Bank competition through the credit cycle: implications for SME financing.
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Abstract

In this letter a series of stylized facts are presented on competition in Irish private sector lending markets across periods of both significant economic expansion and decline. Firstly, concentration of lending to the private sector is shown to have fallen during the boom period of 2004-2008, and to have steadily risen since the onset of the crisis. Secondly, we document that the lending market for Small and Medium Enterprises (SMEs) is significantly more concentrated than that for the private sector in total. Thirdly, we observe a degree of heterogeneity in the concentration of lending to different sectors of economic activity. Fourthly, concentration of new lending flows to SMEs in 2010 and 2011 is shown to be significantly higher than concentration of the stock of credit across all sectors, suggesting that the trend is towards even higher concentration in the SME market. Finally, it is apparent that the share of foreign banks in private sector credit stock reached its peak just as the crisis began, and has been falling since, indicating that in times of crisis foreign market participants react by more aggressively reducing exposure than domestic banks. The likely effect on Irish firms’ access to finance is discussed by placing these findings in the context of the literature on the link between banking competition and credit conditions. Our results suggest that firms, and particularly SMEs, will experience increasingly difficult credit conditions as a result of increased concentration in the lending market. In this light, policy measures aimed at alleviating credit constraints are of particular importance.

Keywords: Competition, Herfindahl Index, Private Sector Credit, SMEs, Foreign Banks, Access to Finance, Financial Stability.

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1 Introduction

This paper assesses competition in lending to firms in the Irish private sector using detailed bank-level lending data on the universe of lending institutions in the market. The findings are discussed in the context of a large international literature on the effects of lending concentration and competition on firms’ access to finance. We conclude that, in isolation, the increase in market concentration that is currently taking place in Ireland is most likely to lead to more difficult credit conditions for Small and Medium Enterprises (SMEs). This further stresses the need for a range of policy measures to ease access to credit.

Our research has five key findings. Firstly, concentration of lending to the private sector fell during the boom period of 2004-2008, and rose steadily since the onset of the crisis. Secondly, lending to SMEs is significantly more concentrated than lending to the private sector in total. This suggests that the lending market for smaller firms, about whom information is less easily attained (“informationally opaque”), presents larger barriers to entry which protect incumbent lenders. Thirdly, we find a degree of heterogeneity in the concentration of lending to different sectors of economic activity. Fourthly, concentration of new lending flows to SMEs in 2010 and 2011 is shown to be significantly higher than concentration of the stock of SME credit across all sectors. This suggests that the trend is towards even higher concentration in the market. Finally, foreign banks’ share of private sector credit stock peaked just as the crisis began, and has been falling since, indicating that in times of crisis foreign market participants react by more aggressively reducing exposure than domestic banks.

There are two competing hypotheses as to the likely effect of a more concentrated lending market on access to finance for firms. The Market Power Hypothesis (MPH) predicts that the traditional Industrial Organization result should hold - a more concentrated market means more market power for the largest banks, which leads to higher prices, tougher conditions and less lending. The Information Hypothesis (IH), however, suggests that relationship lending, under which investments in information are required on the part of the lender, reverses the direction of the predicted effect. Under this hypothesis, a more competitive market will lead to less lending or tighter credit conditions, as banks will not have the incentive to make investments in information and their relationships, particularly with small borrowers.

The paper proceeds as follows: Section 2 provides analysis of trends in concentration of the Irish private sector and SME lending markets; Section 3 highlights lessons from the literature that can provide policy conclusions for Ireland; Section 4 concludes.

2 Credit Concentration: Data and Analysis

We use the Central Bank of Ireland’s Money and Banking Statistics. These data are available at the lender-sector-quarter level, with the sectors to which each institution lends mapping into the NACE classification of sectors of activity. A number of statistics are available at this disaggregation: the outstanding stock of credit to all private sector firms from 2000 to Q3 2011; the outstanding stock of credit to SMEs from Q4 2010 to Q3 2011; and the volume of new lending flows to SMEs from Q4 2010 to Q3 2011. “Gross new lending” is defined as any transaction in which the borrower’s amount outstanding increases. It does not include the reclassification or restructuring of existing facilities, but can include the recapitalization of interest.

Due to the nature of the data available, we focus our attention on the Herfindahl-Hirschman Index (HHI) of competition, which is a measure based solely on the concentration of lending markets. While the literature has found that a more concentrated market need not necessarily be less competitive, more direct measures of competition such as the Lerner Index or the H statistic require detailed information of the cost base of each lender, which are unavailable at this level of disaggregation. Furthermore, such measures of competition cannot be separated out sector-by-sector, or for banks’ lending to SMEs as opposed to all firms, meaning that the HHI is the only measure of competition which is appropriate given the data at hand. We calculate a HHI initially for each quarter and then for each sector-quarter, both for lending to all firms, and for lending to SMEs only. These are calculated as the sum of the square of the market share of each market participant. A higher share represents a more concentrated, or less competitive lending market. We also calculate at the same frequency and disaggregation the share of
domestic banks in total lending.

**2.1 Concentration in private sector lending**

Figure 1 plots the HHI for all private sector (non-financial) lending, and for lending to all “core” (non-property-related, non-financial) sectors. For core sectors, the Irish banking system became steadily less concentrated from 2004 to 2008 (generally considered to be the high-point of the credit boom), resulting in a noticeable decline in the HHI. From mid-2008, however, a clear turning point emerges in the series, with concentration increasing ever since. This presents a clear pattern of either increased entry or increased expansion by small market participants during a boom period, followed by a contraction in competitive forces once economic conditions began to deteriorate.

The minimum value that the HHI reached in 2008 was .15, with the value for Q3 2011 standing at .19. To get a sense for whether or not a HHI of .19 represents a concentrated lending market, Table 1 reports HHIs calculated in previous studies. McCann et al. (2012) find that across 26 European countries between 2000 and 2009, 85 per cent of the country-year observations have a HHI below .2. These numbers and those of Table 1 suggest that concentration in the Irish private sector lending market is heading towards the upper end of international norms for developed countries.

Data on lending to Small and Medium Enterprises has been required by the Central Bank of Ireland since 2010. Figure 2 plots the HHI for the stock of private sector and SME credit on identical scales for Q4 2010 to Q3 2011. The figure shows a clear difference, with the SME lending market having a HHI for non-property lending ranging between .25 and .27 over the sample period, significantly larger than any figure observed for lending to all firms in the private sector. Numerous studies have previously shown that smaller firms have more difficulty in accessing finance. The higher concentration level found in the lending market to smaller firms is a potential channel through which this difficulty may arise.

While Figure 2 outlined the difference in the HHI of outstanding credit stocks between private sector and SME lending, Figure 3 plots the HHI for new lending flows to SMEs, which gives an indication of the likely path for concentration in the market. These data are likely to be more volatile than concentration measures for credit stocks, given the difficulties experienced in the Irish financial sector and the low volume of new lending in a given quarter in 2010-11. Therefore an average of the available data is plotted here. The figure shows that the HHI in new lending is consistently higher than the HHI for outstanding stock. This indicates that the Irish SME lending market is becoming more concentrated.

Figures 4 and 5 exploit the sectoral dimension of the lending data. Figure 4 reports the concentration of outstanding credit stock of each sector of economic activity in 2004 and 2008. The picture shows a heterogeneity in concentration of lending across sectors, and a pattern of increasing competition over the credit boom. The only exception to this pattern is the construction sector, which had a HHI of .19 in 2004 and .26 in 2008. The general trend presented confirms the earlier finding that the period of economic and credit boom in Ireland was associated with an increase in competition in the lending market. Figure 5 presents an average HHI for each sector in 2010-11, comparing the HHI for lending to all firms on the left with the HHI for lending to SMEs on the right. We observe higher concentration in the lending market for smaller firms in the majority of sectors. As mentioned previously, this higher concentration may be driven by the opaque nature of smaller firms which increases barriers to new entrants, but may also, in and of itself, contribute to credit constraints for smaller firms.

On new lending flows to SMEs, Figure 6 goes beyond the national numbers presented in Figure 3 and sheds light on the likely path for concentration of sectoral SME lending markets. With three sectors presenting HHIs above .4, and all sectors reporting a HHI greater than .25, it appears that the market for newly issued credit to SMEs in Ireland is particularly concentrated. The conclusion is that lending will become more concentrated in the short run in the majority of sectors in the economy, with knock-on effects for credit conditions and constraints.

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1. See, for example, Holton et al. (2012), Beck et al. (2006).
2. Central Bank Money and Banking Statistics show that new lending to SMEs averaged roughly €500m per quarter in 2011.
2.2 Bank Nationality

The share of lending accounted for by foreign and domestic banks is outlined in this section. As in the previous section, we begin with the longest time series available to us, plotting the quarterly share of private sector lending stock accounted for by the domestically-owned and foreign-owned banks. Table 2 reports the banks that are defined as domestic or foreign. Ulster Bank, although present in the Irish market for over a century, is considered a foreign bank for the purposes of this analysis.

Figure 7 reports the share of domestic banks in private sector lending, with the red line representing lending to core sectors. Consistent with analysis of the HHI, a clear pattern emerges whereby during the boom period of 2004 to 2008, the market penetration of foreign banks increased significantly. This is consistent with a situation where attractive potential returns in a booming economy attract new entrants to the lending market. The post-2008 crisis has had an identical effect on foreign bank penetration to that on competition in the market, with a steady increase in the domestic share of lending from a low of 54 per cent at the end of 2009 to 64 per cent in 2011 Q3. This pattern matches the findings of Presbitero et al. (2012) who show that more distant banks in Italy are more likely to ration credit since the onset of the crisis. Again, this is likely to have detrimental effects on credit conditions in the local economy.

Figure 8 shows a degree of heterogeneity in foreign bank penetration across sectors of activity. The domestic share of lending fell in the majority of sectors between 2004 and 2008, although there are notable anomalies such as the construction sector, where domestic banks' share of lending increased from 59 to 72 per cent over the boom period.

Figure 9 shows that, in the SME lending market, the domestic share in both new lending and the stock of credit are very similar at 65 and 66 per cent, indicating the the outlook is that the domestic share will remain steady. In the SME market, there are sectors such as Transport & Storage, Construction and Business & Administrative Services which are dominated by local banks, but in most sectors where the share lies around 60 per cent, a significant market share will continue to be accounted for by foreign lenders.

3 Lessons for Ireland from the literature

Figures for SME new lending suggest that the SME lending market, which is already highly concentrated by international standards, is likely to become even more concentrated. Foreign bank penetration also appears likely to decline further. The international academic literature provides numerous lessons for the likely effect of this on access to finance in the Irish real economy.

The conflicting predictions of the Market Power Hypothesis (MPH) and Information Hypothesis (IH) have been tested on numerous occasions, with a wide range of papers offering ambiguous results. The direction of the effect can depend on the sample of countries used, the additional control variables included, and the proxy used for competition in the banking sector. Some papers have reconciled the two views, such as de Guevara and Maudos (2009) and Patti and Dell’Ariccia (2004) who explain that the relationship has an inverted U-shape, i.e. at very high levels of concentration, the MPH holds, but below these levels the IH holds. Carbo-Valverde et al. (2009), on the other hand, explain the ambiguity by relating concentration and competition to measures of market contestability and information attainment. If a market is concentrated and also is not vigorously contested, then the MPH is shown to hold.

A separate but related literature on the effect of foreign bank penetration on credit conditions exists. A number of studies, generally using data for emerging market countries, have found beneficial effects of foreign bank penetration on access to finance. A more recent literature, however has found that during the crisis period, foreign bank penetration may pose additional risks to local firms, in that these banks, with less information on the local market, generally retrench at a

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4Examples include Giannetti and Ongena (forthcoming), Clarke et al. (2001), Beck et al. (2004).

5Peek and Rosengren (1997), Presbitero et al. (2012), Popov and Udell (forthcoming), Degryse et al. (2009), de Haas and van Horen (2011) all produce findings in this vein.
faster pace than local banks.\footnote{5}

This literature has a number of implications for the trends presented here for Ireland. The key message of de Guevara and Maudos (2009) is that the MPH holds at the highest levels of concentration, but not at lower levels. As outlined earlier, it appears that concentration in Ireland is approaching the highest range of HHIs seen in Europe in recent decades. The key lesson of Carbo-Valverde et al. (2009) is that concentration will lead to tougher credit conditions where there is not a high degree of contestability or investment in information on the part of lenders. Evidence from Goggin et al. (2012) suggests that in the Irish mortgage market, increased concentration has not been accompanied by vigorous competitive behaviour since 2008. Furthermore, new lending figures reported by the Central Bank of Ireland have been low in 2010/11, interest rates on small loans have been rising, and Lawless and McCann (2011) have shown that credit conditions in Ireland are among the most difficult in the euro area currently. All of these facts suggest that, in terms of the results of Carbo-Valverde et al. (2009), Ireland appears to be in a position where increased concentration is likely to exacerbate, as opposed to ease, SME credit constraints.

Beck et al. (2004) suggest that an efficient credit registry and foreign bank penetration can mitigate the effects of bank concentration on obstacles to finance. The fact that a credit register does not exist (although it is planned to begin operating in 2013), combined with a trend towards foreign banks’ lending shares falling in Ireland in recent years, suggests that these mitigating factors are unlikely to be in place to reverse the predicted effects of the MPH in Ireland in the coming years.

4 Conclusion

This paper presents descriptive statistics on competition in lending to firms in the Irish private sector using detailed bank-level lending data. The aim of the paper is to present a picture of competition levels in the market and to draw implications for Irish firms’ credit access. From a policy perspective our key findings are as follows: the lending market for all enterprises has become more concentrated since the onset of the 2008 crisis; the lending market for SMEs is significantly more concentrated, and the trend is towards even higher concentration; foreign bank penetration has diminished in Ireland since the crisis. Having distilled the lessons from the literature on the likely effect of increased concentration and lower foreign bank penetration in the Irish SME lending market, it appears most likely that the predictions of the Market Power Hypothesis will prevail, leading to tougher conditions for SMEs seeking to access finance. Policy measures such as a loan guarantee scheme, microfinance fund and credit register should help to mitigate these adverse effects somewhat, but it is clear from the analysis presented here that challenges will remain in the medium term.

References


Tables and Figures
Table 1: Herfindahl-Hirschman Indices found in previous studies.

<table>
<thead>
<tr>
<th>HHI</th>
<th>Source</th>
<th>Time Period</th>
<th>Country Studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>.07-.12</td>
<td>Carbo-Valverde et al. (2009)</td>
<td>1994-2002</td>
<td>Spain</td>
</tr>
<tr>
<td>.22</td>
<td>Chong et al. (2011)</td>
<td>2006</td>
<td>China</td>
</tr>
<tr>
<td>.18</td>
<td>Patti and Dell’Ariccia (2004)</td>
<td>1996-1999</td>
<td>Italy</td>
</tr>
<tr>
<td>.11</td>
<td>Agostino and Trivieri (2010)</td>
<td>1998-2003</td>
<td>Italy</td>
</tr>
</tbody>
</table>

Table 2: Banks classified as domestic and foreign. Only banks which have more than 50 sector-quarter observations are reported.

<table>
<thead>
<tr>
<th>Domestic</th>
<th>Foreign</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIB</td>
<td>Barclays DZ-BANK IRELAND PLC KBC</td>
</tr>
<tr>
<td>BOI</td>
<td>BNP FCE BANK PLC (DUBLIN) RABO</td>
</tr>
<tr>
<td>EBS</td>
<td>BOA Helaba RBS</td>
</tr>
<tr>
<td>IBRC</td>
<td>BOS HSBC SCOTIABANK (IRELAND)</td>
</tr>
<tr>
<td>ILP</td>
<td>CITI Hypo Ulster Bank</td>
</tr>
<tr>
<td>INBS</td>
<td>Commerzbank ING UNICREDIT BANK</td>
</tr>
<tr>
<td>NIB</td>
<td>Depfa Intesa WestLB AG</td>
</tr>
<tr>
<td>TSB BANK</td>
<td>DEXIA JPMorgan</td>
</tr>
</tbody>
</table>

Figure 1: Concentration of Lending to Private Enterprise, Outstanding Stock
Figure 2: Concentration of Lending to SME and Private Enterprise, Outstanding Stock

(a) Private Enterprises

(b) SME

Source: Central Bank of Ireland (2011)

Figure 3: Concentration of Lending to SME, 2010q4-2011q3 Average

Source: Central Bank of Ireland (2011)
Figure 4: Concentration of Lending to Private Enterprise by Sector, 2004 & 2008 Average

(a) 2004

(b) 2008

Source: Central Bank of Ireland (2011)

Figure 5: Concentration of Lending to Private Enterprise and SME by Sector, 2010q4-2011q3 Average

(a) Private Enterprise

(b) SME

Source: Central Bank of Ireland (2011)
Figure 6: Concentration of New Lending to SME by Sector, 2010q4-2011q3 Total

Source: Central Bank of Ireland (2011)

Figure 7: Domestic Share of Lending to Private Enterprise, 2000-2011

Source: Central Bank of Ireland (2011)
Figure 8: Domestic Share of Lending to Private Enterprise, 2004 & 2008 Average

(a) 2004

(b) 2008

Source: Central Bank of Ireland (2011)

Figure 9: Domestic Share of SME Stock and New Lending, 2010q4-2011q3 Average

Source: Central Bank of Ireland (2011)