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Corporate Investments in Asian Markets: Financial Conditions, Financial Development, and Financial Constraints

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Summary. — This paper explores the mechanisms through which finance affects corporate investments and capital accumulation. We separate the effects of financial conditions from those of financial development. Based on a sample of firms from five Asian emerging economies, we find that (i) financial conditions affect firms' growth opportunities and investment demand, while financial development primarily affects firms' external financing constraints; (ii) large firms benefit more from improved financial conditions, while small firms benefit more from financial development; and (iii) these effects are asymmetric—in general, stronger when the global financial crisis was unfolding and weaker during the subsequent rebound.

Key words — corporate investments, Asia, financial conditions index, financial development, financial constraints, investment sensitivity to cash flow

1. INTRODUCTION

Following seminal papers by King and Levine (1993a, 1993b), there has been a large body of evidence showing a causal effect from financial development to economic growth. [1] Countries with well-developed financial systems, e.g., large banks and active financial markets, have higher future growth.

The theoretical underpinning of the finance–growth nexus goes back to Schumpeter (1912), who argues that banks play an important role in the adoption of new technologies. Levine (1997) provides a comprehensive discussion in which financial systems promote economic growth through facilitating capital accumulation and technological innovation. Subsequent studies have explored the empirical link from financial systems to capital accumulation and technological innovation. Rajan and Zingales (1998) provide evidence that industries that are more reliant on external finance grow faster in countries with more developed financial markets. Demirgüç-Kunt and Maksimovic (1998) document a similar effect at the firm level. Fisman and Love (2003) show that trade credit is a substitute for bank credit: industries with heavy reliance on trade credit grow faster in countries with weaker financial institutions. Love (2003) finds that financial development reduces the reliance of corporate investments on internal funds, thus promoting capital accumulation and growth. Several studies, e.g., Claessens and Laeven (2005), and Love and Peria (2012), explore the impact of bank competition on firms' financing constraint.

This study is in the same spirit as Love (2003) in examining the link between financial development at the country level and financial constraints at the firm level. We aim to explore the economic mechanisms through which financial development affects capital accumulation and economic growth. Of particular interest is the role of financial development via external financing constraints on the investment behavior of the firm. We differ from Love (2003) in several important aspects. First, we separate the effects of financial conditions and financial development. Measures of financial development, such as those that include indicators of financial access and depth, are intended to reflect a structural feature of the economy, namely, the overall level of financial sector development. But the usual measures are often partially driven by fluctuations in the macroeconomic and financial conditions. Separating the two effects is important for isolating the impact of financial development. Our measure for financial conditions is different from and richer than the GDP growth rate used by Love (2003) to measure business cycles.

Second, we measure the effects of annual changes in financial conditions and development on financial constraints, while the financial development measure in Love (2003) is fixed at the start of her sample.

Third, we explore two different channels through which financial conditions and financial development affect corporate investments: a direct impact on the level of corporate investments and an indirect impact through alleviating external financing constraints. Economically, the direct impact reflects their effect on firms' growth opportunities and investment demand. The indirect impact captures their effect on firms' financing choice. Econometrically controlling the direct impact is necessary for the proper estimation of the indirect impact. As discussed in Section 3, without including the direct effect, the empirical model in studies such as Love (2003) may suffer a missing-variable bias and the effect of financial development on financial constraints may be overestimated.

Lastly, we focus on five Asian economies, specifically the original ASEAN 5 countries, namely, Singapore, Malaysia, Indonesia, the Philippines, and Thailand, and use firm-level

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data from 2005 to 2011. In contrast, the sample firms in Love (2003) are mostly from industrialized economies (over 80%) during 1991–95. Given some notable exceptions such as Singapore, relative to economies in Europe and North America, the financial systems in many Asian economies are underdeveloped, usually with a high dependence on bank finance and possibly, significant government influence or control. Capital markets in Asia tend to have weaker regulatory oversight and enforcement, and weak investor protection, resulting in a higher cost of capital (e.g., Chan, Wang, & Wei, 2004). Governments have a strong influence on banks and play an important role in allocating financial resources (Allen, Qian, & Qian, 2005). Consequently, firms in many Asian economies tend to have poor access to external capital, debt or equity. Competing for external financial resources often involves non-price mechanisms such as building relationships with bankers and government officials. Taken together, corporate investments in these economies are likely to face greater external financing constraints and be more sensitive to changes in financial development and financial conditions.

Evidence of an external financing constraint is first documented by Fazzari, Hubbard, and Petersen (1988). They measure a firm's financial constraint by the sensitivity of its investments to its internal cash flows. Using dividend payout as a proxy for the degree of financial constraints, they show that non-dividend paying firms tend to have higher investment sensitivity to cash flows (ISCF). While the methodology has been challenged by several studies over the years, a large body of literature has emerged showing internal cash flow to be a significant determinant of corporate investments, and supporting the ISCF as a measure of external financing constraints. [2] To overcome the measurement error and identification issues in estimating ISCF, studies have used natural experiments, e.g., oil price shocks (Lamont, 1997), corporate pension plans (Rauh, 2006), and switching regressions with voluntary asset sales (Hovakimian & Titman, 2006), to show the presence of external financing constraints. Empirical work on the existence of financing constraints focus mainly on firms in advanced economies.

This study estimates the empirical relationship between firm-level investments and country-level financial development and financial conditions in selected Asian economies. We build on the results of prior research by Debuque-Gonzales and Gochoco-Bautista (2013) on the development of financial conditions indexes (FCIs) for individual Asian economies. These FCIs are constructed using principal component analysis (PCA) for selected Asian economies, and an extensive set of financial indicators that include interest rates and rate spreads, asset prices, credit quantities and liquidity measures, credit surveys where available, banking conditions, and various macro financial risk indicators. Each of these financial indicators is first purged of macroeconomic cyclical influences to remove the effects of real side sources of variation before applying PCA methodology.

Following King and Levine (1993a), we employ a bank-based measure of financial development. Our primary financial development indicator (FDI) is aggregate bank credit to the private sector divided by GDP. As many Asian economies historically and currently still have predominantly bank-based financial systems, firms are still heavily dependent on bank credit for investments and growth. [3] An alternative FDI measure based on a dataset recently released by the World Bank and indicative of financial access and depth is also utilized to check the robustness of results obtained using the bank-based FDI.

The most important feature of our paper is the separation of FCI and FDI. While FCI and FDI are not mutually independent, they capture different aspects of the financial status of an economy. By construction, the cyclical influences of real side macroeconomic variables on the FCIs are removed so that they only capture short-term fluctuations in the financial environment. In contrast, the metric for financial development, FDI, is intended to reflect the state of development of the financial sector and therefore tries to capture a longer-run, structural feature of the economy. We quantify corporate investment responses to changes in country-level financial development and financial conditions. The analyses are based on a dynamic panel data model estimated via Generalized Method of Moments (GMM). Instrumental variables are used to address the potential measurement error in Tobin's Q.

The study is divided into the following sections: Section 2 describes the data used in the study and presents some sample statistics; Section 3 discusses the model specification, an extension of standard investment equation used in the study of financial constraints, and enumerates the various hypotheses to be tested; Section 4 presents and discusses the empirical findings; and Section 5 concludes and discusses key policy implications. Our key findings are the following:

- Financial conditions at the country level have a strong impact on growth opportunities and corporate investment demand. On average, a one-standard deviation improvement in FCI leads to an increase in investment by $9.78 million per firm per year. The finding holds for large and small firms, and during the global financial crisis (GFC) and after. The effect of FCI is stronger for large firms than it is for small firms. This finding suggests that firm-level variables, e.g., Tobin's Q, sales, and cash flow; do not fully capture firms' growth opportunities. Studies of corporate investments should include variables reflecting country-level financial conditions.
- Financial development affects corporate investments through a different mechanism. We show that FDI has a strong impact on firms' external financing constraints. The effect is significant for large firms, but is particularly strong for small firms. Across all firms, a one-standard deviation improvement in FDI reduces the ISCF, our financing constraint measure, by 35%. For small firms, FDI increases the level of investments while reducing ISCF. A one-standard deviation improvement in FDI leads to an increase in investments of $4.3 million per small firm per year. It reduces ISCF by 59%. Improvements in financial development, particularly bank credit expansion to private sectors, have a disproportionately large effect on small firms in Asia.
- The effects of FCI and FDI are asymmetric with respect to economic and financial conditions. They were particularly strong during 2007–09 when the worst of the GFC was unfolding and relatively weak during the subsequent rebound. During the crisis period, a one-standard deviation change in FCI leads to a change in investments of $14.7 million per firm, compared to $9.78 million for the full sample. Similarly, a one-standard deviation change in FDI leads to a change in investments of $37.3 million per firm.
- Our results show that FDI is particularly important in reducing the impact of negative shocks in Asia, especially for small firms and during crisis periods. An important policy implication of the study is the need to promote financial development, e.g., financial depth, financial access, financial sector stability and efficiency, as it is also