



Credit constraints, firm exports and financial development: Evidence from developing countries



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ABSTRACT

This paper examines whether financial development reduces the impact of credit constraints on the exporting decision using firm-level data across 17 developing countries. We approximate credit constraints by a firm's liquidity ratio. In line with a Melitz-type model with borrowing frictions, the regression analysis confirms that the positive effect of a firm's liquidity on the exporting probability is larger for firms located in financially less developed countries. This result highlights the importance of financial development in reducing credit constraints. The empirical results also suggest that financing obstacles and the benefits from better access to finance are particularly high for firms belonging to innovative sectors dependent on external finance.

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1. Introduction

According to the World Bank Enterprise Surveys (WBES) conducted between 2002 and 2005 in 102 developing countries, about 30% of the respondent firms report access to finance as a major or very severe obstacle for the growth of their business. Even when credit is potentially available, for three-quarters of the firms participating in the survey it appears to be expensive or unaffordable.¹ The limited access to external funds can thus constitute a hurdle for firms located in developing countries wishing to start, maintain or expand foreign activities. Simply put, credit constraints may prevent a firm from pursuing otherwise profitable export activities.

Complementary empirical studies dealing with the origins of comparative advantage have established that financial

development promotes the expansion of industries relying heavily on external finance, intangible assets and R&D in export markets (Beck, 2003; Hur, Raj, & Riyanto, 2006; Manova, 2008, 2013; Svaleryd & Vlachos, 2005). A more efficient financial system in a country may therefore ease credit constraints and allow firms to profitably access foreign markets. In a related study, Berman and Héricourt (2010) explore the interaction effect between financial development and credit constraints on the export margins at the firm-level. They find that a firm's liquidity and leverage ratio, which are used to proxy for credit constraints, become stronger determinants of export participation as a country's private credit to GDP ratio rises, while the hypothesis and results presented in this paper suggest the opposite effect.²

This paper hence investigates whether financial development reduces credit constraints and thereby facilitates profitable entry into export markets for firms located in developing countries. The hypothesis, derived from a Melitz-type model with borrowing

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¹ Chor (2010) shows in a quantitative Ricardian framework that the lack of financial development has a negative impact on a country's welfare because it prevents specialization in finance dependent industries. The negative effect of no financial development on welfare is quantitatively similar to shutting down Heckscher–Ohlin forces of specialization or to the lack of legal institutions.

² We suspect that the higher variation in financial development in our country sample of the WBES database may explain this conflicting result. However, their more emphasized result is that poor access to finance can explain the imperfect correlation or disconnection between a firm's productivity and its export status often found in the literature.

frictions, is that a firm's internal liquidity should be a more important determinant of the export decision in countries with poor access to finance, especially in external finance and R&D intensive industries. A firm wanting to export has to cover additional fixed exporting costs, increasing the likelihood of credit constraints. The fixed production and exporting costs must be incurred before realizing any sales revenues.³ As a result, higher borrowing needs for potential exporters arise naturally in this framework.

The contribution of this paper is twofold: First, by taking into account a country's level of financial development, it provides an explanation for the conflicting results concerning the importance of credit constraints on export participation found in the literature.⁴ Although the sample includes only developing countries, this study can exploit a fair amount of variation in the financial development indicators. Moreover, the interaction effect between financial development and the liquidity ratio provides support that a firm's liquidity situation is a valid approximation for credit constraints. Second, the paper does not restrict the analysis to the commonly used private credit to GDP measure of financial development, but also considers institutional aspects of the financial system, such as creditor rights, legal debt enforcement and accounting standards. These institutional aspects can be improved directly by legal reforms and regulations and have been shown to be positively related to the availability of external finance.⁵

The empirical findings confirm the theoretical predictions. The positive marginal effect of firms' liquidity on the export probability is larger in financially less developed countries. This result is mainly driven by external finance and R&D dependent sectors, which suggests that a reform in the financial sector decreases credit constraints, particularly for innovative firms. Although of a smaller magnitude, the liquidity effect remains significant when accounting for unobserved firm heterogeneity and past exporting experience in (dynamic) panel models. A likely explanation is that credit constraints are most binding for firms at the time of entry into a new export market when the fixed (sunk) exporting costs are highest.

2. Related literature

This section highlights previous theoretical and empirical results closely related to the empirical methodology and contribution of our paper.

2.1. Inference on credit constraints

[Modigliani and Miller \(1958\)](#) provides the theoretical benchmark for the relationship between financing and investment decisions. They demonstrate that a firm's financial condition is irrelevant for the decision to invest, when the credit market works perfectly. Only investment profitability matters in this case. Conversely, if credit market imperfections are an important factor, we should observe a correlation between the availability of internal funds and the investment volume even after controlling for

³ Empirical evidence suggests that the fixed exporting costs are highly relevant for the export decision ([Bernard & Jensen, 2004](#); [Helpman, Melitz, & Rubinstein, 2008](#); [Roberts & Tybout, 1997](#)). The fixed exporting costs include information gathering about profitability of the export project, product customization for the foreign market, setting up the local distribution network, compliance with foreign product rules, marketing research and advertising among others.

⁴ For example, [Greenaway, Guariglia, and Kneller \(2007\)](#) and [Stiebale \(2011\)](#) do not find a negative effect of credit constraints on export participation for UK and French firms, while credit constraints matter in developing countries as shown by [Berman and Héricourt \(2010\)](#), [Egger and Kesina \(2013\)](#) or [Manova \(2009\)](#).

⁵ See also [Section 2.2](#).

a firm's growth opportunities. Empirical studies usually associate this correlation with credit constraints, which are not directly observed by the econometrician. A large empirical literature has found plenty of support in favor of a significant effect of firm-level credit constraints with regard to investment for many industrialized countries (see for instance, [Fazzari & Petersen, 1988](#); [Greenaway et al., 2007](#) for a detailed review) and some developing countries (see [Héricourt & Poncet, 2009](#); [Harrison & McMillan, 2003](#)). Relatedly, this paper exploits the sensitivity of exporting to the availability of internal funds to infer the presence of credit constraints. The availability of internal funds is approximated by the firm's liquidity ratio. In addition to being well grounded in the empirical and theoretical literature (see also [Egger & Keuschnigg, 2009](#); [Tirole, 2006](#) for theory), the use of the liquidity ratio as a measure of credit constraints is primarily motivated by the theoretically derived hypothesis presented in [Section 3](#). While most studies on the relationship between credit constraints and exporting or investment use data from one country, this paper employs a firm-level sample across countries that varies along the dimension of financial sophistication. Econometrically, the interaction between financial development and the liquidity ratio is predicted to be negative. As mentioned in the introduction, a negative interaction term would lend support to the idea that the liquidity sensitivity captures appropriately credit constraints. As a result, this interaction term helps to identify the effect of internal liquidity as a proxy for financing difficulties.⁶ In this respect, this paper bears most similarity to [Love \(2003\)](#) who investigates the effect of financial development on investment expenditures. She reports that the marginal effect of the internal funds variable in the investment equation is lower in countries with better financial systems. Therefore, her result suggests that financial development decreases credit constraints. Although some studies use debt leverage as a measure of financing constraints (see for instance [Whited, 1992](#)), we employ leverage mainly as an additional control variable, as in [Stiebale \(2011\)](#). While heavily indebted firms may face larger external financing costs or limited access to finance in the future, they have received substantial funding from outside investors at least in the past ([Bellone, Musso, Nesta, & Schiavo, 2010](#)). [Arndt, Buch, and Mattes \(2012\)](#) and [Minetti and Zhu \(2011\)](#) rely on self-reported measures of credit constraints. These measures are likely to suffer from endogeneity that must be considered empirically. For example, the firm's response behavior with regard to credit availability could be correlated with the firm's unobserved abilities. Without a theoretical justification, [Bellone et al. \(2010\)](#) introduce a multi-dimensional indicator of credit constraints that takes into account the size, financial health and the profitability of a firm.

2.2. Financial development

This paper employs the credit volume extended from banks and other financial institutions to the private sector over GDP as an outcome-based measure of financial development. This measure is widely used and has the advantage of being available for most countries. One drawback is that it only captures the actual volume of credit from financial institutions, but it excludes non-bank credit such as debt financing on securities markets. In addition, the credit volume can neither be directly affected by policymakers nor would

⁶ Relatedly, [Kaplan and Zingales \(1997\)](#) have questioned the validity of investment-cash flow sensitivities. They show that firms that are a priori more likely to be credit constrained exhibit higher sensitivities. However, [Carpenter and Petersen \(2002\)](#) and [Bond and Van Reenen \(2007\)](#) show that their result may depend on the a priori classification of financially constrained firms or on the empirical specification.

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