLS, see Appendix.

[24] Loan securitization may have intensified risk-taking (see Keys, Mukherjee, Seru and Vig (2008), and Mian and Sufi (2008)).

[25] The dependent variable "Changes in credit standards" is whether the bank has tightened credit standards, or softened them or has not changed the credit standards for the approval of loans or credit lines to enterprises. It corresponds to Question 1 of BLS (see Appendix).

SMEs (the coefficient on the interaction between EONIA and bank size is -1.861*).
The result is reversed for loans to large enterprises, although the coefficient is not
significant when considering the interaction with monetary policy. We don't find
significant results of bank size with respect to loans to large firms. All in all, the
results indicate that the impact of overnight rates on CS is stronger for larger banks
and for loans to SMEs.

IV. Conclusions

By using the comprehensive Bank Lending Survey from the euro area, where
there are time and cross-country variations of the stance of monetary policy, we
identify the impact of monetary policy on banks' appetite for risk. We find robust
evidence that lower overnight rates soften bank credit standards (CS), both for the
average and also for the riskier loans. The softening is over and above an
improvement of the quality of borrower's industry and collateral (i.e. over and above
the balance sheet channel of monetary policy). Banks especially soften their CS by
reducing spread (especially on the average loans), but also by reducing collateral
requirements and covenants and by increasing loan amount and maturity. The
softening of CS is for all types of loans but the impact is bigger on loans to non-
financial corporations. We also find evidence that rates *too low for too long* soften
even further CS, that securitization makes the impact of overnight rates on CS
stronger, and that larger banks react less to overnight rates, specially in their lending
to SMEs. In addition, we find that overnight rates are more important in explaining
CS than long-term rates, term spread, house price growth and credit growth. Finally,
disentangling perfectly between loan demand and supply motives, we find that

expansive monetary policy increases the willingness of banks to give bigger loan amounts.

This is the first paper to investigate in a systematic way the results of the euro area Bank Lending Survey. We study the determinants of banks' credit supply and demand and their relation with monetary policy. We plan to further exploit the data in at least two different directions. First, we would like to focus on the lending standards to households and, in particular, on the lending for house purchase, which could be analyzed in conjunction with country mortgage markets characteristics. Second, we would to analyze the information content of the BLS to investigate its leading indicator properties for the business cycle, credit growth and financial stability.

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Table 1a: Summary statistics

Table 1a shows the summary statistics for the variables used in the analysis. The credit standards are the *net percentages* of banks in the euro area reporting a tightening of credit standards in the Bank Lending Survey. The EONIA is the quarterly average of the EONIA overnight interest rate. The GDP growth is the annual growth rate of real GDP in each of the 12 country included in the analysis (Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain). The inflation is the quarterly average of the annual inflation rate. Country risk is the difference between the 10-year government bond interest rate in each country and the corresponding German rate. The Taylor rate – EONIA is the difference between a Taylor rule rate (estimated with a simple Taylor rules with coefficients 0.5, where the natural rate was fixed at 2.1 and the inflation target at 1.9) and the EONIA rate. The securitisation is the ratio between the total volume of deals involving asset-backed securities and mortgage-backed securities with collateral from the respective country and the total volume of loans during the previous quarter. House prices is the quarterly change in house prices indices in each country. The sample spans from 2002q4 to 2008q2 for the BLS data and from 2002q1 to 2008q2 for the other variables.

	mean	standard dev.	minimum	maximum
Credit standards for enterprises	15.59	29.45	-50.00	100.00
Credit standards for house purchase	1.84	27.69	-100.00	100.00
Credit standards for consumer credit	3.41	20.97	-80.00	80.00
EONIA	2.84	0.75	2.02	4.05
GDP growth	2.58	1.89	-1.97	8.75
Inflation	2.47	0.98	-0.17	5.09
Country risk	0.09	0.13	-0.49	0.63
Taylor rate - EONIA	1.69	1.59	-1.71	6.16
Securitisation	11.72	14.67	0.00	60.12
House prices	1.59	1.97	-8.47	8.37

Table 1b: Cross-correlations

Table 1b shows the cross-correlations for the main macroeconomic and financial variables used in the analysis.

	EONIA	GDP growth	Inflation	Country risk	Taylor rate - EONIA	Securitisation	House prices
EONIA	1.00						
GDP growth	0.01	1.00					
Inflation	0.14	0.14	1.00				
Country risk	0.39	-0.06	0.35	1.00			
Taylor rate - EONIA	-0.34	0.08	0.80	0.04	1.00		
Securitisation	0.11	0.10	0.01	0.07	0.12	1.00	
House prices	-0.22	0.12	0.17	-0.06	0.20	-0.15	1.00

Table 1c: Cross-country correlations

Table 1c shows the cross-country correlations for the credit standards, for the GDP growth and for the differences between Taylor-rule implied rates and EONIA rates

Credit standards for loans to enterprises

	CS_AT	CS_BE	CS_DE	CS_ES	CS_FI	CS_FR	CS_GR	CS_IE	CS_IT	CS_LU	CS_NL	CS_PT
CS_AT	1.00											
CS_BE	0.57	1.00										
CS_DE	0.53	0.55	1.00									
CS_ES	0.76	0.70	0.44	1.00								
CS_FI	0.44	0.30	0.04	0.61	1.00							
CS_FR	0.77	0.74	0.71	0.78	0.36	1.00						
CS_GR	0.29	0.06	0.28	0.21	0.36	0.26	1.00					
CS_IE	0.49	0.40	0.08	0.79	0.60	0.48	0.23	1.00				
CS_IT	0.44	0.66	0.82	0.55	0.24	0.75	0.36	0.28	1.00			
CS_LU	0.24	0.35	0.62	0.44	0.08	0.55	0.31	0.27	0.76	1.00		
CS_NL	0.75	0.68	0.59	0.81	0.36	0.77	0.02	0.50	0.57	0.45	1.00	
CS_PT	0.74	0.62	0.53	0.95	0.56	0.79	0.28	0.75	0.60	0.53	0.77	1.00

Credit standards for loans to households for house purchase

	CS_AT	CS_BE	CS_DE	CS_ES	CS_FI	CS_FR	CS_GR	CS_IE	CS_IT	CS_LU	CS_NL	CS_PT
CS_AT	1.00											
CS_BE	0.01	1.00										
CS_DE	0.45	-0.23	1.00									
CS_ES	0.32	0.44	0.04	1.00								
CS_FI	-0.08	0.58	-0.42	0.24	1.00							
CS_FR	0.44	0.39	0.04	0.49	0.32	1.00						
CS_GR	0.34	0.29	-0.03	0.50	0.22	0.24	1.00					
CS_IE	0.36	0.47	0.15	0.73	0.42	0.39	0.77	1.00				
CS_IT	0.34	0.24	0.25	0.27	0.13	0.46	0.25	0.40	1.00			
CS_LU	0.51	0.23	0.24	0.49	0.14	0.40	0.24	0.49	0.26	1.00		
CS_NL	0.48	0.06	0.50	0.13	-0.03	0.39	0.13	0.24	0.28	0.26	1.00	
CS_PT	0.30	0.48	0.21	0.79	0.38	0.50	0.42	0.64	0.41	0.41	0.34	1.00

Cross-country correlations of real GDP growth

	GDP_AT	GDP_BE	GDP_DE	GDP_ES	GDP_FI	GDP_FR	GDP_GR	GDP_IE	GDP_IT	GDP_LU	GDP_NL	GDP_PT
GDP_AT	1.00											
GDP_BE	0.80	1.00										
GDP_DE	0.69	0.72	1.00									
GDP_ES	0.74	0.68	0.49	1.00								
GDP_FI	0.79	0.86	0.78	0.74	1.00							
GDP_FR	0.83	0.81	0.62	0.72	0.86	1.00						
GDP_GR	0.13	0.28	0.01	0.71	0.35	0.37	1.00					
GDP_IE	0.29	0.34	0.11	0.50	0.24	0.19	0.37	1.00				
GDP_IT	0.67	0.84	0.74	0.56	0.78	0.67	0.17	0.31	1.00			
GDP_LU	0.46	0.46	0.46	0.47	0.49	0.48	0.30	0.46	0.48	1.00		
GDP_NL	0.82	0.80	0.85	0.57	0.83	0.81	0.06	0.00	0.64	0.38	1.00	
GDP_PT	0.69	0.59	0.60	0.37	0.54	0.62	-0.03	0.13	0.57	0.67	0.70	1.00

Cross-country correlations of the differences between Taylor-rule implied rates and EONIA

	TR-EONIA_AT	TR-EONIA_BE	TR-EONIA_DE	TR-EONIA_ES	TR-EONIA_FI	TR-EONIA_FR	TR-EONIA_GR	TR-EONIA_IE	TR-EONIA_IT	TR-EONIA_LU	TR-EONIA_NL	TR-EONIA_PT
TR-EONIA_AT	1.00											
TR-EONIA_BE	0.82	1.00										
TR-EONIA_DE	0.86	0.86	1.00									
TR-EONIA_ES	0.66	0.72	0.56	1.00								
TR-EONIA_FI	-0.07	0.21	-0.06	0.31	1.00							
TR-EONIA_FR	0.72	0.76	0.63	0.78	0.16	1.00						
TR-EONIA_GR	0.51	0.65	0.35	0.80	0.44	0.79	1.00					
TR-EONIA_IE	-0.26	-0.18	-0.41	0.29	0.57	0.22	0.54	1.00				
TR-EONIA_IT	0.44	0.54	0.30	0.74	0.28	0.88	0.85	0.50	1.00			
TR-EONIA_LU	0.86	0.85	0.86	0.81	0.03	0.77	0.59	-0.14	0.60	1.00		
TR-EONIA_NL	-0.16	-0.07	-0.30	0.32	0.46	0.24	0.63	0.89	0.46	-0.11	1.00	
TR-EONIA_PT	0.02	0.14	-0.07	0.64	0.31	0.52	0.68	0.77	0.72	0.27	0.72	1.00

Table 2: Impact of EONIA on bank credit standards

Table 2 shows the results of a GLS panel regressions where the dependent variable *credit standards* are the *net percentages* of banks in the euro area reporting a tightening of credit standards in the Bank Lending Survey for the approval of loans or credit lines to enterprises. It corresponds to Question 1 and 8 of BLS (see Appendix). EONIA is the quarterly average of the daily overnight rate. GDP growth is the annual growth rate of real GDP for each country. The inflation is the quarterly average of inflation rates for each country. The country risk is the difference between the long-term government bond interest rate in each country (10 years) and the correspondent German rate. The % of variable rate on consumer (housing) loan is the percentage of the total volume of loans which were granted at a variable rate. All the explanatory variables are lagged of one quarter. The panel includes data for 12 euro area countries (Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Netherlands, Portugal, and Spain). The t-statistic is reported in brackets for each estimated coefficient. *, ** and *** implies statistical significance at the 10%, 5% and 1% level respectively. All the panel regressions include country fixed effects and standard errors corrected for autocorrelation and correlation across countries.

	Credit standards					
	Loans to enterprises		Loans to households			
			for house purchase		for consumer credit	
	(1)	(2)	(3)	(4)	(5)	(6)
EONIA $_{t-1}$	20.739	20.617	11.457	9.293	1.932	1.203
	7.95 ***	9.22 ***	7.67 ***	6.52 ***	1.7 *	2.53 **
GDP growth $_{t-1}$		-2.839		-5.314		-3.28
		3.74 ***		6.84 ***		11.25 ***
Inflation $_{t-1}$		1.697		1.261		-0.153
		1.05		1.09		0.3
Country risk $_{t-1}$		-0.236		19.886		35.729
		0.02		1.82 *		7.35 ***
# of observations	276	276	276	276	276	276
# of countries	12	12	12	12	12	12

Table 3a: Factors affecting changes in credit standards for loans to enterprises

Table 3a shows the results of GLS panel regressions where the dependent variable *credit standards* are the *net percentages* of banks in the euro area reporting a tightening of credit standards in the Bank Lending Survey for the approval of loans or credit lines to firms. It corresponds to Question 2 of the BLS (see Appendix). EONIA is the quarterly average of the daily overnight rate. GDP growth is the annual growth rate of real GDP for each country. The inflation is the quarterly average of inflation rates for each country. The country risk is the difference between the long-term government bond interest rate in each country (10 years) and the correspondent German rate. The other explanatory variables are the net percentage of banks who indicated that the correspondent factor has affected changes in their credit standards to some degree. All the macro explanatory variables are lagged of one quarter. The panel includes data for 12 euro area countries (Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain). The t-statistic is reported in brackets for each estimated coefficient. *, ** and *** implies statistical significance at the 10%, 5% and 1% level respectively. All the panel regressions include country fixed effects and standard errors corrected for autocorrelation and correlation across countries..

Credit standards to enterprises

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
EONIA $_{t-1}$	11.417	13.876	13.371	15.083	13.591	16.814	14.425	18.999	19.777	4.106
	7.32 ***	9.13 ***	8.79 ***	8.11 ***	6.76 ***	8.22 ***	7.23 ***	9.77 ***	8.15 ***	4.16 ***
GDP growth $_{t-1}$	-0.297	0.934	-1.274	-1.909	-1.749	-2.146	-2.751	-3.029	-2.374	0.743
	0.55	1.6	1.82	2.78 ***	2.43 **	2.83 ***	3.65 ***	4.01 ***	2.83 ***	1.98 **
Inflation $_{t-1}$	1.013	3.31	0.814 *	5.607	4.169	4.218	3.414	2.269	3.079	3.23
	0.73	2.3 **	0.6	3.65 ***	2.88 ***	2.55 **	2.81 ***	1.35	2.18 **	3.37 ***
Country risk $_{t-1}$	-3.813	-18.44	-0.886	-10.61	-11.384	1.506	-16.613	-5.384	-9.584	-14.891
	0.46	2.28 **	0.09	1.16	1.13	0.13	1.58	0.49	0.84	2.6 ***
Expectations on general economic activity $_t$	0.499									0.081
	18.7 ***									2.33 **
Industry or firm-specific outlook $_t$		0.603								0.275
		20.98 ***								7.62 ***
Risk on collateral demanded $_t$			0.752							0.346
			15.05 ***							8.24 ***
Bank's capital position $_t$				0.646						0.184
				13.15 ***						4.15 ***
Access to market financing $_t$					0.566					0.194
					11.42 ***					3.44 ***
Bank's liquidity position $_t$						0.486				0.021
						8.72 ***				0.39
Competition from market financing $_t$									0.486	-0.034
									6.09 ***	0.5
Competition from non-banks $_t$								0.48		0.115
								5.89 ***		1.61
Competition from other banks $_t$							0.425			0.203
							10 ***			6.7 ***
# of observations	276	276	276	276	276	276	276	276	276	276
# of country	12	12	12	12	12	12	12	12	12	12

Table 3b: Factors affecting changes in credit standards for loans to households

Table 3b shows the results of GLS panel regressions where the dependent variable *credit standards* are the *net percentages* of banks in the euro area reporting a tightening of credit standards in the Bank Lending Survey for the approval of loans or credit lines to households. It corresponds to Question 9 and 11 of BLS (see Appendix). EONIA is the quarterly average of the daily overnight rate. GDP growth is the annual growth rate of real GDP for each country. The inflation is the quarterly average of inflation rates for each country. The country risk is the difference between the long-term government bond interest rate in each country (10 years) and the correspondent German rate. The other explanatory variables are the net percentage of banks who indicated that the correspondent factor has affected changes in their credit standards to some degree. All the macro explanatory variables are lagged of one quarter. The panel includes data for 12 euro area countries (Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain). The t-statistic is reported in brackets for each estimated coefficient. *, ** and *** implies statistical significance at the 10%, 5% and 1% level respectively. All the panel regressions include country fixed effects and standard errors corrected for autocorrelation and correlation across countries..

	Credit standards to households												
	for house purchase						for consumer credit						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
EONIA $_{t-1}$	6.962	5.914	7.869	5.129	4.677	1.011	0.717	0.97	1.06	0.388	0.993	0.485	0.472
	4.73 ***	5.58 ***	4.93 ***	3.64 ***	4.68 ***	1.19	1.56	1.91 *	2.16 **	0.72	2.86 ***	1.22	0.86
GDP growth $_{t-1}$	-5.107	-5.402	-5.341	-3.569	-3.251	-1.818	-3.155	-2.925	-3.276	-1.444	-1.639	-2.566	-0.792
	6.73 ***	10.55 ***	6.74 ***	5.01 ***	5.52 ***	3.68 ***	11.34 ***	9.84 ***	11.28 ***	4.95 ***	6.6 ***	9.58 ***	2.27 **
Inflation $_{t-1}$	1.851	0.777	1.807	-3.245	-2.033	-2.88	-0.17	-0.412	-0.114	-0.23	-0.683	-0.233	-0.172
	1.66 *	1	1.47	3.02 ***	2.45 **	3.93 ***	0.34	0.77	0.22	0.39	1.56	0.52	0.28
Country risk $_{t-1}$	10.06	32.987	27.666	21.204	18.655	9.177	32.449	30.757	35.454	29.979	37	28.706	27.801
	0.96	3.55 ***	2.57 **	2.33 **	2.36 **	1.45	7.23 ***	6.42 ***	7.31 ***	7.74 ***	11.37 ***	8.43 ***	6.25 ***
Expectations regarding general economic activity $_t$				0.568		0.236				0.537			0.378
				11.92 ***		6.11 ***				26.1 ***			11.62 ***
Housing market prospects $_t$					0.743	0.445							
					16.61 ***	11 ***							
Cost of funds and balance sheet constraints $_t$	0.653					0.386		0.159					0.047
	7.7 ***					7.3 ***		2.79 ***					0.79
Competition from other banks $_t$		0.641				0.401			0.218				0.187
		15.8 ***				11.16 ***			6.57 ***				4.82 ***
Competition from non-banks $_t$			0.627			0.213			0.071				-0.085
			4.61 ***			2.48 **			1.33				1.3
Risk on the collateral demanded $_t$												0.373	-0.064
												7.49 ***	1.34
Creditworthiness of consumers $_t$											0.596		0.261
											27.45 ***		6.14 ***
# of observations	276	276	276	276	276	276	276	276	276	276	276	276	276
# of country	12	12	12	12	12	12	12	12	12	12	12	12	12

Table 4a: How banks change the credit standards for loans to enterprises

Table 4a shows the results of GLS panel regressions where the dependent variable *credit conditions and terms* is the net percentage of banks reporting to have tightened their credit conditions for the approval of loans or credit lines to enterprises. It corresponds to Question 3 of the BLS (see Appendix). EONIA is the quarterly average of the daily overnight rate. GDP growth is the annual growth rate of real GDP for each country. The inflation is the quarterly average of inflation rates for each country. The country risk is the difference between the long-term government bond interest rate in each country (10 years) and the correspondent German rate. All the explanatory variables are lagged of one quarter. The panel includes data for 12 euro area countries (Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain). The t-statistic is reported in brackets for each estimated coefficient. *, ** and *** implies statistical significance at the 10%, 5% and 1% level respectively. All the panel regressions include country fixed effects and standard errors corrected for autocorrelation and correlation across countries..

	Credit conditions and terms to enterprises						
	margins on average loans	margin on riskier loans	non-interest rate charges	size of loan	collateral requirement	loan covenants	loan maturity
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
EONIA $_{t-1}$	23.346	16.919	6.028	11.537	13.769	13.83	15.084
	12.64 ***	5.69 ***	5.07 ***	8.7 ***	6.9 ***	8.21 ***	6.04 ***
GDP growth $_{t-1}$	-8.141	-7.103	-2.488	-4.059	-3.604	-4.594	-3.607
	7.78 ***	6.89 ***	4.27 ***	6.29 ***	4.83 ***	5.8 ***	4.74 ***
Inflation $_{t-1}$	-0.425	2.608	-0.863	0.663	3.865	2.188	-0.281
	0.28	1.48	0.89	0.58	2.9 ***	1.88 *	0.22
Country risk $_{t-1}$	21.512	47.743	13.955	2.515	3.129	-22.857	-27.598
	1.41	3.26 ***	1.67 *	0.29	0.29	2.3 **	2.71 ***
# of observations	276	276	276	276	276	276	276
# of countries	12	12	12	12	12	12	12

Table 4b: How banks change the credit standards for loans to households for house purchase

Table 4b shows the results of GLS panel regressions where the dependent variable *credit conditions and terms* is the net percentage of banks reporting to have tightened their credit conditions for the approval of loans or credit lines to enterprises. It corresponds to Question 10 of the BLS (see Appendix). EONIA is the quarterly average of the daily overnight rate. GDP growth is the annual growth rate of real GDP for each country. The inflation is the quarterly average of inflation rates for each country. The country risk is the difference between the long-term government bond interest rate in each country (10 years) and the correspondent German rate. All the explanatory variables are lagged of one quarter. The panel includes data for 11 euro area countries (Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain). The t-statistic is reported in brackets for each estimated coefficient. *, ** and *** implies statistical significance at the 10%, 5% and 1% level respectively. All the panel regressions include country fixed effects and standard errors corrected for autocorrelation and correlation across countries..

	Credit conditions and terms for house purchase					
	margin on average loan	margin on riskier loan	non-interest rate charges	collateral requirement	loan-to-value ratio	loan maturity
	(1)	(2)	(6)	(3)	(4)	(5)
EONIA $_{t-1}$	14.565	11.013	4.188	6.061	7.908	8.512
	5.07 ***	9.13 ***	6.43 ***	7.51 ***	7.03 ***	7.8 ***
GDP growth $_{t-1}$	-3.707	-2.729	-1.849	-1.767	-1.531	-2.489
	3.99 ***	6.14 ***	5.83 ***	4.49 ***	2.43 **	5.56 ***
Inflation $_{t-1}$	-4.835	-3.191	-1.368	0.272	1.379	0.148
	2.53 **	2.87 ***	2.69 ***	0.49	1.26	0.19
Country risk $_{t-1}$	35.747	27.234	-4.584	7.339	7.464	-13.251
	3.64 ***	3.76 ***	0.95	1.39	0.71	2.05 **
# of observations	276	276	276	276	276	276
# of countries	12	12	12	12	12	12

Table 4c: How banks change the credit standards for loans to households for consumer credit

Table 4c shows the results of GLS panel regressions where the dependent variable *credit conditions and terms* is the net percentage of banks reporting to have tightened their credit conditions for the approval of loans or credit lines to enterprises. It corresponds to Question 12 of the BLS (see Appendix). EONIA is the quarterly average of the daily overnight rate. GDP growth is the annual growth rate of real GDP for each country. The inflation is the quarterly average of inflation rates for each country. The country risk is the difference between the long-term government bond interest rate in each country (10 years) and the correspondent German rate. All the explanatory variables are lagged of one quarter. The panel includes data for 12 euro area countries (Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain). The t-statistic is reported in brackets for each estimated coefficient. *, ** and *** implies statistical significance at the 10%, 5% and 1% level respectively. All the panel regressions include country fixed effects and standard errors corrected for autocorrelation and correlation across countries..

	Credit conditions and terms for consumer credit				
	margin on average loan	margin on riskier loan	collateral requirement	loan maturity	non-interest rate charges
	(1)	(2)	(3)	(4)	(5)
EONIA $_{t-1}$	10.038	7.814	2.876	8.512	4.188
	8.31 ***	4.95 ***	4.09 ***	7.8 ***	6.43 ***
GDP growth $_{t-1}$	-1.249	-2.525	-1.371	-2.489	-1.849
	2.39 **	6.02 ***	5.12 ***	5.56 ***	5.83 ***
Inflation $_{t-1}$	-2.014	-1.344	1.58	0.148	-1.368
	1.76 *	1.33	2.8 ***	0.19	2.69 ***
Country risk $_{t-1}$	10.756	9.963	10.387	-13.251	-4.584
	1.73 *	2.14 **	2.18 **	2.05 **	0.95
# of observations	276	276	276	276	276
# of countries	12	12	12	12	12

Table 4d: The impact of monetary policy on banks' loan amount supply

Table 4d shows the results of GLS panel regressions where the dependent variable *size of the loan* is the net percentage of banks reporting a tightening in their loan amounts. It corresponds to Question 3 of BLS (see Appendix). EONIA is the quarterly average of the daily overnight rate. GDP growth is the annual growth rate of real GDP for each country. The inflation is the quarterly average of inflation rates for each country. The country risk is the difference between the long-term government bond interest rate in each country (10 years) and the correspondent German rate. All the macro explanatory variables are lagged of one quarter. The other control variables are the factors affecting the demand for loans and correspond to Question 5 of the BLS (see Appendix). The panel includes data for 12 euro area countries (Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain). The t-statistic is reported in brackets for each estimated coefficient. *, ** and *** implies statistical significance at the 10%, 5% and 1% level respectively. All the panel regressions include country fixed effects and standard errors are corrected for autocorrelation and correlation across countries..

	Changes in the size of the loan									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
EONIA $_{t-1}$	11.008	10.544	10.501	7.043	11.136	10.499	10.971	11.017	10.858	10.519
	8.1 ***	9.95 ***	6.83 ***	5.51 ***	7.81 ***	7.38 ***	8.03 ***	7.92 ***	7.88 ***	8.58 ***
GDP growth $_{t-1}$	-4.049	-2.826	-3.845	-2.604	-3.934	-3.924	-4.046	-4.033	-4.043	-4.041
	6.38 ***	4.91 ***	6.63 ***	4.4 ***	6.1 ***	6 ***	6.29 ***	6.21 ***	6.36 ***	6.87 ***
Inflation $_{t-1}$	1.56	0.777	1.948	1.669	1.725	1.414	1.588	1.438	1.294	1.276
	1.45	0.86	1.6	1.56	1.62	1.28	1.48	1.32	1.15	1.2
Country risk $_{t-1}$	0.771	4.755	4.663	3.5	4.829	3.63	0.96	1.436	0.073	0.283
	0.09	0.57	0.53	0.43	0.57	0.41	0.11	0.16	0.01	0.04
Financing needs										
Fixed investment		-0.185								
		9.17 ***								
Inventories and working capital			-0.13							
			4.45 ***							
Mergers/acquisitions and corporate restructuring				-0.189						
				8.99 ***						
Debt restructuring					0.062					
					2.18 **					
Use of alternative finance										
Internal financing						0.025				
						0.62				
Loans from other banks							0.015			
							0.37			
Loans from non-banks								-0.016		
								0.26		
Issuance of debt securities									0.035	
									0.89	
Issuance of equity										0.165
										3.8 ***
# of observations	276	276	276	276	276	276	276	276	276	276
# of countries	12	12	12	12	12	12	12	12	12	12

Table 4e: Impact of monetary policy on the supply of loans related to banks' cost of funds

Table 4e shows the results of GLS panel regressions where the dependent variable are the factors affecting changes in credit standards to enterprises related to banks' cost of funding. It corresponds to Question 2 of the BLS (see Appendix). EONIA is the quarterly average of the daily overnight rate. GDP growth is the annual growth rate of real GDP for each country. The inflation is the quarterly average of inflation rates for each country. The country risk is the difference between the long-term government bond interest rate in each country (10 years) and the correspondent German rate. All the explanatory variables are lagged of one quarter. The panel includes data for 12 euro area countries (Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain). The t-statistic is reported in brackets for each estimated coefficient. *, ** and *** implies statistical significance at the 10%, 5% and 1% level respectively. All the panel regressions include country fixed effects and standard errors corrected for autocorrelation and correlation across countries..

	Costs related to bank's capital position		Ability to access market financing		Bank's liquidity position	
	(1)	(2)	(3)	(4)	(5)	(6)
EONIA t-1	7.294	6.702	9.559	10.441	6.658	7.653
	11.92 ***	8.31 ***	5.3 ***	6.87 ***	7.31 ***	9.05 ***
GDP growth t-1		-2.225		-1.818		-1.569
		4.07 ***		3.6 ***		4.05 ***
Inflation t-1		-2.429		-1.191		1.28
		2.9 ***		1.08		1.72 *
Country risk t-1		11.152		-2.771		-11.201
		1.32		0.4		2.01 **
# of observations	276	276	276	276	276	276
# of countries	12	12	12	12	12	12

Table 5: The impact of EONIA on credit demand

Table 5 shows the results of GLS panel regressions where the dependent variable *demand for loans or credit lines* is the net percentage of banks reporting that the demand for loans has increased over the past three months. It corresponds to Question 4 and 13 of the BLS (see Appendix). EONIA is the quarterly average of the daily overnight rate. GDP growth is the annual growth rate of real GDP for each country. The inflation is the quarterly average of inflation rates for each country. The country risk is the difference between the long-term government bond interest rate in each country (10 years) and the correspondent German rate. All the explanatory variables are lagged of one quarter. The panel includes data for 12 euro area countries (Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain). The t-statistic is reported in brackets for each estimated coefficient. *, ** and *** implies statistical significance at the 10%, 5% and 1% level respectively. All the panel regressions include country fixed effects and standard errors corrected for autocorrelation and correlation across countries..

	demand for loans or credit lines									
	loans to enterprises			loans for house purchase			loans for consumer credit			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
EONIA $_{t-1}$	1.055	2.38	-22.73	-19.059	-16.796	-21.563	-6.739	-6.898	-7.288	-7.645
	-0.32	-0.73	6.91 ***	5.63 ***	4.93 ***	5.56 ***	6.01 ***	4.55 ***	3.62 ***	3.10 ***
GDP growth $_{t-1}$		6.345		-1.641	-1.068	-0.881		3.716	4.283	4.19
		6.22 ***		-1.39	-0.72	-0.59		5.93 ***	3.85 ***	3.75 ***
Inflation $_{t-1}$		-0.63		-6.735	-5.635	-5.484		3.644	3.281	3.309
		-0.33		2.58 ***	1.73 *	1.67 *		3.14 ***	-1.49	-1.5
Country risk $_{t-1}$		-15.3		-24.317	-56.795	-58.123		-16.583	-4.573	-5.797
		-0.9		-1.46	2.60 ***	2.64 ***		1.69 *	-0.28	-0.36
% variable rate housing loan $_{t-1}$					0.339					
					1.91 *					
% variable rate housing loan $_{t-1}$ * EONIA$_{t-1}$						0.066				
						-1.32				
% variable rate consumer loan $_{t-1}$									-0.065	
									-0.49	
% variable rate consumer loan $_{t-1}$ * EONIA $_{t-1}$										0.004
										-0.13
# of observations	276	276	276	276	254	254	276	276	254	254
# of countries	12	12	12	12	12	12	12	12	12	12

Table 6a: Changes in the loan demand from enterprises

Table 6a shows the results of GLS panel regressions where the dependent variable *demand for loans or credit lines* is the net percentage of banks reporting that the demand for loans has increased over the past three months. It corresponds to Question 5 of the BLS (see Appendix). EONIA is the quarterly average of the daily overnight rate. All the explanatory variables are lagged of one quarter. The panel includes data for 11 euro area countries (Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Netherlands, Portugal, and Spain). The t-statistic is reported in brackets for each estimated coefficient. *, ** and *** implies statistical significance at the 10%, 5% and 1% level respectively. All the panel regressions include country fixed effects and errors corrected for autocorrelation and correlation across countries..

	Demand for loans to enterprises									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
EONIA $_{t-1}$	0.995	1.521	6.124	2.331	-0.327	1.799	2.241	2.291	3.37	3.992
	0.42	0.63	2.3 **	0.71	0.11	0.56	0.75	0.7	1.09	2.1 **
GDP growth $_{t-1}$	1.599	3.448	3.286	6.423	6.374	6.289	6.368	6.395	5.727	-0.77
	1.82 *	3.75 ***	3.14 ***	6.17 ***	6.31 ***	5.95 ***	6.19 ***	6.16 ***	5.22 ***	0.92
Inflation $_{t-1}$	1.992	-0.285	1.214	-0.434	-0.643	-0.246	-0.199	-0.81	0.289	-0.547
	1.35	0.15	0.6	0.22	0.37	0.12	0.1	0.39	0.14	0.32
Country risk $_{t-1}$	6.312	-8.439	-14.297	-13.753	-4.868	-12.79	-15.408	-14.456	-20.084	19.959
	0.46	0.53	0.88	0.8	0.31	0.72	0.87	0.85	1.13	1.77 *
Financing needs										
Fixed investment	0.543									0.323
	15.94 ***									9.53 ***
Inventories and working capital		0.678								0.593
		16.32 ***								14.96 ***
Mergers/acquisitions and corporate restructuring			0.468							0.405
			10.61 ***							10.76 ***
Debt restructuring				0.017						0.121
				0.32						2.57 **
Use of alternative finance										
Internal financing					0.385					0.151
					[5.62]***					2.44 **
Loans from other banks						0.069				0.184
						1.11				2.93 ***
Loans from non-banks							0.381			-0.43
							3.81 ***			3.95 ***
Issuance of debt securities								0.011		0.067
								0.2		1.03
Issuance of equity									-0.254	-0.089
									3.12 ***	1.06
# of observations	276	276	276	276	276	276	276	276	276	276
# of countries	12	12	12	12	12	12	12	12	12	12

Table 6b: Changes in the loan demand from households

Table 6b shows the results of GLS panel regressions where the dependent variable *demand for loans or credit lines* is the net percentage of banks reporting that the demand for loans has increased over the past three months. It corresponds to Question 14 of the BLS (see Appendix). EONIA is the quarterly average of the daily overnight rate. GDP growth is the annual growth rate of real GDP for each country. The inflation is the quarterly average of inflation rates for each country. The country risk is the difference between the long-term government bond interest rate in each country (10 years) and the correspondent German rate. All the explanatory variables are lagged of one quarter. The panel includes data for 12 euro area countries (Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain). The t-statistic is reported in brackets for each estimated coefficient. *, ** and *** implies statistical significance at the 10%, 5% and 1% level respectively. All the panel regressions include country fixed effects and standard errors corrected for autocorrelation and correlation across countries..

| | Changes in the demand for loans to households | | | | | | | | | | | | | |
| | loans for house purchase | | | | | | loans for consumer credit | | | | | | | |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
EONIA $_{t-1}$	-4.266	-18.32	-11.725	-18.272	-17.685	-18.812	-3.469	-3.07	-3.413	-6.443	-5.419	-6.197	-6.481	-3.396
	2.16 **	6.31 ***	3.5 ***	4.96 ***	5.32 ***	5.87 ***	2.29 **	2.62 ***	2.06 **	4.12 ***	3.38 ***	4.16 ***	4.54 ***	2.82 ***
GDP growth $_{t-1}$	-1.801	-3.221	-3.062	-2.29	-2.916	-1.586	-2.98	1.965	1.542	3.721	3.411	3.468	3.156	1.219
	2.2 **	3.11 ***	2.85 ***	1.9 *	2.49 **	1.35	4.47 ***	3.78 ***	2.67 ***	5.65 ***	7 ***	5.89 ***	5.16 ***	2.33 **
Inflation $_{t-1}$	-1.359	-5.954	-4.992	-6.97	-3.36	-7.056	-3.325	3.251	3.552	3.795	2.941	3.347	3.138	1.939
	0.88	2.67 ***	2.15 **	2.88 ***	1.44	2.73 ***	2.51 **	3.23 ***	2.65 ***	3.08 ***	2.92 ***	2.97 ***	2.67	1.89 *
Country risk $_{t-1}$	20.187	12.557	-9.335	-17.978	-25.263	-23.205	38.429	0.724	2.236	-16.369	-14.217	-13.055	-8.892 ***	19.241
	1.81 *	0.86	0.59	1.09	1.49	1.42	4.38 ***	0.11	0.3	1.6	1.82 *	1.35	0.95	2.8 ***
Financing needs														
Housing market prospects $_t$	0.753						0.597							
	21.19 ***						19.59 ***							
Consumer confidence $_t$		0.419					0.183		0.667					0.547
		8.66 ***					5.72 ***		20.49 ***					16.05 ***
Non-housing related consumption expenditure $_t$			0.827				0.491							
			7.42 ***				5.71 ***							
Spending on durable consumer goods $_t$								0.523						0.287
								15.91 ***						8.61 ***
Securities purchases $_t$										0.028				-0.152
										0.35				2.62 ***
Use of alternative finance														
Household savings $_t$				0.584			0.08				0.609			0.127
				5.09 ***			0.95				8.45 ***			2.16 **
Loans from other banks $_t$				0.943			0.826					0.403		0.214
				10.51 ***			10.97 ***					4.41 ***		3.13 ***
Other sources of finance $_t$						0.346	-0.528						0.697	0.066
						1.64	3.09 ***						6.44 ***	0.7
# of observations	276	276	276	276	276	276	276	276	276	276	276	276	276	276
# of countries	12	12	12	12	12	12	12	12	12	12	12	12	12	12

Table 7: Cross-sectional differences in the stance of monetary policy and changes in credit

Table 7 shows the results of GLS panel regressions where the dependent credit standards are the *net percentages* of banks in the euro area reporting a tightening of credit standards in the Bank Lending Survey for the approval of loans or credit lines to enterprises. It corresponds to Question 1 and 8 of BLS (see Appendix). The Taylor rate – EONIA is the difference between a simple Taylor rule rate (estimated with coefficients for inflation and output gap equal to 0.5, an inflation target of 1.9 and a natural interest rate of 2.1) and the EONIA rate. The number of periods with positive difference is a variable which counts the number of quarters in which the Taylor rule implied rate has been above the EONIA rate since 1999, that proxies the time in which monetary policy stance was expansive. All the explanatory variables are lagged of one quarter. The panel includes data for 12 euro area countries (Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain). The t-statistic is reported in brackets for each estimated coefficient. *, ** and *** implies statistical significance at the 10%, 5% and 1% level respectively. All the panel regressions include country fixed effects and standard errors corrected for autocorrelation and correlation across countries.. Regressions (1), (3) and (5) include also time fixed effects.

	Credit standards					
	loans to enterprises		loans to households			
			for house purchase		for consumer credit	
	(1)	(2)	(3)	(4)	(5)	(6)
Taylor rate - EONIA $_{t-1}$	0.000	-0.172	-0.352	-0.103	-0.138	-0.079
	0.00	1.39	2.45 **	0.99	1.84 *	2.4 **
# of periods with		-0.15		-0.57		-0.155
positive difference $_{t-1}$		0.63		2.75 ***		2.13 **
# of observations	276	276	276	276	276	276
# of countries	12	12	12	12	12	12

Table 8: Changes in credit standards and the yield curve

Table 8 shows the results of GLS panel regressions where the dependent variable *credit standards* are the *net percentages* of banks in the euro area reporting a tightening of credit standards in the Bank Lending Survey for the approval of loans or credit lines to enterprises. It corresponds to Question 1 and 8 of BLS (see Appendix). EONIA is the quarterly average of the daily overnight rate. GDP growth is the annual growth rate of real GDP for each country. The inflation is the quarterly average of inflation rates for each country. The long-term rate is the 10-year government bond rate and the term spread is the difference between these rates and the 3-month interest rate. Long-term rates and term spreads are country-specific. All the explanatory variables are lagged of one quarter. The panel includes data for 12 euro area countries (Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain). The t-statistic is reported in brackets for each estimated coefficient. *, ** and *** implies statistical significance at the 10%, 5% and 1% level respectively. All the panel regressions include country fixed effects and standard errors corrected for autocorrelation and correlation across countries..

	Credit standards											
	loans to enterprises				loans to households							
					for house purchase						for consumer credit	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Long-term rate $_{t-1}$	21.492		9.237		14.959		9.492		1.426		0.33	
	5.21 ***		2.59 ***		4.26 ***		3.33 ***		1.33		0.23	
Term spread $_{t-1}$		-12.465		6.823		-9.504		-0.755		-1.43		3.654
		3.69 ***		2.07 **		6.17 ***		0.27		3.27 ***		2.35 **
EONIA $_{t-1}$			17.697	26.282			7.824	9.781			2.95	5.983
			8.06 ***	8.29 ***			4.54 ***	3.47 ***			3.63 ***	4.01 ***
GDP growth $_{t-1}$			-2.831	-2.646			-5.268	-4.934			-2.66	-2.624
			3.9 ***	3.57 ***			6.98 ***	6.63 ***			6.85 ***	6.77 ***
Inflation $_{t-1}$			1.715	1.825			1.493	1.094			0.286	0.276
			1.06	1.11			1.25	0.86			0.39	0.34
# of observations	276	276	276	276	276	276	276	276	276	276	276	276
# of countries	12	12	12	12	12	12	12	12	12	12	12	12

Table 9a: The impact of the securitisation activity and monetary policy on changes in credit standards

Table 9a shows the results of GLS panel regressions where the dependent variable *credit standards* are the *net percentages* of banks in the euro area reporting a tightening of credit standards in the Bank Lending Survey for the approval of loans or credit lines to enterprises. It corresponds to Question 1 and 8 of BLS (see Appendix). EONIA is the quarterly average of the daily overnight rate. GDP growth is the annual growth rate of real GDP for each country. The inflation is the quarterly average of inflation rates for each country. The country risk is the difference between the long-term government bond interest rate in each country (10 years) and the correspondent German rate. The securitisation activity is the ratio between the volume of the deals and the volume of loans lagged of one quarter calculated as a 4-quarter moving average. All the explanatory variables are lagged of one quarter. The panel includes data for 9 euro area countries (Belgium, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, and Spain) for loans for house purchase, includes also Austria for loans for consumer credit and Luxembourg for loans to enterprises. The t-statistic is reported in brackets for each estimated coefficient. *, ** and *** implies statistical significance at the 10%, 5% and 1% level respectively. All the panel regressions include country fixed effects and standard errors corrected for autocorrelation and correlation across countries..

| | Credit standards | | | | | | | | | | | |
| | loans to enterprises | | | | for house purchase | | | | for consumer credit | | | |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Securitisation t-1	-0.588	-1.911	-1.751	-1.91	-0.007	-0.418	-0.401	-0.417	-0.395	-0.919	-0.835	-0.88
	3.97 ***	5.4 ***	4.68 ***	5.35 ***	0.16	3.7 ***	2.77 ***	2.9 ***	4.14 ***	5.98 ***	3.74 ***	3.8 ***
Securitisation * EONIA t-1		0.47	0.44	0.47		0.146	0.158	0.157		0.057	0.039	0.042
		4.5 ***	4.01 ***	4.45 ***		4.2 ***	3.49 ***	3.51 ***		4.2 ***	2.13 **	2.2 **
EONIA t-1	21.471	16.482	19.337	16.73	12.768	5.857	6.318	5.999	6.47	4.025	3.887	4.174
	9.13 ***	6.64 ***	7.38 ***	6.35 ***	6.71 ***	2.92 ***	2.21 **	2.03 **	4.69 ***	2.97 ***	2.06 **	2.07 **
GDP growth t-1	-1.855	-2.502	-2.103	-2.57	-2.84	-2.852	-5.039	-4.608	-1.15	-0.712	-0.81	-0.528
	2.47 **	3.45 ***	2.69 ***	3.55 ***	2.1 **	2.39 **	3.12 ***	3.05 ***	1.36	0.89	0.62	0.4
Inflation t-1	1.011	2.13	2.197	1.74	3.532	2.704	3.126	2.821	0.248	-1.583	-0.756	-0.815
	0.57	1.24	1.3	0.96	2.36 **	2.06 **	1.63	1.49	0.26	1.66 *	0.49	0.52
Country risk t-1	-7.23	-9.257	-11.02	-9.48	2.396	24.282	11.912	1.175	-4.599	-3.203	-5.292	-11.101
	0.57	0.73	0.86	0.74	0.09	0.93	0.41	0.04	0.3	0.22	0.24	0.49
Growth rate of loans t-1			-0.505				0.639				0.229	
			2.32 **				1.38				1.22	
House prices t-1				0.41				0.468				0.078
				1.20				0.59				0.13
# of observations	253	253	253	253	207	207	207	206	230	230	230	229
# of countries	11	11	11	11	9	9	9	9	10	10	10	10

Table 10a: Individual bank database, EONIA and changes in credit standards to households

Table 10a shows the results of ordered PROBIT panel regressions where the dependent variable is the probability that a bank reports a tightening in *credit standards* in the Bank Lending Survey for the approval of loans or credit lines to enterprises. It corresponds to Question 1 of BLS (see Appendix). The EONIA is the quarterly average of the daily overnight rate. All the explanatory variables are lagged of one quarter. Bank size is a dummy variable that takes value 1 if the bank is considered large relative to the other banks in its country. The panel includes data for 12 euro area countries (Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain). The t-statistic is reported in brackets for each estimated coefficient. *, ** and *** implies statistical significance at the 10%, 5% and 1% level respectively. The panel regressions include bank (or country) fixed effects and robust standard errors with clustering at the bank (or country) level .

| | Credit standards | | | | | | | | | | | | | | |
| | Overall | | | Loans to SMEs | | | Loans to large enterprises | | | Short-term loans | | | Long-term loans | | |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)						
EONIA t-1	1.229	1.229	1.371	0.844	0.844	0.753	1.348	1.348	1.401	0.938	0.938	1.05	1.008	1.008	1.141
	7.09 ***	7.09 ***	3.39 ***	5.66 ***	5.66 ***	2.16 **	7.85 ***	7.85 ***	4.46 ***	5.76 ***	5.76 ***	2.67 ***	5.83 ***	5.83 ***	3.28 ***
GDP growth t-1	-0.39	-0.39	-0.39	-0.36	-0.359	-0.359	-0.375	-0.38	-0.38	-0.344	-0.344	-0.345	-0.404	-0.404	-0.405
	4.65 ***	4.65 ***	4.78 ***	3.12 ***	3.12 ***	3.1 ***	3.92 ***	3.92 ***	3.99 ***	3.5 ***	3.5 ***	3.58 ***	3.99 ***	3.99 ***	4.04 ***
Inflation t-1	-0.14	-0.14	-0.14	-0.11	-0.105	-0.103	-0.078	-0.08	-0.08	0.018	0.018	0.015	0	0	-0.003
	1.58	1.58	1.62	0.73	0.73	0.73	0.58	0.58	0.58	0.15	0.15	0.13	0	0	0.02
Country risk t-1	0.113	0.113	0.159	0.965	0.965	0.937	0.352	0.352	0.367	0.191	0.191	0.231	1.769	1.769	1.816
	0.07	0.07	0.1	0.61	0.61	0.58	0.22	0.22	0.23	0.14	0.14	0.17	1.21	1.21	1.28
Bank size		-1.16	-1.51		-0.713	-1.861		0.462	-1.58		-0.65	-0.227		-0.752	-0.25
		10.23 ***	1.25		3.61 ***	2.01 **		2.29 **	1.49		4.5 ***	0.22		4.94 ***	0.23
Bank size * EONIA t-1			-0.22			0.141			-0.08			-0.174			-0.206
			0.48			0.36			0.2			0.41			0.45
# of observations	1221	1221	1221	1206	1206	1206	1200	1200	1200	1223	1223	1223	1226	1226	1226
# of banks	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
# of countries	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12

Table 10b: Individual bank database, EONIA and changes in credit standards to households

Table 10b shows the results of panel regressions where the dependent variable *credit standards* are the *net percentages* of banks in the euro area reporting a tightening of credit standards in the Bank Lending Survey for the approval of loans or credit lines to households. It corresponds to Question 8 of BLS (see Appendix). EONIA is the quarterly average of the daily overnight rate. All the explanatory variables are lagged of one quarter. Bank size is a dummy variable that takes 1 if the bank is considered large relative to the other banks in its country. The panel includes data for 12 euro area countries (Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Netherlands, Portugal, and Spain). The t-statistic is reported in brackets for each estimated coefficient. *, ** and *** implies statistical significance at the 10%, 5% and 1% level respectively. The panel regressions include bank (or country) fixed effects and robust standard errors with clustering at the bank (or country) level.

	Credit standards					
	loans for house purchase			loans for consumer credit		
	(1)	(2)	(3)	(4)	(5)	(6)
EONIA $_{t-1}$	0.202	0.202	0.062	0.272	0.272	-0.169
	1.59	1.59	0.37	1.73 *	1.73 *	0.54
GDP growth $_{t-1}$	-0.153	-0.153	-0.152	-0.208	-0.208	-0.203
	3.12 ***	3.12 ***	3.04 ***	3.05 ***	3.05 ***	3.06 ***
Inflation $_{t-1}$	-0.163	-0.163	-0.16	-0.061	-0.061	-0.06
	1.35	1.35	1.34	0.43	0.43	0.46
Country risk $_{t-1}$	1.774	1.774	1.713	1.336	1.336	1.151
	1.44	1.44	1.39	1.32	1.32	1.09
Bank size		1.398	0.888		2.469	
		12.49 ***	1.58		29.65 ***	
Bank size * EONIA $_{t-1}$			0.216			0.202
			0.95			2.1 **
# of observations	1194	1194	1194	1166	1166	1166
# of banks	87	87	87	87	87	87
# of countries	12	12	12	12	12	12

Appendix I: BLS questions reported in the paper

QUESTION	MARKET SEGMENT	INDICATOR	DEFINITION
Supply of loans			
A. Over the past three months, how have your bank's credit standards as applied to the approval of loans…	or credit lines to enterprises changed? (Q1) to households changed? (Q8)	Net percentage of banks reporting to have tightened their credit standards	Difference between the sum of the percentages answering "tightened considerably" and "tightened somewhat" and the sum of the percentages answering "eased somewhat" and "eased considerably."
B. Over the past three months, how have the following factors affected your bank's credit standards as applied to the approval of loans…	or credit lines to enterprises? (Q2) to households for house purchase? (Q9) to consumer credit and other lending to households? (Q11)	Net percentages of banks reporting that each of these factors has contributed to the tightening of standards	Difference between the sum of the answers "contributed considerably to tightening" and "contributed somewhat to tightening" and the sum of the banks answering "contributed somewhat to easing" and "contributed considerably to easing."
C. Over the past three months, how have your bank's conditions and terms for approving loans...	or credit lines to enterprises changed? (Q3) to households for house purchase changed? (Q10) to consumer credit and other lending to households changed? (Q12)	Net percentage of banks reporting to have tightened their credit conditions.	Difference between the sum of "tightened considerably" and "tightened somewhat" and the sum of "eased somewhat" and "eased considerably."
Demand for loans			
D. Over the past three months, how has the demand for loans or credit lines to [...] changed at your bank, apart from normal seasonal fluctuations?	enterprises (Q4) households (Q13)	Net percentage of banks reporting that demand for loans has increased.	Difference between the sum of the percentages for "increased considerably" and "increased somewhat" and the sum of the percentages for "decreased somewhat" and "decreased considerably."
E. Over the past three months, how have the following factors affected the demand for loans…	or credit lines to enterprises? (Q5) to households for house purchase? (Q14) to consumer credit and other lending to households? (Q15)	Net percentages of banks reporting that each of these factors has contributed to the increasing demand	Difference between the sum of percentages of banks reporting that each factor has "contributed considerably to higher demand" and "contributed somewhat to higher demand" and the sum of percentages of banks reporting that each factor has "contributed somewhat to lower demand" and "contributed considerably to lower demand."

Appendix II

1. Over the past three months, how have your bank's credit standards as applied to the approval of <u>loans or credit lines to enterprises</u> changed?

	Overall	Loans to small and medium-sized enterprises	Loans to large enterprises	Short-term loans	Long-term loans
Tightened considerably					
Tightened somewhat					
Remained basically unchanged					
Eased somewhat					
Eased considerably					

2. Over the past three months, how have the following factors affected your bank's credit standards as applied to the approval of <u>loans or credit lines to enterprises</u> (as described in question 1 in the column headed "Overall")? Please rate the contribution of the following factors to the tightening or easing of credit standards using the following scale:

− − = contributed considerably to tightening of credit standards
− = contributed somewhat to tightening of credit standards
☐ = contributed to basically unchanged credit standards
+ = contributed somewhat to easing of credit standards
+ + = contributed considerably to easing of credit standards
NA = not applicable

	− −	−	☐	+	++	NA
A) Cost of funds and balance sheet constraints ☐ Costs related to your bank's capital position ☐ Your bank's ability to access market financing (e.g. money or bond market financing) ☐ Your bank's liquidity position B) Pressure from competition ☐ Competition from other banks ☐ Competition from non-banks ☐ Competition from market financing C) Perception of risk ☐ Expectations regarding general economic activity ☐ Industry or firm-specific outlook ☐ Risk on the collateral demanded						
D) Other factors, please specify						

3.   Over the past three months, how have your bank's conditions and terms for approving <u>loans or credit lines to enterprises</u> changed? Please rate each factor using the following scale:

– – = tightened considerably

– = tightened somewhat

☐ = remained basically unchanged

+ = eased somewhat

+ + = eased considerably

NA = not applicable

	– –	–	☐	+	+ +	NA
<u>A) Price</u> ☐ Your bank's margin on average loans (wider margin = tightened, narrower margin = eased) ☐ Your bank's margin on riskier loans <u>B) Other conditions and terms</u> ☐ Non-interest rate charges ☐ Size of the loan or credit line ☐ Collateral requirements ☐ Loan covenants ☐ Maturity						
<u>C) Other factors, please specify</u>						

4.   Over the past three months, how has the <u>demand for loans or credit lines to enterprises</u> changed at your bank, apart from normal seasonal fluctuations?

	Overall	Loans to small and medium-sized enterprises	Loans to large enterprises	Short-term loans	Long-term loans
Decreased considerably					
Decreased somewhat					
Remained basically unchanged					
Increased somewhat					
Increased considerably					

5. Over the past three months, how have the following factors affected the demand for <u>loans or credit lines to enterprises</u> (as described in question 4 in the column headed "Overall")? Please rate each possible factor using the following scale:

− − = contributed considerably to lower demand
− =contributed somewhat to lower demand
☐ =contributed to basically unchanged demand
+ =contributed somewhat to higher demand
+ + =contributed considerably to higher demand
NA = not applicable

	− −	−	☐	+	+ +	NA
A) <u>Financing needs</u>						
☐ Fixed investment						
☐ Inventories and working capital						
☐ Mergers/acquisitions and corporate restructuring						
☐ Debt restructuring						
B) <u>Use of alternative finance</u>						
☐ Internal financing						
☐ Loans from other banks						
☐ Loans from non-banks						
☐ Issuance of debt securities						
☐ Issuance of equity						
C) <u>Other factors, please specify</u>						

6. Please indicate how you expect your <u>bank's credit standards as applied to the approval of loans or credit lines to enterprises</u> to change over the next three months.

	Overall	Loans to small and medium-sized enterprises	Loans to large enterprises	Short-term loans	Long-term loans
Tighten considerably					
Tighten somewhat					
Remain basically unchanged					
Ease somewhat					
Ease considerably					

7. Please indicate how you expect <u>demand for loans or credit lines to enterprises</u> to change at your bank over the next three months (apart from normal seasonal fluctuations)

	Overall	Loans to small and medium-sized enterprises	Loans to large enterprises	Short-term loans	Long-term loans
Decrease considerably					
Decrease somewhat					
Remain basically unchanged					
Increase somewhat					
Increase considerably					

8.   Over the past three months, how have your bank's credit standards as applied to the approval of <u>loans to households</u> changed?

	Loans for house purchase	Consumer credit and other lending
Tightened considerably		
Tightened somewhat		
Remained basically unchanged		
Eased somewhat		
Eased considerably		

9.   Over the past three months, how have the following factors affected your bank's credit standards as applied to the approval of <u>loans to households for house purchase</u> (as described in question 8)? Please rate the contribution of the following factors to the tightening or easing of credit standards using the following scale:
 – – = contributed considerably to tightening of credit standards
 – = contributed somewhat to tightening of credit standards
 □ = contributed to basically unchanged credit standards
 + = contributed somewhat to easing of credit standards
 + + = contributed considerably to easing of credit standards
NA = not applicable

	– –	–	□	+	+ +	NA
A) Cost of funds and balance sheet constraints B) Pressure from competition □ Competition from other banks □ Competition from non-banks C) Perception of risk □ Expectations regarding general economic activity □ Housing market prospects						
D) Other factors, please specify						

10. Over the past three months, how have your bank's conditions and terms for approving loans to households for house purchase changed? Please rate each factor using the following scale:

− − = tightened considerably
− = tightened somewhat
□ = remained basically unchanged
+ = eased somewhat
+ + = eased considerably
NA = not applicable

	− −	−	□	+	+ +	NA
A) Price □ Your bank's margin on average loans (wider margin = tightened, narrower margin = eased) □ Your bank's margin on riskier loans B) Other conditions and terms □ Collateral requirements □ "Loan-to-value" ratio □ Maturity □ Non-interest rate charges						
C) Other factors, please specify						

11. Over the past three months, how have the following factors affected your bank's credit standards as applied to the approval of consumer credit and other lending to households (as described in question 8)? Please rate the contribution of the following factors to the tightening or easing of credit standards using the following scale:

− − = contributed considerably to tightening of credit standards
− = contributed somewhat to tightening of credit standards
□ = contributed to basically unchanged credit standards
+ = contributed somewhat to easing of credit standards
+ + = contributed considerably to easing of credit standards
NA = not applicable

	− −	−	□	+	+ +	NA
A) Cost of funds and balance sheet constraints B) Pressure from competition □ Competition from other banks □ Competition from non-banks C) Perception of risk □ Expectations regarding general economic activity □ Creditworthiness of consumers □ Risk on the collateral demanded						
D) Other factors, please specify						

12. Over the past three months, how have your bank's conditions and terms for approving consumer credit and other lending to households changed? Please rate each factor using the following scale:

– – = tightened considerably
– = tightened somewhat
□ = remained basically unchanged
+ = eased somewhat
+ + = eased considerably
NA = not applicable

A) Price □ Your bank's margin on average loans (wider margin = tightened, narrower margin = eased) □ Your bank's margin on riskier loans B) Other conditions and terms □ Collateral requirements □ Maturity □ Non-interest rate charges	– –	–	□	+	+ +	NA
C) Other factors, please specify						

13. Over the past three months, how has the demand for loans to households changed at your bank, apart from normal seasonal fluctuations?

	Loans for house purchase	Consumer credit and other lending
Decreased considerably		
Decreased somewhat		
Remained basically unchanged		
Increased somewhat		
Increased considerably		

14. Over the past three months, how have the following factors affected the demand for <u>loans to households for house purchase</u> (as described in question 13)? Please rate each factor using the following scale:

– – = contributed considerably to lower demand
– = contributed somewhat to lower demand
☐ = contributed to basically unchanged demand
+ = contributed somewhat to higher demand
+ + = contributed considerably to higher demand
NA = not applicable

	– –	–	☐	+	+ +	NA
<u>A) Financing needs</u> ☐ Housing market prospects ☐ Consumer confidence ☐ Non-housing-related consumption expenditure <u>B) Use of alternative finance</u> ☐ Household savings ☐ Loans from other banks ☐ Other sources of finance						
<u>C) Other factors, please specify</u>						

15. Over the past three months, how have the following factors affected the demand for <u>consumer credit and other lending to households</u> (as described in question 13)? Please rate each factor using the following scale:

– – = responsible for considerable decrease
– = responsible for decrease
☐ = responsible for neither decrease nor increase
+ = responsible for increase
+ + = responsible for considerable increase
NA = not applicable

	– –	–	☐	+	+ +	NA
<u>A) Financing needs</u> ☐ Spending on durable consumer goods, such as cars, furniture, etc. ☐ Consumer confidence ☐ Securities purchases <u>B) Use of alternative finance</u> ☐ Household savings ☐ Loans from other banks ☐ Other sources of finance						
<u>C) Other factors, please specify</u>						

16.   Please indicate how you expect your <u>bank's credit standards as applied to the</u> <u>approval of loans to households</u> to change over the next three months.

	Loans for house purchase	Consumer credit and other lending
Tighten considerably		
Tighten somewhat		
Remain basically unchanged		
Ease somewhat		
Ease considerably		

17.   Please indicate how you expect <u>demand for loans to households</u> to change over the next three months at your bank (apart from normal seasonal fluctuations).

	Loans for house purchase	Consumer credit and other lending
Decrease considerably		
Decrease somewhat		
Remain basically unchanged		
Increase somewhat		
Increase considerably		

18.   Over the past three months, have there been <u>any other issues</u> of importance for bank lending behaviour in the euro area or in your country which are not covered by this survey?

Appendix III: Variable description and data sources

VARIABLES	DEFINITION	BLS QUESTION	TIME SPAN	DATA SOURCE
BLS variables				
Credit standards	Net percentage of banks reporting a tightening over the previous quarter in the panel regressions	Q1, Q8	2002Q4:2008Q1	ECB, Bank Lending Survey
	Ordinal scale answers given by banks and used in the individual bank regressions			
Bank's capital position	Net percentage of banks reporting that the factor has contributed to tightening credit standards over the previous quarter	Q2	2002Q4:2008Q1	ECB, Bank Lending Survey
Access to market financing	Net percentage of banks reporting that the factor has contributed to tightening credit standards over the previous quarter	Q2	2002Q4:2008Q1	ECB, Bank Lending Survey
Bank's liquidity position	Net percentage of banks reporting that the factor has contributed to tightening credit standards over the previous quarter	Q2	2002Q4:2008Q1	ECB, Bank Lending Survey
Risk on collateral demanded	Net percentage of banks reporting that the factor has contributed to tightening credit standards over the previous quarter	Q2	2002Q4:2008Q1	ECB, Bank Lending Survey
Industry or firm-specific outlook	Net percentage of banks reporting that the factor has contributed to tightening credit standards over the previous quarter	Q2	2002Q4:2008Q1	ECB, Bank Lending Survey
Expectations regarding general economic activity	Net percentage of banks reporting that the factor has contributed to tightening credit standards over the previous quarter	Q2, Q9, Q11	2002Q4:2008Q1	ECB, Bank Lending Survey
Competition from market financing	Net percentage of banks reporting that the factor has contributed to tightening credit standards over the previous quarter	Q2	2002Q4:2008Q1	ECB, Bank Lending Survey
Competition from non-banks	Net percentage of banks reporting that the factor has contributed to tightening credit standards over the previous quarter	Q2	2002Q4:2008Q1	ECB, Bank Lending Survey
Competition from other banks	Net percentage of banks reporting that the factor has contributed to tightening credit standards over the previous quarter	Q2	2002Q4:2008Q1	ECB, Bank Lending Survey
Housing market prospects	Net percentage of banks reporting that the factor has contributed to tightening credit standards over the previous quarter	Q9	2002Q4:2008Q1	ECB, Bank Lending Survey
Creditworthiness of consumers	Net percentage of banks reporting that the factor has contributed to tightening credit standards over the previous quarter	Q11	2002Q4:2008Q1	ECB, Bank Lending Survey
Margin on average loans	Net percentage of banks reporting a tightening over the previous quarter	Q3, Q10, Q12	2002Q4:2008Q1	ECB, Bank Lending Survey
Margin on riskier loans	Net percentage of banks reporting a tightening over the previous quarter	Q3, Q10, Q12	2002Q4:2008Q1	ECB, Bank Lending Survey
Size of loan	Net percentage of banks reporting a tightening over the previous quarter	Q3	2002Q4:2008Q1	ECB, Bank Lending Survey
Collateral requirements	Net percentage of banks reporting a tightening over the previous quarter	Q3, Q10, Q12	2002Q4:2008Q1	ECB, Bank Lending Survey
Loan covenants	Net percentage of banks reporting a tightening over the previous quarter	Q3	2002Q4:2008Q1	ECB, Bank Lending Survey
Loan maturity	Net percentage of banks reporting a tightening over the previous quarter	Q3, Q10, Q12	2002Q4:2008Q1	ECB, Bank Lending Survey
Loan-to value ratio	Net percentage of banks reporting a tightening over the previous quarter	Q10	2002Q4:2008Q1	ECB, Bank Lending Survey
Non-interest rate charges	Net percentage of banks reporting a tightening over the previous quarter	Q12	2002Q4:2008Q1	ECB, Bank Lending Survey

Appendix III: Variable description and data sources (continued)

VARIABLES	DEFINITION	BLS QUESTION	TIME SPAN	DATA SOURCE
Fixed investment	Net percentage of banks reporting that the factor has contributed to increasing loan demand over the previous quarter	Q5	2002Q4:2008Q1	ECB, Bank Lending Survey
Inventories and working capital	Net percentage of banks reporting that the factor has contributed to increasing loan demand over the previous quarter	Q5	2002Q4:2008Q1	ECB, Bank Lending Survey
Merger/acquisition and corporate restructuring	Net percentage of banks reporting that the factor has contributed to increasing loan demand over the previous quarter	Q5	2002Q4:2008Q1	ECB, Bank Lending Survey
Internal financing	Net percentage of banks reporting that the factor has contributed to increasing loan demand over the previous quarter	Q5	2002Q4:2008Q1	ECB, Bank Lending Survey
Consumer confidence	Net percentage of banks reporting that the factor has contributed to increasing loan demand over the previous quarter	Q14, Q15	2002Q4:2008Q1	ECB, Bank Lending Survey
Demand	Net percentage of banks reporting an increase in loan demand over the previous quarter	Q4, Q13	2002Q4:2008Q1	ECB, Bank Lending Survey
Bank size	Dummy variable reported in the BLS to distinguish between large and small banks		2002Q4:2008Q1	ECB, Bank Lending Survey

VARIABLES	DEFINITION	TIME SPAN	DATA SOURCE
Macroeconomic and financial variables			
EONIA	Quarterly average of the EONIA overnight interest rate	2002Q1:2008Q1	ECB
GDP growth	Annual real GDP growth seasonal adjusted	2002Q1:2008Q1	Eurostat
Inflation	Quarterly average of the annual inflation rate	2002Q1:2008Q1	Eurostat
Country risk	Difference between the long-term rate for each country (based on the 10-year Treasury bond) and the corresponding long-term German rate	2002Q1:2008Q1	Thomson Financial Datastream
Term spread	Difference in each country between the 10-year rate and the 3-month rate	2002Q1:2008Q1	Thomson Financial Datastream and BIS
Securitisation	Ratio between all deals involving asset-backed securities and mortgage-backed securities with collateral from the respective country and the total flows of loans for the same country lagged one quarter	2002Q1:2008Q1	Dealogic and ECB
House prices	Quarterly change in house prices indices in each country. Series for Germany, Luxembourg and Italy have been linearly interpolated to obtain a quarterly frequency	2002Q1:2008Q1	National sources
Loans	Annual MFI loan growth rate	2002Q1:2008Q1	ECB
Taylor rule	Taylor rule estimated with a simple Taylor rule with coefficients 0.5. Output gap and inflation are country specific	2002Q1:2008Q1	Gerdesmeier, Mongelli and Roffia (2007) and Eurostat
Number of periods with positive difference	Number of quarters in which the Taylor-rule implied rate has been above the EONIA rate. This proxies the time in which monetary policy has been expansive.	2002Q1:2008Q1	