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Firms' leverage and export market participation: Evidence from South Korea[☆]

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ABSTRACT

To understand why some firms export while others do not, it is necessary to understand major determinants which lead some firms to engage in exporting. A large base of empirical literature provides evidence that firms which trade are systematically different from those which do not trade in size, productivity, and the involvement of multinational corporations. In this paper, we introduce a financial dimension as an additional source of firm heterogeneity to understand export market participation, and examine how the impact of leverage on firms' exporting decisions varies depending on financial constraints, using a panel of 3353 Korean manufacturing firms over the period 1994–2011. We find that leverage for financially-constrained firms is negatively associated with the probability of exporting while leverage for financially-unconstrained is not. Also, we find that in the sample of financially-constrained firms, future exporters have higher leverage before they begin to export, while in the sample of financially-unconstrained firms, firms with ex-ante lower leverage self-select to export.

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1. Introduction

Since firm heterogeneity was first introduced as a new channel for better understanding the structure of world trade in the 1990s, empirical research which investigates the links between firm heterogeneity and a firm's decision to export at the microeconomic level has prominently grown in recent decades. Some of these studies have explored differences in the firm's export market participation across firms by using a combination of fixed costs and the presence of firm heterogeneity (Melitz, 2003; Greenaway et al., 2007; Chaney, 2013).

Melitz (2003) has theoretically shown that not only the presence of firm heterogeneity in terms of productivity but also sunk entry costs explain why all firms do not engage in international trade activity. When a firm chooses to sell its products abroad, it has to bear the fixed costs associated with the start-up of exports. These fixed costs associated with the start-up of exports may be sunk, in the sense that they need to be paid only once when deciding to participate in a foreign market. Melitz (2003) shows that a highly productive firm is more likely to participate in exporting since it has a greater ability to cover fixed costs than a less productive one, and predicts that the least productive firms exit in the market, the intermediate

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productive firms choose to serve the domestic market and the most productive firms choose to sell to both the domestic market and the foreign market.

If we assume that there does not exist firm heterogeneity in financial factors or that the financial market is perfect while holding others constant, all firms with productivity above a certain cut-off point will likely participate in exporting, as shown in Melitz (2003). In the real world, however, the financial structure of the firm matters because the capital market is imperfect. Besides, highly productive non-exporting firms or lesser productive exporting firms are easily observed. The coexistence of both financial heterogeneity across firms and an imperfect financial market can help explain why highly productive firms do not export or why lesser productive firms do. That is, it would make some changes to Melitz (2003)'s finding that a more productive firm is likely to participate in international trade through various channels.

Accordingly, the research considering a financial dimension as an additional source of firm heterogeneity to understand export market participation has grown increasingly over the last few years (Greenaway et al., 2007; Manova, 2008; Bellone et al., 2010; Chaney, 2013). Manova (2008), Bellone et al. (2010), and Chaney (2013) introduce financial constraints into a Melitz-type heterogeneous-firm model. Similarly, Greenaway et al. (2007) also consider the financial health of a firm.

Manova (2008) empirically proves that credit constraints restrict firms' export market participation and firms' export sales. Chaney (2013) proves that since participation in the international market incurs substantial start-up costs, liquidity-constrained firms face difficulty in financing such costs and consequently are less likely to export.

Greenaway et al. (2007) have explored an impact of firms' financial health on their export market participation, using UK manufacturing firms. They find that exporting firms in the UK show better financial health than non-exporting firms. They also manifest links between firms' financial health and their export market participation decisions, by employing the liquidity ratio and leverage ratio as financial variables to capture a firm's financial health. In particular, they assess that a firm's financial health is better when the liquidity ratio is higher and the leverage ratio is lower. Bellone et al. (2010) point out that such assessment could be problematic, mentioning that firms' financial health can be poor in practice even when the liquidity ratio is higher or when the leverage ratio is lower. For example, if some firms have difficulties in accessing external financing due to their credit constraints, their leverage ratio would be low. Also, it might be the case that financially vulnerable firms keep a high liquidity ratio so as to mitigate their financial vulnerabilities against uncertain risks. Thus, the analytical framework of Greenaway et al. (2007) was extended by Bellone et al. (2010) who introduce other methodologies to assess firms' financial health. Similarly, Bellone et al. (2010) provide evidence that firms showing better financial health, which is measured by various proxies, are more likely to export.

Although the links between firms' financial constraints and their export decisions have been well documented in the existing literature, an analysis on how firms' leverage affects their export decisions still remains comparatively less explored and not fully understood. Bellone et al. (2010) combined leverage with various other financial variables and therefore the pure impact of leverage on firms' export decisions was not sorted out. Greenaway et al. (2007) directly plugged leverage into the export decision regression, but they did not address various aspects which the leverage in balance sheets means, as Bellone et al. (2010) pointed out. Most recently, Bernini et al. (2015) studied the direct impact of leverage but they focus on the quality of exports.

Our study is guided, most generally by two competing theories regarding financing decisions, which have been widely used in corporate finance literature: the trade-off theory (Myers, 1977) and the pecking order theory (Myers and Majluf, 1984). On one hand, the trade-off theory predicts that some firms would make use of external financing so as to enjoy advantages such as tax benefits of debt financing. According to this view, leverage in balance sheets does not necessarily reflect firms' financial soundness. On the other hand, the pecking order theory predicts that leverage refers to the use of debt after exhausting their internal funds. According to this view, leverage is to some degree related to firms' state of financial distress.

In this paper, we focus on the links between firms' leverage and exporting decisions, taking into account various aspects which leverage in balance sheets means. In particular, we examine how differently firms' leverage impacts between financially-constrained firms and financially-unconstrained firms. For this, we use a panel of 3353 Korean firms for the period 1994–2011. Also, we employ the liquidity ratio and the interest coverage ratio¹ as the criteria for the financial constraints and split the sample into two sub-samples according to the yearly median value of those ratios: financially-constrained firms and financially-unconstrained firms. In addition, we include two interaction terms of the leverage ratio with the two crisis dummies of the pre-crisis and the post-crisis to compare the impacts of leverage on firms' export decisions before and after the Asian financial crisis of 1997.

Before discussing the results, it is necessary to first look at why this study focuses on South Korea. There are many reasons which carries out this study with the Korean case, but among them, the noticeable reason is that South Korea show some interesting features related to leverage.

In fact, South Korea had achieved the fast economic development. In particular, Korean firms depended on heavy borrowings for funding of investments. As a result, a high leverage ratio had been a common feature among Korean manufacturing firms before the currency crisis of 1997. For example, the debt-to-equity ratio of Korean firms became much higher in 1997, compared to other OECD member countries (e.g. Korea, 396%; Japan, 193% in 1997; United States, 154%). After the

¹ Firm's liquidity ratio is defined as cash flow minus cash needs over beginning total assets, using information reported on the statement of cash flows. The interest coverage ratio is calculated as a firm's earnings before interest and taxes (EBIT) over a firm's interest expenses.

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