



Access to credit amongst SMEs: Pre and post-crisis evidence from Eastern Europe

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Abstract

Given the imminent re-structuring of the Irish banking sector, an issue of substantial policy importance is that of access to credit for Small and Medium-sized Enterprises (SMEs). As a compliment to ongoing efforts to improve our knowledge of this area using Irish firm-level data, we turn to Eastern Europe in an attempt to understand the effect of the crisis on firms' credit access. Having matched countries from this sample to Ireland on the basis of the evolution of key macro variables between 2005 and 2009, we show how firm-level credit access has been significantly hampered using firm-level data from the World Bank and the European Bank for Reconstruction and Development. The results present a worrying picture, with the percentage of firms suffering from adverse credit conditions increasing significantly in Latvia and Estonia, the two countries with the most similar macro pattern to Ireland over the period of interest. We show using matching techniques that a firm in 2009 is 15% more likely to be credit constrained than a near-identical firm in 2005. We provide suggestive evidence that this is a result of credit rationing rather than an improvement in prudential lending practices in the banking sector.

1 Introduction

Small and Medium sized Enterprises' (SMEs') access to credit will play an important role in Ireland's economic recovery. The degree to which firms can access external financing has been shown to have an influence on the investment activity of the firm¹ and the ability of the firm to trade internationally.² These activities will both be of key importance to the "export-led recovery" which is a key national policy prerogative.

In the absence of regularly collected firm-level

data on this issue in Ireland, we attempt to offer some understanding of the changing fate of SMEs between the recent periods of boom and recession by turning to the Business Environment and Economic Performance Survey (BEEPS) firm-level data from the World Bank and the European Bank for Reconstruction and Development (EBRD). This data is collected in 2005 and 2009 for a stratified sample of firms in 28 Eastern European countries. The key advantage to this data is that direct objective and subjective information is available on firms' access to credit, combined with

⁰The views expressed in this paper are those of the author and do not necessarily reflect those of the Central Bank of Ireland or the ESCB. I would like to thank Trevor Fitzpatrick, Martina Lawless, Maurice McGuire, Eoin McGuirk and Kieran McQuinn for comments on an earlier draft. Any remaining errors are the responsibility of the author.

¹Carbo-Valverde et al. (2008) show that credit constrained firms in the US must rely on trade credit rather than bank lending to finance investment.

²Manova (2010) theoretically models poor financing environments as affecting firms' entry into export markets and their volume exported. Bas and Berthou (2011) show that in India financing constraints lead to lower capital goods imports.

typical firm-level measures relating to turnover, employment, investment, international activity and more.

Our methodology involves first examining a number of macro level variables of interest such as GDP per capita, the ratio of private sector credit to GDP and the ratio of bank loans to bank deposits, to identify the Eastern European countries which have undergone a similar “boom to bust” pattern to Ireland over the 2005 to 2009 period. Once the countries are identified, we then present a simple descriptive exposition of the extent to which credit access to firms has been hampered in these countries since the 2007/08 financial crisis.

The countries found to be of most relevance in this regard are Latvia and Estonia, which are the only two countries to undergo large (double digit) falls in output per capita in the 2007-2009 period. They are also the countries that had the most inflated financial sectors (apart from Ireland) in the sample in 2007. This leads us to identify them as countries with very similar boom-to-bust characteristics, in that GDP per capita had been growing rapidly, but had been coupled with rapid (over)-development of the banking sector. We also include Hungary and the Czech Republic as the next most similar countries, although these countries did not undergo anything like the severe correction of Ireland, Estonia and Latvia. Figure 1 shows the trend in GDP per capita from 1995 to 2009 for Estonia, Latvia and Ireland, while Figure 2 shows the trend in growth of GDP per capita. From both figures the similarity in the prolonged boom period followed by a 2007/08 contraction is clear to the reader. We must of course accept that this analysis comes with important caveats: as Figure 1 shows, Ireland’s GDP per capita is far higher than that of the countries studied here, while the share of foreign capital in banking sectors of these

countries is far higher than Ireland’s. These and other differences mean that despite similar macro-level patterns, a direct extrapolation to the Irish SME case should not be made using the results presented in this paper.

We focus on SMEs as these are the firms that are most likely to rely on external finance to fund investments and survive through downturns in the business cycle. We define an SME as a firm with less than 250 employees. In the cases analysed in this note, SMEs represent upwards of 80 and sometimes 90 per cent of the firms sampled in each country. The focus on SMEs also relates to numerous policy prescriptions in Ireland which recommend that the development of a thriving indigenous exporting sector is vital to the rebalancing and future stability of the Irish economy. Accounting for 96% of firms are 58% of employment in manufacturing³, SMEs represent a significant component in the Irish economy.

The results of this paper tell us that in the countries most similar to Ireland, firms’ self-reported measures of access to credit have all deteriorated, some quite dramatically. The proportion of firms that have been rejected when applying for a loan, the proportion of firms identifying access to finance as a major or severe obstacle to doing business, and the proportion of credit constrained firms⁴ have all increased in Latvia and Estonia between 2005 and 2009, the two years for which we have the relevant data. Using matching techniques, we show that a firm in 2009 is 15 percent more likely to be credit constrained than a near-identical firm in 2005. Using a difference-in-difference estimator and examining constraint rates across the productivity distribution, we also conclude that this increase is more likely the result of credit rationing rather than an improvement in bank lending standards.

³Figures from the CSO’s Census of Industrial Production

⁴Defined as those who were rejected for a loan or those who did not apply for a loan for reasons other than good financial health.

Figure 1: Patterns of GDP Per Capita 1995-2009

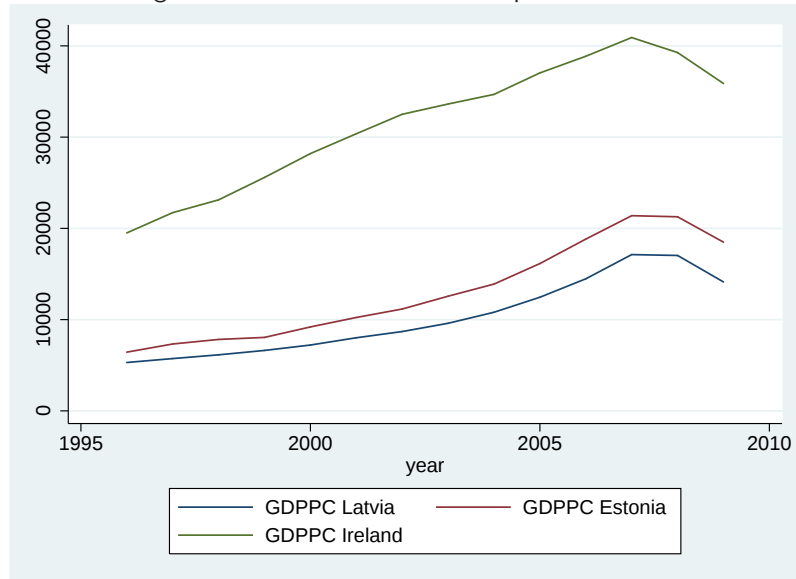
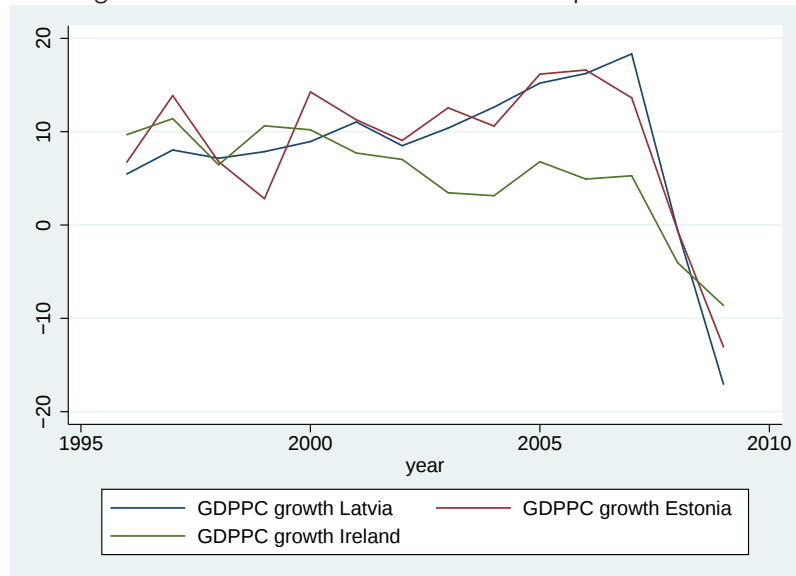


Figure 2: Patterns of Growth in GDP Per Capita 1995-2009



2 What we know in Ireland

The reason this research attempts to benchmark Eastern European countries to give an indication of what may be occurring in Ireland is that firm-level data on the issue is limited in scope. At the aggregate level, the Central Bank (2010) data show that the total stock of SME lending in Ireland fell by 5.1% between Q1 and Q3 of 2010, indicating that repayments are being made more quickly than new loans are being drawn down. The report also points out that the decline in SME lending has been proportionally greater than the underlying decline in total business lending over the period, suggesting that SMEs are being denied funding, albeit without any micro evidence of how justifiable the credit withholding has been.

From a number of different data sources, we can arrive at a picture of how credit conditions have changed since the end of the Celtic Tiger era. Brown et al. (2010), using the same data source as this current note, show that in 2005 only 2% of Irish firms⁵ were rejected for a loan, and only 2% were discouraged from applying for a loan due to adverse credit conditions. This compares with 28% and 12% discouragement rates, and 8% and 5% rejection rates in Eastern and Western Europe respectively. Thus it does seem that in the boom period in Ireland, credit conditions were extremely favourable, even compared to neighbouring countries.

Information contained in the Mazars series of reports⁶ is informative of the current SME credit situation in Ireland. These reports have estimated that in Q4 2009 the approval rate on Irish SME loan applications was 84%, falling from 87% in Q4 2008. The value of loan applications has also fallen over the same period by 35%, with the number of applications for loans and overdrafts also falling from Q4 2008 to Q4 2009 by 18.3%. While this information is certainly indicative, we feel that when attempting to map out the pattern of credit demand, it is important to acknowledge that firms not applying for credit are not necessarily all in good financial health. Firms may decide not to make applications because the proposed rates are too punitive, or they feel the probability of rejection is too high (as Mazars (2010) acknowledge, their data cannot track informal inquiries that do

not result in an application for credit). If this is the case, a decrease in the number of credit applications is not synonymous with a fall in credit demand, nor is the rejection rate a correct barometer for credit supply. Furthermore, the Mazars series of reports covers a relatively short time frame (2008-09). The longer time horizon of the BEEPS data set allows a comparison of credit conditions between a boom-time and a recessionary year, thus offering a timely indication of the effect of the recession on credit access.

At the firm level, the CSO has recently released the results of its Access to Finance survey, which surveyed 3,000 firms⁷ in the real economy in 2010, asking about financing conditions in 2010 and 2007. The survey reports a fall in the loan approval rate among the firms surveyed from 90 to 50 percent, pointing to a marked deterioration in access to credit among these firms since the onset of the crisis, despite the caveat that a significant share of firms "not approved" were in fact approved for an amount smaller than the total credit desired. The survey also reports that 45 percent of respondents believe the cost of obtaining finance has gotten higher, 48 percent believe the burden of obtaining finance has gotten worse, and 61 percent believe that banks have become more unwilling to provide finance. A clear picture of an increasing share of firms being denied credit in Ireland since 2007 emerges from the CSO survey. This survey has added hugely to our knowledge of a previously under-studied topic in Ireland. Our understanding of the issue will be improved further as microeconomic analysis linking this information to firm-level characteristics becomes available.

At the European Level, the ECB has carried out the SAFE survey over the 4 six-month periods from start 2009 to end 2010. This survey has published results for Germany, France, Italy, Spain and "Rest of Europe", which includes Ireland. The sample size for Ireland hovers around 100 for the first three periods, increasing to 500 in the second half of 2010. The representativeness of the sample is only guaranteed at the overall "Rest of Europe" level, meaning that conclusions are difficult to draw from the Irish data.

⁵A version of the survey was carried out in 2005 only for a number of Western European economies.

⁶See Mazars (2009a), Mazars (2009b), Mazars (2010).

⁷With a smaller effective sample.

3 Choosing subject countries

We match countries to Ireland along four variables which are most relevant when thinking about the collapse of economic activity in Ireland and its effect on the banking sector: GDP per capita, absolute private sector credit in the economy, the ratio of private sector credit to GDP and the ratio of bank loans to bank deposits. We look at countries' growth in these variables from 2002 to 2007 (the last year in which Ireland had real GDP growth), and then observe the percentage change in our variables of interest from 2007 to 2009. The countries that most closely match Ireland's pattern for these two time periods along these four variables will be the most suitable countries in which to analyse the change in credit conditions for firms from 2005, a period of huge expansion, and 2009, a year in deep recession. Table 1 shows the ratio of private sector credit to GDP (PSC:GDP) and the ratio of bank credit to bank deposits (BC:BD) in 2007, the "peak" year for Irish GDP per capita. As the table shows, in this year Irish banking had become hugely inflated, with ratios that dwarf any figures in Eastern Europe (PSC:GDP of 184% and Bank Credit to Deposit ratio of 208%). The countries that come closest to Ireland in terms of PSC:GDP are Estonia and Latvia with 84 and 82 percent ratios respectively, indicating that they were the most financially developed countries in Eastern Europe. Along with Bosnia and Herzegovina, both Estonia and Latvia are also the two countries with the closest ratios of BC:BD to Ireland, with 206 and 239 percent respectively. This measure of the over-exposure of the banking sector suggests that Latvia was even more at risk than Ireland to an economic collapse in 2007, while Estonia was at almost identical risk.

Moving on to the change in our variables of interest from the 2007 peak to 2009, Table 2 gives the figures for each country in our dataset, with Ireland also included in bold. This table tells us that, as one might expect given the exposures outlined in Table 1, Latvia and Estonia are the countries that follow most closely the Irish experience. Latvia's GDP per capita fell slightly more than Ireland's over the period, with Estonia's falling slightly less. These two countries both had similarly sluggish increases in the overall stock of private sector credit, with only Croatia experiencing similarly small increases over the period. Our other two measures unveil a set of other countries in

which the financial sector expanded at a similarly sluggish pace to Ireland. The Czech Republic and Hungary stand out as the countries that have the most similar figures to Ireland for both PSC:GDP and BC:BD.

Having analysed both the situation in 2007 and the subsequent changes from 2007 to 2009, we feel that Latvia and Estonia are the countries of most relevance to our study. Hungary and Czech Republic are included to expand the analysis, but results for these two countries will be attributed less weighting due to their economic corrections not coming close to the extreme changes experienced in Ireland, Latvia and Estonia since 2007.

4 Description of the shift in firms' credit conditions between 2005 and 2009

Having identified comparator countries, we now examine the change in SME credit conditions in the pre and post-crisis period. The data we use is the Business Environment and Economic Performance Survey (BEEPS), carried out by the World Bank and the European Bank for Reconstruction and Development in 2002, 2005 and 2009. We are interested in the latter two years as information on Estonian and Latvian firms' credit access is only available for these two years. A stratified sampling methodology gives us a representative sample across manufacturing, construction, retail and services sectors. For our credit access variable of interest, we have between 400 and 500 observations across Latvia and Estonia in each of 2005 and 2009, increasing to over 1,000 if we include the Czech Republic and Hungary.

Table 3 gives the change in the share of firms surveyed that had a loan application rejected in the previous year. The structure of the table reflects countries' similarity to Ireland, i.e. Latvia has had the most similar economic pattern between 2005 and 2009, with Estonia the second most similar etc. The table clearly shows that when we look at rejection rates, there is an unambiguous pattern: across each of our four countries of focus, the percentage of firms having had a loan application rejected has increased rather dramatically. In Latvia, only 5 percent of firms experienced a rejection in 2005, with that figure rising to 18 percent in 2009.

In Table 4 the share of firms that report that access to finance is “no or a minor obstacle”, “a moderate obstacle” or a major or severe obstacle” is outlined. On this more subjective measure of credit access, we again see that in Latvia there has been a dramatic increase in the share of firms reporting themselves in a poor credit position. The figures for Estonia and Hungary do not show any marked increase in credit-related difficulties, while a moderate increase was found for the Czech Republic. Subjective responses must of course always be treated with caution as they are heavily influenced by firms’ perceptions of their position relative to their peer group.

The literature has offered many varying ways of defining “credit constraints”. These often involve looking at ratios of debt to equity or other measures involving the debt burden of a firm. The advantage of using the BEEPS is that we can identify firms that are truly constrained in the credit market. Table 3 has already shown how the share of firms having a loan rejection has evolved over time. This however does not represent a true measure of credit constrained firms, as only firms who have made an application for credit are expected to have answered the question with either a “yes” or a “no”. The BEEPS data allows us to improve our definition of credit constrained firms by asking firms the following question:

“What was the main reason why this establishment did not apply for any line of credit or loan in fiscal year?” The firm is given a choice of answers, the first of which is “No need for a loan - firm has sufficient capital”. The range of other choices may all be described as “adverse reasons” for not applying for a loan, including complicated application procedures, unfavourable interest rates, overly strict collateral requirements, insufficient size of loan, the need for informal payments to expedite the process, or the firm believing their application would not be approved. Any firm reporting any of the above reasons must be included along with those who were rejected for a loan application in defining firms as “credit constrained”. We thus create a variable which defines firms as not credit constrained if they were not rejected for a loan in the last year, or they did not apply for a loan due to rude financial health. We believe this variable truly captures the firms’ ability to borrow. Table 5 replicates the exercise of Table 3 for the Credit Constrained variable. Again we see an almost doubling in the share of firms that are credit con-

strained when comparing 2005 with 2009 in Latvia and Estonia. The share of firms has not changed in Hungary or Czech Republic, our two countries which have experienced a less severe collapse than Ireland, Latvia or Estonia.

For each table analysing firms, we extend the analysis by removing the SME restriction to look at all firms, regardless of size. We find that in every case, upwards of 80% of firms are in fact SMEs, and changing the sample to focus on all firms leads to slightly lower estimates of the deterioration in credit conditions, indicating that SMEs are faring worse than larger firms, as one would expect.

5 Are credit-constrained firms suffering from credit rationing?

One difficulty in the above analysis is determining the extent to which these firms are being denied credit due to a disfunctional credit market (credit rationing), as opposed to an improvement in banks’ lending practices. Calomiris and Longhofer (2008), in their definition of credit rationing, state that “changes in the interest rate cannot be used to clear excess demand for loans in the market” and treat credit rationing as “a supply side phenomenon, with the lender’s supply function becoming perfectly price inelastic at some point.” This definition gives the essence of the problem facing most developed countries presently - can we, in observing a lack of credit drawn down, conclude that credit rationing is indeed the culprit?

Answering this question presents methodological challenges. Without claiming to conclusively distinguish between the two above explanations for the lack of credit granted to firms, we adopt two approaches to point towards one or the other. Beforehand, we use a propensity score matching (PSM) methodology which tells us whether a firm in 2009 is more likely than an almost identical firm in 2005 to be credit constrained.

The characteristics of firms in need of credit will inevitably influence the probability of being credit constrained. We account for this potential bias by using PSM to ascertain whether a firm that would have accessed credit in 2005 was unable to do so in 2009. We limit the sample to Estonian and Latvian SMEs in 2005 and 2009. We assign a 2009 dummy as the “treatment” variable, so that

firms in 2009 are our treatment group and firms in 2005 are our control group. We then match a treatment firm in 2009 with a control firm in 2005 along a range of relevant observables which are outlined below.

Our PSM methodology begins by running a probit regression where the dependent variable, *treat* is a dummy variable taking a 1 if the firm is reporting in 2009 and a 0 if the firm is reporting in 2005. The equation is:

$$Pr(Treat_i) = fn(FirmVars_i, \delta_{country}, \delta_{sector}) \quad (1)$$

Where the vector *FirmVars* includes sales, employment, skilled employment share, output per worker, exporter dummy, importer dummy, foreign ownership dummy, percentage of fixed assets purchases funded by internal funds and percentage of fixed assets purchases funded by owners' contributions or new issued equity. The first seven variables give a measure of the production-side performance of the firm which should adequately capture how viable an operation the firm has. The final two measures give an indication of the financial health of the firm, showing to what extent the firm can self-finance investment. $\delta_{country}$ ensures that we match an Estonian firm with an Estonian firm, and a Latvian with a Latvian, while δ_{sector} ensures that the estimator takes account of the 18 NACE2 sectors into which we can classify firms in the data.

The PSM estimator predicts a propensity score ($Pr(\hat{treat})$) for every observation, and matches a firm in the treatment group to a firm in the control group with the closest propensity score. The validity of the estimator relies on the assumption that the only unobservable difference between the matched firms is their treatment status. In our case this gives the interpretation that, if we have matched with sufficient quality, the only factor explaining whether or not a firm is credit constrained is whether it is reporting in 2009 or 2005.

Table 6 gives the results of this exercise. For ease of exposition we report only the r^2 from the first stage probit regression which estimates the propensity score, along with the means for the treatment and control group before and after the matching has been carried out. The table tells us that before matching, the dummy variable for

credit constraints had a mean of .18 among 2009 firms and .08 among control firms, with the difference being statistically significant. Once the matching has been carried out, we see that the matched control firms now have a mean of only .03, with the difference of .15 in the mean between the two groups being statistically significant at the 1 percent level.⁸ The interpretation of the results is that the average difference in the likelihood of being credit constrained between a firm in 2009 and its "twin" in 2005 is 15 percent.

With the knowledge that firms in 2009 are more likely than almost identical firms in 2005 to be credit constrained, we attempt to understand whether this trend is due to "credit rationing" by banks, or whether this in fact represents better banking practices. The evidence as presented so far could be interpreted to offer support for either of the above hypotheses, as it simply states that firms are more likely to be rejected in 2009 than identical firms in 2005.

One way to get at the relative merits of the above two arguments is to examine the performance profile of firms that were credit constrained and unconstrained in the two periods. Our working hypothesis is that in a prudent credit market, we should see a larger performance gap between unconstrained and constrained firms than we would in an exuberant credit market. The intuitive reason for this is that in an exuberant market, firms in the middle of the performance distribution are more likely to get a loan, thus meaning that on average, unconstrained firms appear less productive. In a prudent market, this same intermediate range of firms are less likely to get a loan, increasing the mean performance of unconstrained firms, thus widening the performance gap. In Table 7 we look at four proxies for firm performance: sales, employment, labour productivity and the skilled worker share of employment. If the hypothesis that banks have become more prudent holds, then we should see that the unconstrained firms will appear to perform relatively better than constrained firms in 2009 than in 2005. We run a Difference in Difference model as follows:

$$Y_i = Treat + CC + Treat*CC \quad (2)$$

where *Treat* takes a 1 in 2009 and a 0 in 2005,

⁸Propensity Score tests were carried out on the control variables. For all variables apart from the foreign ownership dummy, we reject the hypothesis that, after matching, there is a significant difference in the mean between control and treatment groups. We also run the regressions using three-nearest-neighbours and Kernel matching, with minimal change in the estimate for the Average Treatment Effect.

and CC is the credit constrained dummy. For our hypothesis to hold, we should see a negative significant sign on $Treat*CC$, indicating that credit constrained firms in 2009 are performing worse on average, controlling both for the overall difference in performance between 2009 and 2005, and the difference between constrained and unconstrained firms in general. Table 7 reports results for four versions of equation 2, with Y being sales, employment, labour productivity or skilled share per worker. Credit Constrained enters with a negative sign at all times (though significant in only one case), indicating that these firms are as expected weaker performing. Importantly for our purposes, we never see a negative significant coefficient on $Treat*CC$; rather the coefficient is positive and insignificant in each case. This tells us that there is no evidence of an improvement in lending practices leading to a healthier loan book: Credit constrained firms in 2009 do not appear to be significantly worse in their performance.

Our final attempt to identify the mechanisms driving the increased frequency of credit constrained firms is to look at the share of credit constrained firms across the productivity distribution. We take, for Latvia and Estonia only, the quintiles of the labour productivity distribution in 2005 and 2009, and examine the share of firms that are reporting being credit constrained. Table 8 shows that, apart from the anomalous second quintile, the rate of credit constrained firms is close to monotonically decreasing in labour productivity in both years, as one would expect. In terms of the share of constrained firms in 2009 relative to 2005, the largest increase is in the second quintile, which suggests that banks have become stricter on these lower productivity firms, pointing to more prudent banking practices. However, the fact that the second largest increase is in the fifth quintile, and that the appearance of credit constrained firms has increased in every quintile from 2005 to 2009, suggests that it is more likely the case that banks have simply begun to ration credit to all types of firms.

The results of Tables 7 and 8 shed some light on the mechanisms behind the results of Table 6.

Given what we have observed, we believe the fact that an identical firm is five times more likely to be credit constrained after the crisis than before the crisis is suggestive of credit rationing rather than better banking. This has important policy implications in that it suggests that viable firms may be hampered in investing and trading internationally due to this withholding which would otherwise have been available to them.

6 Conclusion

The message to take from this research is a clear and unsurprising one - since the global financial crisis has hit in 2007, SMEs in countries with a very similar experience to Ireland have been subject to significant deterioration in their credit access. A higher share of SMEs are being rejected for loans, not applying for loans because they judge it is not worthwhile to apply, and reporting that access to finance is a "major" or "severe" obstacle to their operations. What is perhaps surprising is the extent to which access to credit has been hampered. In Latvia, a quarter of SMEs surveyed by the World Bank are now credit constrained by our definition. The near-doubling in negative responses to the survey questions of interest between 2005 and 2009 indicates that the post-2007 contraction has had significant worrying consequences for SMEs, to whom countries such as Ireland are in part looking for an export-led recovery. Propensity score matching methodology allows us to compare firms in 2009 to their most similar firm (as a function of a wide range of relevant observables) in 2005. We find evidence that firms in 2009 are 15 percent more likely to be credit constrained than the most similar firm in 2005. We provide suggestive evidence that this is due to a blanket withholding of credit as opposed to an improvement in lending standards of the banking sector. Previous literature leads us to expect that such a severe credit market shock to such a large portion of SMEs is likely to have significant knock-on adverse impacts on indigenous investment, exports and growth.

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Table 1: **Country-Level Measures in 2007. (PSC = Private Sector Credit)**

iso3	PSC: GDP	Bank Credit: Deposits
ALB	0.25	0.48
ARM	0.10	1.17
AZE		1.30
BGR	0.53	1.07
BIH		2.26
BLR		1.14
CZE	0.43	0.75
EST	0.84	2.06
GEO	0.22	1.68
HRV	0.67	0.99
HUN	0.57	1.33
IRL	1.84	2.08
KAZ	0.48	1.98
KGZ	0.11	1.30
LTU	0.51	1.64
LVA	0.82	2.39
MDA	0.30	0.95
MKD	0.33	0.83
MNE		1.21
POL	0.35	0.96
ROM	0.28	1.14
RUS	0.32	1.20
SRB	0.28	0.98
SVK	0.39	0.84
SVN	0.69	1.52
TJK		
TUR	0.26	0.72
UKR		1.50
UZB		

Table 2: **Percentage Change in each variable, 2007-2009. PSC = (Private Sector Credit)**

iso3	GDPPC	PSC	PSC: GDP	Bank Credit: Deposits
ALB	14	143	113	60
ARM	-6	65	75	108
AZE	26			51
BGR	9	69	57	46
BIH	20			-2
BLR	15			20
CZE	2	34	31	25
EST	-14	21	41	35
GEO	11	119	99	37
HRV	2	19	17	-6
HUN	-2	25	27	21
IRL	-12	14	26	21
KAZ	4	92	82	55
KGZ	12	94	68	106
LTU	-7	37	48	30
LVA	-18	8	32	32
MDA	7	70	59	25
MKD	7	69	58	12
MNE	-1			93
POL	12	53	37	36
ROM	5	82	74	47
RUS	-1	50	53	11
SRB	7	33	25	-9
SVK	5	28	23	25
SVN	-1	34	36	59
TJK	12			
TUR	-2	38	38	19
UKR	-8			34
UZB	19			

Table 3: **In the last year, were you rejected for a loan application?**

Country	Year	No (%)	Yes(%)	N
Latvia	2005	95	5	184
	2009	79	21	87
Estonia	2005	97	3	198
	2009	88	12	107
Hungary	2005	99	1	558
	2009	93	7	75
Czech Rep.	2005	96	4	314
	2009	86	14	88

Table 4: **How much of an obstacle is access to finance? 0=No or minor obstacle; 1=Moderate obstacle; 2=Major or severe obstacle**

Country	Year	0	1	2	N
Latvia	2005	76	20	4	173
	2009	50	25	25	228
Estonia	2005	77	17	6	185
	2009	80	14	7	235
Hungary	2005	47	27	26	534
	2009	78	11	11	235
Czech Rep.	2005	44	37	19	308
	2009	42	33	25	217

Table 5: **1=Credit Constrained; 0=Not. A firm is not credit constrained if it was not rejected for a loan, or if it did not apply for a loan due to good financial health.**

Country	Year	0 (%)	1(%)	N
Latvia	2005	86	14	184
	2009	75	25	216
Estonia	2005	94	6	198
	2009	89	11	232
Hungary	2005	92	8	558
	2009	90	10	242
Czech Rep.	2005	83	17	314
	2009	84	16	210

Table 6: **Propensity Score Matching results**

Treatment: 2009 firms; Control: 2005 firms					
Outcome variable: Credit Constraint Dummy					
	Treated	Control	Difference	SE	t
Unmatched	.18	.0807	.0993***	.0375	2.64
ATT	.18	.0300	.1500***	.0484	3.10
N	100	223			
R^2 from 1st stage probit: 0.2038					
Method: Nearest Neighbour matching with one neighbour					

Table 7: **Difference in Difference results**

Dependent Var.	(1) Sales	(2) Employment	(3) Lab. Prod.	(4) Skilled/Employment
<i>Treat</i> (2009 Dummy)	1.151*** (8.02)	10.99 (0.36)	0.438*** (5.78)	0.100** (3.17)
Credit Constrained	-1.305*** (-3.68)	-110.5 (-1.50)	-0.206 (-1.10)	-0.0258 (-0.49)
<i>Treat*CC</i>	0.565 (1.32)	29.18 (0.32)	0.105 (0.46)	0.0401 (0.49)
Constant	13.59*** (128.82)	125.3*** (5.69)	10.57*** (189.81)	0.436*** (27.65)
N	850	927	850	576
r ²	0.101	0.00512	0.0454	0.0232

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 8: **Credit Constrained firms' share of all firms in LVA and EST by Quintile of Labour Productivity, 2005 and 2009**

Quintile	% Credit Constrained	
	2005	2009
1	15	21
2	4	19
3	14	20
4	8	12
5	4	11