Banc Ceannais na hÉireann
Central Bank of Ireland
Eurosystem

Economic Letter Series

The financial vulnerability of Irish Small and Medium Enterprises, 2013 to 2017.

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Vol 2017, No. 14

Abstract

Ongoing assessments of the financial vulnerability of households and firms are an important part of the financial stability work agenda of the Central Bank. Constraints on the availability of firms' balance sheet data have made such assessments difficult to carry out for Irish firms. In this *Letter*, Small and Medium Enterprise (SME) indebtedness as measured by the debt-to-turnover ratio is analysed from a representative sample of Irish SMEs over a period of four years to assess the evolution of financial vulnerability in a period of economic recovery. The data demonstrate that the share of highly indebted firms (those with debt exceeding turnover) has fallen from 7.8 per cent of SMEs to 2.9 per cent, with pockets of risk remaining in the Hotels and Restaurants sector. The share of Irish SMEs currently holding no debt has increased to a half, up from roughly one in four SMEs in September 2013.

1 Introduction

There is broad consensus that the excessive accumulation of bank debt by both firms and households was one of the chief contributory factors to the recent financial crisis in Ireland. Total credit advanced to Irish resident Non-Financial Corporations (NFCs) increased from €87bn in 2003 to €254bn in 2008, while even among non-financial and non-real estate sectors, the analogous increase was from €28bn to €59bn. Once economic activity stalled and asset prices collapsed from 2008 onwards, Irish enterprises faced an unprecedented loan default crisis. The Non-Performing Loan ratio for the combined SME and Corporate segments on Irish bank balance sheets reached 31 per cent by 2013 Q3 (Central Bank of Ireland, 2017b), with the default rate for SME exposures on a restricted sample of banks surpassing 40 per cent at the same time (Central Bank of Ireland, 2017a).[2]

While the default rates cited above have improved since 2013 through a combination of loan

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[2]The SME Market Report quoted used data from Allied Irish Banks, Bank of Ireland and Permanent TSB to report SME loan default rates.

[3]For instance, default rates for SMEs have reduced substantially but remain high at 18.7 per cent as of December 2016 (Central Bank of Ireland, 2017a). The NPL ratio for combined SME and Corporate lending has fallen to just above 10 per

sales, write-offs and loan "cures", financial vulnerability remains a relevant concern in the Irish SME sector.[3] Given the scale of the default crisis that occurred in Ireland, ongoing assessment of the financial position of Irish firms is now firmly a part of the financial stability toolkit of the Central Bank of Ireland. In this Letter, we utilise information from the representative six-monthly Credit Demand Survey carried out on behalf of the Department of Finance to assess the evolution of SMEs' financial vulnerability between 2013 and 2017. Due to the availability of firm financial information, we focus on the ratio of a firm's outstanding debt to annual turnover as our measure of financial vulnerability.

This analysis is placed within an aggregate context of significant deleveraging across the Irish SME population. Total debt balances held by non-property-related and non-financial SMEs stood at €27.339bn at December 2011, and have fallen in every quarter since then, standing at €15.945 at June 2017, a cumulative fall of 42 per cent.[4] Consistent with this aggregate picture, the survey data used here report an improving situation from the perspective of SME financial vulnerability. At the "extensive margin", the share of firms holding no debt has increased markedly from roughly one quarter in 2013 to one half as of March 2017. At the intensive margin, the average debt to turnover ratio among firms holding debt has also been decreasing, from 46.8 percent in September 2015 to 30.8 per cent in March 2017.

Constraints on the availability of SME balance sheet data in Ireland mean assessments of financial vulnerability are sparse. Lawless, O'Connell and O'Toole (2015) use two early waves of the survey used in this study from October 2012 to September 2013 to demonstrate that debt overhang (measured by the debt-to-turnover ratio) among SMEs in Ireland reduces firm investment and employment while increasing financial distress. In addition, McCann (2014) investigates the distribution of Irish SME indebtedness using the same survey as well as Central Bank of Ireland loan level data and Bureau Van Dijk balance sheet data and finds that as the debt-to-turnover ratio of SMEs increases, insolvency and default risk increases.

More recently, Klein (2016) uses data from Bureau Van Dijk's ORBIS dataset to calculate an interest coverage ratio[5] (ICR) for small, medium and large firms in Ireland in order to measure a firm's ability to repay outstanding debt. Firm size classes are analysed separately to mitigate the lack of representativeness of small firms relative to the Irish economy in the dataset. Klein demonstrates that smaller non-financial corporate firms in Ireland remained financially vulnerable in 2013. Klein shows that a non-extreme shock in the form of increasing interest rates and declining profitability would mean many small firms would see their ICR fall to less than one, with a subsequent increase in corporate defaults.

The *Letter* proceeds with a description of the survey data used and an in-depth discussion of three elements of financial vulnerability: (a) the share of SMEs within sub-categories of enterprise that hold any debt; (b) the average within-group ratio of outstanding debt to annual turnover among those firms that hold debt; (c) the share of highly indebted firms (those with debt exceeding turnover) within each group.

2 Data

We obtain data on the indebtedness of Irish SMEs from the SME Credit Demand Survey. The survey is commissioned by the Irish Department of Finance and undertaken in recent waves of the survey by Behaviour and Attitudes and previously by Red C, both of which are independent market research companies. The survey is published biannually with data relating to the periods April to September and October to March. Sampling quotas for company size and sector are used to ensure the representativeness of the sample.[6] In addition, size weights are provided to ensure the same size profile as the previous questionnaire. The sample size for each wave of the survey is approximately 1,500 SMEs and includes information regarding the characteristics of the firm, trading performance, demand for bank finance, the application process, non-bank finance and awareness of credit support. For this analysis, eight cross-sectional waves of the survey are pooled together to provide a dataset extending for a period of four years from April -

cent of loans in 2017Q1 (Central Bank of Ireland, 2017b).

[4]Information on credit to Irish resident SMEs is contained within Central Bank of Ireland Table A.14.1, available here.

[5]The ratio of earnings before interest, tax, depreciation and amortisation over interest payments

[6]Size class quotas include micro (1-9 employees), small (10-49 employees) and medium (50-250 employees), while sector quotas include 16 sectors defined by the NACE sectoral classification.

September 2013 to October 2016 - March 2017.

The reliance on survey data to carry out an analysis of balance sheet health of Irish firms is not optimal but is necessary at the current time due to data constraints. An alternative dataset, which could be used to carry out such an analysis, is the Bureau van Dijk's FAME/ORBIS dataset which draws upon data from the Companies Registration Office in Ireland.[7] FAME provides company accounts data for firms including balance sheet items such as fixed assets, long-term debt, current liabilities (loans and creditors) as well as profit and loss accounts such as Earnings before interest, tax, depreciation and amortisation (EBITDA) and interest paid. However, the FAME dataset does not consist of a representative sample and is under-represented among SMEs and particularly among micro firms with less than ten employees (OECD, 2010). FAME's under-representativeness is due to a reliance on company fillings for which small and micro sized firms are exempted from the full extent of financial statement requirements.

The other firm-level data sources in Ireland are also lacking in financial information which could allow an assessment of balance sheet health. Examples include the Annual Services Inquiry (ASI) and Census of Industrial Production (CIP) collected by the Central Statistics Office (CSO). Both the ASI and the CIP record company accounts information but do not contain measures of debt, other liabilities or assets. The only CSO firm-level data set in which a measure of outstanding debt is available is the Building and Construction Inquiry, which is limited to the Construction sector.

The advantage of the SME Credit Demand Survey data is that it provides a representative sample of SMEs in which outstanding debt balances are recorded. Further, relative to official data sources that rely on company filings, the survey data are much more timely, with information relating to a given half-year available for research purposes within three months of the end of that half-year. We measure indebtedness in this letter according to a debt-to-turnover ratio, which expresses all outstanding debt on a firm's balance sheet in the numerator and the firm's ability to service that debt through sales revenue in the denominator. Ideally, the denominator would be a measure of profitability such as EBITDA to take account of other non-interest costs but such a measure is not available in the survey. An alternative measure of indebtedness that could be used in an analysis such as this is a traditional leverage measure of debts relative to assets. A measure of firms' assets is only recorded in a single wave of the Credit Demand Survey, meaning that such a measure is not useful for our current purpose of producing a timely assessment. Given the above constraints, the most appropriate approach is to proceed with the debt-to-turnover ratio as the most informative measure of firms' indebtedness available at the current juncture.

3 Summary statistics over the full sample

In Table 1, a review of mean and standard deviation debt-to-turnover values for all SMEs (whether the firms holds debt or not) over the full time period from September 2013 to March 2017 reveals the characteristics which differentiate some SMEs from others in terms of their indebtedness. Both the mean and the standard deviation are higher for medium sized SMEs, SMEs in the Hotels & Restaurants sector, SMEs outside the Dublin and Rest of Leinster regions and among non-exporting SMEs. While the higher mean values indicate debt-to-turnover ratios are higher than average for SMEs with these characteristics, the standard deviation is also higher indicating greater variation of debt-to-turnover ratios for firms within these groups. When delineating SMEs by age, it appears that the youngest SMEs (aged less than four years) have a lower mean debt-to-turnover ratio than other age groups as well as a lower standard deviation. Previous literature provides support for this pattern, both on the demand side (whereby younger firms are more likely to utilise informal sources of external financing) and the supply side (in that banks are more likely to allocate credit to firms with longer and more visible financial track records as well as to companies with larger pools of tangible collateral).

[7] FAME is the name of Bureau van Dijk's company dataset for Ireland and the UK while ORBIS refers to the global dataset.

4 Debt among SMEs

4.1 How have debt holdings among SMEs changed over time?

A feature of SME debt holdings in recent years has been the decline in the share of SMEs holding any debt. The magnitude of the fall in the share of SMEs holding any debt is substantial. Figure 1 shows in the left panel that the share of SMEs holding any debt has declined from as high as three in four SMEs, approximately, in September 2013 to only one in two SMEs in September 2016. Disaggregating the data according to firm characteristics reveals that the share of SMEs holding debt declined only gradually until March 2015. The exception are the smallest micro SMEs (consisting of approximately two in five SMEs in the sample) which show declining shares of indebted firms earlier than larger SMEs likely reflecting the greater difficulties in accessing new borrowing.

Alongside the share of companies holding debt (often referred to as the "extensive margin"), the volume of debt held by companies with non-zero debt balances is also an important component of any vulnerability assessment. Figure 1 also plots the debt to turnover ratio (DTR) by firm size class in the right panel. This "intensive margin" measurement of firm indebtedness confirms that reductions in financial vulnerability are also evident among the group of companies holding debt. The average medium-sized company holding debt has seen a reduction in its DTR from 75 to 39 per cent over the sample period. Across all company types, the DTR reduction has been from an average of 46.8 percent in September 2015 to 30.8 per cent in March 2017.

By sector (see the left panel in Figure 2), the lowest share of SMEs holding any debt is found among those operating in the Business & Administrative Services sector at 46.1 per cent in September 2017. SMEs in the Construction, Hotels & Restaurants and Manufacturing sectors in general reported mostly higher indebtedness levels on average throughout the whole sample period, perhaps reflecting the greater capital intensity of these sectors, which leads to greater borrowing needs, as well as the greater availability of tangible collateral for firms in these sectors. The decreases over the 2013 to 2017 period in the share of companies holding debt has been broad-based across all sectors in the sample. On the intensive margin (seen in the right panel), the Hotels and Restaurants sector stands out as being the sector with particularly high DTRs among those companies holding debt. The DTR has generally hovered between 80 and 100 per cent in this sector. For other sectors, the DTR among companies with debt is between 20 and 30 per cent at March 2017.

Figure 3 reports that, while exporting SMEs have in general been more likely to hold debt during the sample period, non-exporting firms are more indebted along the intensive margin. At March 2017, the average DTR among those firms with debt was 21 per cent for exporters and 32 per cent for non-exporters (down from 38 per cent and 50 per cent in September 2013, respectively).

Regionally, firms in Dublin are shown to be less indebted along both the extensive and intensive margins than SMEs in other counties (Figure 4). This differentiation may be explained by a unique industrial structure in Dublin (with more Business and Administrative Services firms in the capital than elsewhere) as well as by the relative strength of Dublins economic performance compared to other regions. Among the three other regions defined for the purposes of this analysis (Rest of Leinster, Munster, Connacht/Ulster), the rank ordering of firm indebtedness has varied through the sample period. The pattern of reduced SME indebtedness has however been consistent across all regions.

Figure 5 reports the evolution across the firm age distribution. In the left panel it can be seen that firms aged more than twenty years have generally had a greater share of firms holding debt than among younger firms, likely reflecting the more established nature of these firms and their greater availability of collateral. The findings for the youngest firms are also consistent with findings from Lawless, O'Toole and Lambert (2014) which indicate, using ECB Survey of Access to Finance in Europe, that Irish firms aged less than two years were less likely to use bank credit and overdrafts and more likely to use equity financing over the period March 2010 to 2014. In the right panel the intensive margin can be seen with the youngest firms aged under four years old had debt-to-turnover ratios at least 15 per cent lower than other age groups over the period September 2014 to March 2016, again consistent with the idea that these firms have more difficulty in accessing external sources of finance. However, the situation has reversed in the final two waves of the survey, with

DTRs being more volatile among the youngest firm group.

4.2 Highly indebted SMEs: analysing tail risks

The previous section has provided an in-depth picture of developments in SME indebtedness across the population of Irish SMEs. From a financial stability perspective, however, it is instructive to place particular focus on the right tail of the DTR distribution, which is where solvency risks are most likely to lie. For the purpose of this analysis, a highly indebted SME is defined as an SME whose outstanding debt has exceeded its turnover i.e. a debt-to-turnover ratio of at least one. A prominent feature of the data seen in Figure 6 has been the large reduction in the share of highly indebted SMEs from approximately 7.7 per cent of all SMEs in September 2013 to 2.9 per cent in March 2017. The reduction in financial vulnerability has been particularly stark among medium-sized firms of whom 17 per cent were highly indebted in September 2014, falling to 4 per cent in March 2017.

By sector (see Figure 7), the Hotels & Restaurants sector is a clear outlier, with the share of highly indebted firms ranging between 15 and 25 per cent in most survey waves. In other sectors, the share of highly indebted firms has fallen from between 5 and 10 per cent at the beginning of the sample to under 5 per cent in March 2017. These figures indicate that, given current developments, the scope for large-scale loan defaults as a result of an economic turnaround is limited to a small cohort of firms.

Generally, Figure 8 shows non-exporting SMEs demonstrate higher levels of financial vulnerability than exporting SMEs. In both cases, the share of highly indebted firms has fallen substantially over the sample, from 7.6 to 2.7 per cent among non-exporters and from 7.3 to 2.4 per cent for exporting firms.

Regionally (see Figure 9), there is very little difference at March 2017 in the degree of financial vulnerability as measured by the share of firms with a DTR greater than one. In all four regions in the data, the share stands between 2.5 and 3 per cent, despite Dublin firms having reduced their vulnerability at a more rapid rate during the 2014-2016 period.

Finally, splitting the sample by company age (see Figure 10), the youngest firms were consistently showing the lowest levels of vulnerability between September 2013 and March 2016. However, in the last two survey waves the rank ordering has been reversed, with slightly higher shares of vulnerable firms among the youngest. In all cases however, the share of highly indebted firms has fallen below 5 per cent.

5 Conclusion

The accumulation of unsustainable levels of debt by firms was a key contributing factor to the financial crisis experienced in Ireland from 2008. A regular monitoring of indebtedness levels of real economy firms in Ireland is now seen as a crucial component of the Central Bank's financial stability toolkit. Using data drawn from a representative sample, this economic letter demonstrates that financial vulnerability has reduced substantially among SMEs in Ireland between 2013 and 2017, with the reduction broad-based across SME characteristics. Highly indebted firms with debt exceeding turnover have fallen in importance from 7.8 per cent of SMEs to 2.9 per cent of SMEs. In addition, as many as one-in-two SMEs no longer hold any debt, an increase from one in four SMEs approximately in September 2013.

These patterns suggest that the domestic SME sector has substantially improved its financial resilience during the period of economic recovery in Ireland. While trading performance has been improving steadily across most types of enterprise, these improvements are more financially sustainable than those experienced during the pre-2008 phase, where economic growth was accompanied with debt accumulation. These changes are likely due to a combination of changing lending appetite from banks, a changing attitude to debt and leverage from borrower firms after the experience of the recent crisis, and bolstered cash reserves among surviving firms who did not make investments during the post-2008 period.

In the analysis we identify a number of sources of heterogeneity within the Irish SME population. Medium sized firms have typically been the most indebted but have also experienced the most rapid reductions in financial vulnerability during the period. Exporting firms are also typically less vulnerable than those serving only the domestic market. Firms in the Business and Administrative Services sector, likely to be less capital-intensive than the average, are shown in the data to carry less debt. By contrast, firms in the Hotel and Restaurant sector are shown to be particularly vulnerable, with the highest share of high-debt firms of any group in the data. Geographically, firms in Dublin are shown to be less indebted than those elsewhere, which may be due to either the industrial structure of the city or the relatively strong economic performance of Dublin firms.

The analysis provided in this *Letter* sets out a profile of the financial vulnerability of Irish SMEs as measured by their ratio of outstanding debt to annual turnover. Additional complementary analyses, which will form part of the Central Bank's financial stability toolkit for real economy firms, include loan loss forecasting models of the Irish retail banks' SME and Corporate loan portfolios, as well as financial assessments of the balance sheet of firms, if data availability and quality considerations allow. In its totality, this set of empirical work will provide timely, in-depth information for policymaking and public discourse on developments in the Irish enterprise sector. It is aimed that early identification of a build-up in risks and vulnerabilities will be greatly aided by the regular publication of such studies.

References

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Tables

Table 1: Summary statistics of the debt-to-turnover ratio, September 2013 to March 2017

	Mean	Std. Dev.	% Shr. of SMEs
Sector			
Agriculture	0.24	0.47	2.2
Manufacturing	0.23	0.57	13.1
Construction	0.22	0.59	10.3
Retail Trade, Transport & Communications	0.23	0.67	38.6
Hotels & Restaurants	0.60	1.27	11.8
Business & Admin. Services	0.22	0.72	24.0
Region			
Dublin	0.22	0.61	31.8
Leinster	0.28	0.78	24.3
Munster	0.30	0.84	26.9
Connaught/Ulster	0.32	0.88	17.1
Exporter Status			
Non-exporter	0.29	0.80	77.9
Exporter	0.23	0.62	22.1
Size			
1-9 Micro	0.25	0.77	40.7
10-49 Small	0.24	0.66	36.9
50 - 249 Medium	0.37	0.87	22.4
Age			
20+ years	0.28	0.75	51.1
11-20 years	0.28	0.79	28.2
5-10 years	0.28	0.84	14.8
Up to 4 years	0.16	0.42	5.9

Note: mean, standard deviation and share are weighted by size class survey weights, shares may not sum to 100 due to rounding

Figures

Figure 1: Firm debt by size classes

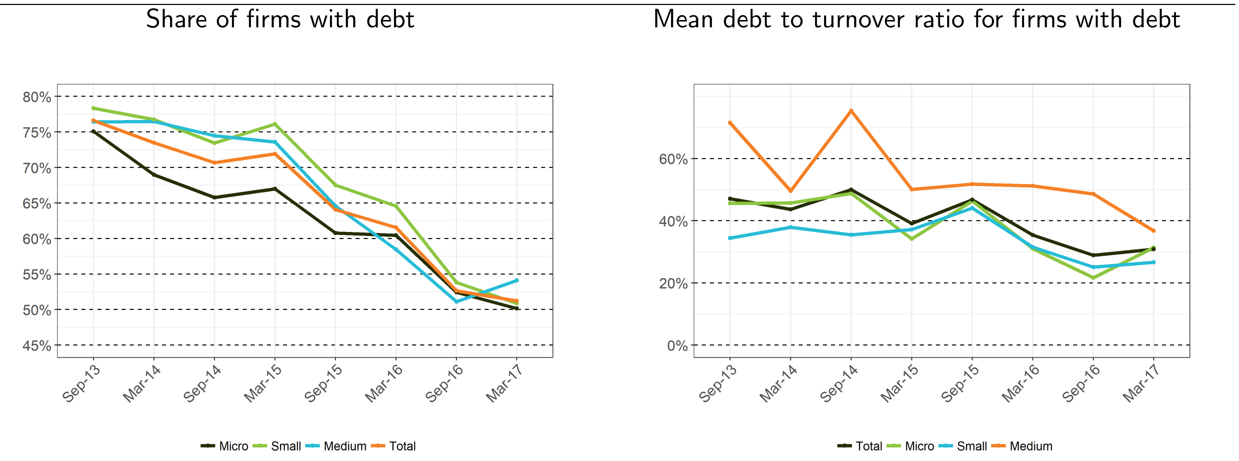


Figure 2: Firm debt by sector

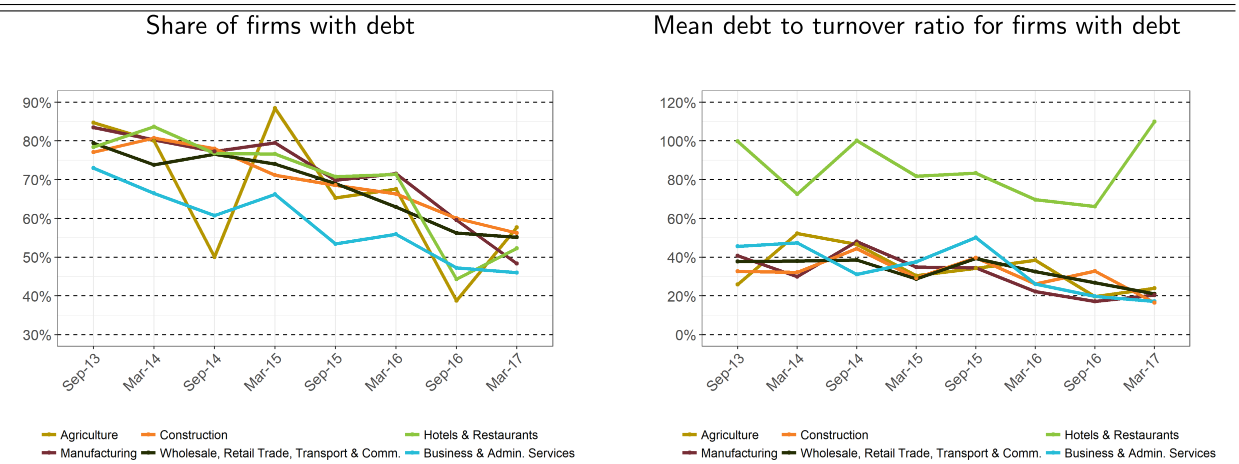


Figure 3: Firm debt by exporter status

Share of firms with debt — Mean debt to turnover ratio for firms with debt

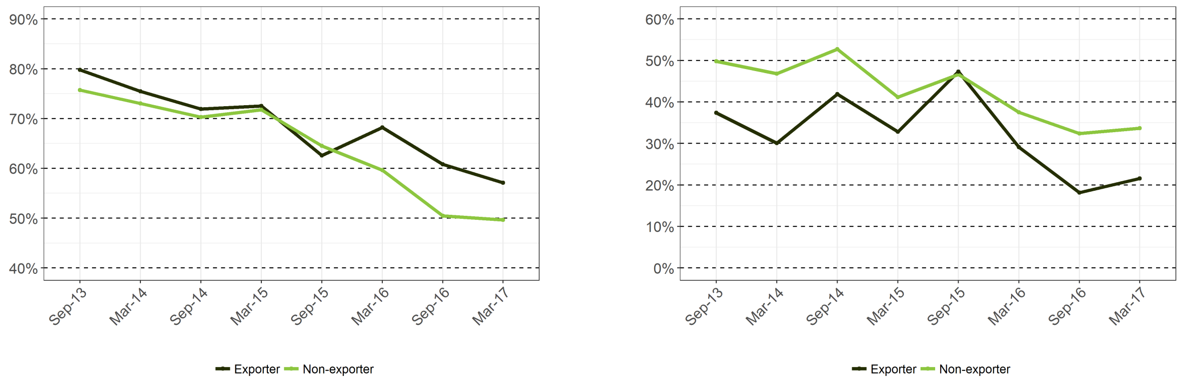


Figure 4: Firm debt by region

Share of firms with debt — Mean debt to turnover ratio for firms with debt

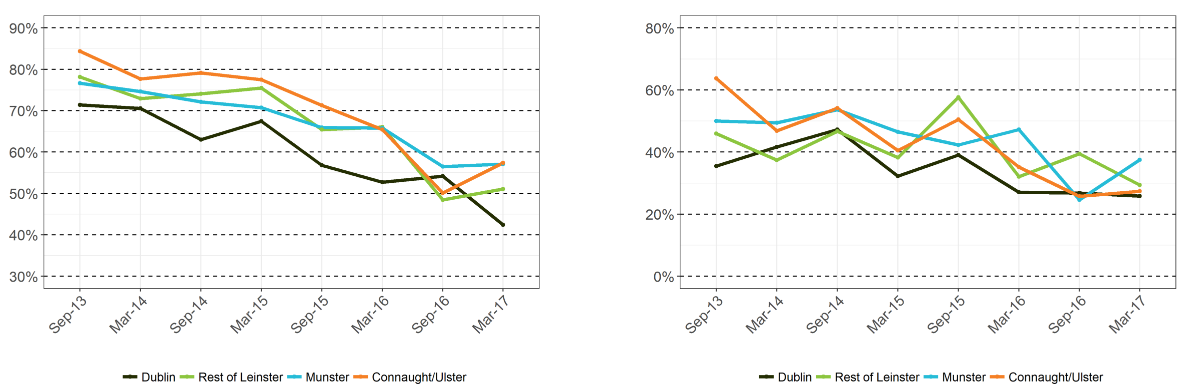
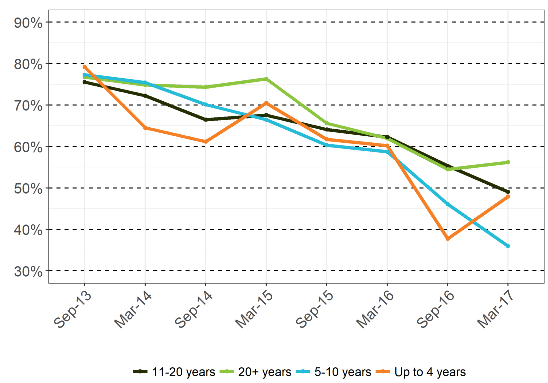


Figure 5: Firm debt by age

Share of firms with debt



Mean debt to turnover ratio for firms with debt

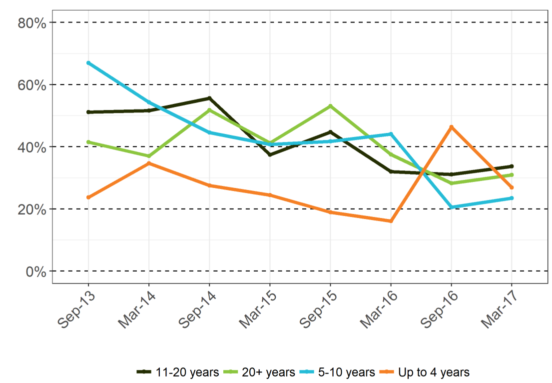


Figure 6: Share of firms with a debt to turnover ratio greater than one by size

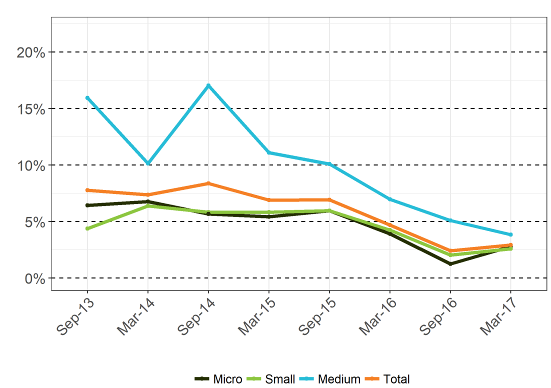


Figure 7: Share of firms with a debt to turnover ratio greater than one by sector

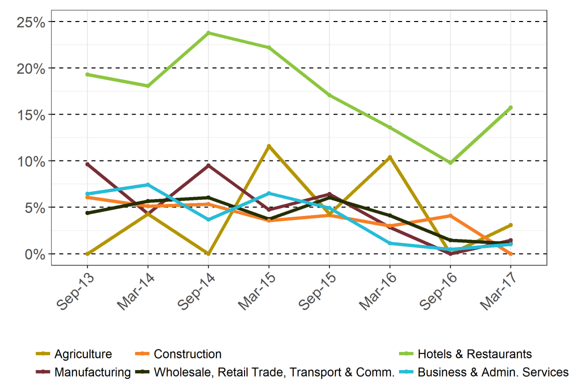


Figure 8: Share of firms with a debt to turnover ratio greater than one by exporter status

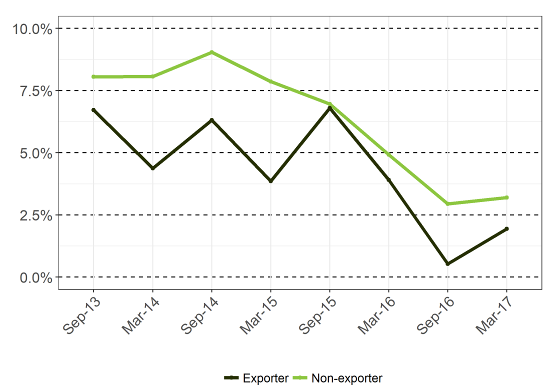


Figure 9: Share of firms with a debt to turnover ratio greater than one by region

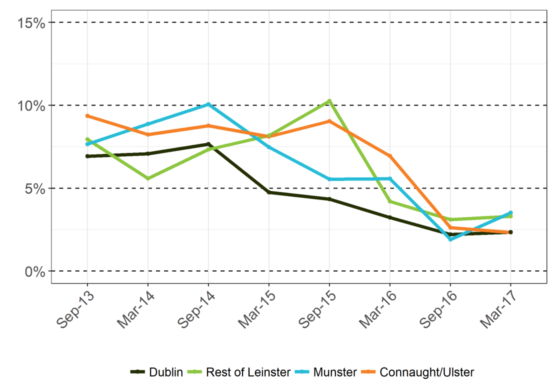


Figure 10: Share of firms with a debt to turnover ratio greater than one by age