SME Market Report

2017 H1

Banc Ceannais na hÉireann
Central Bank of Ireland
Eurosystem

The Central Bank of Ireland's *SME Market Report* is compiled by economists in the Financial Stability Division and aims to collate information from a range of internal and external sources to give an up-to-date picture of developments in the Irish small and medium enterprise (SME) credit market.[1] The report provides information on credit demand, credit access, loan terms and conditions, loan default, interest rates and credit market concentration. The report is released twice yearly. The data sources are detailed in Appendix 1 and the SME definition adopted in each data source is defined in Appendix 2.

Overview

- Gross new lending to non-financial, non-real estate SMEs continues to grow. Annualised new lending to Q1 2017 was €3.6bn, a 32 per cent increase since Q1 2016. Between 2010 and 2013 this number ranged between €2bn and €2.5bn. This growth in new lending is broad-based across sectors of the economy, with Manufacturing and the Wholesale and Retail sectors experiencing particularly strong growth.
- Outstanding credit to SMEs continues to contract. In Q1 2017, the stock of SME credit declined to €16.6 bn, down 8.2 per cent from the previous year.
- The SME lending market remains highly concentrated, despite continued reduction in the bank concentration of new lending flows. The market share of the three main lenders in new lending flows is currently 82 per cent.
- The current application rate for bank finance is 20 per cent of SME firms surveyed by the Department of Finance, which continues a downward trend in application rates from a peak of 40 per cent in March 2013. The application rate on loans and overdrafts is lower among Irish SMEs than in two comparator groups of euro area countries. The share of finance applications accounted for by new loans, new overdrafts and leasing and hire purchase arrangements continues to grow, with a commensurate decrease in the share of applications accounted for by renewal and restructuring of existing facilities.
- Investment and working capital are the most common reasons cited by Irish SMEs for financing applications. The share of Irish financing applications for investment reasons has grown from 36 to 47 per cent over the period from September 2016 to March 2017.
- The rejection rate on bank finance applications has increased from 11 to 13 per cent over the year to March 2017. Medium-sized firms have continued to experience a fall in rejection rates, while Small and Micro firms are experiencing increases. In a euro area context, the rejection rate in Ireland is slightly higher than in two comparator country groups.
- Central Bank of Ireland loan-level data for December 2016 show that 18.7 per cent of SME loans (weighted by outstanding balance) are in default.
- SME default rates are highest in the Construction and Hotels & Restaurants sectors, and lowest in the Manufacturing, Primary and Other Community, Social & Personal sectors. Regionally, default rates for SMEs are highest in the West and Mid-West and lowest in the South-West region.
- The average interest rate on loans under €250,000 is currently 5 per cent in Ireland, down from late 2016 but remaining significantly higher than in comparator country groups. The premium paid on small versus large loans also remains substantially higher in Ireland.

1 Central Bank of Ireland *Credit, Money and Banking* Statistics

Figure 1 presents annualised gross new lending to non-financial, non-real estate SMEs since 2010.[2] Annualised lending in Q1 2017 totalled €3.6 billion. New lending is now 32 per cent higher than in Q1 2016 and 38 per cent higher than in Q1 2015.

Figure 1. New SME lending (Sum of previous four quarters, by quarter), Q4 2010 - Q1 2017

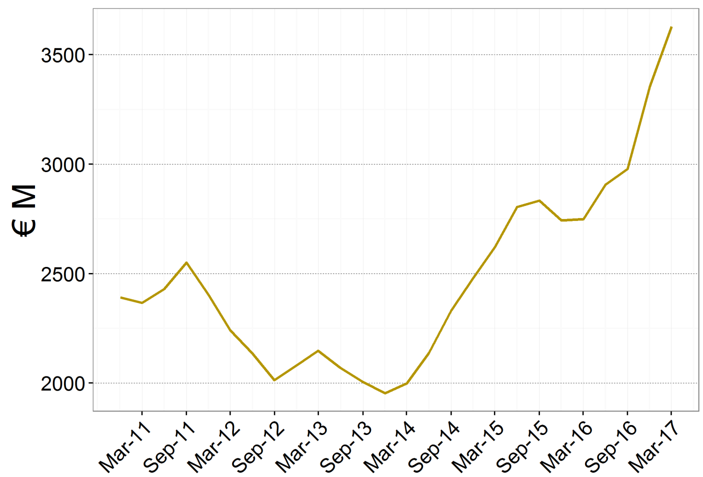

Figure 2 presents annualised gross new lending trends for the six main non-financial, non-real estate sectors. The Agriculture and Wholesale/Retail sectors consistently have the highest shares of new lending. Compared to Q1 2016, annualised new lending in Q1 2017 has increased in every sector; in Manufacturing by 104 per cent, in Hotels/Restaurants by 95 per cent, in Wholesale/Retail by 74.4 per cent, in Construction by 43.8 per cent, in Business and Administrative Services by 21.5 per cent and in Agriculture by 7.8 per cent.

Figure 2. New SME lending, by sector (Sum of previous four quarters, by quarter), Q4 2010 - Q1 2017

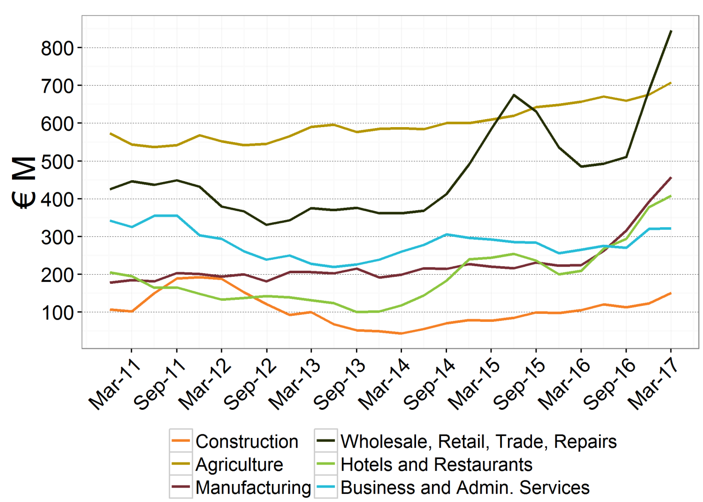

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Figure 3. Credit outstanding to SMEs, Q1 2010 - Q1 2017

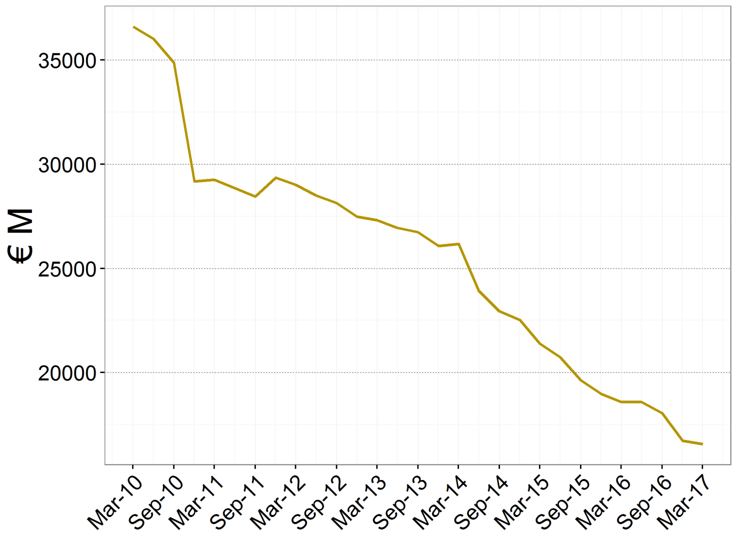


Figure 3 presents the value of outstanding credit to non-financial, non-real estate SMEs. Stocks have declined by 55 per cent since Q1 2010.[3] Since the last report (Q1 2017 versus Q3 2016), stocks have declined by a further 8.2 per cent. The stock of outstanding bank credit to this group of firms currently stands at €16.6 bn.

Figure 4. Credit outstanding to SMEs by sector, Q1 2010 - Q1 2017

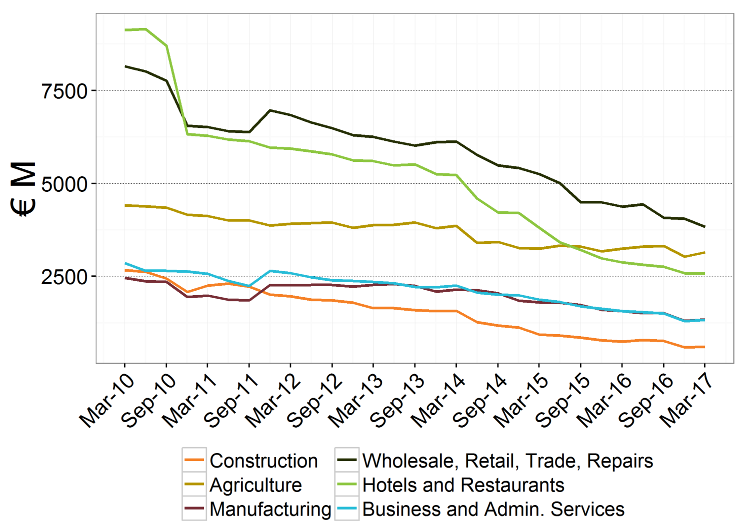
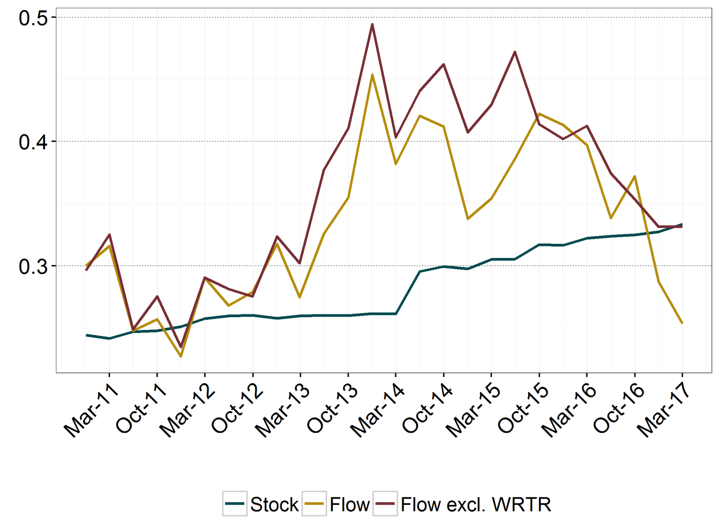


Figure 4 presents trends in outstanding credit for the six main non-financial, non-real estate SME sectors. The sector with the largest stock of outstanding credit is the Wholesale and Retail sector, followed by the Agriculture and Hotels and Restaurants sectors. Since the last report (Q1 2017 versus Q3 2016), stocks have decreased in all sectors with the largest absolute fall in the Wholesale and Retail sector, (-€246 million). The largest relative fall is in the Construction sector (-19.3%), while the smallest fall was recorded in the Agriculture sector (-5%).

[2]Annualised data are a rolling summation over the previous four quarters. Gross new lending is defined as the 'amount of new credit facilities drawn-down during the quarter by SME counterparties, i.e. where this credit facility was not part of the outstanding amount of credit advanced at the end of the previous quarter'. These data exclude renegotiations. Construction lending is included in these data but real estate activities are excluded.

Figure 5 reports the Herfindahl-Hirschman index, which measures the concentration of lending 'stocks' (outstanding balance) and 'flows' (gross new lending) for non-financial, non-real estate SME lending of all domestic banks.[4] The SME lending market has generally become more concentrated since 2010, reflected by a gradual increase in the stock measure. Figure 5 also shows the concentration of the flow of new lending both including and excluding the Wholesale, Retail Trade and Repairs (WRTR) sector. The latter is presented as an additional measure of flow concentration which is not biased downward by the unprecedented amount of extremely short-term lending by specialist finance providers in the WRTR sector in recent quarters. New lending concentration, when measured excluding this sector, has fallen by a much smaller amount since Q3 2016. The share of the three largest banks in new lending flows excluding the WRTR sector was 92 per cent in Q1 2017. The share falls to 82 per cent when including the WRTR sector.

Figure 5. Herfindahl-Hirschman index for non-financial, non-real estate SME lending, Q4 2010 - Q1 2017

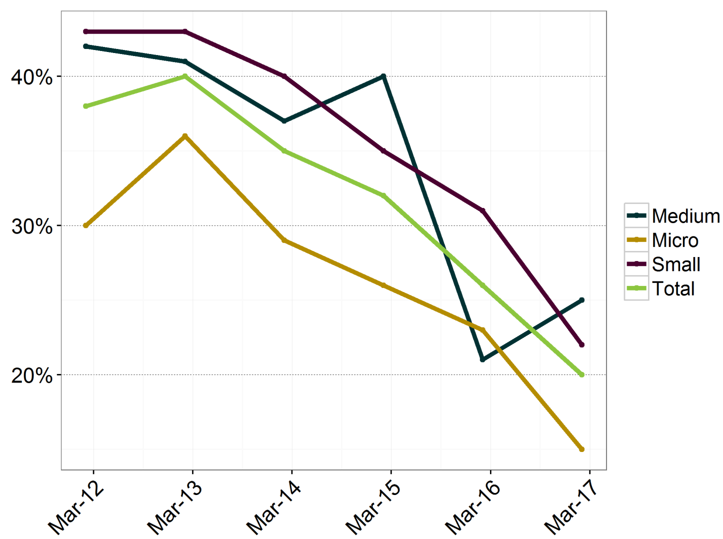


[3]Declines in outstanding credit are due to a number of factors, including repayments outstripping new lending, revaluations (includes write-offs), loan sales and bank exits.

[4]The Herfindahl-Hirschman index is calculated as the sum of the squared market shares. Higher values indicate higher market concentration or lower levels of competition. The index is created using data from 17 banks.

2 Department of Finance SME Credit Demand Survey

Figure 6. Application rate for bank finance, March 2012 - March 2017



The latest six-monthly Department of Finance *SME Credit Demand Survey* covers the period October 2016 to March 2017.[5] Figure 6 presents the share of SMEs that applied for any bank finance facility (loans, overdrafts, leasing, hire-purchasing and invoice discounting) in each October to March survey period (i.e. every second round) from 2012 to present. In the latest survey, 20 per cent of firms applied for bank finance, down from 23 per cent in the previous survey. Demand for financing appears highest among Medium firms and lowest among Micro firms. Significant reductions in application rates have been observed for all company types since 2015, with only Medium firms showing a slight increase in the year to March 2017.

Figure 7. Share of credit applications by product type, March 2013 - March 2017

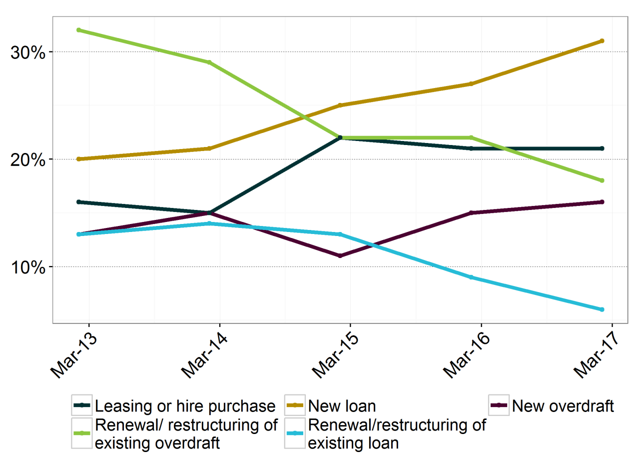


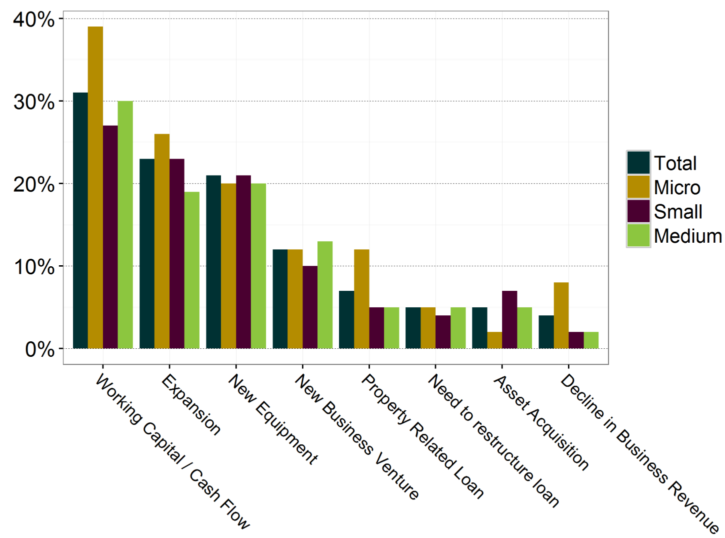
Figure 7 presents the share of bank finance applications by product type.[6] Of all loan applications between October 2016 and March 2017, 31 per cent were for new loan facilities, 21 per cent for leasing or hire purchase agreements, and 15 per cent for new overdraft facilities. These shares have all grown over the last two years. The share of all credit applications accounted for by renewal and restructuring of existing loans or overdrafts has fallen substantially in the two years since March 2015.

[5] The survey is conducted twice yearly: October to March (labelled 'March' in this report) and April to September (labelled 'September'). This nationally representative survey collects information on a range of economic and financial factors including firms' demand for credit, their success in applying for credit and their trading performance. 'Micro' firms have 1-9 employees and turnover or balance sheet value up to €2 million. 'Small' firms have 10-49 employees and turnover or balance sheet value up to €10 million. 'Medium' firms have 50-250 employees and turnover up to €50 million or balance sheet value up to €43 million.

[6] *SME Market Report H2 2016* contains a similar chart presenting the share of firms applying for each loan product type, rather than the share of finance applications accounted for by each product type.

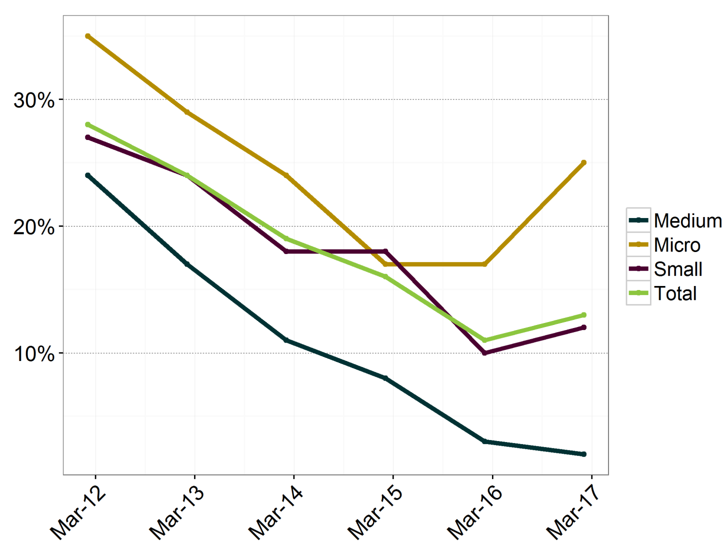
Figure 8 describes the purpose of SME credit applications for the latest survey round. Working capital is the single most important stated purpose for credit applications and is particularly important among micro firms. The next three most important responses, however, all relate to business growth (Expansion, New Equipment and New Business Venture) and appear to be similarly important across all company size groups.[7]

Figure 8. Purpose of credit application, October 2016 to March 2017



Having decreased steadily from March 2012 to March 2016, rejection rates on SME bank finance applications have now increased for the second consecutive survey.[8] The rejection rate across all firm size groups has increased year-on-year to 13 per cent from 11 per cent. Micro firms in particular have experienced a large year-on-year increase in the rejection rate from 17 per cent to 25 per cent. Variation in outcomes across company size groups is more pronounced now than at any time since 2012, with Medium firms experiencing a decline to a rejection rate of 2 per cent, while smaller companies have experienced increases.

Figure 9. Bank finance rejection rates, March 2012 - March 2017



[7] Totals across stated reasons may sum to more than 100 per cent because firms may respond with multiple reasons for requesting bank finance. To allow for a clearer exposition, the four stated reasons with the lowest response rate are removed from the chart.

[8] Rejection rates are for those SMEs applying for credit and having received a decision in the last six months. These rates are for all finance types (loans, overdrafts, leasing, hire-purchasing and invoice discounting).

3 Central Bank of Ireland Loan-Level Data

Figure 10. SME default rates by sector, December 2016

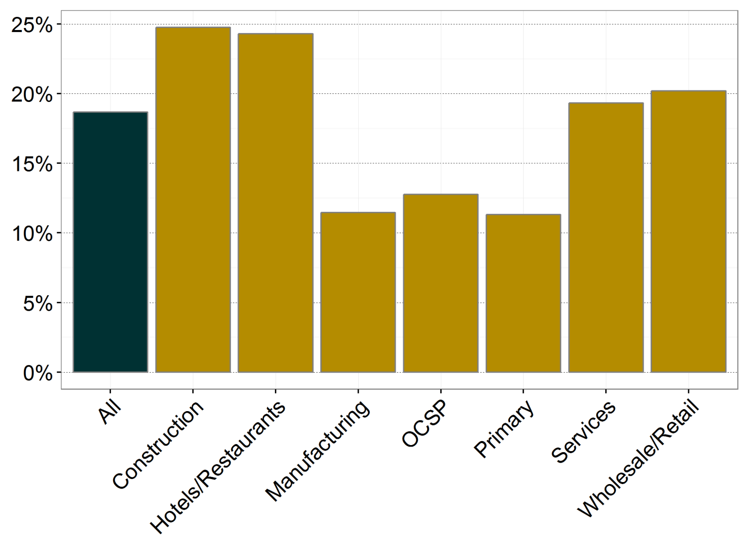


Figure 10 presents the share of outstanding SME loan balances in default (i.e. default rate) across the main economic sectors in the latest Central Bank of Ireland loan-level dataset for December 2016.[9] The Construction and Hotels/Restaurants sectors have the highest default rates of 24.8 per cent and 24.3 per cent respectively, with the lowest in the Manufacturing sector (11.5 per cent). The overall default rate in the sample is 18.7 per cent. Default rates presented in this Report are not comparable with those in previous editions due to changes in the reporting population of banks. For this reason, direct comparison to historic default rates reported in previous editions of the Report is not made.

Figure 11. SME default rates by region, December 2016

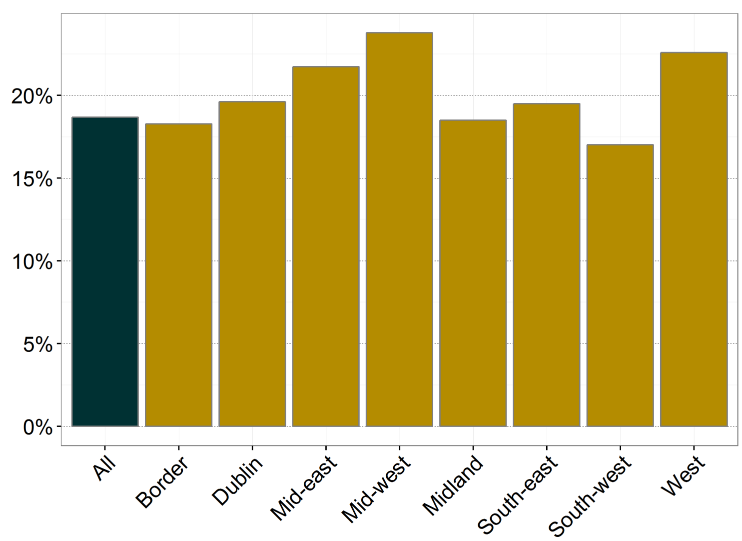


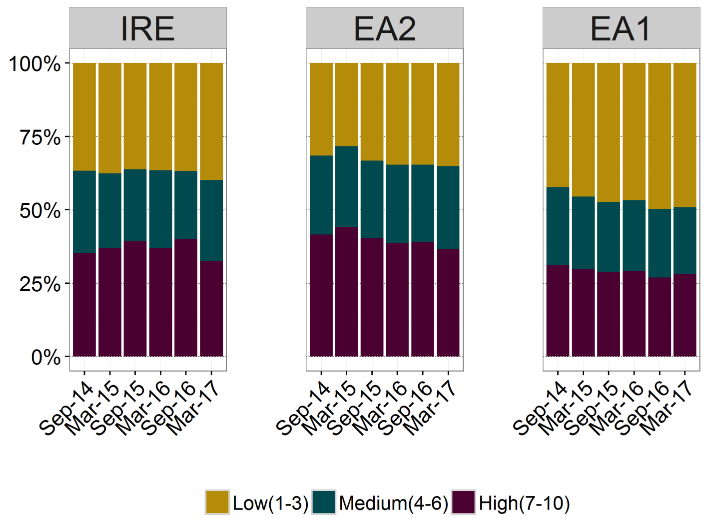
Figure 11 presents the default rate across regions.[10] In the latest data (December 2016), default rates are highest in the Mid-West (23.8 per cent), West (22.6 per cent) and the Mid-East (21.7 per cent). Again, note that direct comparison to historic default rates are not made, due to changes in reporting.

[9]These data are collected every six months with the most recent date being December 2016. The finance types are predominantly comprised of loans, overdrafts, hire-purchasing and leasing. 'Default' is defined as loans in arrears of greater than 90 days past due or deemed unlikely to repay without giving up collateral. The OCSP sector refers to Other Community, Social and Personal services.

[10]Nomenclature of Territorial Units for Statistics (NUTS) regions - 'Border': Cavan, Donegal, Leitrim, Louth, Monaghan, Sligo; 'Mid-East': Kildare, Meath, Wicklow; 'Mid-West': Clare, Limerick; 'Midlands': Laois, Longford, Offaly, Westmeath; 'South-East': Carlow, Kilkenny, Tipperary, Waterford, Wexford; 'South-West': Cork, Kerry, 'West': Galway, Mayo, Roscommon.

4 ECB/EC SAFE Survey

Figure 12. Concerns on access to finance, September 2014 - March 2017



The ECB/EC *Survey on the Access to Finance of Enterprises* (SAFE) is used to compare credit conditions in Ireland to those elsewhere in the euro area.[11] Figure 12 describes how firms' perception of access to finance as a concern has changed over the last six surveys.[12] In the last six months, the share of Irish firms reporting 'low' concerns has increased, while the share of firms reporting 'high' concerns has fallen. The share of Irish SMEs stating a 'high' concern between October 2016 and March 2017 (33 per cent) is lower than EA2 (37 per cent) but higher than EA1 (28 per cent).

Figure 13. SME perceptions of bank willingness to provide credit, September 2014 - March 2017

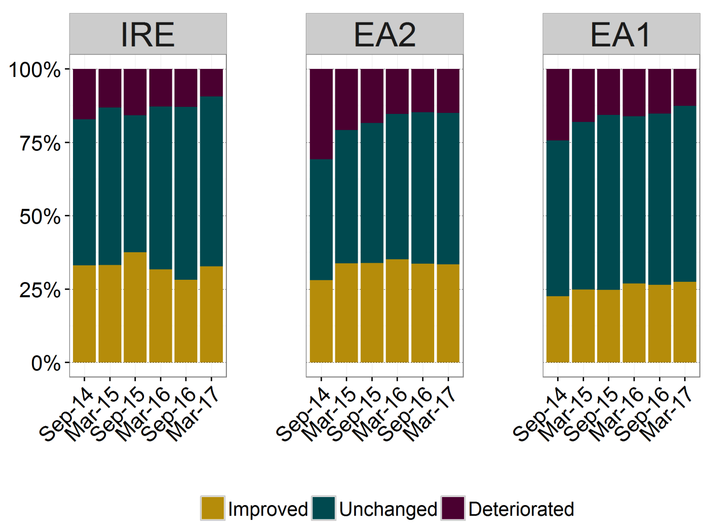


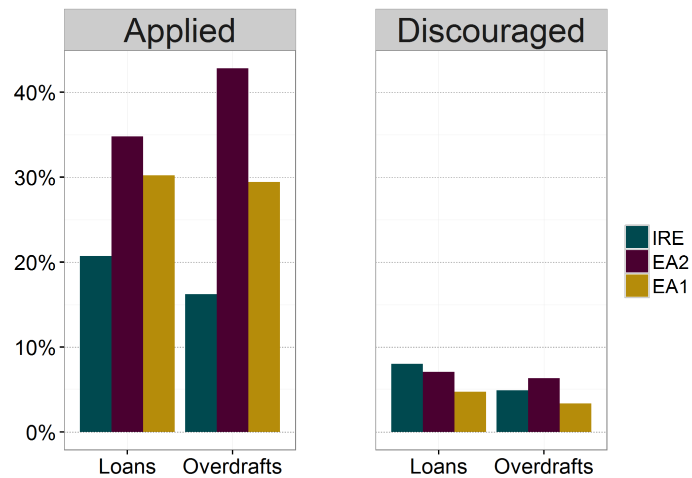
Figure 13 describes SME perceptions on bank willingness to provide credit. There has been a decline in the share of SMEs stating that banks' willingness has deteriorated in both Ireland and the EA1 countries in each of the last two survey rounds. In the latest survey, the net improvement (share of improvements minus the share of deteriorations) in Ireland is 18 per cent, which is identical to EA2 countries and higher than the EA1 (15 per cent).

[11]The survey is conducted twice yearly with the most recent survey covering the period from October 2016 to March 2017. Ireland is compared to two groups of countries: EA1 which comprises Austria, Belgium, Germany, Finland, the Netherlands and France, and EA2 which comprises Portugal, Italy, Spain and Greece.

[12]Responses range from 10 ('extremely pressing') to 1 ('not at all pressing') and finance includes bank loans, trade credit, equity, debt securities and other external financing.

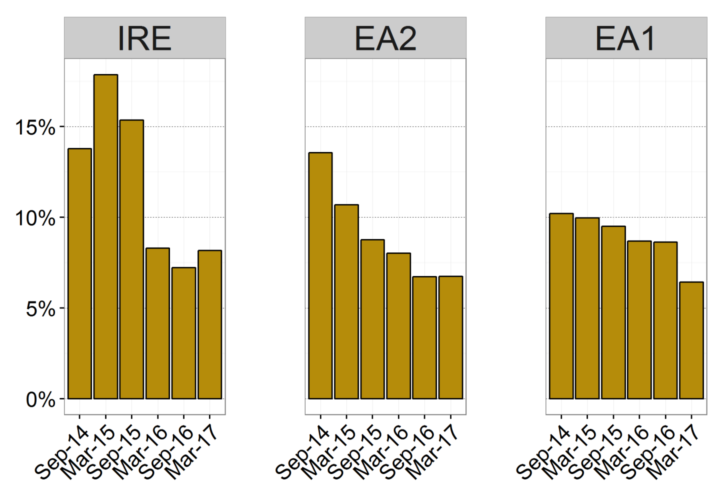
In the latest survey, Irish SME loan and overdraft application rates are considerably lower than euro area averages.[13] Figure 14 shows the loan application rates in Ireland, EA2 and EA1 are 21 per cent, 35 per cent and 30 per cent respectively. For overdrafts, the analogous figures are 16, 43 and 29 per cent. Ireland and EA2 have higher shares of discouraged borrowers (i.e. SMEs that did not apply for credit because of an expectation of their application being rejected) than EA1. Relative to the previous survey round (March to September 2016), the Irish SME loan application rate has risen by four percentage points, while the overdraft application rate has fallen by 2 points.

Figure 14. Application and discouraged borrower rates for loans and overdrafts, March 2017



Rejection rates on new loan and overdraft applications have risen slightly in Ireland in the most recent survey round from 7.2 to 8.2 per cent (Figure 15). The latest rejection rate in Ireland is slightly higher than EA2 and EA1, with both of the latter two country groups having experienced a fall in rejection rates over the same period.[14]

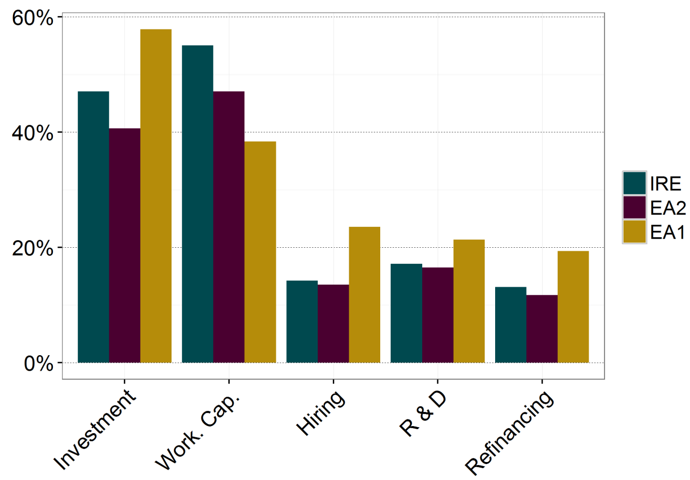
Figure 15. Rejection rates for loan and/or overdraft applications, September 2014 - March 2017



[13]Following the SAFE report methodology, Figure 14 only includes SMEs for which bank loans and overdrafts are relevant.

[14]SMEs that applied for both a loan and an overdraft but received a rejection for either are treated as rejected for Figure 15. SMEs whose applications are "still pending" or "don't know" are excluded from calculations.

Figure 16. Purpose of financing, March 2017



For SMEs that used financing in the previous six months, Figure 16 describes the purpose of these funds.[15] While the largest share is accounted for by 'working capital' in Ireland and EA2, 'fixed investment' is the main purpose in EA1. The 'fixed investment' share in Ireland has increased since the last report (from 36 to 47 per cent) and has now surpassed the rates reported in EA2, while remaining lower than in EA1.

Figure 17. Change in interest rates, September 2014 - March 2017

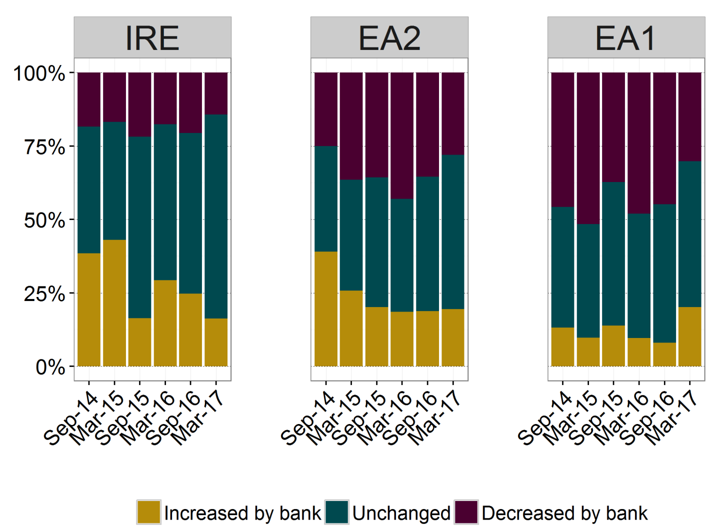


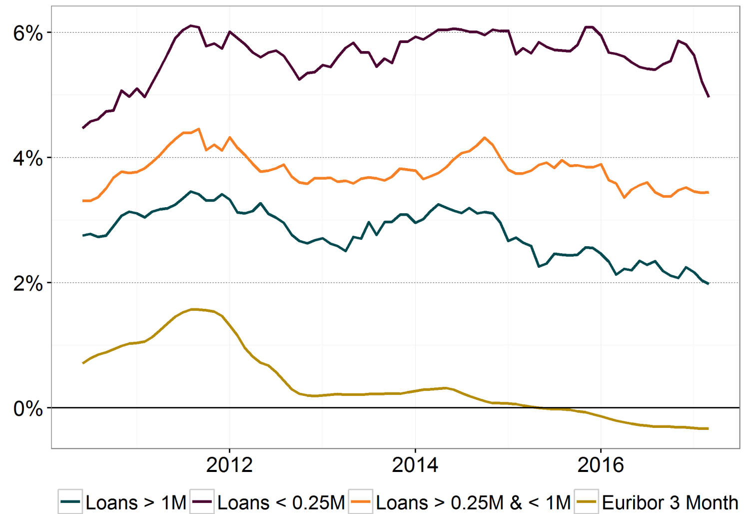
Figure 17 describes the share of SMEs that reported increased, decreased or unchanged interest rates (as reported by SMEs that applied for a new loan and/or overdraft in each survey). The share of Irish SMEs reporting an increased interest rate has fallen in each of the last two survey rounds. While the share of increases is slightly higher than the share of decreases in Ireland (16 versus 14 per cent), most Irish SMEs currently report an unchanged situation. This is contrary to the situation in the euro area as a whole where significantly more SMEs reported decreases than increases in the latest survey.

[15] In SAFE, financing refers to 'external sources or from funds generated by your enterprise'. In Figure 16, 'Investment' refers to investment in property, plant, machinery or equipment, 'Work. Cap.' refers to inventory or working capital, 'Hiring' refers to hiring and training of employees, 'R & D' refers to developing and launching new products or services and 'Refinancing' refers to refinancing or paying off obligations. The shares presented exclude SMEs which responded with 'don't know' or 'not applicable'.

5 ECB Monetary and Financial Statistics

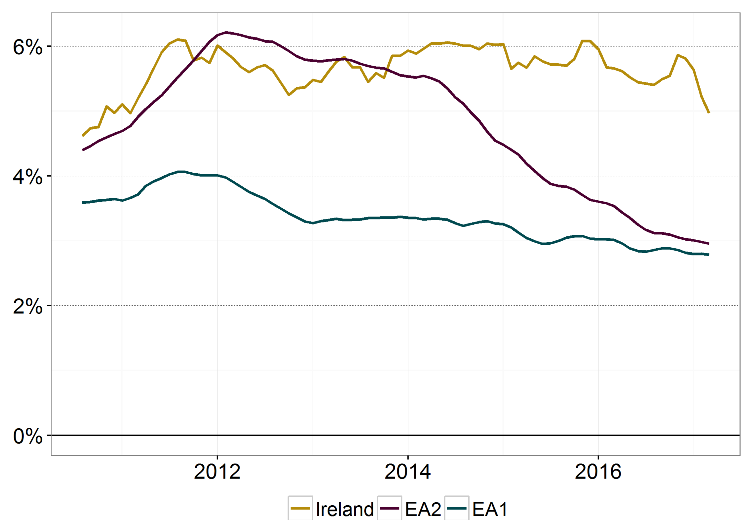
Figure 18 presents interest rates on Irish non-financial corporation (NFC) loans of varying originating balances.[16] Rates on loans under €0.25 million are used as a proxy for the SME cost of credit. Interest rates are higher for smaller loans: the 3-month moving average interest rate for SMEs is 5 per cent for the latest data point, which is 3 percentage points higher than that for loans above €1 million and 1.6 percentage points higher than that for loans between €0.25 million and €1 million. The most recent observation is the lowest SME lending rates have been since early 2011.

Figure 18. Interest rates on NFC loans (3-month moving average), Ireland, January 2011 - March 2017



Interest rates on new NFC loans below €0.25 million in Ireland, EA1 and EA2 are presented in Figure 19.[17] The country groupings are outlined in Appendix 2 and match as closely as possible those used in previous sections. Interest rates in this loan group, which is the best proxy available in the data for the cost of credit for SMEs, have fallen by close to a percentage point in recent months. However, as shown in previous reports, interest rates in Ireland remain significantly above euro area averages, with the interest rate in Ireland in March 2017 being 2 percentage points higher than EA2 and 2.2 percentage points higher than EA1.

Figure 19. Interest rates on NFC loans under €0.25 million (3-month moving average), euro area, August 2010 - March 2017



[16] In this section, interest rates and lending volumes are for new business lending to NFCs. This data excludes revolving loans and overdrafts, convenience and extended credit card debt. New business is defined as any new agreement between the customer and the credit institution. This agreement covers all financial contracts that specify, for the first time, the interest rate of the loan, including any renegotiation of existing loans.

[17] This figure is created by first calculating the three-month moving average in each country. For the comparison country groupings (EA1 and EA2), a direct unweighted average is then used. This figure excludes Belgium and Greece due to missing data.

Figure 20. Difference between interest rates on small and large NFC loans (3-month moving average), August 2010 - March 2017

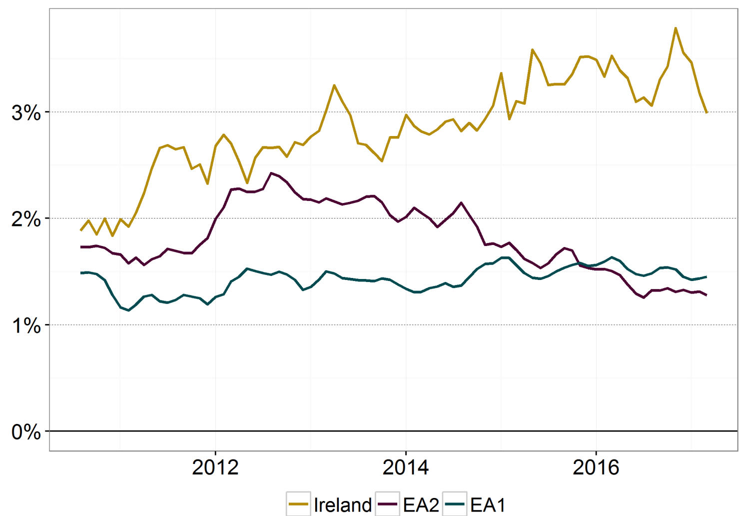


Figure 20 displays the difference in interest rates between small loans (below €0.25 million) and large loans (above €1 million).[18] This interest rate gap in Ireland is at or above 3 percentage points in all months in 2015, 2016 and the first quarter of 2017. This is substantially higher than the analogous figures for EA1 and EA2 countries. Consistent with Figure 19, there has been a fall in the premium paid for smaller loans in Ireland in recent months.

Figure 21. New lending to NFCs (loans up to and including €1 million) as a proportion of domestic demand, Q1 2003 - Q3 2016

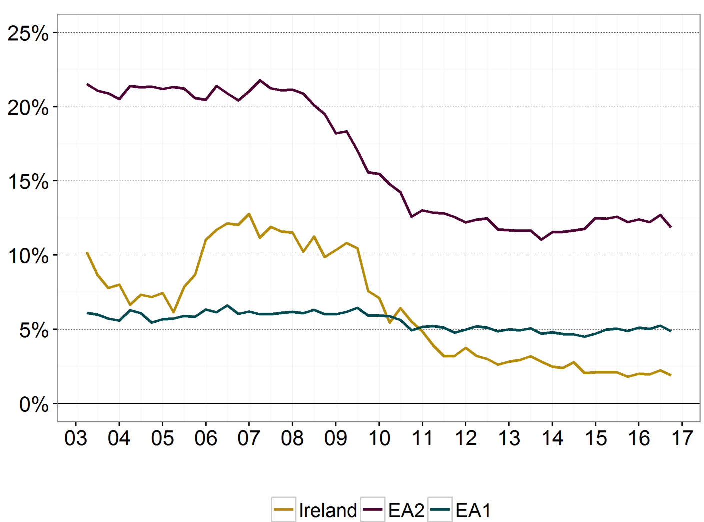


Figure 21 presents the ratio of NFC lending to domestic demand, to scale the size of SME lending flows relative to economic activity. Lending flow data are for loans on amounts up to and including €1 million.[19] The ratio in Ireland is unchanged from the time of the last report (2.1 per cent) and is below EA1 (5.1 per cent) and EA2 (12.3 per cent) averages. Other Member States with ratios less than 5 per cent are the Netherlands (2.2 per cent), Austria (3.2 per cent), Finland (4.2 per cent), France (4.4 per cent), and Germany (4.6 per cent).

[18] This figure is created by first calculating the three-month moving average for the two interest rate series in each country. The information presented is then the difference between these two moving averages, by month. For the comparison country groupings (EA1 and EA2), a direct unweighted average is used. These averages exclude Belgium and Greece due to missing data.

[19] This higher loan threshold is chosen because lending data for loans on amounts up to €0.25 million are not available pre-2010. Euro area (excluding Ireland) quarterly domestic demand data (final consumption expenditure and gross capital formation) are from *Eurostat*. Irish domestic demand data are from the Central Statistics Office and exclude "Intangible Assets" and "Machinery and Equipment of which: Other Transport". All data are at current market prices and are non-seasonally adjusted. Monthly new lending data are aggregated to quarterly frequency for comparison. EA2 excludes Greece due to missing data.

Box 1: Recent joint conference of the European Investment Bank and Central Bank of Ireland [a]

On April 10, 2017, the EIB and Central Bank of Ireland jointly hosted a conference on *Investment and Investment Finance: Funding Growth and Recovery; The Irish history from a European Perspective*. The first results of the EU-wide EIB Investment Survey (EIBIS) were presented by the EIB's chief economist Debora Revoltella at the conference. Her presentation began with an overview of the evolution of aggregate investment in Ireland and the EU, highlighting the relatively cyclical nature of Irish investment, which experienced both a more dramatic fall between 2008 and 2013 and a more pronounced recovery in recent years. Aggregate data also show that the Non-Financial Corporate sector has been the primary source of the Irish investment recovery, with intellectual property and Machinery & Equipment being the two asset classes with highest recent growth rates. By comparison, the recovery across the EU28 is extremely muted.

A wide range of statistics were presented from the EIBIS, with a focus on the ways in which Irish companies differed from others in the EU28 in their responses.

On the structure of investment, the survey highlighted that:

- Irish firms are shown to have a higher share of companies investing than is typical in Europe. By order of importance, the reasons for this investment are broken down between Machinery & Equipment (close to 30 per cent of responses); Land, Buildings & Infrastructure and Software, Data, IT & Website (both of which account for between 15 and 20 per cent of responses); Training of Employees, Business Processes, R&D (each of which accounts for under 10 per cent of responses).
- On the reasons for future investment, Irish firms report the following; 25% capacity expansion, 35% replacement of existing buildings or equipment, 25% new products, 15% no investment planned.
- The Irish construction sector is shown to have an extremely high share of positive investment expectations for the coming three years.
- Ireland is second highest in the European sample in having 10 per cent of companies investing in intangible assets. Ireland is notable in that the share of smaller companies investing in intangibles is also high.
- On the share of companies reporting that they are at full capacity, Ireland is exactly at the European average at around 55 per cent. Similarly, Irish firms are at the EU average in stating that they do not face an investment gap.
- When compared to EU peers, Irish firms invest more frequently into products and processes that are new to the company (30 per cent of Irish firms), suggesting a higher tendency to innovate in Ireland relative to the majority of EU countries.

On investment financing:

- 14 per cent of Irish companies report being financially constrained, which puts Ireland well above the median country in the sample, where the share is 7-8 per cent.
- Irish firms report particular dissatisfaction with the cost of credit and collateral requirements (20 per cent of companies in both cases).
- On average, 75 to 80 per cent of Irish firms' investment is financed by internal funds, with just 20 per cent financed by external sources such as bank debt. The share financed by external funds in the EU28 is between 35 and 40 per cent.
- Of the external finance used to fund investment, around 55 per cent comes from bank loans, with another 20 per cent coming from leasing and 10 per cent from other bank finance products. These patterns are consistent across most company types and sectors.
- Among firms that reported that they invested less than desired, an extremely high and disproportionate share cite the availability of external finance and the availability of staff with relevant skills as barriers to investment. This suggests that, for a cohort of firms, credit constraints remain an impediment to growth prospects.

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Box 2: Recent Central Bank of Ireland research on SME collateral[a]

The issue of collateral requirements on new SME loans has a number of important policy dimensions: firstly, collateral requirements, particularly when relating to physical assets, can act as a barrier to credit access for large shares of the population of firms (in particular younger firms and those in sectors characterised by intangibility of assets); secondly, the requirement of collateral, and particularly personal guarantees, can act as a deterrent to entrepreneurial risk-taking; thirdly, from a lender point of view, collateral can act to lower the loss given default (LGD) on loans.

Using loan-level data on around seven thousand new SME loans issued by Irish banks between 2011 and 2014, Carroll and McCann (2017) provide a number of descriptive statistics on the use of collateral:

- 53 per cent of the loans issued were secured against collateral.
- Comparing secured with unsecured lending, the paper finds that loans secured against collateral are:
  - Larger, with an average originating balance of €96,410, as opposed to just €15,308 among unsecured loans.
  - Longer-term (average term of 6.5 years, versus 4.3 years).
  - Cheaper (average interest rate of 4.6 versus 5.3).
  - Perform slightly better (subsequent default rate of 13.5 versus 15.6 per cent).

Empirically, the authors explore two motives in a bank's use of collateral:

1. An ex-ante *stock-of-risk* effect, whereby banks secure observably riskier loans to reduce future losses.
2. An ex-post *flow-of-risk* effect, whereby banks use collateral to lower the probability of reduced borrower repayment effort and subsequent default.

On (1), the authors test for a positive correlation between firm risk at origination and the use of collateral on new SME loans. They find that, among smaller loans, riskier borrowers are more likely to post collateral. However, in the top 20 per cent of loans (as measured by outstanding balance), it is shown that the collateralisation rate is over 90 per cent, regardless of whether the loan appeared low- or high-risk at origination. The models also confirm statistically that longer-term and lower-cost loans are more likely to be those with collateral.

On (2), the authors test for whether collateral is a successful mitigant of default after origination, as is predicted by theories of collateral based on "moral hazard" explanations. The authors find no association between collateralisation and the subsequent deterioration in credit quality, indicating that, once a borrower's ability to repay has been eroded, the data do not suggest that collateral plays any role in explaining the default decision.

Finally, the authors point out that, even though collateral does not appear to be successful in lowering the probability of default (PD), the banks' insistence on collateral for higher-risk and higher-balance loans may still be rationally explained through the lens of regulatory capital. A bank's capital ratio is composed of capital as the numerator and risk-weighted assets (RWA) as denominator. If a bank wishes to expand either the risk profile (PD) or the volume of new credit (exposure at default, EAD), both of these will have a negative impact on the capital ratio (with higher PDs impacting on capital through provisions and increasing RWA, while a higher EAD increases RWA). To offset these balance sheet expansions, collateralisation of new loans is a low-cost and easy-to-implement solution, given that loans with collateral have lower LGD than unsecured loans. When LGD is lower, provisions are lower thus boosting capital, while the risk-weighting treatment currently in place also lowers RWA for loans with collateral, meaning that both the numerator and denominator of the capital ratio are improved.

[a] Reference: James Carroll and Fergal McCann (2017). SME Collateral: risky borrowers or risky behaviour? Central Bank of Ireland Research Technical Paper 06RT17. Box author: Fergal McCann – Financial Stability Division. Email: fergal.mccann@centralbank.ie

Appendix 1: Data Sources

- Central Bank of Ireland *Credit, Money and Banking* statistics, Q1 2010 to Q1 2017. This source contains lending stocks and flows by quarter and sector for all Irish credit institutions. See Business Credit and Deposits Explanatory Notes on the Central Bank of Ireland website for more details.
- Department of Finance *SME Credit Demand Survey*, September 2012 to March 2017. This nationally representative survey of 1,500 Irish SMEs is carried out on a six-monthly basis, and collects information on a range of economic and financial factors including firms' demand for credit, their success in applying for credit, their trading performance and their views on Government interventions in the SME credit market.
- European Central Bank (ECB) / European Commission (EC) *Survey on the Access to Finance of Enterprises* (SAFE), October 2012 to March 2017. The Irish component of this European survey contains information for 500 SMEs. The cross-country nature of the survey allows credit conditions faced by Irish SMEs to be placed in an international context. In this report, Ireland is compared to two groups of EU countries: EA2 is comprised of Portugal, Spain, Italy and Greece while EA1 is comprised of Austria, Germany, Belgium, Finland, the Netherlands and France.
- Central Bank of Ireland loan-level data, December 2016. This dataset provides information on a wide range of loan characteristics including outstanding balances, sector of activity and loan repayment for the population of enterprise loans outstanding at Allied Irish Banks, Bank of Ireland, Permanent TSB and Ulster Bank Ireland Limited. 'Default' is defined as loans greater than 90 days past due, or deemed unlikely to repay without giving up collateral, in line with the definition specified under Basel II.
- Monthly euro area interest rates and new lending data to non-financial corporations are based on the ECB's *Monetary and Financial Statistics* (MFI interest rates). These data are for loans other than revolving loans and overdrafts, convenience and extended credit card debt (all maturities), and include renegotiations. The most recent observation reported on in this report is March 2017.

Appendix 2: Classification of SMEs

For the purposes of the Central Bank of Ireland aggregate statistical series and the Department of Finance *SME Credit Demand Survey*, an SME counterparty is defined as any entity engaged in an economic activity, irrespective of legal form (i.e. corporation, partnership, sole-trader, etc.), which employs fewer than 250 persons and whose annual turnover does not exceed €50 million or whose annual balance sheet does not exceed €43 million. This is consistent with the SME definition in the Central Bank's SME Lending Regulation and used by the Credit Review Office.

In the SAFE survey, SMEs are defined solely by their employment size. Three categories of SME are analysed: Micro firms, with less than 10 employees, Small firms with 10 to 49 employees, while Medium firms are those with 50 to 249 employees. All firms with more than 250 employees are considered to be Large firms and are removed from the analysis.

The Central Bank of Ireland loan-level data do not contain the relevant information on borrowing firms to define SMEs in a similar fashion. Rather, SMEs are separated from larger corporate borrowers in the data in a manner similar to that used by regulatory stress testing exercises. All firms whose exposures are managed in retail and business banking units of the subject banks are modeled as SMEs, while all exposures managed in corporate banking divisions are considered to be large firms and excluded from the analysis in this report.

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