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World Development Vol. 79, pp. 152–163, 2016

http://dx.doi.org/10.1016/j.worlddev.2015.11.012

An Empirical Assessment of the Export—Financial Constraint Relationship: How Different are Small and Medium Enterprises?

YOTHIN JINJARAK [a] and GANESHAN WIGNARAJA [b,*]

[a] *Victoria University of Wellington, New Zealand*
[b] *Asian Development Bank, Mandaluyong City, Philippines*

Summary. — We analyze the financial constraint—export relationship in a framework that is consistent with stylized features of data. The analysis accounts for whether firms need loans or have sufficient capital, and studies the use of bank loans (quantity of finance) and availability of overdraft facilities (flexibility of finance). We develop a two-stage estimation procedure that uses an equation of bank financing in the first stage and an export equation in the second. We find that export participation (extensive margin) and the share of exports in total sales (intensive margin) increase with the availability of overdraft facilities, particularly so for SMEs with loan needs. The percentage of foreign ownership, ISO certification, and operation in manufacturing sector are also significant and positively associated with a firm's export participation and firm's share of exports in total sales. The main results are robust to a battery of econometric specifications and statistical tests applied on the firm-level data from our sample countries. The finding of a large economic significance of the overdraft facility variable is consistent with a growing concern from SMEs that the regulatory response to the Global Financial Crisis has forced banks to tighten risk management, thereby raising the rejection rates of overdraft and loan applications from SMEs. For SMEs in developing countries and emerging markets, the improvement of alternative financing forms and supportive government interventions has become ever more challenging.

Key words — credit access, SME, exporting firms, financial structure, Asia, Thailand

1. INTRODUCTION

This study examines the export—financial constraint relationship, focusing on how small and medium enterprises (SMEs) differ from other firms. [1] To analyze the relationship, we consider both the export participation (extensive margin) and the share of exports in total sales (intensive margin). Accounting for whether firms reveal that they need loans or have sufficient capital, we evaluate the association between exports and both the use of bank loans (quantity of finance) and the availability of overdraft facilities (flexibility of finance). The objective is to understand better the role of finance on international trade of small firms in developing and emerging-market economies.

Studying the export—financial constraint relationship has both policy and intellectual merits. The Global Financial Crisis inflicted a sudden drought of international liquidity, a sharp drop in international trade, and widespread recession and unemployment. The severity of the crisis has generated interest internationally on supportive policies and government interventions that can help recover firm performance and jump-start the economy. As a growth strategy, a country can export its way out of the crisis and recession, but this course of action requires domestic firms to be highly productive and well equipped with the necessary operational support to enter and survive international competition. Overcoming financial constraints, having sufficient capital, managing cash flow efficiently, and readily accessing working capital are important pre-requisites for firms to be competitive in the global markets. That is the focus of this paper.

Access to credit is challenging for firms that really need it, most of which are small firms. Credit rationing is known to be a barrier to a firm's growth, especially in developing countries and emerging-market economies, where the capital markets are imperfect and subject to the problem of adverse selection (Stiglitz & Weiss, 1981). The credit gap (unmet loan needs) for formal firms is estimated at US$ 1.5–1.8 trillion worldwide; adding informal firms increase the credit gap to in excess of US$ 2.6 trillion. Approximately 17-million firms, or 60% of SMEs have excess demand for loanable funds (Stein, Ardic, & Hommes, 2013). The odds are stacked against the SMEs internationally.

A strand of the literature has collected empirical findings on the export—financial constraint relationship that is critical for the study of SMEs. [2] These include (i) importance of financial deepening, [3] partial credit guarantees, structure of the financial sector, institution building, and regulatory changes that can help alleviate the SME's financial constraints (Beck, 2013); (ii) evidence that less financially constrained firms self-select into exporting, but there is no reverse causality from exporting to lessening the financial constraints (Wagner, 2014); and (iii) growing concern that the global regulatory response to financial crises (i.e., the Basel Capital Accord) requires banks

* The authors would like to thank the editor and three anonymous reviewers for constructive comments on this paper. Helpful suggestions were also provided by Naoyuki Yoshino, Chayodom Subhasri, Amornrat Kritsophon, Wako Watanabe as well as the participants of several conferences. These include: the 2014 ADBI-IMF-JFSA International Conference on Financial System Stability, Regulation, and Financial Inclusion (Tokyo); the 14th OECD-ADBI Tokyo Roundtable on Capital Market Reform in Asia (Tokyo); and the 2014 Asia Pacific Economic Association (Bangkok). Paulo Mutuc and Menaka Arudchelvan provided able research assistance for earlier versions of this paper. Final revision accepted: November 23, 2015.

to tighten risk management and could constrain bank lending further, thereby weakening SME's exposure to deteriorating demand conditions and financial constraints (ADB-OECD, 2014).[4]

To measure financial constraints, previous studies employ various financial ratios, including debt to sales, short-term debt to current assets, liquid assets to total assets, cash flows to total assets, bank loans to total assets, credit rating, and self-assessment financial health. While these measures capture balance sheet conditions of firms, they are susceptible to an endogeneity problem in studying the export—financial constraint relationship. In particular, firm productivity can influence not only the extensive and intensive margins of exports, but also these firms' financial variables used as proxies for financial constraints.

The endogeneity issue is more serious in the study of SMEs. Small or large, firms need to perform beyond the aggregate productivity cutoff to participate and profit in export markets. Thus only a fraction of highly productive firms are able to export, while the rest, facing high entry costs to export and foreign competition, can only serve the domestic markets, or exit the industry for the least productive ones (Melitz, 2003).[5] In the context of the export—financial constraint relationship focusing on SMEs, this is consistent with a mass of zero for SME exports (as well as a mass of zero for some financing forms used by SMEs), which are stylized features observed in the data. The degree to which SME finance and SME exports can be jointly influenced by firm productivity is an empirical question. Intriguingly, Zia (2008) provides some evidence that the removal of subsidized credit (credit supply shock) to the export sector in Pakistan causes a significant drop in the exports of small non-listed firms (and not for large publicly-listed firms), and that these financial-constraint effects cannot be explained by productivity differences across firms.

Against the backdrop of previous studies in the literature, the overdraft facility, a bank financing form vital to a firm's cash flows and working capital, has yet to receive well-deserved attention. The availability of an overdraft facility allows a firm to meet its working capital needs (as well as business expansion and investment in fixed assets in the short-term) more readily and flexibly than term loans, as the firm's business payments can be made in the form of a current account. That is, the overdraft facility provides a degree of financial flexibility to firms. To be qualified for an overdraft facility, however, firms need good credit records and business-client history with banks. Consequently, the rejection rate as a percentage of applications submitted tends to be higher for the overdraft facility than for the term loans. Banks may, at their discretion, prefer overdrafts to term loans since banks have the right to call in an overdraft on demand, vary interest rates, and amend lending conditions subject to the capital market environment.

Our empirical contribution is to provide an empirical horse race between the quantity of finance and the flexibility of finance in the determination of the export—financial constraint relationship. The quantity of finance, measured in our analysis as the proportion of bank loans in total financing of working capital,[6] captures a firm's de facto reliance on external finance, in line with the financial ratios previously studied in the literature. We propose the availability of an overdraft facility[7] to capture the flexibility of finance available to firms when they attempt to secure the needed loanable funds externally. A priori, the quantity of finance and flexibility of finance should be indicative proxies for financial constraints, though both are likely influenced by firm characteristics, as well as demand-side and supply-side factors in credit markets. Furthermore, a flexible instrument for financing is particularly important for exports as firms face greater competition in world markets. In addition, this flexibility of finance is particularly important for emerging economies as uncertainty tends to be more prevalent (at national, industry, and firm levels), which renders flexibility in financing more important for exporters.

To disentangle possible confounding factors in our proxies of financial constraints, we utilize the information about a firm's loan needs as a demand-side shifter, together with controls on firm characteristics, in order to trace the supply conditions of loanable funds (i.e., a supply constraint), thereby attempting to address the endogeneity issue, subject to available information, in the pattern of exports and financial constraints of SMEs discussed earlier. Accounting for revealed financing needs is crucial as the observed use of bank loans and the above-mentioned financial ratios in previous studies may not necessarily be accurate indicators of excess demand for finance since some firms might be discouraged from even filing any loan applications despite their loan needs. We develop a two-stage estimation procedure that uses an equation of bank financing (both quantity of finance and flexibility of finance) as a function of loan needs and firm characteristics in the first stage, and an export equation in the second stage. We then subject our coefficient estimates to a battery of econometric specifications to support our main empirical findings.

The rest of this paper is organized as follows. Section 2 provides a descriptive analysis, covering definitions of SMEs, population and sample of firms, and summary statistics for variables used in the study. Section 3 outlines econometric specifications, reports regression results, and economic significance of coefficient estimates. Section 4 discusses policy implications and concludes.

2. DESCRIPTIVE ANALYSIS

Our sample countries include Chile, Israel, Korea, Mexico, Thailand, and Turkey. Subject to data availability, these countries were chosen to represent different geographical regions and allow us to focus on upper-middle and high-income emerging economies, where capital market imperfection, credit rationing, and financial constraints most likely influence a firm's export behavior.[8]

To classify firms into SMEs and non-SMEs, we follow the official definitions of SME using the number of full-time employees. For countries in our sample, Israel defines an establishment with fewer than 100 employees as an SME, while Thailand's definition is 200 employees; Chile, Mexico, and Turkey define as SMEs an establishment with fewer than 250 employees. The largest size definition is that of Korea, where an SME has fewer than 300 employees. Table 1 provides the official definitions of SMEs, together with alternative definitions (e.g., annual sales, turnover, and fixed capital). We use the number of employees as the criteria in this paper as it is more parsimonious across countries than other definitions of SMEs. However, we note that banks more often than not use their own internal definition, which can also be time varying, i.e., a weighted combination of both number of employees and annual sales, in the management of loan portfolios.

According to the official definitions, SMEs account for more than 95% in the census of firm population in our sample countries. The population of SMEs ranges from 0.5-million firms in Israel, 0.8-million firms in Chile, 2.3-million firms in Turkey, 2.9-million firms in Thailand, 4.7-million firms in Mexico, to 5.1-million firms in Korea.

Our sample of firm-level observations is drawn from the Enterprise Surveys (accessed March 2015).[9] We note that the data have no panel structure in the firm-level information