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## **Analysis of the SME Market Using Micro-Data<sup>1</sup>**

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### **Abstract**

This paper focuses on the complementary nature of granular credit data for the small and medium enterprise (SME) sector. It highlights the importance of the SME sector to the Irish economy and outlines the aggregate statistics on SME credit that are available from the Central Bank of Ireland on a quarterly basis. It then examines a micro-credit data set that is available for SMEs and compares the two data sets to show how the micro-data set can complement the aggregate data and provide a deeper understanding of lending to the SME sector. The paper highlights some of the extra types of analysis that can be conducted using the highly informative micro-data; which includes analysis of the breakdown of lending by different customer types, SME loan pricing trends, maturity profiles of lending, average loan size by sector, among others characteristics.

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## 1. Introduction

SMEs are the largest providers of employment in Ireland accounting for around three quarters of private sector employment. They also make a large contribution in terms of domestic output and value added. This paper discusses the importance of the SME sector to the Irish economy, and outlines what statistics on SME credit are already available at an aggregate level. It then examines a micro- credit data set that is available on SMEs credit and compares the two data sets. The paper shows how the micro-data set can be used in conjunction with the aggregate data to provide deeper insights and understanding of lending to the SME sector that are not available from the aggregate data. The use of micro data to compile macroeconomic statistics is part of a growing international trend among statistical compilers. The availability of micro data has increased in volume in recent years in the Central Bank of Ireland and will continue to grow. These data first became available in 2010 for the purposes of conducting stress tests for domestically owned banks. Since then, data has been submitted every six months to the Central Bank of Ireland.

The paper highlights some of the extra types of analysis that can be conducted using micro-data. This includes looking at breakdowns of lending by different customer types, analysing loan pricing for SMEs, maturity profiles of lending, average loan size by sector, and many other interesting insights.

Section 2 gives an overview of the SME market in Ireland and Section 3 describes the statistics that are currently available at a national level. Section 4 discusses the matching of macro and micro data and shows how this can deepen the analysis on the SME sector. Section 5 concludes.

## 2. SME Contribution to the Macro-Economy

The SME sector is a hugely important contributor to Irish employment and growth and is considered one of the most significant sectors in terms of its potential to underpin the Irish economic recovery.

The Central Statistics Office's (CSO) 'Business in Ireland 2011' annual report details the substantial contribution of SMEs to the Irish economy (see Chart 1). The CSO show that SMEs in Ireland accounted for over 99 per cent of the 184,000 active enterprises operating in Ireland.<sup>2</sup> SMEs account for half of the total gross value added (GVA) from active enterprises and, when agriculture is included, equate to almost €45 billion or just under 30 per cent of GDP in 2011 (CSO, 2011).<sup>3</sup>

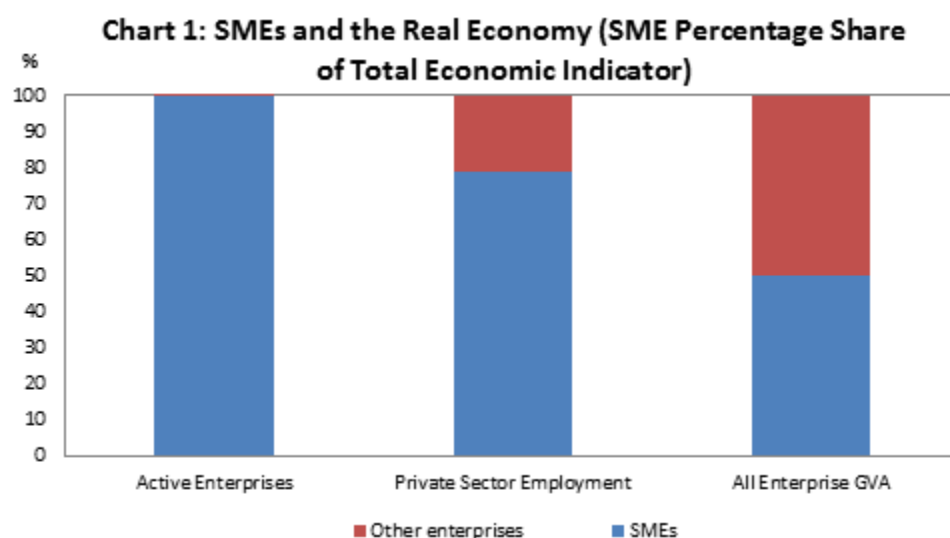
Despite a relatively low contribution in GVA terms, SMEs greatest contribution to the real economy is through employment. Some three-quarters of private sector employment is

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<sup>2</sup> The CSO's active enterprise data does not include the agriculture or public services sector. Additionally, the financial and insurance sector has been subtracted for the purposes of this paper.

<sup>3</sup> Gross value added figures for the agricultural sector were obtained from the CSO's Income and Expenditure release.

accounted for by SMEs, equivalent to over 900,000 jobs. This implies that there are considerable knock-on effects for employment, and therefore for household distress, when SMEs face financial difficulties. Of these enterprises, over half directly relate to Irish-owned indigenous SMEs who are not engaged in export or import activities, but instead solely engage with the domestic economy.



Source: Business in Ireland, Quarterly National Household Survey and National Income and Expenditure release, CSO and own calculations.

Note: Employment data as at end-2013 and all remaining data as at 2011. Excludes financial and insurance sectors where possible. Agriculture sector included in employment and GVA series.

### 3. SME Credit Market – Aggregate Data

The Central Bank of Ireland first published data on lending to SMEs in December 2010, with reference to Q1 2010. The dataset was subsequently expanded and enhanced in June 2011 with the introduction and publication of a new '*Trends in Business Credit and Deposits*' publication. The introduction of breakdowns by enterprise size and by purpose of the loan (NACE Rev.2 categorisation) provided new insight and improved visibility of the SME credit market. The enhanced data series also included a 'transactions' series which provided a more meaningful and accurate measure for the underlying flow of bank credit and deposits. In addition, a gross new lending series was introduced. This is discussed in detail further on. For more information, see O'Brien and Goggin (2011).

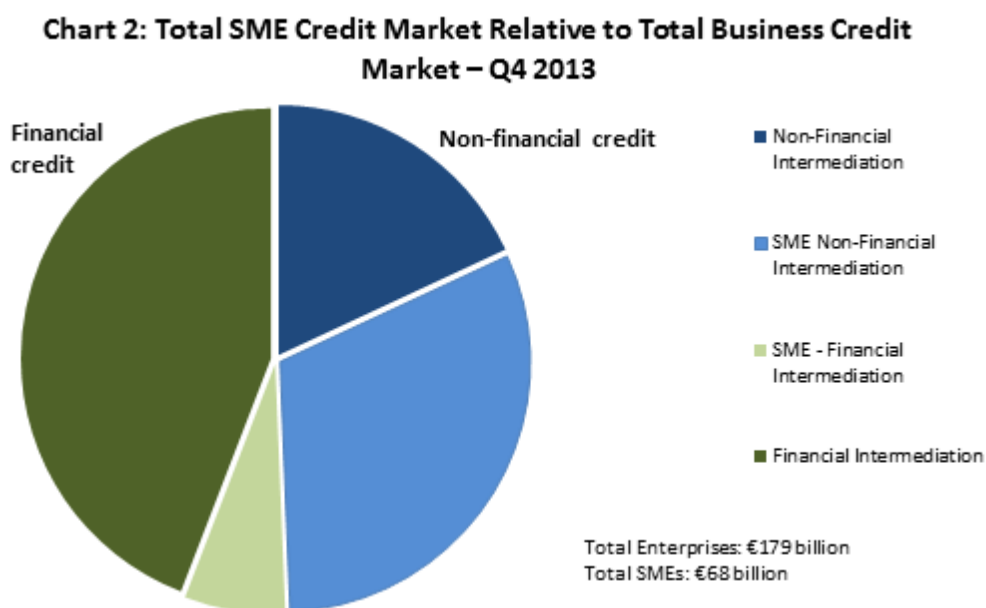
SMEs are strictly defined in the Credit, Money and Banking statistics and subsequently in all micro data analysis that is presented later in this paper.<sup>4</sup> The use of this definition may explain differences with figures or trends in previously published material on SMEs.

<sup>4</sup> SMEs are defined according to the standard EU definition which is that an SME is an enterprise that 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 definition applied in the Code of Conduct on SME Lending and by the Credit Review Office.

### Outstanding Loans to SMEs

Chart 2, below, details the breakdown of the total business credit market and illustrates the exposure of the Irish banking system to SME debt. The total SME market contains some financial intermediation enterprises; however, the remainder of this presentation mainly focuses on non-financial SMEs.<sup>5</sup>

SMEs account for 38 per cent of all business credit advanced to Irish companies by Irish resident credit institutions, with this share rising to 63 per cent for non-financial SMEs (Chart 2); i.e. when the mainly larger financial intermediation enterprises are excluded.



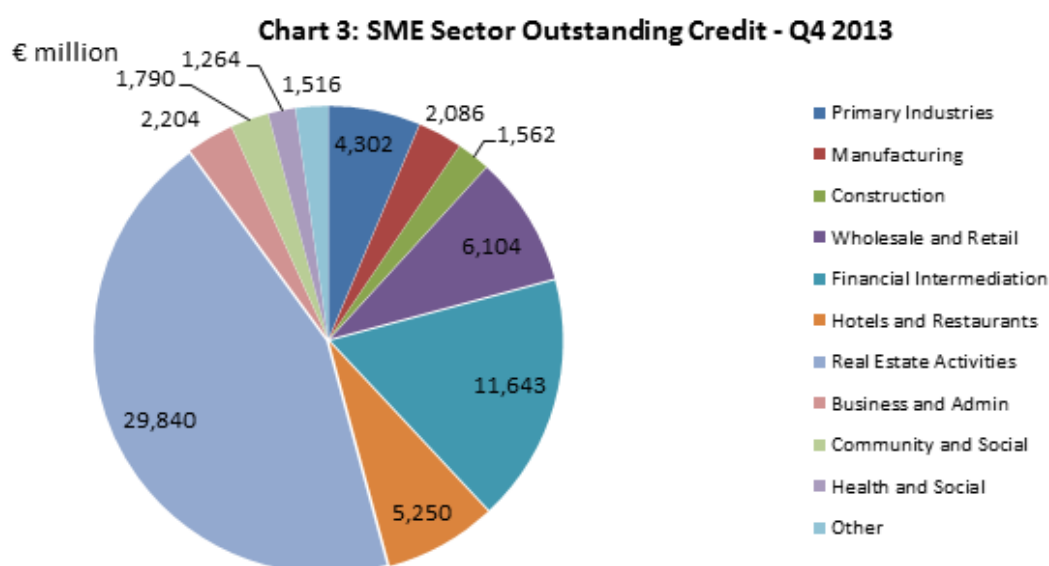
Source: Money and Banking Statistics, Central Bank of Ireland.

The outstanding amount of SME related credit on Irish resident credit institutions balance sheets stood at €67.6 billion at the end of 2013. Almost half of this related to property sector enterprises, at €31.4 billion, with the remainder split between €11.6 billion to financial intermediation and €24.5 billion related to non-financial, non-property<sup>6</sup>, or 'core'<sup>7</sup> lending (see Chart 3). Lending to core enterprises is largest in the wholesale and retail and hotels and restaurants sectors, with primary industries (which mainly consist of agriculture) also important.

<sup>5</sup> Some financial intermediation enterprises are included in the total SME series due to their balance sheet size. The financial intermediation sector includes non-bank financial institutions, and other financial intermediaries.

<sup>6</sup> The property-related sector includes real estate activities and construction sectors.

<sup>7</sup> 'Core' sectors refer to all remaining sectors after financial intermediation and property related lending has been excluded.



Source: Money and Banking Statistics, Central Bank of Ireland.

It should be noted that lending is classified according to the purpose of the loan and is not necessarily related to the primary economic activity of the borrower. Therefore property related lending, for example, should capture all lending for the purposes of construction activities and for the purposes of real-estate, land<sup>8</sup> and development activities, regardless of the borrower's primary economic activity. The Irish Government has stressed the need to separate property and non-property lending in order to put more innovative solutions in place to address the resolution of arrears and distressed loan cases.<sup>9</sup> This is important where property and viable non-property loans are packaged together and property debt overhang is hindering a viable SME's access to credit.

### Sectoral Composition and Market Structure

While outstanding stocks can be informative, the transactions or flows series can tell more about the underlying flow of credit to and from SMEs. The data is also useful in tracking changes in market structure and lending patterns, which is discussed in detail below.

A substantial amount of literature exists on the build-up and misallocation of credit (see Kelly and Everett (2004); McElligott and Stuart (2007); and Kelly et al. (2011)). Traditional sectors such as agriculture and manufacturing dominated up until the early 2000's, by which time credit was being extended at an increasingly rapid pace towards the property-related sectors of construction and real estate, along with house mortgage lending. This surge in property sector credit occurred at the expense of the more traditional sectors, which experienced a significant loss in share of outstanding credit.

However, there now appears to be a rebalancing in the structure of banks' loan books, as the sectoral composition of new lending is changing (see Chart 4). New lending from the

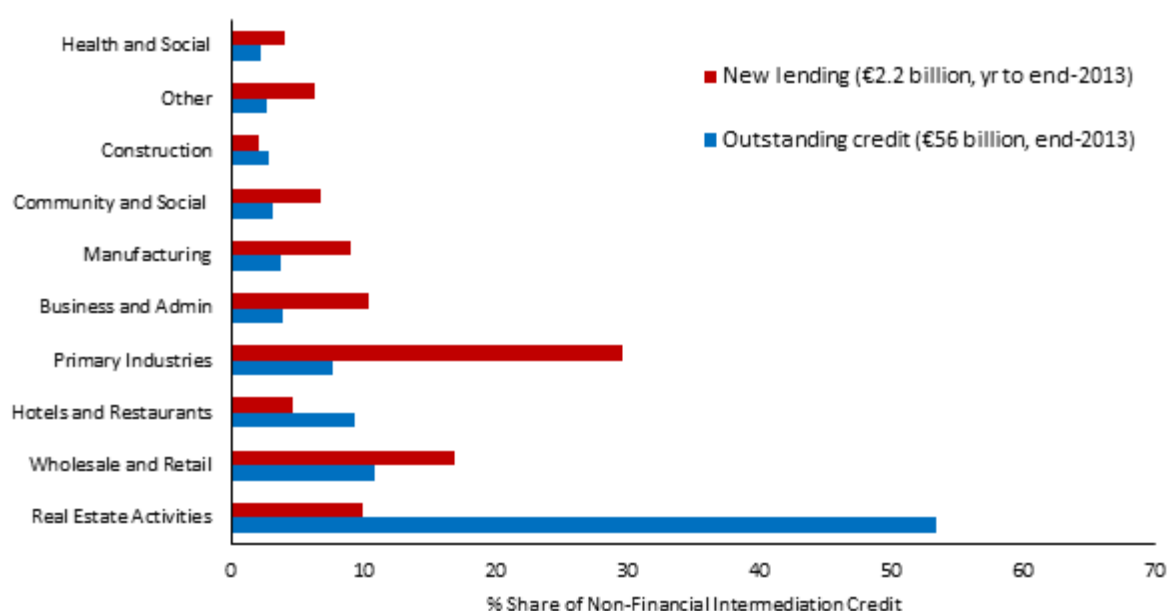
<sup>8</sup> Excludes land purchased for agricultural purposes.

<sup>9</sup> See <http://www.kildarestreet.com/debates/?id=2014-03-12a.485>.

'Trends' series is defined as any drawdown of loans (excluding increased use of overdraft facilities or revolving credit facilities), which was not already part of closing stock of lending at the previous reference period. Capitalisation of interest is included in this figure. Renegotiations of existing loans or renewals of overdraft facilities are not included in new lending.

New drawdowns of loans by non-financial SMEs totalled €2.2 billion during 2013. The amount of new lending was equivalent to 3.7 per cent of the stock of non-financial SME credit at end-2012, rising to 7.4 per cent for core SMEs. Interestingly, most core sectors have seen a rise in their share of new lending when compared to their share of the outstanding stock of total non-financial SME credit. This may demonstrate a reallocation of credit back to the traditional core SME sectors.

**Chart 4: Sector Share of Gross New Lending And Outstanding Non-Financial Credit**

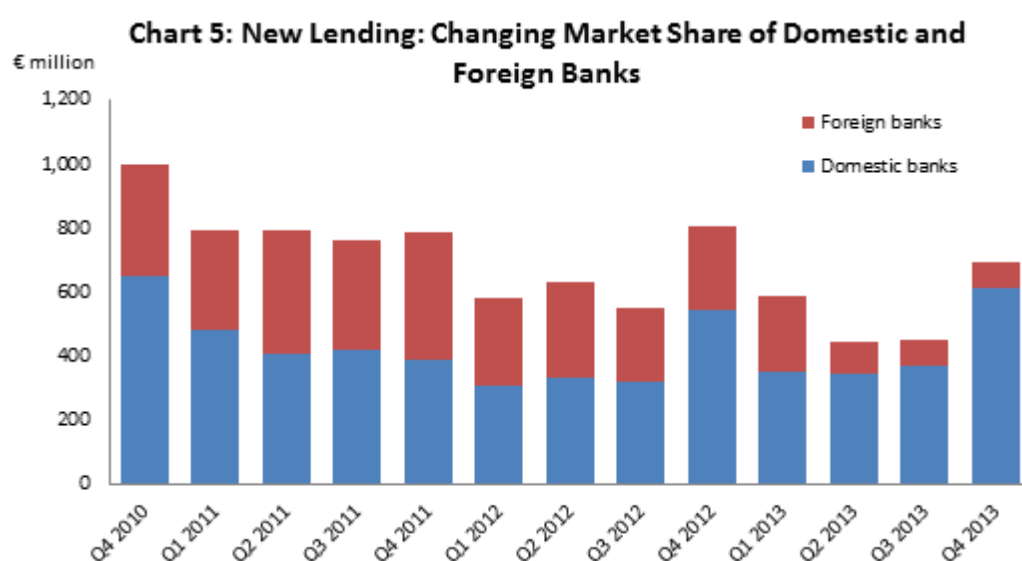


Source: Money and Banking Statistics, Central Bank of Ireland.

Primary industries, which mainly constitute agriculture, and wholesale/retail trade accounted for the largest share of total new SME lending over 2013, at 30 per cent and 17 per cent, respectively. This is despite these sectors accounting for just 8 per cent and 10 per cent of the total outstanding stock, respectively. Most notable, however, is the changing trend in real estate activities. Credit advanced for real estate activities continues to account for a substantial proportion of outstanding credit (53 per cent over 2013), yet their share of new lending is now just 10 per cent. This represents a substantial decline when compared to the sector's share of new lending of 26 per cent, as recently as early-2012.

Along with a changing sectoral composition, we can see that the market share of banks involved in SME lending is also changing. Just over one third of the outstanding stock of

existing SME loans is on the books of foreign-owned resident banks; however, Chart 5 shows that foreign lenders accounted for just 11 per cent of new lending advanced to SMEs at end-2013. Irish-headquartered banks have seen their market share increase substantially in terms of gross new lending, increasing from two-thirds to almost 89 per cent. This retrenchment by foreign lenders has implications for the future structure of the banking sector. However, we must be cautious about interpreting the results, as this fall in foreign banks' share reflects both a decrease in the number of banks and a process of deleveraging by those remaining. Previous Central Bank research has also highlighted that the market is becoming more concentrated for SME lending (McCann and McIndoe-Calder (2012)).



Source: Money and Banking Statistics, Central Bank of Ireland.

### Deleveraging and New Lending

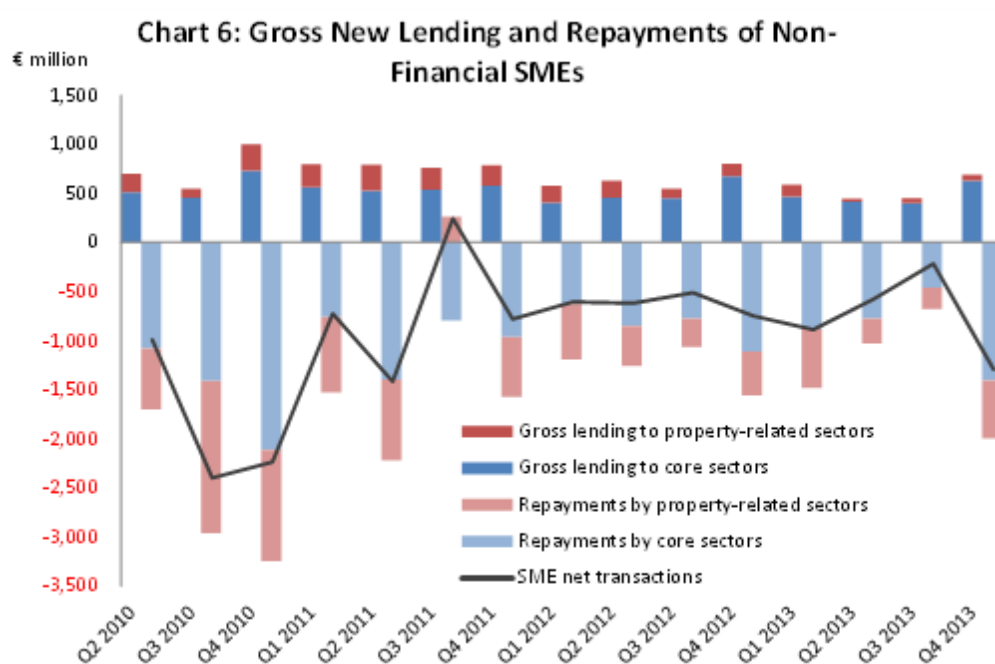
Using the transactions series of net flows, as mentioned above, it can be seen that the level of repayments on SME loans continues to outstrip the level of gross new lending. This net flows data, along with the new gross lending series, allows us to derive estimates of repayment activities and determine the amortisation trends for Irish SMEs – at a detailed sectoral level.

Chart 6 shows the lending and repayments position of SMEs by property-related and core sectors and highlights the persistent and wide-spread deleveraging. It can also be seen that repayments have outpaced new lending in almost every quarter since the series' introduction in Q1 2010. The one exception was Q3 2011, when new lending exceeded repayments by €236 million.

It is notable that new lending advanced to property-related sectors is substantially lower when compared to debt repayments. Cumulative new property-related lending in 2013 was equivalent to 0.8 per cent of end-2012 stock while repayments were equivalent to 5.1 per

cent of end-2012 stock. Additionally, both gross repayments and new lending to this sector has fallen in recent quarters.

SMEs engaged in agriculture were the largest recipients of gross core new lending in 2013, drawing down €585 million, equivalent to almost 15 per cent of end-2012 stock. This sector also has very high repayment rates, equivalent to almost 20 per cent of end-2012 stock indicating that the new lending activities are likely to be very short term in nature. However, the aggregate data does not allow for greater insights or analysis of underlying characteristics. Information on average term length or average loan size can only be obtained from the highly-informative micro SME data, presented later in the paper. This confirms that loans for this sector are indeed short-term in nature and additionally consist of a large number of low average loan amounts.



Source: Money and Banking Statistics, Central Bank of Ireland.

Note: Repayments is a proxy series.

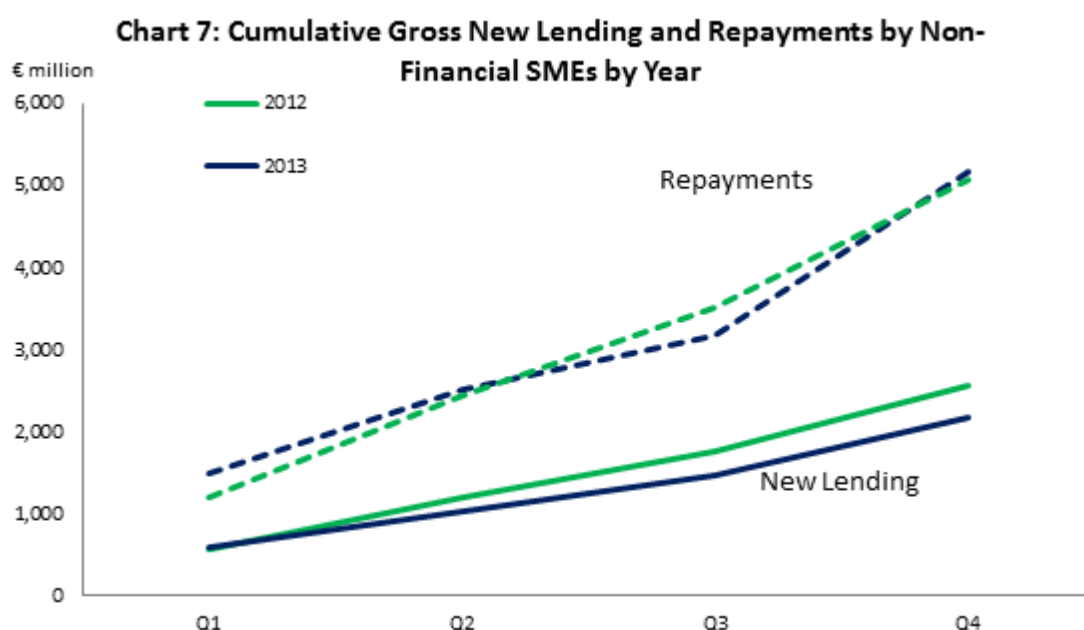
The smallest amount of new core SME lending relative to the stock of loans went to the hotels and restaurants sector, with new lending drawdowns at 1.8 per cent of end-2012 stock. Repayment rates were also very low for this sector (10.2 per cent of end-2012 stock). Again, the limitations of the aggregate data mean we can only infer reasons for such figures. Examining the micro data does provide further information and clarity. This shows that loans to the sector were mainly medium term loans with high average loan balances.

Lawless et al. (2012) stated that higher new lending at end-2011 was being advanced to the sectors that dominated at the height of the pre-crisis era, but that these sectors were also associated with highest net deleveraging. This would indicate different profiles of behaviour by borrowers within these sectors. Chart 6 indicates that a more balanced sectoral



distribution of credit is indeed occurring, particularly in relation to terms of credit to property related sectors.

Chart 7 below shows that, additionally, cumulative non-financial SME repayments for 2013 were higher than repayments for 2012, with new lending lower than 2012 figures. This indicates significant deleveraging in the sector which can be attributed, not just to tight credit standards imposed by banks, but also to a significant increase in SME repayment rates.



Source: Money and Banking Statistics, Central Bank of Ireland.

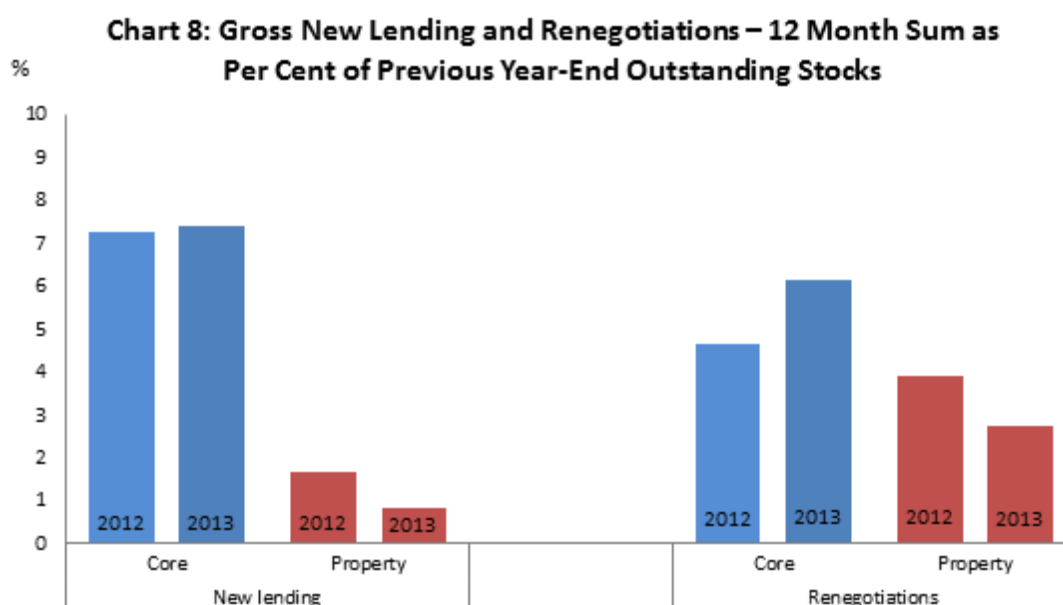
Note: Repayments is a proxy series.

In order to further investigate trends in repayments and new lending, Chart 8 shows renegotiations<sup>10</sup> and new lending broken out for core SME sectors and property-related SME sectors.

In 2013, gross new lending to core sectors was equivalent to approximately 7.4 per cent of end-2012 stock, while debt renegotiations accounted for an additional 6.1 per cent of end-2012 stock (repayments were equivalent to 13.7 per cent of end-2012 stock). However, divergent trends are evident when looking at property-related lending; a higher proportion of equivalent outstanding stock was defined as renegotiated during the year than was advanced in new lending.

<sup>10</sup> Any new negotiations of loans (excluding overdraft facilities) to SME counterparties which was part of the stock of lending in the previous quarter, apart from prolongations of existing loan contracts which are carried out automatically. These include any renegotiation of the terms and conditions of the contract (including the interest rate, repayment schedule and term of the loan) which require the active involvement of the counterparty. See Notes on Compilation, Central Bank of Ireland (2012).

Looking at 2012 through to 2013, the diverging trends between core and property-related SMEs are interesting. While new lending and renegotiations extended to core SMEs increased, the opposite was the case with property-related SMEs. While some caveats exist around the renegotiations data, the level of renegotiations is small and in the case of property related SMEs, renegotiations as a per cent of outstanding stock have been trending downwards since 2011. The largest level of renegotiations in relation to end-2012 stocks occurred for the following core sectors; human health & social (9.5 per cent end-2012 stock), primary industries (7.1 per cent) and wholesale/retail trade (7 per cent).



Source: Money and Banking Statistics, Central Bank of Ireland.

Note: Caveats remain around the renegotiations series.

#### 4. Micro Credit Data Set Analysis

While the publication of new high quality data on SMEs is welcomed, the aggregate picture does not give insights into all trends behind the figures. As detailed in Section 2, the official statistics tell us that repayments continue to outpace new lending (see Chart 7). It also shows that the sectoral composition of lending is changing (see Chart 4), and we know that market shares are changing. However, it is not possible to fully analyse or understand the aggregate statistics without more granular information.

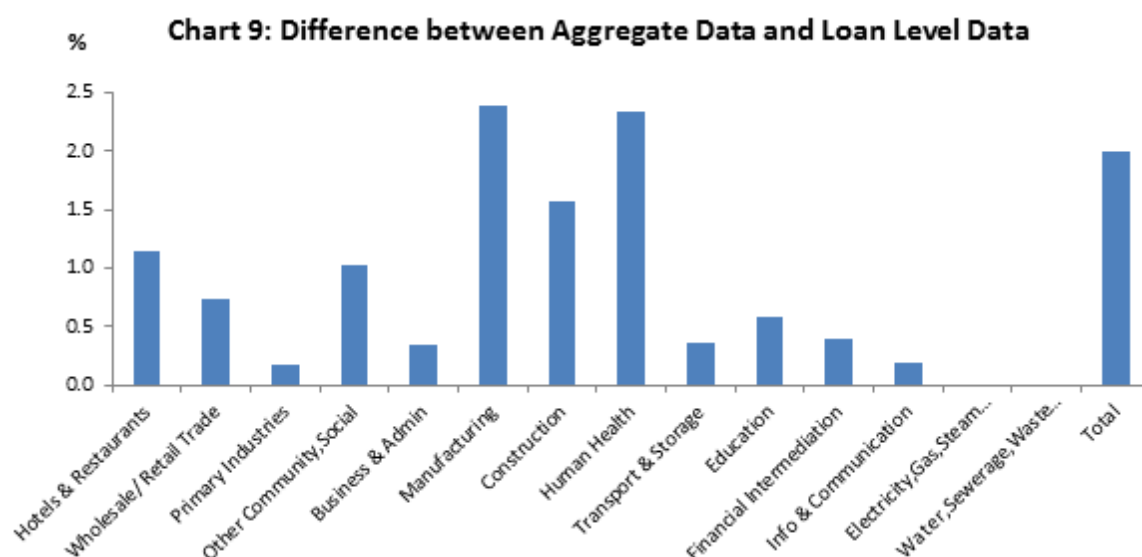
For instance, the following type of analysis depends on the availability of granular loan level data:

- Distribution of loan sizes
- Maturity structure – original and remaining maturity
- Loan pricing
- Collateral patterns
- Loan performance

We can also use the loan level data to track how lending conditions have changed in recent times. For example, loans issued in the six months prior to June 2013<sup>11</sup>, can be sub-divided between existing and new customers, and compared with lending in previous periods. This allows us to monitor bank's lending policies and whether credit conditions differ across borrowers and across sectors. While it is not covered in this paper, there is also the possibility to track customers over time, using individual identifiers, to measure loan performance.

The Statistics Division undertook a pilot exercise to match the loan level data against the aggregate SME data, on a sector breakdown basis. This work involved much cleaning of the data and matching the submitted sector codes to NACE Rev 2 codes. It also involved a detailed analysis of those loans that were classified as SME, to ensure that the correct classification was given. The loan level data covers around 65 per cent of the aggregate data in June 2013, which allows for robust analysis of underlying trends detailed in the micro data.

The result of this work was that the data closely matched the aggregate data for the banks submitting loan-level data.<sup>12</sup> Chart 10 shows that the absolute percentage difference between loan level data in June 2013 was very small, amounting to less than 2 per cent in total. It was not possible to include lending for real estate activities (about 44% of outstanding amounts and 13% new lending over the four quarters to June 2013) in the matching exercise, but this will be addressed in later work. While many sectors match closely, the published data is larger than the loan-level data.



Source: Central Bank of Ireland.

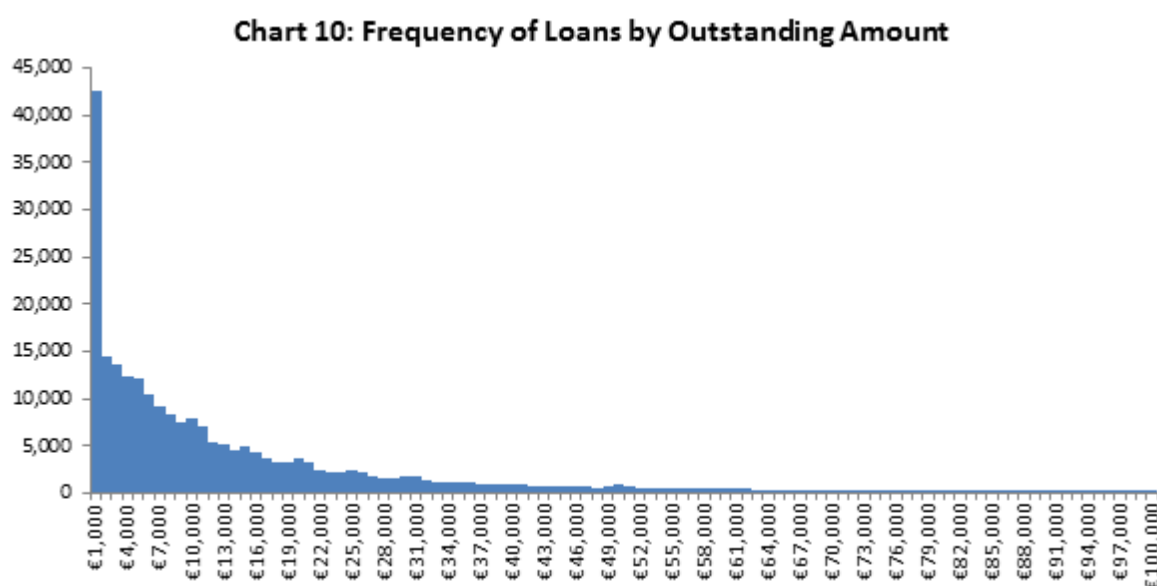
<sup>11</sup> The micro data used in this paper relates to June 2013.

<sup>12</sup> Loan level data includes a select number of institutions.

At the same time, there are a number of issues with the loan level data set. The micro data collection in the Central Bank of Ireland is an unstructured data collection, which essentially copies the reporting banks' database. As such, there may be definitional differences between institutions and, for some banks there are sizeable amounts of missing data for some variables. In addition, the micro data requires much data cleaning before becoming usable, which is time consuming and requires good software and IT systems. Micro data (in Ireland) is not as timely as aggregate data. This presentation, therefore, focuses on June 2013 data. While December 2013 data has been submitted to the Central Bank of Ireland, it has not yet been cleaned enough to allow its use in this presentation. However, despite the time lag, there is still huge value in analysing micro data, as it gives much deeper insights into data trends and complements the more timely aggregate series.

### Loan Distribution by Size

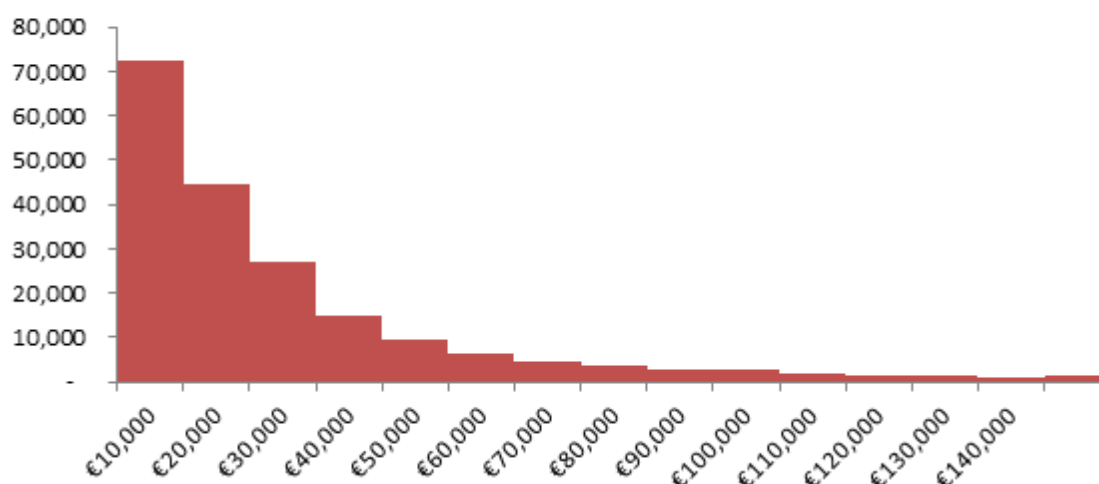
SME loans tend to be small. In terms of outstanding amounts, only 10 per cent of the number of loans outstanding are greater than €100,000. This does not include outstanding amounts that have already been repaid. Chart 10 plots the frequency of loans against outstanding amounts. As can be seen from the chart, there is a cluster around smaller outstanding amounts.



Source: Central Bank of Ireland.

We can also use the data to look at the original amount drawn down to gain further insights into the size of SME loans. As can be seen from the Chart 11, most drawdowns are for small amounts closely mirroring the profile of outstanding amounts shown in the previous chart. This result has given us a new understanding of lending to SMEs. For example, in the interest rate statistics data that is submitted to the Central Bank of Ireland for the purposes of ECB reporting, loans of up to €250,000 have in the past been taken as a proxy for lending to SMEs. This micro-credit data shows us that this proxy may not provide a reliable indicator of lending to the Irish SME sector.

**Chart 11: Number of Loans by Drawdown Amount**



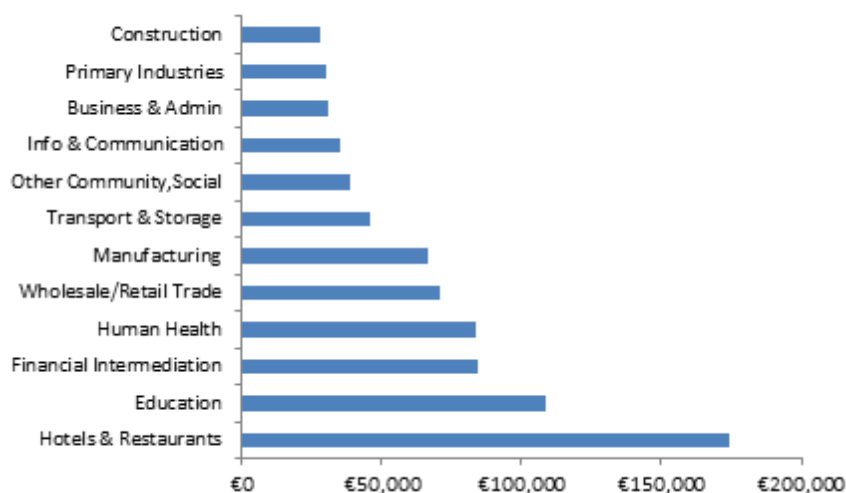
Source: Central Bank of Ireland.

### Sector Analysis

While the aggregate data series can show us the most indebted SME sectors, it does not provide the average outstanding loan value by sector, or the number of loans issued to the individual sectors. The aggregate data shows that the wholesale retail trade and repairs<sup>13</sup> sector is the most indebted sector in June 2013. However, the micro data can show that the hotel and restaurant sector has the highest average outstanding loan values (Chart 12). This is the second highest indebted sector, but is characterised by a much smaller number of loans compared to the wholesale sector. The micro data also shows us that while the education sector accounts for 1 per cent of outstanding amounts, average loan values are high. Primary industries have lower than average loan balances, but account for the highest number of loans in issue by sector. Looking at the average outstanding amount by customer type, the picture is relatively similar. Hotels and restaurants also have the highest average outstanding amount including among new customers. However, while the education sector has the second largest average outstanding amount among all customers, but this is largely due to more historic loans issued prior to 2013.

<sup>13</sup> This differs from published data, as the aggregate data referred to here is a based subset of institutions.

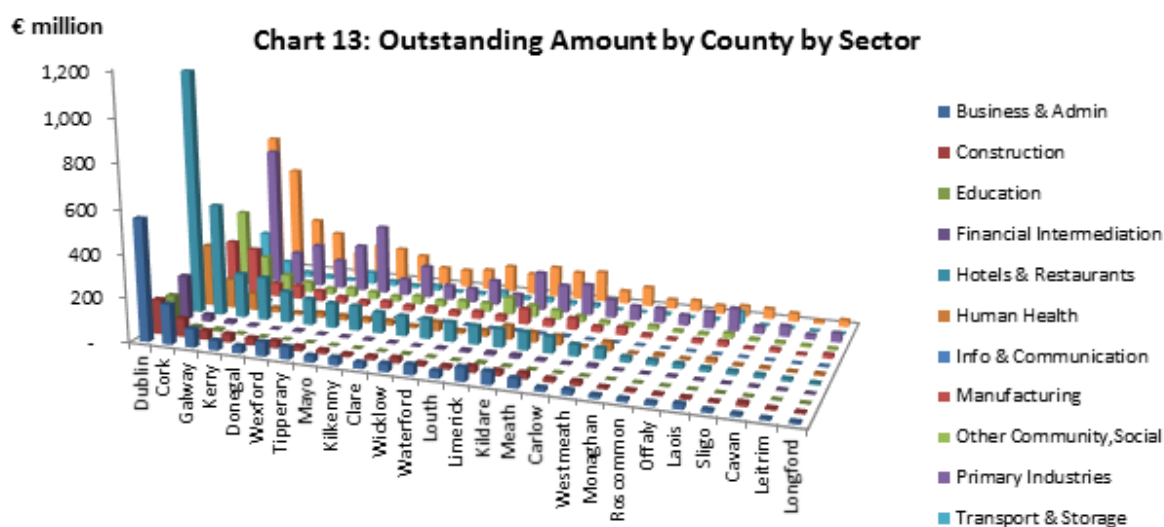
**Chart 12: Average Outstanding Amount by Sector**



Source: Central Bank of Ireland.

### Geography Breakdown

A geographic breakdown of the SME loan book can also be derived from the micro data, as shown in Chart 13. As can be seen from the chart, Dublin is the most indebted county. Next in terms of indebtedness is Cork, where primary industries account for a quarter of outstanding lending. When added to hotels and restaurants and the wholesale/retail trade and repairs, these three sectors account for two thirds of outstanding credit in Cork. This is in contrast to Dublin, where primary industries accounts for just 4 per cent of outstanding credit to SMEs. Hotels and restaurants, along with the wholesale retail/trade and business administration sectors account for 56 per cent of outstanding lending in Dublin. There are a few sectors that are prominent across all counties, such as the hotels and restaurants, primary industries and the wholesale trade/repair sectors.



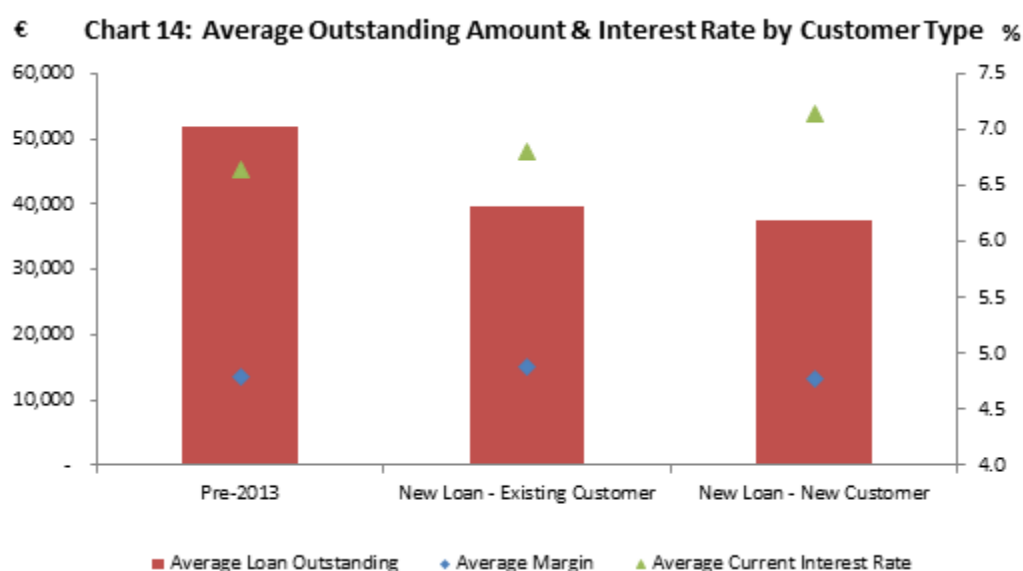
Source: Central Bank of Ireland.

## Customer Analysis

Analysis by customer type is also feasible from the loan level data. The chart below shows the outstanding average loan balance by three customer categories of customer as follows:

- Pre-2013 loans: these are loans granted before 2013
- New loans – existing customers: these are loans granted in the first six months of 2013 to customers that already had a loan with the institution.
- New loans – new customers: these are loans granted to new customers that did not already have an existing SME loan with the institution

Chart 14 shows that new loans have smaller average outstanding amounts, despite net repayments on pre-2013 loans, and that they attract a higher interest rate. Loans to existing customers granted before 2013 had an average loan balance of €52,000. In contrast, for loans issued in the first six months of 2013, average outstanding balances were much lower, at €38,000. Interestingly, new customers to an institution are charged higher interest rates than existing customers.



Source: Central Bank of Ireland.

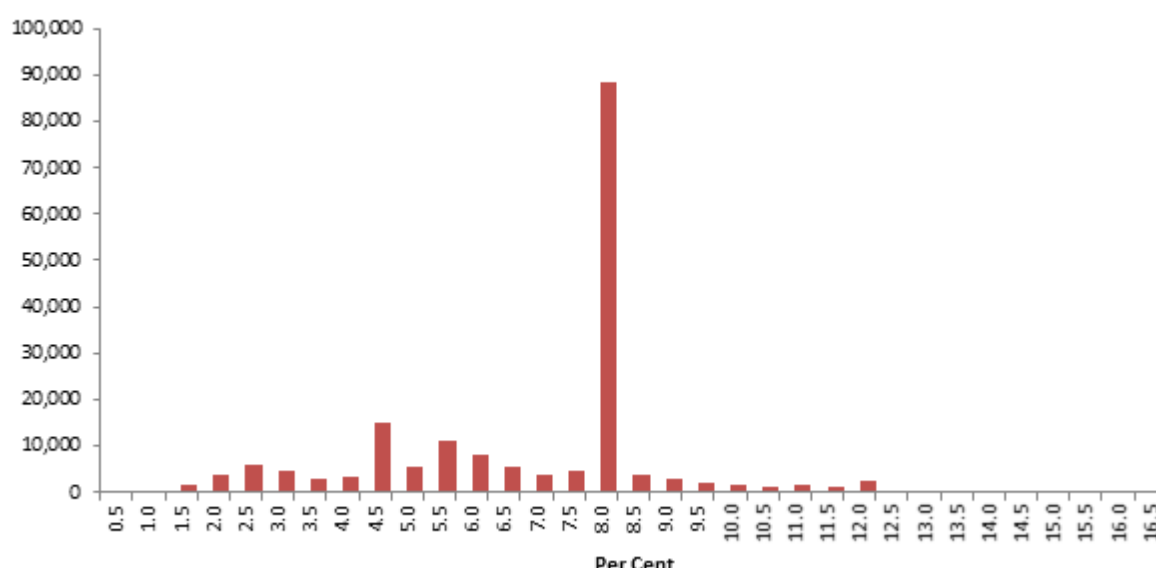
An interest rate margin is a margin over a base rate. The average interest rate margin for the three customer types is quite similar, ranging between 4.7 per cent and 4.9 per cent. However, the base rate on which margins are calculated differs by customer. This will be explored further in a later chart.

## Interest Rate Analysis

Chart 15 shows that in terms of overall loan pricing, the vast majority of SME loans attract interest rates of between 5 per cent and 8 per cent. This could suggest that there is uniformity in pricing for SME loans. Where credit institutions offer very similar pricing for all SME loans, it is possible that riskier loans are being subsidised by less riskier loans. For loans issued prior to 2013, average interest rates are lowest of the three categories, at 6.6 per cent. New loans issued to existing customers in the first six months of the year attracted an

average interest rate of 6.8 per cent, while loans issued to new customers attracted the highest average interest rate of 7.1 per cent. The results of Chart 15 are surprising however, with a significant number of loans categorised with an interest rate of 8 per cent. This suggests that a large number of small value loans attract this interest rate; however there are some questions about the quality of the data which requires further analysis.

**Chart 15: Distribution of Interest Rates**

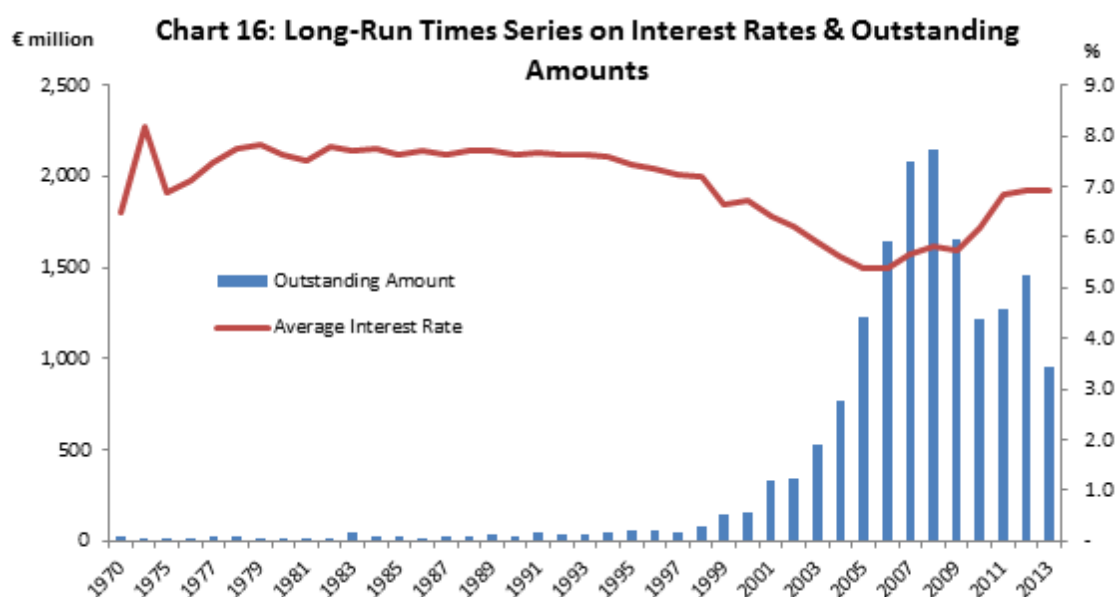


Source: Central Bank of Ireland.

The loan level data also shows differences between institutions on the prevalence of fixed and floating loans for SME lending. Changes between fixed and floating rates could suggest a possible change in the interest rate pass through channel for SMEs. The levels of fixed or floating SME loans can again be compared to structured interest rate data submitted for ECB reporting. The interest rate statistics produces data on interest rates to the NFC sector, of which the SME is a sub-sector. Taking lending up to €250,000 as a proxy for lending to SMEs (even though we know the average SME loan size is much smaller than this), the data matches well on an institution level.

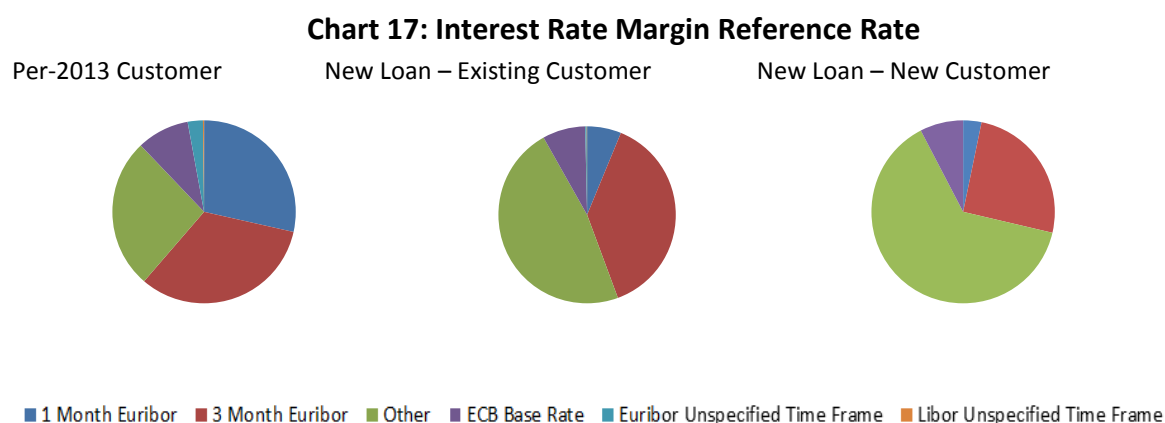
Analysing longer term interest rate trends is also possible using the loan level data, as seen in Chart 16. While these data does not include loans that have been repaid prior to June 2013 and is based on current outstanding amounts, (rather than original amount drawn down), it can still provide an indication of the path of interest rates. The chart shows that the lowest average interest rates apply to loans issued between 2004 until 2007. After 2007, the average interest rates began to increase. The chart also shows that the highest outstanding amounts relate to loans issued in 2006 and 2007. This coincides with the period of rapid credit growth. Published statistics show that growth rates of loans to NFCs peaked in July 2006 at 37.1 per cent, and remained elevated during 2007, before turning negative in September 2009.





Source: Central Bank of Ireland.

As mentioned earlier, the loan level data also provides the base rates over which interest margins are applied by banks. These are outlined in Chart 17, based on outstanding amounts by the margin type. The analysis identifies the three different customer types mentioned earlier – new customer, new borrowing by existing customer and pre-2013 customers. These should be interpreted with caution however, as the data quality is less than ideal, and a sizeable proportion are classified as ‘other’.



Source: Central Bank of Ireland.

## New Lending

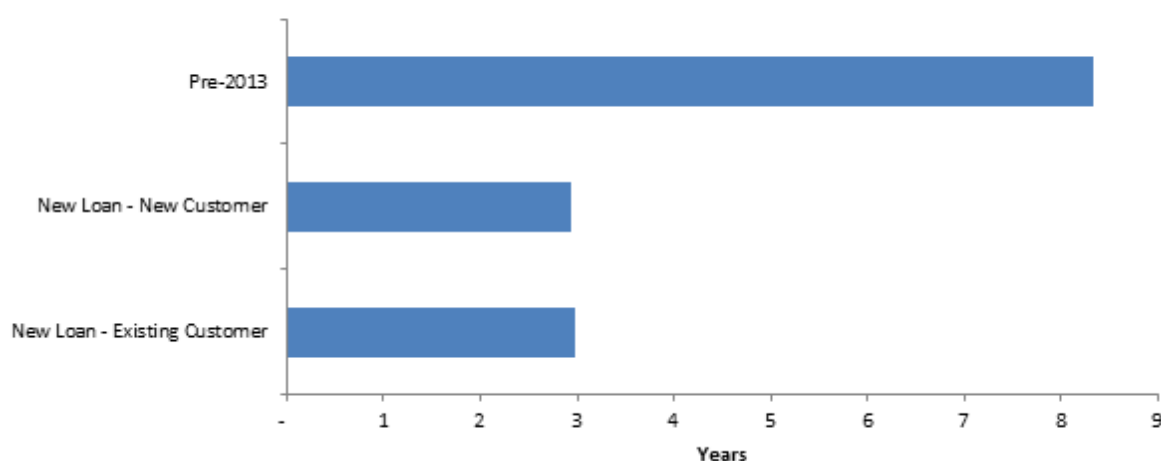
Some differences arise between the aggregated data and the loan level data when looking at the level of new lending. The change in outstanding amounts in the first six months of the year to the SME sector, according to the loan level data, was €950 million, which is higher

than the aggregate data. This inconsistency may be explained by definitional differences between the two series in what is classified as new lending.<sup>14</sup>

### Loan Duration

One of the most interesting results from the loan level data is the dramatic shift in the structure of loan terms by the different customer types. As can be seen from Chart 18, loans issued prior to 2012 had an average loan term of over 8 years. In contrast, new loans have much shorter loan terms, of less than four years, for both customer types. The much longer maturity of loans issued prior to 2012 may suggest that they were closely related to real estate. Loans in this sector tend to be of longer duration. However, results earlier showed that loans to SME tend to be of a small value, which does not support real estate lending. Consequently further analysis is needed before any conclusions can be drawn.

**Chart 18: Average Loan Term by Customer Category**



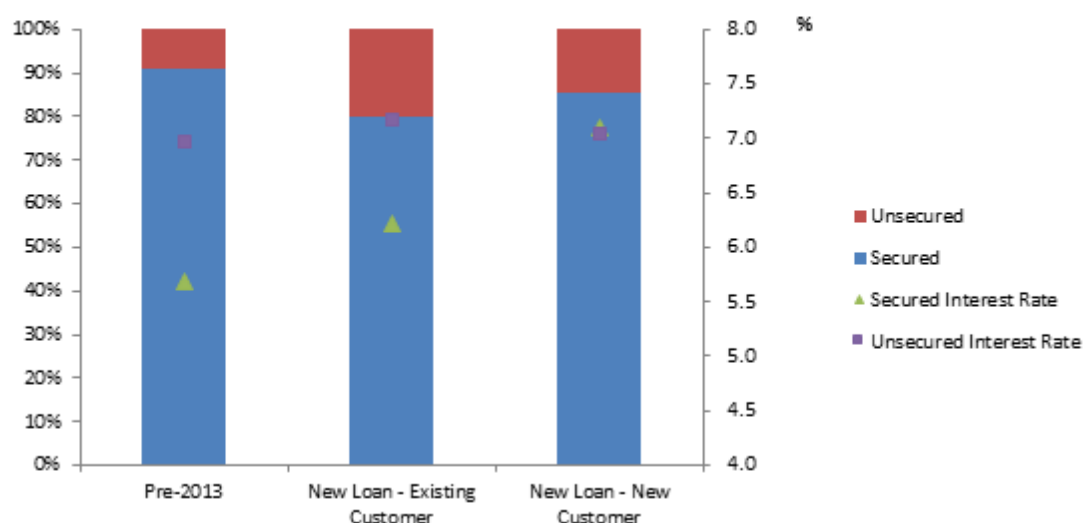
Source: Central Bank of Ireland.

### Loan Collateral

Information on the types and levels of collateral associated with loans is also available in the loan level data. As can be seen from Chart 19, loans issued prior to 2013 were more highly secured than loans issued subsequently. This may indicate that real estate collateral has been used less since the start of 2013. The unsecured interest rate is higher for all customer types. Interestingly, collateral appears to make little difference to rates charged to new borrowers. Rates charged also differ by product types, with hire purchase loans attracting the highest rates.

<sup>14</sup> New lending published in the aggregate data series is defined as any drawdown of loans (excluding increased use of overdraft facilities or revolving credit facilities) to SME counterparties that took place between the current and previous reporting date, which was not already part of closing stock of lending at the previous reference period. Capitalisation of interest is included in this figure. Renegotiations of existing loans or renewals of overdraft facilities are not to be included here. However, new lending in the loan level data is any loan that was issued since 1 January 2013. This would include renegotiations or renewals of over draft facilities.

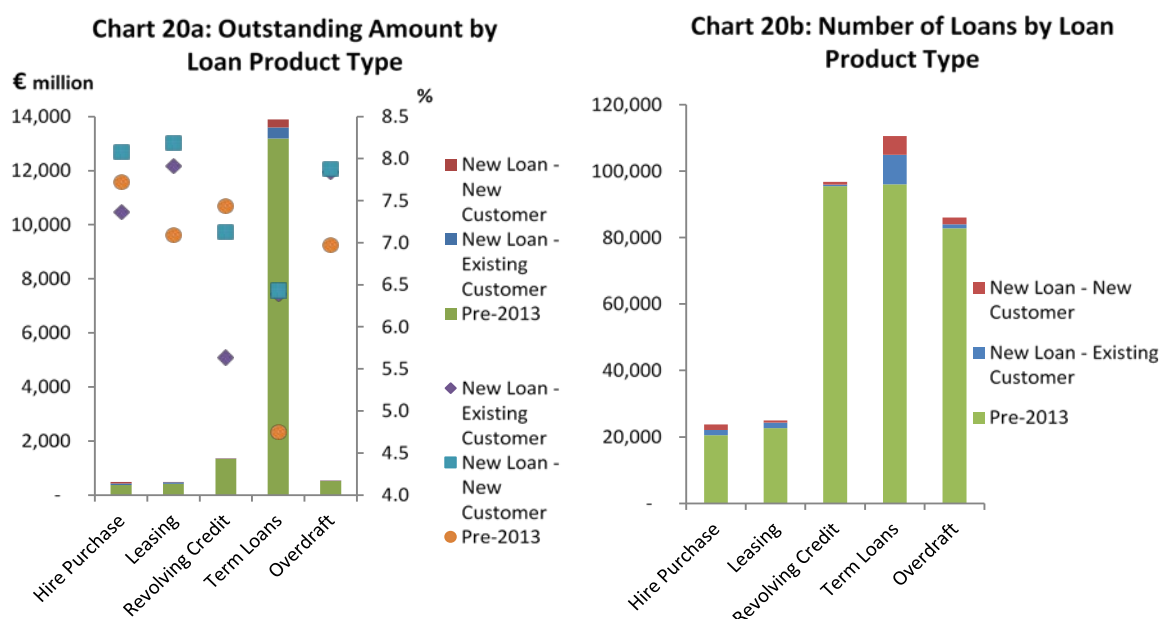
**Chart 19 - Proportion of Loan Collateralisation and Interest rates by Customer Category**



Source: Central Bank of Ireland.

## Loan Product Type

The charts below show the loan product types offered to the SME sector in terms of outstanding amounts, and numbers of loans. For outstanding amounts, it can be seen that term loans are predominant for both new and existing lending. Term loans have the lowest average interest rate across all institutions. In contrast, revolving loans are treated differently across institutions, with some charging higher rates. The second chart, however, looks at the number of loans by product type, and a different picture emerges. While term loans are the largest loan product type by outstanding amount, revolving loans and overdrafts taken together account for the largest number of loans.

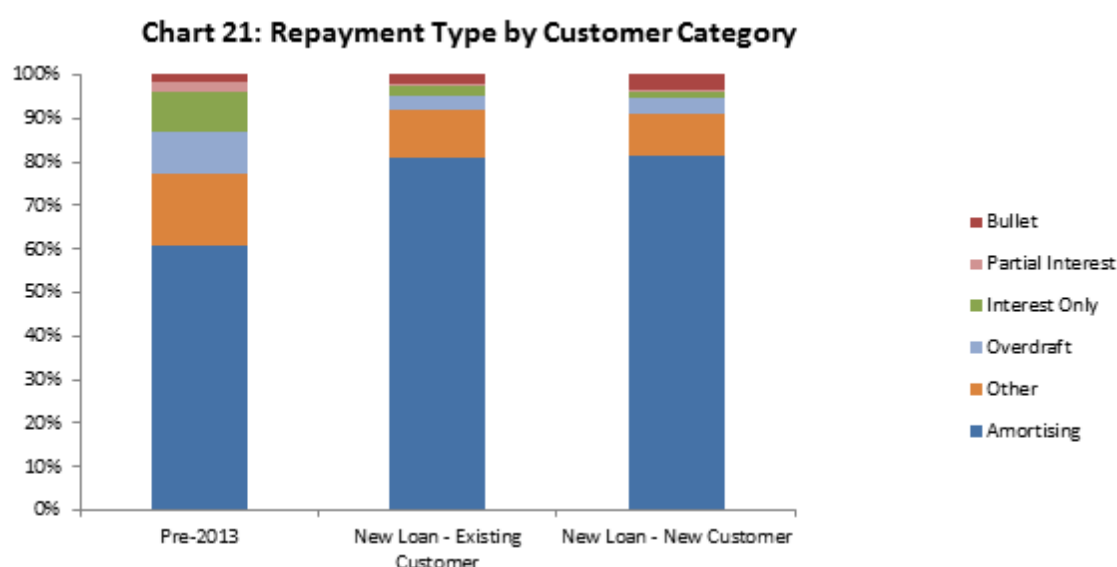


Source: Central Bank of Ireland.

As mentioned in the previous paragraph on loan collateralisation, different types of security apply to different products. Hire purchase and leasing have the most unsecured loans. These results are surprising, given the nature of hire purchase and leasing, raising some questions about the quality of the data for this breakdown. Term loans and revolving loans have higher levels of security attaching to their loans.

## Repayment Types

Loan level data also allows us to look at the loan repayment types for the three categories of customers. There are many different arrangements, such as amortising loans, interest only, bullet, etc. As can be seen from Chart 21, most loans are amortising. In particular, new loans are predominantly amortising. The 'other' category includes some short-term arrangements such as loans with a moratorium on repayments. Interestingly, some SME loans issued in 2013 are classified with a moratorium repayment, so may have been granted an initial holiday on repayments by the lending institution.



Source: Central Bank of Ireland.

## 5. Conclusion

This paper uses aggregate data in conjunction with micro data to show how the two data sets can complement each other. The results are promising, allowing us to delve into the micro data set, to enhance our understanding of credit conditions and lending to the SME sector.

This paper focused solely on the SME sector. It discusses the importance of the SME sector to the Irish economy and assesses statistics currently available at an aggregate level. It then examines the micro-data available on SMEs and shows how the level of detail available from the granular data can provide information on borrower and loan characteristics which cannot be derived from the granular data.

As discussed in the paper, the micro-data set allows us to analyse lending by different customer types. We see how loan pricing can differ depending on when the loan was drawn down, and whether the customer was an existing client of the institution, or was borrowing for the first time. The micro-data set also allowed us to look at maturity profiles of lending, average loan size by sector, and many other interesting insights.

Micro data collections, to be extremely useful, needs to be collected on a very structured basis, with all reporting institutions working off the same definitions. Many European countries are operating very effective micro credit data sets, which have taken time to develop. However the granular data available to the Central Bank of Ireland is provided in different formats by different institutions and requires extensive cleaning and quality checking before becoming usable. It is, therefore, much less timely than the aggregate data. However, the very detailed attribute information allows much deeper analysis and understanding of credit and lending conditions.

A number of initiatives are underway to enhance the quality and availability of granular data. Ideally all statistical data should be derived from detailed granular data sources. However, this requires significant investment in agreeing common definitions, developing the appropriate IT infrastructure and analytical tools and agreeing standard reporting formats. All of this will take some time. However, despite some shortcomings, the current granular data sources collected by the Central Bank, delivers hugely enhanced potential for both prudential and analytical work.

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