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POLICY PAPER

Non-Bank Financing in Ireland: A Comparative Perspective*

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Abstract: This research paper provides a statistical overview of which firms use non-bank financing in Ireland as well as a comparison vis-à-vis other Eurozone countries. We include a wide range of both non-bank debt finance (issued debt, trade credit, loans from friends/family/business partners, mezzanine debt and peer-to-peer lending/crowdfunding) as well as equity finance (venture capital, business angel and equity from friends and family and business partners). We attempt to answer the following research questions: (a) what firm characteristics are correlated with applications for, and usage of, specific types of bank finance? (b) What groups of firms or industries are more likely to apply for and use different types of non-bank finance? (c) Do Irish SMEs differ from other European enterprises and, if so, in what way? This overview should help provide evidence with which to understand the policy options available to diversify the financing options of Irish enterprises beyond their current reliance on bank lending.

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I INTRODUCTION

The scale of the banking crisis in Ireland has brought to the fore concerns regarding the reliance of domestic enterprises on traditionally intermediated bank credit as the main source of external financing (Lawless *et al*., 2013; 2015). For both working capital and investment funding, Irish firms continue to display a heavy reliance on banks as the main source of outside funding. This level of reliance on a single main source of credit heightens the vulnerability of domestic enterprises to supply shocks in that market and a greater risk of facing binding credit constraints. Indeed, there is clear evidence in the post-crisis period that such risks have materialised and that investment and employment amongst domestic small- and medium-sized enterprises (SMEs) have been negatively affected by credit constraints (Gerlach-Kristen *et al*., 2015; O'Toole *et al*., 2014).

Given this backdrop, there is a recognition amongst policymakers, both in Ireland and across the EU, that the development of a more diversified funding structure for SMEs is important both for financial stability as well as to ensure growth in a restricted credit environment. Indeed the Government Medium-Term Economic Strategy 2014-2020 placed the financing of firm growth as a core pillar of its development strategy. Within this pillar, a commitment was given to foster the financial system in Ireland to be a world leader in the provision of a diverse and innovative suite of financing products for Irish SMEs. This was backed up by a commitment to develop a more diversified and stable financial system with increased capital market financing and a greater involvement by institutional investors and alternative finance (Department of Finance, 2013).

These commitments from an Irish perspective are mirrored in the recent EC Green Paper on Long-Term Financing in Europe. This report notes the historical dependence of European SMEs on bank financing and calls for a policy focus on the development of other financial institutions and market-based intermediation to fund long term investments (EC, 2013).[1] This is echoed by the European Investment Bank who call for a "… more-diversified financial market structure which will reduce the borrowing constraints on the corporate sector" (EIB, 2013) and the ECB whose research supports the development of a broader range of financing instruments (ECB, 2013). The debate has been supported by a desire to enhance financial stability through an increase in risk capital flows. Policy research has supported the development of a range of SME financing instruments including leasing and non-bank issued debt finance (Kraemer-Eis *et al*., 2012; 2014).

1 EC COM/2013/0150, available at: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013DC0150

Within this context, this paper attempts to answer the following research questions: (a) what firm characteristics are correlated with applications for, and usage of, specific types of non-bank finance? (b) what groups of firms or industries are more or less likely to apply for and use different types of non-bank finance? (c) do Irish SMEs differ from other European enterprises and, if so, in what way? To complete such a broad review of the SME financing landscape in Ireland we draw on two data sources: the Department of Finance Credit Demand Survey for Irish firms and the European Central Bank/ European Commission Survey on Access to Finance for SMEs (SAFE) to make comparisons across Europe.

The types of financing covered include both non-bank debt finance (issued debt, trade credit, loans from friends/family/business partners, mezzanine debt and peer-to-peer lending/crowdfunding) as well as equity finance (venture capital, business angel and equity from friends and family and business partners). Our research builds on the cross-country work on funding diversification by Lawless *et al.* (2015) and non-bank finance usage by O'Toole (2015) as well as furthering the Irish specific policy work of Lawless *et al.* (2014).

A number of findings emerge from our analysis. We find very limited use of formal issued debt finance amongst Irish firms but the rate is higher when compared to other European SMEs. However, the low usage rates in absolute terms may indicate a gap in the financial diversification landscape where policy intervention through the development of a mini-SME bond market could play a useful role. We also find some evidence of substitution to this type of financing where bank credit availability and conditionality is tightened.

More commonly used sources of finance are leasing, factoring and hire purchasing products, in particular amongst larger, manufacturing and listed enterprises. Ireland's usage of this form of finance is also lower than the European average. Developing these instruments, in particular leasing, has received policy attention in a European context with loan and portfolio guarantees and securitisations facilitating greater usage (Kraemer-Eis and Lang, 2012). Leasing can provide a flexible way of obtaining capital goods for enterprises and policy should explore whether mechanisms can develop this technology.

An extremely common form of financing is the cash flow management device of trade credit (from suppliers and/or customers) and Irish firms are around 35 per cent more likely to use trade credit than the Eurozone average. The existing literature highlights the fact that bank and trade credit are well-known substitutes (Casey and O'Toole, 2014) and this substitutability can increase following financial crises (Love *et al.*, 2007). In Ireland, these usage rates may be reflective of challenges in access to traditional bank credit following the financial crisis. While we do not find clear evidence of this in our

analysis, further research to establish causal relationships should be completed on this issue.

New sources of financial intermediation such as crowdfunding and peer-to-peer lending are fairly limited in terms of the number of firms using them. However, we find that the application rates are statistically higher for firms in the ICT sectors and innovative firms more generally; they have the potential to play an important role in financing SME growth in these areas. In general, as these online financing platforms become more deeply engrained, there is also considerable potential for demand to increase. From a policy perspective, providing an environment for these platforms to develop is important. However, they must do so within the regulatory structures set out for financial intermediaries.

Moving further into the informal sphere of debt financing, we find that loans from friends or family and loans from business partners are an important source of SME financing. Our econometric estimates indicate that these loans are more likely to be applied for by innovative firms, firms in default and loss-making firms. The findings suggest that enterprises in financial distress are turning to informal sources of capital to provide funding support. While this may provide emergency liquidity for these groups of firms, the soft selection criteria used may lead to high default rates on these facilities and further losses for informal lenders. However, these funds may also provide the credit required to turn around businesses as the economy recovers. We also find that loans from business partners are important for young firms and loss-making enterprises. We do find some correlation between bank credit constraints and other loan usage which indicates substitution from bank credit to informal loans.

In terms of equity financing, there is recognition amongst policymakers and market participants that Irish firms have an equity deficit and require additional risk capital. For many small Irish SMEs, the main source of equity has traditionally been owners' contribution (Mac An Bhaird and Lucey, 2010). However, the main policy focus has been on formal private equity funding through venture capital and the development of angel investor networks to fund SMEs. We find that Irish enterprises, in particular medium and young firms, are more likely to use equity relative to their European counterparts. This finding runs counter to the popular narrative that Irish equity usage is low in an international context. This does not mean that equity is high in absolute terms and policy should continue to attempt to develop new risk capital flows into Irish business. This should help reduce leverage ratios and support financial stability.

Within equity we consider formal external investment through business angel and venture capital finance as well as more informal equity from friends

and family and business partners. In relation to the formal sources, we find that these apply to a relatively small proportion of firms, with approximately 1.3 per cent of Irish SMEs applying for these financing sources in the six-month survey period. However, venture capital and angel applications are higher for ICT and innovative enterprises. This is in line with international expectations (Berger and Udell, 1998; O'Toole, 2014) that venture capital and angel finance would be concentrated on the very high-growth, usually high-technology, end of the firm spectrum rather than a broad based source of investment finance. Applications for angel finance, friends and family and business partner equity are higher for young enterprises.

Finally in relation to mezzanine finance we find that usage is more likely for larger enterprises. Irish usage of mezzanine is lower than for non-Irish enterprises, in particular for younger, smaller enterprises. The OECD highlights that this financing source is important at particular stages of the firm lifecycle (see Lawless *et al.*, 2014 for an overview). Within this context, the development of mezzanine facilities through instruments like the Development Capital Schemes run by Enterprise Ireland could help improve the availability of this type of structured finance in Ireland.

This paper is structured as follows: Section II presents the econometric methodology, data and summary statistics for both non-bank debt financing and equity finance. Section III presents the econometric results and Section IV concludes.

II DATA AND SUMMARY STATISTICS

The data used in this paper are drawn from two main sources: (1) the Department of Finance Credit Demand Survey and (2) The European Commission/European Central Bank "Survey on Access to Finance for SMEs" (SAFE). In this section, we provide an overview of the data sources, outline the indicators used in our empirical analysis and present a range of key summary statistics.

2.1 *Overview of Data Sources*

The Department of Finance (DoF) survey is undertaken twice yearly to capture the current developments in the bank and non-bank financing environment for Irish SMEs. It captures a range of categorical information on the performance of the business (turnover, employment, exporting), the sector of operation, firm age, size, loan performance, applications for bank and non-bank finance by type of financing instrument, success of applications as well as the reasons for not applying for bank finance. To date, six surveys have been conducted; however, detailed information on non-bank financing is only

available for the later waves as additional modules have been added. For the purposes of this research paper, we draw on two specific survey waves: April to September 2013 and October to March 2014. Approximately 1,500 firms are surveyed in each wave.

The SAFE survey is collected by the European Central Bank (ECB) for the Eurozone member countries also on a bi-annual basis. It is supplemented by a wider survey covering all EU-28 member states plus non-EU EEC members which is completed in conjunction with the European Commission (EC). This extended survey is completed on a biennial basis. Similar to the DoF survey, SAFE aims to capture information on the use, relevance and applications for a range of bank and non-bank financing for SMEs as well as capturing their demand for non-bank credit. The survey also captures information on the firm's employment, trading status, age, size, financing requirements, sector ownership and changes to its financial status such as its capital position and credit history. The first survey wave of SAFE was collected in 2009. However, due to sample size issues, we limit our analysis to waves 3-9 which covers the periods March to September 2010 to April to September 2013. In general, approximately 500 firms are surveyed for the smaller Eurozone members per wave whereas 1,000 firms are surveyed for each of the larger member states: Germany, Spain, Italy and France. While the majority of our analysis focuses specifically on Ireland, in our comparative piece the extended sample covers the following countries: Austria, Bulgaria, Belgium, Czech Republic, Denmark, Germany, Spain, Finland, France, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Sweden, Slovakia, Slovenia, and the UK (see Annex 1 for an overview of the countries in the data).

2.2 *Indicators to Measure Non-Bank Financing*

Our analysis focuses on both non-bank debt finance and equity finance. Within these categories, there are a large range of specific financing instruments which range from formal market intermediation to more informal sources of finance. Our selection of the specific instruments to review is based on two factors: (a) their importance for policy and (b) data availability in the Department of Finance and ECB SAFE surveys. In all our analysis we separate out non-bank debt financing and equity/quasi-equity financing.

Our research focuses on two concepts of firm's non-bank financing activity: (a) demand for non-bank financing (applications) from the Department of Finance survey and (b) usage of non-bank financing from the ECB SAFE survey. While it would have been interesting to also model access to non-bank credit through rejection rates, insufficient data is available for this and we leave this for future research to examine.

From the Department of Finance data, we develop indicators for the following types of non-bank debt financing: loans from friends and family, loans from business partners, and crowdfunding/peer-to-peer lending. Loans from informal sources such as friends/family/business partners have been shown internationally to be important sources of financing for many start-up or early stage enterprises (Berger and Udell, 1998). These sources may also be important for many other SMEs who experience bank financing constraints as shown in Casey and O'Toole (2014). As far as we are aware, this is also the first academic study to examine Irish SME applications for crowdfunding and peer-to-peer lending. Given the discussion in policy settings around the development of this technology (see Lawless *et al.* (2014) for an overview), it is important to provide empirical evidence to inform this debate.

For equity finance from the Department of Finance survey, there are a range of types available. We distinguish between more formal external equity from venture capital finance and business angel finance and more informal equity financing provided by business partners and friends and family. Given the preferences of venture capital firms in Ireland, and more globally, it is expected that such investments will be targeted more to ICT firms (Fenn, Liang and Prowse, 1997; Hogan and Hutson, 2005; Lawless *et al.*, 2014). Equity from informal sources is traditionally in greater demand by start-ups who face financing frictions accessing traditional lending (Berger and Udell, 1998). To capture applications for each of the financing types mentioned above, we develop an indicator which takes the value 1 if the firm applies and 0 otherwise. These are presented in Table 1.

Finally, from the ECB SAFE data we develop indicators for the following type of non-bank debt financing: issued debt finance, trade credit, other loans (including informal lending) and a composite category for leasing/hire purchase/factoring. We expect that non-bank debt finance will be limited to only a small number of larger medium-sized firms as in Berger and Udell (1998). Monitoring this indicator is important in the context of the current work being done from a policy perspective to develop a "mini-bond" market in Ireland (Lawless *et al.*, 2014). Trade credit has also been shown to be higher in Ireland than any other Eurozone economy (Lawless *et al.*, 2014). Internationally, the evidence also suggests that trade credit is an important substitute for bank credit in particular during financial crises (Casey and O'Toole, 2014; Love *et al.*, 2007). Understanding the types of enterprises and industries using trade credit in Ireland, and how this differs from other countries, is a contribution of this paper.

Other loans in SAFE capture both informal loans and other company loans and these are expected to be similar to the loans from friends and family and

business partners from the DoF survey. The final non-bank debt category combines information on leasing, hire-purchase and factoring.

In SAFE, we can also model the usage of equity and mezzanine finance. Unfortunately it is not possible to split equity out between angel, venture capital and listed shares but it is still informative to consider how equity usage in Ireland differs across firms and how it differs to other European countries. As far as we are aware this is the first study to explore the usage of mezzanine financing in Ireland. It is expected the usage of mezzanine is limited to a narrow range of enterprises with particular capital structure rebalancing requirements (OECD, 2013; Lawless *et al*., 2014). However, the introduction of the development capital schemes by Enterprise Ireland, which can provide mezzanine tranches, could increase the overall use of this financing type in Ireland going forward.

For all financing types in SAFE, the indicator on *usage* takes the value of 1 if the firm used the source of finance in the past six months and zero otherwise. All indicators are presented in Table 1.

2.3 *Methodological Approach*

2.3.1 Estimations Using Department of Finance Data

Our first research question involves testing the difference in applications for alternative financing across groups of firms and industries. As presented in Table 1 the applications indicator is binary and therefore requires the use of a probability model. We use a standard probit model which tests the effects of covariates on applications as follows:

$$Pr(Apply_{ij} = 1) = \Phi(\beta X_{ij} + \lambda Z_j + \varepsilon_{ij}) \quad (1)$$

Where i identifies the individual firms and j indicates the sector of operation. The model is estimated using maximum likelihood with robust standard errors. The vector X_{ij} includes a range of control variables that capture borrower risk, the quality of the firm and other firm characteristics that are standard in the literature on the determinants of firm financing choices (Love, 2003; Beck *et al.*, 2008a; Beck *et al.*, 2008b; O'Toole, 2014; Gerlach-Kristen *et al*., 2015). This body of literature indicates that much of the variation across firms groups in the use and applications for different financing types can be explained by firm age and size. We therefore include controls for the following categories: Age Less than 5, Age 5-10, Age 10 +. We include three size categories: micro (less than 10 employees), small (10-49 employees) and medium-sized firms (20-250 employees).

To control for borrower risk and borrower quality, we include whether or not the firm is an exporter, whether or not the firm defaulted on bank lending

Table 1: *Overview of Indicators Used in Analysis*

Topic	*Indicator and Measurement*	*Financing Types*
	Indicator from Department of Finance Survey	
Applications: did your firm enquire about any of the following non-bank finance?	*Indicator 1:* Binary with apply =1, did not apply = 0; DK = Missing	*Equity:* • Venture capital • Business angel or other investors • Friends and Family; and • Business Partners *Non-Bank debt:* • Loans from Friends and Family; • Loans from Business Partners; • Crowdfunding/ Peer-to-Peer Lending
	Indicator From SAFE Data	
Usage: In the past six months did your enterprise use any of the following types of finance?	*Indicator 2:* Binary = 1 if a particular type of finance has been either used by the firm in the past six months, =0 if source of finance has never been used.	*Equity:* • Overall equity including venture capital, business angel finance, and other investor finance. • Mezzanine finance/Subordinated debt *Non-Bank debt:* • Loans from Friends and Family or business partners or other firms • Trade credit • Leasing hire-purchase and factor • Debt securities issued

facilities, whether or not the firm made a loss, broke even or made a profit in the last six months and whether or not the firm undertook some innovation in the previous six months.[2] Sector dummies are included in the vector Z_j. These include controls for firms in manufacturing, construction and real estate, wholesale and retail, hotels, and other sectors. A dummy for whether the firm is involved in ICT activities is also included.

2.3.2 Estimations Using ECB SAFE Data

Drawing on the ECB SAFE data, we can address two research questions:

(a) What are the determinants of the usage of differing financing sources by Irish respondents to SAFE?

[2] Innovation captures whether or not the firm introduced a new product, service or process, adopted a new marketing technique or significantly changed business practises.

(b) How do Irish firms differ from their European peers? Do these effects differ across firm age and size?

To answer question (a) above, we use a standard probit model, similar to that in Equation (1), with the usage indicators from Table 1 as the dependent variables. We firstly limit the sample to the Irish only group of enterprises and test the differences in the probability of whether or not a financing source is used as a function of a range of controls. The controls capture a range of aspects of borrower quality, borrower risk and structural characteristics of the firms such as age, ownership and sector.

More specifically, as controls, we include firm age (dummies for firm's age 0-5 years, 5-10 years and 10+ years), firm size (micro, small and medium as defined), controls for ownership (indicators for whether or not the firm is publicly listed, family-owned or entrepreneur-owned, a single ownership firm or other ownership), and whether or not the firm is a subsidiary.

In our regression framework it is important to control for the quality of the borrower and the financial conditions they face when evaluating their use of non-bank financing. In SAFE, the majority of variables are categorical and report whether a particular variable has (a) increased (b) unchanged (c) decreased.[3] Including a large number of similar categorical variables may not be informative. Therefore, to capture the factors relating to borrower-specific trading risk, financial distress and the conditions attached to, and availability of, bank financing, we follow O'Toole (2015) and include four different variables. The first is an index of trading distress. This index uses categorical variables for turnover, labour cost, non-labour costs, profitability, profit margins and economic outlook and gives each a value of 1, 0, or –1 depending on the category (1:increased, 0:unchanged, –1:decreased). These variables are then summed to an index which can range from –6 (low risk) to 6 (high risk) as in O'Toole (2015).

The second index captures financial health or financial distress. Again it combines categorical variables on credit history, debt to asset ratios, own capital positions, financial costs, and corporate restructuring requirements, allocates a value of 1, 0, or –1 and sums to an index valued –5 (low risk) to 5 (high risk).

The final index captures changes to bank lending conditions. It combines, and allocates values as above, to the following variables: interest rates, non-interest costs, loan volume availability, maturity, collateral, other terms, and interest costs. The index runs from –7 (low risk) to 7 (high risk). Finally, we include a standard binary indicator for whether or not the firm is rejected

[3] An alternative categorisation used in SAFE is (a) improved (b) unchanged (c) deteriorated. This is also used in our research and coded (1, 0, –1).

bank finance as a credit constraint indicator. This is in line with Holton *et al.* (2014); O'Toole (2015) and Byiers *et al.* (2010).

The firm size, age, and ownership variables (vector X_{ij}) and sectoral controls (Z) are included in a simple probit model along with the aforementioned indices and binary indicator for bank lending constraints (vector H).

$$Pr(Use = 1) = \Phi(\beta X_{ij} + \alpha H_{ij} + \lambda Z_j + \varepsilon_{ij})$$

To test the question (b) we re-estimate the probit model on the full sample of all countries including all the firm specific controls. We then include a dummy for Ireland as follows:

$$Pr(Use = 1) = \Phi(\beta X_{ij} + \alpha H_{ij} + \lambda Z_j + \theta IRE + \varepsilon_{ij}) \quad (2)$$

The key parameter is θ which estimates how different Irish firms are from all other countries in the sample once borrower characteristics are controlled for. To test whether or not these effects differ by size and age, the model is re-estimated including interactions for age or size (vector K with the Ireland dummy):

$$Pr(Use = 1) = \Phi(\beta X_{ij} + \alpha H_{ij} + \lambda Z_j + \theta IRE \cdot \omega K_{ij} + \lambda Z_j + \varepsilon_{ij}) \quad (3)$$

The marginal effects are calculated as standard in a probit model.

2.4 *Summary Statistics*

We now present summary statistics for each of the non-bank debt financing instruments. Where available, data will be presented across the range of indicators outlined above for each financing type. The data is split across different firm groups to explore the heterogeneity of non-bank financing usage. Each of the variables included in the regression are presented first to provide an overview of the sample in both surveys. Secondly we present the average level of each financing indicator for each of the firm characteristics.

Table 2 presents an overview of the observations by firm characteristics in the DoF survey. The total number of observations used in the sample from this survey is approximately 2,900. The majority of the enterprises (80 per cent) are over 10 years in operation. A further 14 per cent are aged 5 to 10 years, with the final 5 per cent being start-up firms of less than 5 years. Across firm size approximately 40 per cent are micro, 40 per cent small and the final 20 per cent medium-sized. Across industries, 13 per cent are manufacturing, 8 per cent are construction, 33 per cent wholesale/retail and the remainder

classed as other. Less than 10 per cent of enterprises engage in ICT activities but over 50 per cent indicate they undertake some innovation. Less than 20 per cent of SMEs export. While just over 50 per cent of SMEs indicate that they make a profit, nearly 20 per cent are loss making. Our indicator of default indicates that nearly 7 per cent of enterprises default. While this appears low relative to other research modelling Irish SME default (Lawless and McCann, 2013; McCann and McIndoe-Calder, 2014) this is mainly driven the narrow definition of the data available to us for this research.

Table 2: *Split of Observations by Firm Characteristics – Department of Finance Survey*

	Frequency	*Per Cent*	*Cumulative*
Age < 5	165	5.50	5.50
Age 5-10	428	14.26	19.75
Age 10 +	2,409	80.25	100.00
Micro	1,184	39.44	39.44
Small	1,161	38.67	78.11
Medium	657	21.89	100.00
Manufacturing	383	12.76	12.76
Construction	247	8.23	20.99
Wholesale/Retail	1,000	33.31	54.30
Other	1,372	45.70	100.00
Non-ICT	2,718	90.54	90.54
ICT	284	9.46	100.00
Non Innovator	1,426	47.50	47.50
Innovator	1,576	52.50	100.00
Non-Exporter	2,433	81.05	81.05
Exporter	569	18.95	100.00
No Default	2,807	93.50	93.50
Default	195	6.50	100.00
Made a loss	548	18.68	18.68
Broke even	916	31.23	49.91
Made a profit	1,469	50.09	100.00
N	2,933		

The mean application rate for non-bank financing by type available in the DoF data is presented in Table 3. Application rates are highest for family loans at just over 5 per cent. It is highest for younger firms under 5 years at nearly 9 per cent and for micro firms. It also appears that applications for family loans are considerably higher for defaulters and loss making firms. This may suggest that firms in financial distress are turning to friends and family to support their enterprise. Loans from business partners have a 3 per cent overall application rate. The rates appear highest for young firms, innovative

firms and exporting firms. The application rate is also higher for loss making firms.

In relation to crowd funding and peer to peer lending the rate of applications is approximately 1 per cent. As this is a relatively new technology and type of financing, it is unsurprising that the percentage of enterprises applying for such funding is low. However, given the online nature of this lending mechanism there is potential scope for growth. The highest application rates for crowdfunding/peer-to-peer lending is for young firms (2 per cent), innovators (1.6 per cent) and for ICT firms (3.6 per cent).

A considerable policy focus in recent times has been on increasing the share of equity risk capital in Irish SMEs. In Table 3 we present data on applications for equity from informal sources such as family, friends, and more formal external investment through venture capital and business angels. Focusing first on applications for friends and family equity, the application rate is 1.6 per cent overall but is considerably higher for young firms (4 per cent). The application rates are also high for innovators, exporters, and for firms who made a loss or defaulted. Similar to loans from family and friends, this may also indicate that family/friends equity is used as a financial injection into enterprises facing trading challenges. Equity applications from business partners are also very high for young firms, exporters, innovators and ICT enterprises.

Two types of financing of particular interest to policymakers are venture capital and business angel finance. Internationally, these more formal external investment sources have been shown to provide important financing for firms at particular stages in their lifecycle (Berger and Udell, 1998). Additionally, the development of venture capital and angel financing have received considerable policy attention (Lawless *et al*., 2014).

In columns, (6) and (7) of Table 3, the average application rates for venture capital and angel financing are presented. On average approximately 1.3 per cent and 1.4 per cent of enterprises apply for these funding sources on a six monthly basis. The application rate is higher for young firms, innovative firms, exporters, and firms in ICT.

Turning to focus on the ECB/EC SAFE survey, Table 4 presents the descriptive statistics for the SAFE data. Data on a similar number of firms are available for Ireland for this sample: nearly 3,000 observations across the waves. Across sectors, 10 per cent of enterprises are in manufacturing, 21 per cent are in construction, and 38 per cent in the wholesale and retail trade. Across ownership, nearly 70 per cent of enterprises are family-owned or entrepreneur-owned. A further 4 per cent are listed companies. Single-owner enterprises make up 20 per cent of the total. Across the age structure of enterprises, 5 per cent are less than 5 years, a further 10 per cent are between 5 and 10 years and the remainder are over 5 years. On the size distribution,

Table 3: *Average Level of Applications for Non-Bank Financing by Firm Characteristics – Department of Finance Survey*

	Loans Family	*Loans Business Partners*	*Crowd Funding*	*Equity Family*	*Equity Business Partners*	*Venture Capital*	*Business Angels*	*Gov Funding*
	(1) %	*(2)* %	*(3)* %	*(4)* %	*(5)* %	*(6)* %	*(7)* %	*(8)* %
Overall	5.3	2.9	1.0	1.0	1.6	1.3	1.4	3.4
Age < 5	8.9	10.9	2.0	4.0	7.9	2.0	4.0	5.9
Age 5-10	3.1	1.3	0.4	0.4	1.3	1.3	0.9	4.5
Age 10 +	5.4	2.5	1.0	0.8	1.1	1.4	1.3	3.5
Micro	7.2	1.2	0.7	0.9	0.9	0.5	0.7	2.0
Small	4.5	4.0	1.2	1.2	1.9	1.9	1.9	4.3
Medium	3.3	4.2	1.2	0.9	2.4	2.4	1.8	6.0
Manufacturing	4.2	4.2	1.0	0.5	2.6	2.1	2.6	8.3
Construction	5.4	2.7	0.9	0.9	0.9	1.8	0.9	2.7
Wholesale/Retail	5.3	3.4	0.9	1.5	1.9	1.1	1.3	2.3
Other	5.5	2.3	1.1	0.8	1.2	1.5	1.2	3.7
Non-ICT	5.1	2.9	0.7	0.9	1.5	1.2	1.3	3.7
ICT	6.5	2.9	3.6	2.2	2.9	4.3	2.2	4.3
Non Innovator	3.0	1.1	0.3	0.4	0.3	0.4	0.7	1.4
Innovator	7.3	4.5	1.6	1.5	2.8	2.4	2.0	5.9
Non-Exporter	5.3	2.5	0.9	0.8	1.2	1.1	1.1	2.3
Exporter	4.9	4.9	1.5	1.9	3.4	3.0	2.6	10.9
No Default	4.0	2.9	1.1	0.9	1.6	1.4	1.4	4.0
Default	25.0	3.3	0.0	3.3	1.1	2.2	1.1	1.1
Made a loss	10.4	6.0	0.7	1.9	2.2	1.1	1.1	3.4
Broke even	5.2	3.2	0.9	1.4	1.6	0.9	1.4	3.6
Made a profit	3.6	1.7	1.2	0.5	1.5	2.0	1.6	4.1

20 per cent are medium-sized, 40 per cent are small and 40 per cent are micro. Nearly 13 per cent of the enterprises are also subsidiary firms.

As noted above, from SAFE, we develop indicators which measure the usage of financing types by Irish enterprises. Table 5 below presents the mean values of each of these in a comparative context across groups of firms and enterprises.

Columns (1)-(4) present the four types of non-bank debt finance included in our analysis from SAFE. The source with the highest usage rate is trade credit at 74 per cent. Lawless *et al.* (2014, 2015) indicate that trade credit usage in Ireland is the highest in the Eurozone. The existing literature highlights the fact that bank and trade credit are well known substitutes (Casey and O'Toole, 2014) and this substitutability can increase following

Table 4: *Split of Observations by Firm Characteristics in SAFE*

Variable	*Frequency*	*Per Cent*	*Cumulative*
Manufacturing	299	10.05	10.05
Construction	632	21.25	31.3
Trade	1,132	38.06	69.37
Other	911	30.63	100
Family or entrepreneur	2,072	69.67	69.67
Listed	124	4.17	73.84
Single owner	570	19.17	93.01
Other	208	6.99	100
< 5 years	127	4.27	4.27
5-10 years	300	10.09	14.36
> 10 years	2,547	85.64	100
Medium	558	18.76	18.76
Small	1,226	41.22	59.99
Micro	1,190	40.01	100
No Subsidiary	2,593	87.19	87.19
Subsidiary	381	12.81	100
N	2,974		

financial crises (Love *et al.*, 2007). In Ireland, these usage rates may be reflective of challenges in accessing traditional bank credit following the financial crisis. Across groups of enterprises and sectors, it appears that trade firms, older firms and medium-sized firms have the highest trade credit usage rates.

Factoring/hire-purchase/leasing is the second highest category of non-bank financing usage at 30 per cent of enterprises. It is unfortunate the survey does not distinguish between these types of financing as they are quite distinct. Their usage appears highest for listed enterprises, medium-sized enterprises and older SMEs. Other loans in SAFE include loans from friends and family and other companies (excluding trade credits). The overall usage rate is 18 per cent. It is the closest category to loans from friends and family and loans from business partners that we observe in the Department of Finance survey. It may also be the case that intercompany loans are included in this category as the usage rate amongst subsidiaries is relatively high.

The source with the lowest usage rate is issued debt at 3 per cent of enterprises. In the context of the recent proposals to develop a mini-bond market in Ireland this is an important statistic. It appears the usage rates are greater for firms aged 5 to 10, and medium-sized SMEs.

Table 5: *Overview of Financing Types Used by Irish Enterprises*

	Issued Debt (1) %	*Trade Credit* (2) %	*Other Loans* (3) %	*F/Hp/L* (4) %	*Equity* (5) %	*Mezzaine* (6) %	*Grants* (7) %
Overall	3	74	18	30	9	2	13
Manufacturing	2	74	22	31	11	2	12
Construction	4	73	16	33	9	2	23
Trade	3	83	16	26	7	2	9
Other	4	64	19	32	10	2	11
Family/Entrepreneur	4	76	18	30	9	2	13
Listed	3	68	23	49	10	2	14
Single Owner	3	69	15	20	7	1	9
Own Other	3	68	23	39	11	4	20
< 5 Years	2	72	23	22	16	2	11
5-10 Years	5	70	23	28	11	2	13
10 + Years	3	75	17	30	8	2	13
Medium	5	78	25	46	12	4	22
Small	4	75	18	36	9	2	13
Micro	3	71	14	16	7	1	8
Non-Subsidiary	3	74	17	30	9	2	12
Subsidiary	4	72	25	32	8	2	15

Note: Values are means.

III EMPIRICAL RESULTS

This section presents the results of our formal econometric analysis. We first present the results for our evaluation of the Department of Finance data on applications for non-bank financing, across all financing types. Second, we estimate the determinants of the usage of non-bank financing using SAFE data for Irish firms. Finally, we test whether Irish firms are different from a selection of EU countries. The models presented in this section provide robust partial correlations and should not necessarily be seen as causal findings.

3.1 *Determinants of Demand for Non-Bank Finance*

In Table 6, we present the determinants of non-bank financing for Irish SMEs. The model is estimated using a standard probit approach with robust standard errors. In all cases, the omitted categories for the groups are: older firms >10 years, medium-size enterprises, manufacturing sector, non-ICT firms, non-innovators, non-exporters, non-defaulters and loss making firms.

Focusing first on debt financing, in column (1) the estimates for loans from friends and family are presented. The results indicate that micro-sized enterprises are nearly 3 per cent more likely to apply for family loans. Innovative enterprises are also over 4 per cent more likely to apply for family loans. Interestingly, enterprises who default are over 16 per cent more likely to apply for loans from family or friends. Firms who break even or make a profit are both also circa 5 per cent less likely to apply for loans from family and friends relative to loss making firms. These findings point to a dynamic whereby enterprises in financial distress are turning to informal sources of capital to provide funding support. While this may be understandable, in the long run this may not realise the most efficient allocation of capital for these enterprises or their household funders.

For loans from business partners, we find that young firms are 8 per cent more likely to apply for these loans while micro firms are less likely. Again we also find that SMEs who break even or make a profit are less likely to apply relative to loss making firms. These findings again indicate that business partners may provide financing capital during periods of heightened financial distress for the enterprise. The findings also indicate that business partner finance is demanded more by start-ups. The final lending type we evaluate is crowdfunding/peer-to-peer financing. We find that this type of credit is more likely to be used by innovative firms and firms in the ICT sector. It is also less likely to be used by firms aged 5-10 than older enterprises.

Moving to the different types of equity financing, in column (4) we model the determinants of applications for venture capital. As expected, applications for venture equity are higher for ICT enterprises and for firms who undertake innovation. This finding is in line with the international and national focus of venture companies on high-tech firms. We also find that venture capital applications are lower for micro-sized enterprises than medium-sized firms. In column (5) the results of the modelling for angel financing are presented. The findings are generally similar to those for venture capital: application rates higher for innovative and ICT firms. However, we also find that angel financing is more likely to be demanded by start-ups which is in line with the international literature (Berger and Udell, 1998).

The final two equity sources are friends and family and business partners. For equity from friends and family, we find start ups (less than 5 years) are more likely to use this source as are enterprises in the wholesale and retail trade and innovative enterprises. Profit making enterprises are less likely to apply for equity financing from friends and family. This finding may be a classic case of enterprises turning to insiders with lower information barriers when cash flows and profitability declines and market financers are unwilling to provide equity. Equity from business partners is higher for young firms,

medium-sized enterprises, and innovative enterprises. Applications for government financing support are higher for medium-sized enterprises, innovative firms, exporters, and enterprises who do not default.

In summary, we find that loans from friends and family are particularly important for micro enterprises, and enterprises displaying signs of financial distress (default and loss making). Loans from business partners are important for young firms and non-profit making enterprises. We find that applications for crowdfunding are higher for ICT enterprises. Focusing on equity, applications for angel finance, friends and family and business partner equity are higher for young enterprises. Venture capital and angel applications are also higher for ICT and innovative enterprises. In fact, the application rate for all non-bank financing types is statistically higher for innovative enterprises.

3.2 *Determinants of Usage of Non-Bank Finance*

In this section, we present the results of our analysis of non-bank usage rates from SAFE. In the discussion below, if a variable is commented, it will be associated with a statistically significant finding in the results table. In columns (1)-(4) of Table 7 the estimates for non-bank debt instruments are presented. For issued debt, there does not appear to be a great degree of statistically significant variation in the data. We do find that usage of issued debt is positively correlated with enterprises that are rejected bank credit and also enterprises whose bank lending conditions have been tightened. This may suggest substitution between formal issued debt and bank debt for the small group of enterprises who use this type.

In relation to the usage of trade credit, usage is highest amongst wholesale and retail enterprises. These firms are nearly 9 per cent more likely to use trade credit than manufacturing SMEs. Usage also falls with enterprise size. Micro firms are 12 per cent less likely to use trade credit relative to medium sized enterprises while small firms are 5 per cent less likely. Both results are statistically significant. Interestingly, we do not find evidence of correlation between bank lending constrained enterprises and trade credit usage as could be expected following the existing literature. However, give these results are cross-sectional and no panel element is available, further work is required to identify whether or not this is the case.

For other loans, we find that usage rates are higher in manufacturing than all other sectors. We find that usage falls with firm size but is higher for firms aged 5-10 than older enterprises. Firms in financial distress are less likely to use other loans. Enterprises that are rejected bank credit are more likely to apply for other loans. This finding is in line with Casey and O'Toole (2014) and is suggestive of substitution between bank credit and informal and other company lending.

Table 6: *Determinants of Non-Bank Financing – Probit Marginal Effects*

	Debt Financing			*Equity Financing*				*State*
	Loan Family	*Loan Business Partner*	*Crowd Funding*	*Venture Capital*	*Business Angel*	*Equity Family*	*Equity Business Partner*	*Gov*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*
Age < 5	0.026	0.080***	0.005	0.017	0.025*	0.033*	0.067***	0.019
	(0.025)	(0.029)	(0.011)	(0.013)	(0.015)	(0.018)	(0.026)	(0.017)
Age 5-10	–0.022	–0.006	–0.007*	0.006	–0.002	–0.002	0.005	0.012
	(0.013)	(0.011)	(0.004)	(0.007)	(0.005)	(0.006)	(0.009)	(0.011)
Micro	0.028*	–0.042***	–0.003	–0.018***	–0.019***	–0.007	–0.022**	–0.017*
	(0.015)	(0.014)	(0.007)	(0.006)	(0.007)	(0.007)	(0.010)	(0.009)
Small	0.007	–0.015	0.000	–0.009	–0.007	–0.001	–0.011	–0.008
	(0.014)	(0.014)	(0.007)	(0.007)	(0.007)	(0.008)	(0.011)	(0.009)
Construction	0.014	–0.006	0.005	–0.000	–0.001	0.008	–0.006	–0.007
	(0.025)	(0.017)	(0.014)	(0.010)	(0.008)	(0.010)	(0.013)	(0.015)
Wholesale and Retail	0.015	0.014	–0.000	–0.004	0.004	0.014**	0.005	–0.015
	(0.017)	(0.013)	(0.007)	(0.007)	(0.006)	(0.006)	(0.010)	(0.010)
Other	0.016	–0.002	0.003	–0.002	0.004	0.007	–0.005	0.000
	(0.017)	(0.011)	(0.007)	(0.007)	(0.006)	(0.005)	(0.009)	(0.010)
ICT	0.022	–0.002	0.026*	0.034***	0.029***	0.011	0.012	–0.001
	(0.023)	(0.013)	(0.014)	(0.011)	(0.010)	(0.011)	(0.013)	(0.010)
Innovation	0.042***	0.026***	0.013***	0.012***	0.011***	0.009**	0.020***	0.033***
	(0.011)	(0.008)	(0.005)	(0.004)	(0.004)	(0.004)	(0.006)	(0.006)
Exporter	0.001	0.018	0.002	0.007	0.011	0.015	0.012	0.056***
	(0.017)	(0.013)	(0.007)	(0.006)	(0.007)	(0.011)	(0.009)	(0.012)
Default	0.163***	0.001		0.018	0.021	0.025	–0.000	–0.026***
	(0.042)	(0.019)		(0.014)	(0.015)	(0.019)	(0.016)	(0.008)
Breakeven	–0.042**	–0.035*	0.001	0.001	0.009	–0.006	–0.011	0.002
	(0.019)	(0.018)	(0.007)	(0.006)	(0.006)	(0.010)	(0.011)	(0.011)
Profitable	–0.050***	–0.054***	0.003	0.003	0.003	–0.015*	–0.014	–0.009
	(0.018)	(0.016)	(0.007)	(0.005)	(0.005)	(0.009)	(0.010)	(0.009)
N	1,467	1,467	1,467	2,933	2,933	1,467	1,467	2,933

Notes: Standard errors robust to heteroskedasticity. Omitted categories are older firms > 10 years, Medium-size enterprises, manufacturing sector, Non ICT firms, non-innovators, non-exporters, non-defaulters and loss making firms.

In relation to leasing/hire-purchase/factoring, this type of financing is more likely to be used by manufacturing enterprises than wholesale and retail SMEs. The likelihood of usage is also statistically higher for listed companies. Start-ups have a lower usage rate of this type of financing as do micro firms. In fact micro-sized enterprises are nearly 24 per cent less likely to use these instruments relative to medium-sized enterprises. Leasing/hire-purchase/ factoring usage decreases with financial distress but is higher for enterprises as bank lending conditions tighten.

Columns (5) and (6) present the results for equity financing and mezzanine financing (quasi-equity). For equity we find the usage is lower in wholesale and retail than in manufacturing. It is also higher for start ups: enterprises under 5 years in operation are 8 per cent more likely to use equity relative to older SMEs (>10 years). However, micro-sized enterprises are nearly 5 per cent less likely to use equity relative to medium-sized firms. Subsidiaries also are less likely to use equity. There appears to be some evidence of bank credit – equity substitution as enterprises that use equity display a positive correlation with tightening lending standards on their bank facilities. For mezzanine financing, usage of this type of credit is lower for young enterprises and the usage rates also fall with firm size.

In summary, our main findings from the analysis are as follows: we find a positive correlation between using issued debt and enterprises either being bank lending constrained or facing tighter lending conditions on their existing banking facilities. We find trade credit usage is highest in the wholesale and retail sector and increases as firm size increase. We do not find any evidence of bank credit-trade credit substitution. Other loans are more likely to be used by manufacturing enterprises, larger SMEs and enterprises that face bank credit constraints. Leasing/hire purchase/factoring are used less in wholesale and retail than manufacturing, more likely to be used by listed enterprises, or bank credit constrained enterprises. It is much less likely to be used by young enterprises or micro firms or firms in financial distress. Equity is more likely to be used by young enterprises, manufacturing SMEs, and enterprises whose bank lending conditions have tightened. Subsidiaries are less likely to use equity. Mezzanine finance is used less by younger, smaller enterprises.

3.3 *Is Ireland Different?*

The final section in our analysis addresses the research question on whether or not the usage of non-bank financing in Ireland is different to other European countries. The econometric approach takes the model presented above for Ireland and re-estimates the equations for a sample of European countries including the borrower specific controls and a dummy for Ireland. By focusing on the country dummy, the methodology asks the following: how

Table 7: *Determinants of Using Non-Bank Finance*

	Debt Financing				*Equity Finance*		
	Issued Debt	*Trade Credit*	*Other Loans*	*F/Hp/L*	*Equity*	*Mezzanine*	*Grants*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
Construction	0.005	–0.027	–0.096***	–0.053	–0.029	–0.000	0.083***
	(0.021)	(0.036)	(0.033)	(0.036)	(0.026)	(0.013)	(0.031)
Wholesale and Retail	–0.013	0.088***	–0.077**	–0.058*	–0.049**	–0.001	–0.049*
	(0.019)	(0.032)	(0.031)	(0.034)	(0.024)	(0.012)	(0.027)
Other	–0.005	–0.106***	–0.062*	–0.027	–0.023	0.001	–0.038
	(0.019)	(0.034)	(0.032)	(0.035)	(0.025)	(0.012)	(0.028)
Publicly listed	0.012	–0.082	–0.037	0.098*	0.022	0.010	0.022
	(0.027)	(0.060)	(0.040)	(0.057)	(0.040)	(0.018)	(0.045)
Single Owner	–0.001	–0.036	–0.028	–0.069**	0.007	–0.004	–0.033*
	(0.011)	(0.028)	(0.023)	(0.027)	(0.019)	(0.008)	(0.017)
Other	–0.023**	–0.061	0.013	–0.046	0.007	0.021	0.010
	(0.010)	(0.045)	(0.037)	(0.040)	(0.027)	(0.016)	(0.029)
Young < 5	–0.017	0.014	0.043	–0.092*	0.079*	–0.016**	–0.039
	(0.016)	(0.049)	(0.047)	(0.049)	(0.044)	(0.008)	(0.025)
Developing (5 –10)	–0.006	–0.026	0.053*	0.018	0.037	–0.002	0.017
	(0.011)	(0.035)	(0.032)	(0.035)	(0.025)	(0.011)	(0.025)
Small	0.005	–0.051*	–0.068**	–0.042	–0.031	–0.023**	–0.028
	(0.011)	(0.028)	(0.027)	(0.031)	(0.020)	(0.011)	(0.020)
Micro	–0.004	–0.125***	–0.099***	–0.236***	–0.047**	–0.029***	–0.061***
	(0.011)	(0.031)	(0.029)	(0.031)	(0.022)	(0.010)	(0.021)
Subsidiary	0.001	0.006	0.039	–0.023	–0.031*	–0.011	0.001
	(0.011)	(0.034)	(0.029)	(0.032)	(0.017)	(0.007)	(0.023)
Financial Distress	–0.003	–0.000	–0.020**	–0.024***	0.001	–0.001	–0.006
	(0.003)	(0.009)	(0.008)	(0.009)	(0.005)	(0.003)	(0.006)
Bank Constrained	0.026**	–0.003	0.117***	–0.016	–0.007	0.013	0.056**
	(0.012)	(0.038)	(0.031)	(0.037)	(0.023)	(0.011)	(0.026)
Trading Risk	–0.002	0.003	0.002	0.001	–0.004	–0.002	–0.005*
	(0.002)	(0.005)	(0.004)	(0.004)	(0.003)	(0.001)	(0.003)
Bank Lending Conditions	0.007***	0.000	0.008	0.032***	0.017***	0.003	0.009*
	(0.002)	(0.008)	(0.007)	(0.007)	(0.005)	(0.002)	(0.005)
N	2,733	2,815	2,811	2,816	2,807	2,790	2,811

Notes: Estimates are robust to heteroskedasiticity.

different is Ireland when we control for the borrower specific risk factors and differences in sample composition of firms or sectors?

Table 8 presents the country dummies and the country effects interacted with age and size.[4] Overall, Irish firms are 2 per cent more likely to use issued debt, 35 per cent more likely to use trade credit, 3 per cent more likely to use other loans and 7 per cent less likely to use factoring/leasing/hire purchase. In relation to equity financing, Irish SMEs are nearly 4 per cent more likely to use this financing instrument relative to the other European countries. Mezzanine usage is circa 1 per cent lower. Grant usage is 4.3 per cent lower.

Focusing on the Ireland-specific effect by firm age and size, a number of differences are evident. On issued debt, differences are only apparent for mature firms who are more likely to use this source than their European counterparts. There does not appear to be large variance across trade credit usage. On other loans, the difference is driven by mature firms and micro enterprises whom both have a higher application rate in Ireland than in other countries. For leasing, factoring and hire purchase, the differential decreases with age with young Irish enterprises being nearly 17 per cent less likely to use these instruments. The usage differential also increases with size: Irish micro, small and medium-sized enterprises are 4 per cent, 5 per cent and 12 per cent less likely respectively to use these instruments.

Turning to equity and mezzanine financing, Irish young, developing and mature firms are 8 per cent, 6 per cent and 3 per cent more likely respectively to use equity relative to European comparators. This finding is somewhat surprising given the narrative in Ireland of a low equity usage culture. There is less variation by size. On mezzanine finance, young firms and small and micro firms are less likely to use this type. There is no difference for older enterprises or medium-sized companies.

IV CONCLUSIONS AND POLICY IMPLICATIONS

This paper attempts to provide a statistical overview of the demand for, and use of, non-bank financing in Ireland as well as a comparison vis-à-vis other Eurozone countries. Specifically, we attempt to answer the following research questions: (a) what firm characteristics are correlated with applications for, and usage of, specific types of bank finance? (b) What groups of firms or industries are more or less likely to apply for and use different types of non-bank finance? (c) Is Ireland different from other countries?

[4] A full listing of all coefficients in these models is available on request from the authors.

Table 8: *Is Ireland Different to Other European Countries?*

	Issued Debt (1)	*Trade Credit* (2)	*Other Loans* (3)	*F/Hp/L* (4)	*Equity* (5)	*Mezzanine* (6)	*Grants* (7)
Overall	0.018***	0.352***	0.026***	–0.066***	0.035***	–0.007**	–0.043***
	(0.004)	(0.012)	(0.009)	(0.011)	(0.007)	(0.004)	(0.008)
Young (< 5)	0.003	0.358***	0.008	–0.166***	0.080*	–0.027***	–0.081***
	(0.014)	(0.051)	(0.047)	(0.048)	(0.043)	(0.006)	(0.026)
Developing	0.015	0.329***	0.047	–0.069**	0.056**	–0.010	–0.023
(5-10)	(0.010)	(0.036)	(0.030)	(0.035)	(0.024)	(0.012)	(0.025)
Mature	0.019***	0.355***	0.024**	–0.060***	0.030***	–0.006	–0.044***
(10 +)	(0.005)	(0.013)	(0.010)	(0.012)	(0.008)	(0.004)	(0.008)
Medium	0.019**	0.352***	0.028	–0.119***	0.042**	–0.001	–0.040**
	(0.009)	(0.026)	(0.023)	(0.027)	(0.018)	(0.010)	(0.019)
Small	0.021***	0.371***	0.020	–0.051***	0.026**	–0.012**	–0.035***
	(0.007)	(0.017)	(0.014)	(0.018)	(0.010)	(0.005)	(0.012)
Micro	0.015**	0.337***	0.031**	–0.045***	0.039***	–0.009**	–0.052***
	(0.007)	(0.018)	(0.014)	(0.015)	(0.011)	(0.004)	(0.011)
N	41,039	41,369	41,358	41,427	41,278	41,114	41,317

Notes: Model estimates are developed including all firm specific regressors in Table 7. Estimates are robust to heteroskedasticity.

Our evaluation includes both non-bank debt and equity financing, which covers the following specific financing instruments: non-bank debt including issued debt, trade credit, and loans from friends, family or business partners, and peer-to-peer lending/crowdfunding; equity covering venture capital, business angel and equity from friends and family and business partners as well as mezzanine financing.

A number of findings emerge from our analysis. We find very limited use of formal issued debt finance amongst Irish firms, but this is not particularly unusual amongst SMEs across Europe (Lawless *et al*., 2014). In fact Irish enterprises are more likely to use this financing type relative to their European counterparts. In relation to trade credit, the usage rates in Ireland are very high; 35 per cent higher than non-Irish enterprises. Leasing, factoring and hire purchasing products are also widely used, in particular by, listed plcs and larger, older enterprises.

Online financing platforms such as crowdfunding and peer-to-peer are still associated with low levels of applications in Ireland. Their usage is however larger for enterprises that appear more innovative and are in high-tech sectors. This may be an indicator of difficulty in accessing traditional bank finance. We also find that loans from friends or family and loans from business partners are an important source of SME financing, in particular for enterprises that are in distress.

In terms of equity financing, Irish enterprises appear more likely to use equity relative to their European counterparts. While this finding runs counter to general expectations on the widescale use of equity financing in Ireland, it must be noted that our European comparison cannot distinguish between the source of equity (insider, angel, venture capital or other private equity, public listing). For formal external investment through business angel and venture capital finance is targeted at ICT and innovative enterprises, which is in line with international expectations that venture capital and angel finance would be concentrated on the very high-growth, usually high-technology enterprises. Usage of mezzanine financing is lower in Ireland that in other European countries.

From a policy perspective, our research provides a number of insights. Measures to improve the diversification of the financing mix for Irish SMEs are welcome. This could include the development of a potential SME bond market for larger Irish SMEs. However, this would be limited to larger bond markets and may have limited liquidity and issuance if transaction costs are prohibitive. Other measures to improve the flow of mezzanine financing through development and transition capital funding measures through ISIF and Enterprise Ireland are also important and broadening the range of such schemes is also important.

One lesson from the Irish crisis is clear. Over reliance of enterprises on bank leverage to finance growth can provide serious risks to financial stability. Diversification of funding and increasing risk capital should be supportive of longer term financing stability.

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ANNEX 1

ADDITIONAL SUMMARY STATISTICS

Overview of Observations Across the Main Variables in SAFE Research

	Issued Debt	*Trade Credit*	*Other loans*	*F/Hp/L*	*Equity*	*Mezzanine*	*Grants*
Overall	2,887	2,972	2,968	2,973	2,964	2,946	2,968
Manufacturing	283	299	299	299	299	291	298
Construction	612	632	628	632	629	628	631
Trade	1102	1,132	1,131	1,132	1,128	1,122	1,128
Other	890	909	910	910	908	905	911
Family/Entrepreneur	2,007	2,071	2,066	2,071	2,064	2,055	2,068
Listed	120	124	124	124	124	123	124
Single Owner	555	570	570	570	568	561	569
Own Other	205	207	208	208	208	207	207
< 5 Years	125	127	127	127	127	127	127
5-10 Years	298	300	300	300	299	299	300
10 + Years	2,464	2,545	2,541	2,546	2,538	2,520	2,541
Medium	549	557	558	558	557	553	558
Small	1,195	1,225	1,222	1,225	1,221	1,215	1,222
Micro	1,143	1,190	1,188	1,190	1,186	1,178	1,188
Non-Subsidiary	2,516	2,591	2,588	2,592	2,584	2,571	2,588
Subsidiary	371	381	380	381	380	375	380

Overview of Financial Control Variables

	Obs	*Mean*	*Std. Dev.*	*Min*	*Max*
Financial distress	2974	–0.06	1.28	–5	4
Risk Index	2974	1.55	2.57	–6	6
Bank Lending Conditions	2974	0.89	1.67	–4	7
Credit Constrained	2974	0.13	0.33	0	1

Overview of Countries Included in Ireland Comparison

Country	*Frequency*	*Per Cent*	*Cumulative*
Austria	2,476	5.02	5.02
Belgium	2,992	6.06	11.08
Bulgaria	559	1.13	12.21
Czech Republic	497	1.01	13.22
Germany	5,445	11.03	24.25
Denmark	656	1.33	25.58
Spain	6,889	13.96	39.54
Finland	2,511	5.09	44.63
France	6,908	14	58.63
Greece	623	1.26	59.89
Hungary	588	1.19	61.08
Ireland	2,974	6.03	67.11
Italy	6,823	13.83	80.94
Netherlands	3,008	6.1	87.03
Poland	1,263	2.56	89.59
Portugal	2,687	5.45	95.04
Sweden	670	1.36	96.39
Slovenia	127	0.26	96.65
Slovakia	400	0.81	97.46
United Kingdom	1,252	2.54	100
Total	49,348	100	