Financial development and the allocation of external finance ☆

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ABSTRACT

We examine whether financial markets development facilitates the efficient allocation of resources. Using European micro-level data for 1996–2005, we show that firms in industries with growth opportunities use more external finance in financially more developed countries. This result is particularly strong for firms that are more likely to be financially constrained and dependent on domestic financial markets, such as small and young firms. Our findings are robust to controlling for technological determinants of external finance needs and to using different proxies for growth opportunities. Interestingly, the explanatory power of the measures of technological determinants identified in prior work decreases significantly once growth opportunities are controlled for.

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1. Introduction

The key role of a financial system is to acquire information about investment opportunities and facilitate the allocation of resources into viable projects.[1] Recent empirical work uses aggregate data to present indirect evidence that more developed financial markets allocate capital more efficiently. Wurgler (2000) estimates the effect of financial development on the elasticity of aggregate investment with respect to growth opportunities. Fisman and Love (2004) measure the effect of financial development on the growth of industries with positive opportunities.[2] If more developed financial markets allocate capital more efficiently, it must be that they are able to identify firms with growth opportunities and to channel external finance toward these firms when they need it.

In this paper, we use micro-level data to examine whether financial markets development has a direct positive impact on individual firms by improving the allocation of capital. Specifically, we ask whether firms that operate in industries with positive growth shocks are more able to exploit the new opportunities by increasing their external financing in countries with higher levels of financial markets development. If external finance is more costly than internal finance, firms will turn to financial markets only after they have exhausted their internal funds. We show to what extent such firms' demand for external finance is satisfied by financial markets of different depth and institutional quality.

Using a large cross-section of manufacturing firms from European countries, we find that financial development improves the allocation of capital by channeling external finance to firms that operate in industries with better growth prospects. This result is obtained using two alternative proxies for the global component of industry growth opportunities: (i) industry value-added growth in the U.S. and (ii) the change in the global industry price-to-earnings (PE) ratio. Both proxies rely on the assumption that there exists a global component in the industry specific growth opportunities caused by demand and productivity shifts. For this reason, we focus our analysis on the manufacturing sector of a homogenous set of European countries with highly synchronized product markets and regulation, where the key underlying assumption of common shocks to industry growth is arguably most likely to hold. When we proxy growth opportunities by the growth of U.S. industries, the additional assumption is that firms in the U.S. are relatively financially unconstrained and are able to materialize the growth opportunities they encounter. When we proxy growth opportunities by the global industry PE ratio, we assume that financial markets are integrated to the extent that the common component of growth opportunities is priced in global industry portfolios.

Despite relying on different assumptions, both proxies yield estimates of similar economic magnitude. For example, the difference in external finance use between (otherwise comparable) firms that operate in an industry ranked at the 75th as opposed to the 25th percentile by the U.S. growth is 0.7 percentage points (on average per annum) larger in The Netherlands than it is in Bulgaria. When we approximate growth opportunities by global PE growth, we obtain the analogous estimate of 0.6 percentage points.[3] The effect is three to four times larger if we instrument to correct for measurement error in growth counterfactuals.

Our results also suggest that small and young firms—which are less likely to be able to access public financial markets and are also more likely to depend on domestic financial markets—are able to raise larger amounts of external finance in response to growth opportunities in financially more developed countries in comparison to large and old firms. This supports the view that domestic financial markets development alleviates the financial constraints of small and young firms by more. We also find that the degree of domestic financial markets development is a much more important determinant of the ability to raise external finance for firms with highly concentrated ownership structures, when compared to firms with dispersed ownership.

We contribute to the literature on the finance-growth nexus. This literature is founded on the argument that the technology used by firms in a given industry is the same across countries and it thus creates an industry-specific dependence on external finance (Rajan and Zingales, 1998). We show that the ability of more developed financial markets to provide external finance to firms in industries with strong growth opportunities still holds when we control for technological determinants of external finance. Interestingly, we find that the estimated effect of the measures of technological determinants of external finance decreases by 10 to 50% once proxies for growth opportunities are included in our regressions. This is most pronounced when we include a proxy based on the value-added growth in the U.S. This suggests that the widely used measures of technological determinants of external finance are partly driven by growth opportunities that were financed and hence realized in countries with high financial development (such as the U.S.).

The structure of the paper is as follows: Section 2 relates our work to the literature; Section 3 presents the methodology; Section 4 contains the description of the data; Section 5 presents the results; Section 6 presents the robustness checks; and Section 7 concludes.

2. Related literature

Theoretical models based on adverse selection or moral hazard imply that financial development improves screening of investment projects and/or enhances monitoring by external investors, which in turn leads to more efficient allocation of capital to investment projects.[4] This section summarizes the empirical literature that tests this broad prediction.

In his seminal paper, Wurgler (2000) estimates the country-specific elasticities of investment to value added in order to capture the country differences in the extent to which investment increases in growing industries and decreases in declining industries. He shows that the elasticity tends to be larger in countries with larger credit markets, more informative stock prices, less state-ownership of firms, and greater protection of minority investors. This important result suggests a causal link from financial development to more efficient reallocation of capital.

Wurgler (2000) uses industry-level gross fixed capital formation as the dependent variable as his focus is on the aggregate impact of financial system development. In our analysis, instead, we investigate the process of capital allocation at the micro-level which yields a direct test of the capital allocation efficiency hypothesis. There are two key differences. First, our dependent variable is the amount of dollars raised rather than investment, so we do not make any assumptions about how is a dollar of external finance utilized inside a firm. Second, we do not aim to explain the entire corporate investment, but only the part that is financed using external funds.

Wurgler (2000) uses realized industry–country level value added growth as a proxy for industry growth opportunities. He shows that this proxy can be justified as it is significantly positively correlated with more traditional measures of growth opportunities: average Tobin's Q, price-to-earnings ratio, and sales growth. Indeed, in a country with a perfectly developed financial market, realized growth is aligned with demand and productivity shocks and hence reflects growth opportunities. Also, if latent

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[3] The sample mean of external finance use is 0.4% and its standard deviation is 3.8%.
[4] See for example Boyd and Prescott (1986) for adverse selection and Townsend (1979) for moral hazard arguments.