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Market liquidity, private information, and the cost of capital: Market microstructure studies on family firms in Japan☆

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ABSTRACT

We investigate cost of capital, information asymmetry, and market liquidity of listed family firms vs. non-family firms in Japan. First, we find that the cost of debt is lower and the cost of equity is higher for family firms than non-family firms, but the differences are not significant. The WACC of family firms becomes higher than that for non-family firms and the difference is significant probably because family firms in Japan use less leverage. Next, we find that the stocks of family firms are traded with higher information asymmetry than non-family firms. As for information asymmetry and illiquidity measures, we utilize the variables Adjusted PIN and Probability of Symmetric Order Flow Shocks (PSOS). Concomitantly we also estimate alternate conventional measures of market liquidity as a robustness check. Overall, the evidence on liquidity is somewhat mixed, while we find family firms show higher information asymmetry, which may affect cost of equity. As a final policy implication, we recommend family firms in Japan conduct more voluntary and timely disclosure, in particular, for the benefit of general stock investors, and may want to increase leverage to reduce the WACC.

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1. Introduction

In the past, family business research focused on ownership structure and productive efficiency of founding families, as well as the efficacy of second and later generation CEOs. Empirical evidence on family businesses is abundant for U.S. firms as well as European and East Asian countries. Claessens et al. (2000) investigated the ownership and control structure of East Asian countries, and La Porta et al. (1999) conducted similar tests for 27 developed nations. The evidence for efficiency of family-controlled businesses in the U.S. is found by Anderson and Reeb (2003) and Villalolonga and Amit (2006), and for Japanese firms by Saito (2008) and Allouche et al. (2008). Masulis et al. (2011) investigates the cost and benefits of the pyramid structure of 45 countries including Japan, and finds that group firms underperform counterpart non-group firms, although the pyramid structure helps internal financing of affiliate firms inside the group.[1]

For investigation into information quality of accounting numbers, Ali et al. (2007) finds that a sample of U.S. family firms show better quality financial disclosure, are followed by more analysts, and trade their stocks with smaller bid-ask spreads. Wang (2006) also finds that earnings quality is better for family than non-family firms. For Japanese data, Ebihara et al. (2012) finds that the quality

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[1] Mazzi (2011) extensively surveys family business literature from the viewpoint of financial performance of family firms.

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of earnings is higher for family firms in terms of abnormal accruals and earnings persistence.

In this paper we investigate liquidity and the degree of information asymmetry of stocks in family versus non-family firms listed on the Tokyo Stock Exchange. We also estimate the cost of capital in the two types of firms to explore the difference. Note that O'Hara (2003) argues that the cost of equity will be higher when there is more information asymmetry in capital markets and liquidity will be less among traded stocks. This is why we investigate the differences in the cost of capital. On the other hand, McConaughty (1999, pp. 356–357) argues that cost of equity can be lower for family firms due to the "family effect," which means that their investment is generally more patient and better-run with less risk. Accordingly, one of the main objectives of this study is to investigate whether there is more information asymmetry and lower liquidity among traded stocks of family firms in Japan at the same time as exploring source of differences in cost of equity, cost of debt, and WACC.

We investigate these with the help of a Poisson arrival market model of information as well as the use of several alternative liquidity measures. Simultaneously, we investigate cost of equity, debt, and WACC, and associate conventional cost of capital measures with our findings from market studies.

Section 2 motivates our study and explains the research method we employ. Section 3 establishes the maintained hypotheses. Section 4 explains the estimation method and Section 5 explains our data. Section 6 reports basic characteristics of family businesses in Japan, market liquidity, information asymmetry of stocks, and the estimated cost of capital. Section 7 reports regression results and identifies the source of differences in the cost of capital, information asymmetry, and liquidity between family and non-family firms. Section 8 concludes.

2. Motivation and research methods

2.1. Family firms research and information asymmetry

Although there are abundant previous studies investigating cost of equity and debt for family firms (McConaughty, 1999; Anderson et al., 2003, among others), the results vary and are not conclusive. In this paper, we look at the source of the difference in the cost of capital from the viewpoint of market microstructure study. As far as the authors are aware, only in Anderson et al. (2009) has an investigation been conducted by utilizing market measures to investigate information asymmetry for family firms with U.S. data. They also investigated family firm opacity and found that stocks of heir-controlled firms have higher bid-ask spreads than founder-controlled family firms or non-family diffuse shareholder firms. However, they did not use the tick-based PIN measure which we use in this study. Furthermore, Anderson et al. (2012) report that stocks of family-controlled firms experience higher abnormal short sales, suggesting the existence of more informed trades. For U.S. firms, this implies there may be more private information-based trades among family firms.

A priori, we expect that there will be higher concentrations of stock held by family firms which would result in a lower proportion of floating stocks traded. However, how this affects liquidity and/or information asymmetry of family firm stocks is an empirical question to be quantitatively measured. For that, we utilize theoretical constructs developed in the market study; i.e., the Adjusted PIN and the PSOS by Duarte and Young (2009). If we were to find that family firms stocks are traded with higher information asymmetry and less liquidity, it will imply a higher cost of equity as Easley and O'Hara (2004) demonstrated for U.S. data.

As for cost of debt, note that the larger fraction of debt for Japanese family firms is bank loans instead of corporate bonds, and it is not *a priori* clear whether cost of debt is higher or lower for family firms. It may be lower because the lending banks might have more confidence in stable management and ownership of family firms, or higher because lenders might be more concerned with the entrenchment effect caused by founding families and family or non-family CEOs (Gomez-Mejia and Nunez-Nicker, 2001). The argument and evidence from U.S. firms is presented by Anderson et al. (2003, p. 267) from the viewpoint of agency cost, claiming that family firms are more concerned with survival and reputations, and that lenders have more confidence in lending to family firms.

2.2. Family firms in Japan

Claessens et al. (2000) is the most widely cited article in Asian family business research which investigated ownership structure among East Asian countries including Japan. They cover 1240 listed firms in Japan (Claessens et al., 2000, p. 104) and point out that 13.1% of firms are controlled by families with a 10% shareholding cutoff level of founding families, and that only 9.7% of firms are controlled by families with a 20% cutoff level. Their study is also important in the sense that it illuminates the differences of Japan and Korea relative to other East Asian countries in stock ownership.[2] However, the database by Claessens et al. (2000) for Japan is based on data from 1996, and it needs to be updated for the following reasons. First, big changes in ownership structure for Japanese stocks occurred in the past 15 years and a larger fraction of stocks listed on the exchange are currently owned by fund trusts, pension funds, mutual funds and foreign individual and institutional investors. Second, cross-shareholdings among Japanese firms have decreased substantially in recent years (Eoyang, 1998). Thus we infer that both the weight of shareholdings by founding families and the fraction of floating stocks are smaller, which we attempt to quantify in the current study.

In previous research on Japanese family businesses, Asaba (2012) investigated investment behavior of the electric machinery industry from 1995 to 2006 and found that his sample of 184 family firms demonstrated a more aggressive and enduring investment than non-family firms. Saito (2008) found that family firms slightly out-performed non-family firms between 1990 and 1998, and superiority was limited to the founders' reign. Allouche et al. (2008) found that financial performance of family firms in Japan from 1998 to 2003, as measured by accounting ratios, was better than non-family firms. Finally, Mehrotra et al. (2013) investigated the succession problem of Japanese family businesses and demonstrated that adopted heirs could avoid the succession problem. They studied firms between 1949 and 1970 and followed the observation up to 2000.

The current paper adopts a different angle in order to investigate family businesses in Japan and focuses on liquidity and information asymmetry with the use of measurement from market studies as well as cost of debt and equity. If we can find any difference in these variables between family and non-family firms, in particular, market variables, this evidence would be the first in family business research.

2.3. Cost of capital

To estimate cost of equity in this study we use the Fama and French three factor model (1993). This model is composed of the following factors: value-weight excess market returns, the size

[2] See Almeida et al. (2010) for the most recent analyses on Chaebol groups in Korea. They also emphasize the role of cross-shareholdings like in Japan. See Yafeh (2000) for recent changes in corporate governance in Japan after the degree of cross-shareholdings decreased.

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