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## Does bank market power affect SME financing constraints?

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## ABSTRACT

This paper examines the extent to which bank market power alleviates or magnifies SME credit constraints using a large panel dataset of more than 118,000 SMEs across 20 European countries over the period 2005–2008. To our knowledge, this is the first study to examine bank market power and SME credit constraints in an international, developed economy setting. Moreover, our study is the first to address a number of econometric considerations simultaneously, in particular by controlling for the availability of profitable investment opportunities using a structural Q model of investment. Our results strongly support the market power hypothesis, namely, that increased market power results in increased financing constraints for SMEs. Additionally, we find that the relationship exhibits heterogeneity across firm size and opacity in a manner that suggests that the true relationship between bank market power and financing constraints might not be fully explained by the existing theory. Finally, we find that the effect of bank market power on financing constraints increases in financial systems that are more bank dependent.

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## 1. Introduction

This paper investigates the impact of bank market power on investment financing constraints experienced by small and medium sized enterprises (SMEs). Using a large sample of approximately 118,000 SMEs across 20 European countries over the period 2005–2008, we provide evidence on (i) the extent to which SMEs are constrained by limited access to external finance—as measured by their reliance on internal funds for investment financing, (ii) whether the severity of those constraints is related to the level of bank market power in their domestic lending market, (iii) whether this relationship is heterogeneous across firm size categories and opacity, and (iv) whether the effect of bank market power on financing constraints differs depending on the structure of the financial system.

The theoretical literature on the relationship between bank market power and firm financing constraints proposes two competing mechanisms through which limited competition between banks may impact positively or negatively on firm access to debt financing. The traditional industrial organisation prediction—the *market power hypothesis*—argues that increased market power re-

sults in restricted loan supply and higher lending rates, thereby intensifying financing constraints.<sup>1</sup>

In contrast, the *information hypothesis* (Petersen and Rajan, 1995) argues that market power enables banks to forgo any interest rate premiums they might otherwise have to charge when lending to firms that are relatively opaque or risky—i.e. young, small and/or distressed firms—and, in return, establish a lending relationship that will allow them to extract informational rents in subsequent periods. Conversely, banks operating in a competitive market must break even in each period and thus must hold risk-adjusted returns constant by charging higher interest rates on lending where the borrower's returns exhibit greater uncertainty. Moreover, in the presence of competition, banks cannot capitalise on this informational advantage and so the incentive to build these relationships would be negated. Market power is therefore predicted to result in greater investment in banking relationships, reduced information asymmetries and agency costs, and thus improved access to debt finance by potential borrowers.

Given that these theoretical channels produce contrasting predictions about the direction of the effect of bank market power

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on firms' access to finance, most recent work has focused on resolving this question empirically.

A 'first wave' of empirical research into this question generally adhered to the structure-conduct-performance (SCP) paradigm, which posits that formal measures of market structure are strong predictors of firms' competitive behaviour. Many such studies relied on concentration measures such as the five-firm concentration ratio CR (5) or the Herfindahl index (HHI). Employing bank concentration measures as a proxy for bank market power, Petersen and Rajan (1995) find that increased concentration is associated with greater access to finance for a cross-section of US firms spread across local banking markets. Fischer (2000) also finds that higher bank concentration is associated with improved information flows and better credit access for a cross-section of German manufacturing firms. In contrast, Beck et al. (2004) find the opposite result for a survey of firms in 74 countries, but only where the level of economic development is low. This finding is corroborated by Chong et al. (2012) for a survey of Chinese SMEs.<sup>2</sup>

Increasingly, however, empirical research into bank market power has moved away from using "structural" concentration measures for a number of reasons. First, banking sectors are often observed to be simultaneously concentrated and competitive (or diluted and uncompetitive) and so concentration may be considered a poor proxy for underlying market power. Moreover, a more serious issue is that market structure and concentration may proxy for a whole range of conduct-determining bank and market characteristics, including average bank size, bank complexity in terms of product variety and activities, the ease of information flow within the market and the overall size of the market itself, for instance. As such, the aforementioned studies may fail to cleanly identify a competitive effect; indeed, this limitation may have contributed to the mixed results produced thus far.

An emerging 'second wave' of research focuses on more direct measures of the extent to which we observe the exercise of market power by banks—including the Lerner index (markup of price over marginal cost) in particular—and the results have been more consistent. Carbo et al. (2009) find that, when using regional bank Lerner indices to measure market power, greater bank market power is associated with greater credit constraints for a sample of Spanish SMEs, supporting the market power hypothesis. Furthermore, they find the same result when using HHI as a measure of market power, but only when the HHI is adjusted to control for oft-omitted confounding factors, demand elasticity in particular.<sup>3</sup>

Love and Peria (2012) also find that bank market power reduces access to finance for a repeated cross-section of firms across 53 primarily developing countries. However, they find this effect to be dependent on the wider economic and financial environment in which the firms operate. In particular, they find that higher levels of financial development and greater availability of credit information reduce this adverse effect, while high levels of government ownership of bank assets are associated with a stronger negative impact of bank market power.

Using a cross-country panel of European firms, we estimate the impact of bank market power on firm credit constraints in a way that addresses a number of issues that have not yet been overcome in the extant literature. These issues and our solutions are as follows:

First, the identification of financial constraints by Carbo et al. (2009) depends on two measures, namely (i) firms' dependence

on trade credit as a source of finance and (ii) sales growth. The former measure may be best interpreted as a proxy for the constraints faced by firms in raising short-term liquidity for operational purposes, but not necessarily in raising debt finance for capital investment. The determinants of short-term and long-term financing constraints may, in fact, be very different. The latter measure—sales growth—may not allow for clear conclusions to be drawn regarding the welfare implications of a significant bank market power effect, given that increased turnover may be offset by commensurately higher costs.

We employ a well-established identification strategy by examining the sensitivity of firm-level investment to changes in the availability of internal funds, an approach first established by Fazzari et al. (1988) and since employed widely in the financing constraints literature.<sup>4</sup> Importantly, we identify the key criticisms of our approach and provide argument supporting the robustness of our findings to these critiques.

Second, no research has, to our knowledge, examined the relationship between direct measures of banks' competitive behaviour and SME investment while controlling for the availability of investment opportunities. The presence of profitable investment opportunities to a given firm is a vital determinant of its investment behaviour and is highly likely to be correlated with many of the explanatory variables, especially as firms with profitable avenues for future expansion are likely to already enjoy profitable operations, positive cashflows and, therefore, a relative abundance of internal funds. We robustly control for investment fundamentals by estimating a 'Q' structural model of investment.

Third, our sample is the first cross-country sample to examine bank market power and SME investment (as opposed to investment by large, listed firms) in a primarily developed-country setting. This will allow us to exploit richer variation in bank market power than is likely to arise using an interregional sample as in Carbo et al. (2009), while also testing the extent to which the results from Love and Peria (2012) can be generalised beyond a largely developing country setting.

Fourth, the panel dimension allows us to build on the repeated cross-sectional work of Love and Peria (2012) by allowing us to control for potentially important firm-level heterogeneity.

Finally, in constructing our Lerner indices, we focus only on banking institutions for which corporate or commercial lending is actually observed in order to isolate actual market power within this sub-sector of the wider credit market, which improves on existing estimation.

We find that firms' investment is sensitive to the availability of internal funds and interpret this as being indicative of a wedge between the cost of internal and external financing. Furthermore, we find that bank market power is associated with lower levels of SME investment and, moreover, that this adverse impact of bank market power on investment is driven by the effect of market power on financing constraints. In fact, much of the variation in cash-investment sensitivity is captured by the bank market power effect.

We separately estimate our empirical model to test for heterogeneous effects of bank market power on financing constraints across different categories of firm size. We find that the adverse effect of bank market power on financing constraints is reduced for the subset of smallest firms—defined as "micro" enterprises—and argue that this is evidence of an information hypothesis-type effect that dampens, but is ultimately outweighed by, the direct market power effect.

Finally, we test whether the effect of bank market power on financing constraints differs dependent on whether the financial structure of a country is more bank-based or market-based. To

<sup>2</sup> Finally, Ratti et al. (2008) finds evidence in support of the information hypothesis using observed investment data for a panel of European listed firms, although is not clear that this finding can be generalised to the case of SMEs.

<sup>3</sup> The empirical literature on concentration as a measure of competition—as reviewed by Carbo et al. (2009)—concludes that the extent to which changes in concentration are reflected in changes in the degree of competition depend especially on the extent to which the market is contestable and demand is elastic.

<sup>4</sup> See Hubbard (1998) and Chirinko (1993) for reviews.

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