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Mergers by Family and Non-family Firms in Japan, 1955–1973: Does Ownership Matter?

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Abstract:
Family firms have been attracting considerable attention in recent years, but previous studies have not investigated their relationship to M&A. In this paper, we focus on the merger wave in the era of high economic growth in Japan (1955–1973). During this period, established large corporations formed bank-centered business groups, while numerous emerging businesses, dominated by family firms, became listed since 1961. Both economic and historical studies on Japanese firms in this era have concentrated on business groups and paid little attention to the emerging family firms. Moreover, most empirical studies focus on the consequences but not on the determinants of M&A. We find that the probability of mergers by non-family firms is significantly higher than that of family firms. Our empirical results suggest that the reason for this difference lies on the side of family firms; those with a smaller proportion of family ownership are less likely to merge, which implies that family shareholders are unwilling to merge for fear of losing control. Case studies support our findings.

Keywords: merger; ownership; family firm; non-family firm; Japan
JEL Classification Code: G34, N85, O16

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1. Introduction

Family firms have been attracting considerable attention in recent years. Several studies demonstrate that they are more prevalent than generally expected, even in developed economies (La Porta et al. 1999, Anderson and Reeb 2003, Saito 2006), and that they are often more efficient than non-family firms (McConaughy et al. 1998, Anderson and Reeb 2003, Maury 2006, Morck et al. 2007). Family firms are also widespread in Japan, but previous studies have not investigated their relationship to M&A.

In this paper, we focus on the era of high economic growth (1955–1973) in Japan, when the economy experienced a remarkable expansion and its first (though minor) merger wave after World War II[1]. Established large corporations formed bank-centered business groups through cross-shareholding and interlocking directorship, while numerous emerging businesses, dominated by family firms, were listed in the Stock Exchanges from the point of the opening of the Second Section in 1961. Both economic and historical studies on the Japanese firms in this era have concentrated on business groups and paid little attention to the emerging family firms[2]. Moreover, there are no empirical studies of Japanese M&A in this era, except for Ikeda and Doi (1983).

[Figure 1: Mergers in Japan after World War II]

M&A are useful means for the rapid growth and expansion of firms and, thus, are utilized to keep up with the rapid increase in demand. Therefore, it is not surprising that the Japanese economy witnessed merger waves in various industries during the period of remarkable economic growth. However, we are particularly interested in the question of which types of firms—traditional large corporations forming business groups or emerging family firms—more actively conducted M&A and why they did so.

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[1] Miyajima (2007b) provides an overview of the history of M&A in Japan and highlights sluggish M&A in post-war Japan until recent times, even during the period of high economic growth. He argues that there were relatively few cases of M&A between listed large firms in the 1960s and 1970s, but the data in Figures 1 and 2 demonstrate that the number of mergers including unlisted firms distinctly increased in the first half of the 1960s.

[2] One of the few exceptions is Okamuro (2006), which investigates the effects of the governance structure and CEO's characteristics (including founder dummy) on the corporate performance of Japanese IPO firms in growing industries in the 1960s.

Thus far, a number of studies have been conducted on the effects of mergers (Ikeda and Doi 1983, Odagiri and Hase 1989, Mueller 1989, Healy et al. 1992, Gugler et al. 2003, and Miyajima 2007a, among others). Recently, the causes of merger waves appear to have attracted the attention of researchers (Shleifer and Vishny 2003, Harford 2005, Arikawa and Miyajima 2007, Miyajima 2007a). Most of the recent studies have concentrated on the characteristics of acquired firms (Camerlynck et al. 2005, Xu 2006, Arikawa and Miyajima 2007a) and acquiring firms (Jovanovic and Rousseau 2002, Arikawa and Miyajima 2007, Sakai 2007); however, compared to the studies on the effects of M&A, those on their causes are relatively scarce.

To our knowledge, few studies have investigated the relationship between ownership or governance structure and M&A, except for Davidson et al. (2002) and Ben-Amar and Andre (2006). The former analyzes the effect of the ownership structure of the target firm on the value of the merging firm when the merger is cancelled, while the latter investigates the relationship of ownership structure with the performance of acquiring firms, particularly focusing on Canadian family firms. However, no studies have examined the effects of ownership structure on M&A decisions.

Using micro data, we try to fill these gaps by paying special attention to the role of family firms in the merger wave in 1955–1973. Family firms are still prevalent and substantial in contemporary Japan (Saito 2006, Morck et al. 2007), which is experiencing a new merger wave. Therefore, our study will contribute to a better understanding of M&A from a long-term perspective.

The rest of this paper is organized as follows. The next section describes the rapid increase of listed family firms and the development of mergers by family and non-family firms in different industries in post-war Japan. In Section 3, we compare the probability of mergers by family and non-family firms and show that the latter are more likely to merge than the former. In Section 4, we consider the reasons for this finding and test our hypotheses empirically. Section 5 concludes this paper.

2. Development of Mergers and Listed Family Firms in Post-war Japan

Our analysis focuses on the firms that went public between 1949 and 1965. Table 1 provides the number of family and non-family firms that did so in each year. During this period, 1,301 firms went public, among which 560 firms (43%) are regarded as family firms. Here, we define family firms as those in which the founder or his family members are among the ten largest shareholders or in the top management (CEO or

chairman) at IPO[3].

Two peaks of IPO (1949–1950 and 1961–1964) occurred during this period: after their closure during the war and the post-war confusion, the Stock Exchanges were reopened in 1949 and the pre-war listed firms appeared once again. In 1961, the Second Section was opened, which continued to attract numerous IPO of relatively young firms until 1964. Family firms comprised the majority (58%) of the IPO firms from 1961 to 1964.

[Table 1: Family and Non-family Firms on the Japanese Stock Exchanges, 1949–1965]

The number of listed firms in our sample increased from 572 in 1955 to 1,301 in 1973. During this period, 27 family firms (5%) changed to non-family firms, but the distinction between family and non-family firms basically remained stable. Throughout the 1960s, approximately 40% of the listed firms could be classified as family firms.

Using various sources, including annual reports, we found 409 mergers by listed firms from 1955 to 1973[4]. These events include the full integration of subsidiaries and related companies (Type 2: 130 cases) and the reunion of firms that were originally united but in 1947, were divided by law into two or more companies (Type 1: 10 cases), such as Mitsubishi Heavy Industries (1964) and Nippon Steel (1970). After excluding these cases, we obtained 269 cases of mergers between independent firms (Type 3), among which 58 and 211 cases were by family and non-family firms, respectively (Table 2)[5].

[Table 2: Classification of Merger Types]

[3] Our definition of family firms is the same as Morck et al. (2007). To identify family firms, we relied on our original database on ownership and board members, which was constructed by the COE/RES project and the Center for Economic Institutions of Hitotsubashi University.

[4] In this paper, mergers are defined as the integration of two or more firms to a legal unity. Acquisitions, which are not considered in this paper, differ from mergers in that an acquired firm is not integrated into the acquiring firm, but becomes its subsidiary, so that it does not disappear as a company.

[5] We could not obtain financial data for all of the sample firms. In Table 2, we indicate the number of firms for which financial data are available in parentheses.

It is noteworthy that 77% of the Type 3 mergers were those between listed (merging) and unlisted (merged) firms[6]. Only 7 cases of the mergers between listed firms (63 cases) were conducted by family firms. Forty-three cases of mergers between listed firms occurred within the financial groupings of major banks.

While Type 1 and Type 2 mergers show no distinct time trend, Type 3 mergers show a remarkable increase in the first half of the 1960s (Figure 2), which is in line with the trend of the total number of merger cases in Figure 1.

[Figure 2: Merger Trends of Sample Firms, 1955–1973]

Mergers can be classified into three types: horizontal, vertical, and mixed. Horizontal mergers are those between firms in the same industry, while the integration of firms in different industries is regarded as a mixed merger. Vertical mergers also occur between firms in different industries, but in these cases, the merging firms are upstream and downstream, such as manufacturing and retail. This kind of classification is difficult with regard to our sample because we have no precise information about the industries of unlisted merged firms; we can only assume whether or not they belong to the same industry from their names. In this way, we can estimate that more than 80% of the mergers in this period are horizontal, in the case of both family and non-family firms.

Table 3 provides the number of mergers by family and non-family firms in different industries. Sixty-six percent of the mergers occurred among manufacturing companies. Among manufacturing industries, food and chemical companies are outstanding in terms of number of mergers (27 and 32 cases, respectively). It is noteworthy that the wholesale and retail (including trading companies) and transportation industries (including shipping agents) that supported Japanese manufacturing industries in import and export recorded the largest numbers of mergers, with 28 and 37 cases, respectively[7]. In such industries, where mergers are quite frequent, those conducted by non-family firms dominate those by family firms in number.

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[6] Therefore, it is difficult to obtain basic information on merged firms, such as ownership data. When the partner in a merger is unlisted, at most, we can obtain its name and capital size.

[7] Mergers between shipping agents were promoted by the government as industrial policy in order to reconstruct and sustain this industry.

[Table 3: Number of Mergers by Family and Non-family Firms in Various Industries]

3. Comparison of Merger Probability between Family and Non-family Firms

3-1. Statistical Tests

In this section, we conduct statistical tests and regression analyses on the difference of merger probability between family and non-family firms. We have already confirmed that there were more mergers by non-family firms than family firms between 1955 and 1973[8]. Table 4 illustrates that not only the absolute number of mergers but also the probability of mergers was higher for non-family firms than family firms during this period.

The sample firms comprise all firms that went public between 1949 and 1965, excluding those in the agriculture and fishery industries, in which there were few listed firms; in wood products as well as petroleum and coal products, in which there were no mergers; and in the mining industry, where no listed family firms exist. For each year, we verified whether or not the sample firms were family firms, and the firms that changed from family to non-family firms (27 in total) were deleted from the sample. There are no cases of mergers for these types of firms.

The ratio of the number of mergers during the observation period to the number of listed firms in 1973 is 0.10 for family firms and 0.29 for non-family firms[9]. The merger probability for each firm in each year, namely, the number of mergers divided by the number of observations (available firm-year combinations), is 0.69% for family firms and 1.53% for non-family firms. Thus, the merger probability by non-family firms is twice as high as that by family firms. This difference (0.84%) is statistically significant at the 1% level[10].

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[8] Note that we observe the mergers conducted by firms that went public between 1949 and 1965. Therefore, the mergers that occurred between 1955 and 1973 and were conducted by the firms that went public after 1966 are not considered.

[9] Note that the number of mergers is not equal to that of merging (and survived) firms, as several firms experienced mergers twice or more during the observation period. Moreover, the number of listed firms increased constantly during this period. Therefore, this ratio is only an approximate measure of each firm's merger probability during the period.

[10] Using Hotelling's t-squared generalized means test, we can reject the null hypothesis that the means are equal between two groups at the 1% level.

[Table 4: Results of the Statistical Tests]

Basically, the same results are obtained both for the former (1955–1964) and the latter halves (1965–1973) of the observation period and for manufacturing and other industries. It is noteworthy that the merger probability is higher in non-manufacturing than in manufacturing industries, both for family and non-family firms.

3-2. Probit Estimation

The difference between family and non-family firms with regard to the merger probability confirmed above can be influenced by other factors, such as firm size and industry effects. Thus, in the following, we use a probit model to estimate the effect of family (or non-family) firms on merger probability, controlling for several firm and industry characteristics. Our model for empirical estimation is as follows:

{Prob: Merger} = f (Family dummy, Financial ownership, ROA, Firm size, Firm age,
Debt ratio, Sales growth, Industry dummies, Year dummies)

The dependent variable is the probability of the firm to merge, represented by the merger dummy that takes on a value of one if a firm merged with another independent firm in a year, and zero otherwise[11]. Among the independent variables, the most important is the family dummy, which takes on a value of one if the firm is a family firm, and zero otherwise. Financial ownership denotes the sum of shareholding by financial institutions among the five largest shareholders relative to the total shares and measures the influence of financial institutions as large shareholders.

Besides these governance factors, we include five firm-specific factors in the model as control variables. ROA denotes the ratio of operating income to total asset. Firm size is measured as the value of total asset in a natural logarithm. Firm age is the number of years since incorporation (establishment as a corporation). Debt ratio is the ratio of total debt to total asset. Sales growth is measured as the annual nominal growth ratio of sales. With the exceptions of family dummy and firm age, all of these variables are lagged for one year. Moreover, we use industry and year dummy variables to control for industry and year effects.

[11] It is noteworthy that observations with Types 1 and 2 mergers are excluded from the sample. Therefore, this dummy variable compares observations of a Type 3 merger with those with no merger.

For this analysis, we use a pooled dataset of listed firms in the period of 1955–1973, for which financial data are available. The number of observations is 11,765[12]. Rather than conducting panel data analysis (panel probit), we conducted usual probit analysis with pooled data, because the family dummy value remains unchanged during the observation period[13].

As previously mentioned, family and non-family firms were identified based on our original database on ownership and board members. We obtained financial data for firms from the DBJ Database. Sample statistics for the entire sample and the sub-samples of family and non-family firms are displayed in Table 5.

[Table 5: Descriptive Statistics]

Table 6 provides the probit estimation results. The family dummy has a negative and significant effect on the merger probability, which suggests that family firms are less likely to merge than non-family firms. Thus, the finding of the statistical test is confirmed by multiple regression analysis.

With respect to the control variables, financial ownership and ROA have negative and significant effects and firm size (total asset) has positive and significant effects on merger probability. Other variables have no significant effects. These results suggest that larger and less profitable firms with a lower dependence on financial institutions have a higher merger probability[14]. Based on these results, we can assume that relatively large and unprofitable firms tend to merge with smaller, more profitable firms in the same industry in order to improve their performance[15].

[Table 6: Probit Estimation Results]

[12] Cf. Footnote 11.

[13] As mentioned before, the 27 firms that changed from family to non-family firms during the period were excluded from the sample. These firms did not experience mergers.

[14] The industry and year effects are controlled for by dummy variables. Therefore, these results should be interpreted as the industry- and year-adjusted effects of ROA and firm size, etc.

[15] Indeed, as described in Section 2, more than 80% of the mergers were horizontal, namely, those in the same industry. Moreover, as mentioned in Footnote 18, in general, the merger partners were much smaller than merging firms.

The marginal effect of the family dummy is minus 0.0050. Compared to the merger probability difference between family and non-family firms (minus 0.0084, see Table 5), we can conclude that approximately 40% of this difference can be explained by firm-specific factors and industry and year effects; however, after controlling for other factors, the merger probability of non-family firms is still 0.5% higher than that of family firms.

After comparing the merger probability between family and non-family firms, the puzzle as to why non-family firms are much more likely to merge than family firms still exists. Both family and non-family firms may have their specific reasons, which we will discuss and examine in the next section.

4. Why Family Firms Are Less Likely to Merge: Empirical Tests

4-1. Hypotheses

The regression analysis in the previous section indicates that family firms are significantly less likely to merge even after controlling for several firm and industry characteristics. What is the reason for such a distinct difference? To answer this question, we propose one hypothesis regarding family firms and another regarding non-family firms, and use sub-samples to test them empirically.

A major difference between family and non-family firms is that the CEO and other directors can only be large shareholders in family firms. As large shareholders, family members in the top management may be afraid of losing control over their firms through mergers; this does not happen to the board members of non-family firms[16].

The situation may be different among family firms. When family members have a sufficiently high shareholding ratio prior to a merger, they will maintain the position of the largest shareholders after the merger occurs, even if their ownership ratio decreases[17]. However, if the merged firm similar size and shows highly concentrated

[16] How the ownership structure changes after a merger depends on the relative size of the merger partners and the ownership of the merged firm. A basic assumption is that family members are not large shareholders of merging and merged firms at the same time. On average, a merged firm is much smaller than its merging firm; therefore, we cannot expect a drastic change in the ownership structure.

[17] In fact, in general, we can confirm that the shareholding ratio of family members decreases after a merger occurs.

ownership, family members in the firms with a lower ratio of family ownership will no longer be dominant shareholders after the merger takes place[18]. When this is the case, family firms with a lower ratio of family ownership are expected to be less willing to merge than those with a higher ratio when they are confronted with the same opportunity for merger. Based on this argument, we propose the following hypothesis.

*** Hypothesis 1**: Among family firms, those with a higher ratio of family ownership are more likely to merge than those with a lower ratio of family ownership.

During the period of high economic growth, financial institutions and business corporations continuously increased their shareholding in listed firms. In particular, the main bank intensified its influence on the client firms as their largest creditor and one of their largest shareholders. Non-family firms were generally dominated by business corporations; thus, they were in business groups with cross-shareholding and an interlocking directorship.

Considering that financial institutions, especially main banks, coordinated the business activities of their "group members," we can assume that in the era of rapid expansion and industrial restructuring, non-family firms were more likely to merge than family firms (already proved) and that among non-family firms, those with strong ties to main banks were more likely to merge than those with weak ties. For example, the main banks can promote mergers for industrial restructuring and, if necessary, at least coordinate mergers between clients. Based on this argument, we propose the following hypothesis.

*** Hypothesis 2**: Among non-family firms, those with a closer relationship with financial institutions are more likely to merge than those with a loser relationship with them.

[18] In fact, compared to the merging firm, the relative size of a merged firm measured by capital is on average 0.223 of the mergers by family firms (this ratio is 0.302 with regard to non-family firms). This suggests that family firms prefer mergers with firms that are much smaller than they are.

4-2. Estimation Models

We test these hypotheses with almost the same models as in the previous section. The model to test Hypothesis 1 includes a variable for family ownership (lagged for one year) instead of the family dummy. The other variables are the same as before. Family ownership is measured as the sum of shareholding by family members among the five largest shareholders to total shares. According to Hypothesis 1, we expect the coefficient of this variable to be positive and significant. A sub-sample of family firms is used for this estimation[19].

The model to test the other hypothesis does not include the family dummy nor family ownership, but the other variables are the same as those in the model in Section 3-2. In accordance with Hypothesis 2, we expect the coefficient of the variable of financial ownership to be positive and significant. The sub-sample of non-family firms is used for this estimation.

The dependent variable is the merger dummy. We estimate probit models and the observations are the sum of the listed family or non-family firms for each year, for which accounting data are available, during the period of 1955–1973. As in the previous analysis, firms in agriculture, fishery, mining, wood products, coal and petroleum products, and banking industries are excluded from the sample.

4-3. Empirical Results and Discussions

Table 7 shows the estimation results for Hypothesis 1. Family ownership has positive and significant (though weak) effects on the merger probability; thus, Hypothesis 1 is supported[20]. The marginal effect suggests that an increase in family ownership at 10% enhances the merger probability by 0.1%. The results with regard to the other variables are the same as in the previous analysis, except for financial ownership, which indicates no significant effect.

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[19] The cases of Types 1 and 2 mergers are excluded from the sub-sample. Thus, we analyze the factors of the choice between merger with an independent firm and no merger.

[20] We conducted another test for this hypothesis by comparing the means of family ownership between the family firms that experienced mergers and the other family firms in the same industry during the same year in which the mergers occurred. The means of family ownership of the merged firms (just before merger) and other firms are 20.8% and 16.4%, respectively. The difference (4.5%) is statistically significant at the 5% level.

[Table 7: Estimation Results for Family Firms]

Table 8 displays the estimation results for Hypothesis 2. Contrary to our expectation, the financial ownership coefficient is negative and significant; therefore, Hypothesis 2 is not supported. ROA and firm size have the same effects as in the analysis in Section 3-2. The only difference is that firm age has positive and significant effects on the merger probability.

[Table 8: Estimation Results for Non-family Firms]

The results of our analyses support Hypothesis 1, but not Hypothesis 2. From these results, we may argue that the reason for the higher merger probability of non-family firms can be detected among family firms. However, a marginal effect of financial ownership on merger probability as well as its level of significance is much higher than that of family ownership. This suggests that the negative effect of financial ownership is stronger than the positive effect of family ownership. In this sense, the reason on the side of non-family firms may be more important than that of family firms.

Then, what is the reason for the negative effect of financial ownership on merger probability? An explanation is that many non-family firms were members of business groups and the firms in business groups were prevented from merging with firms in other groups (Miyajima 2007b). If so, the firms with strong ties to the main banks, which were tightly embedded in these business groups, had less of an opportunity for mergers than those with weak ties. However, this account cannot explain our discovery that the merger probability of non-family firms is higher than that of family firms, which are scarcely found in business groups. Dealing with this puzzle is an important challenge for us.

4-4. Two Case Studies

We will describe two contrasting cases of mergers by listed family firms to demonstrate further evidence for our findings[21]. These cases are the merger of Nihon

[21] The description in this section is based on the information provided in “Annual Corporation Reports” (Kaisha Nenkan in Japanese) by Nihon Keizai Shinbun, and

Matai and Kobe Matai in 1965 (horizontal merger between package makers) and Nissin Transportation and Warehousing (Nissin Un'yu Soko) and Yokohama Shipping and Warehousing in 1969 (horizontal merger between harbor warehouses). The first case was a merger by a family firm with the highest family ownership in our sample. The other was a case where the family members in the top management had the lowest positive shareholding in our sample.

Nihon Matai Co., Ltd. was founded in 1907 by Masunosuke Uchida in Tokyo as a wholesaler of linen bags. The firm was incorporated in 1947 and listed on the Tokyo Stock Exchange (Second Section) in 1962 by the founder's son and successor, Masuzo Uchida. In 1965, the company merged with Kobe Matai, presumably a rival firm with similar product lines. At that time, the company produced linen bags and packages from paper and polyethylene.

Just before the merger, the total assets of Nihon Matai and Kobe Matai amounted to 3.5 billion and 0.35 billion yen, respectively. Hence, the merging firm was ten times larger than the merged firm. The CEO, Masuzo Uchida, remained the largest shareholder of the firm after the merger, but his shareholding ratio remarkably decreased from 47.5% in 1964 to 33.2% in 1966, while the ratio of the second largest shareholder, Mitsubishi Bank, only decreased by 0.1%, from 5.0% to 4.9%. Today, Masuyuki Uchida, a fourth generation descendent of the founder, controls the company as the CEO and the fifth largest shareholder.

In 1938, Sataro Tsutsui founded Nissin Transportation and Warehousing Co., Ltd. (Nissin Un'yu Soko in Japanese (today Nissin Corporation)) in Kawasaki, as a harbor warehouse. The firm was listed on the Tokyo Stock Exchange (in the First Section) in 1950 by the founder. In 1969, the firm merged with Yokohama Kaiun Soko (Yokohama Shipping and Warehousing), presumably a rival firm that was active in the same area (the port of Yokohama).

In the year of the merger, the total assets of Nissin and Yokohama amounted to 18 billion and 2.5 billion yen, respectively. Thus, the merging firm was 7 times larger than the merged firm. After the merger, the largest and second largest shareholders, namely founder and CEO Sataro Tsutsui and Sanwa Bank, changed their positions. While the shareholding ratio of Sataro Tsutsui decreased from 6.8% in 1968 to 5.5% in 1970, the ratio of Sanwa Bank increased from 5.6% to 6.1%. Today, Hiroshi Tsutsui, a third generation descendent of the founder, is the CEO; however, family members are not found among the ten largest shareholders.

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company homepages.

5. Concluding Remarks

The purpose of this paper was to investigate the relationship of the ownership structure with the merger decision during the period of 1955–1973 and to explore the reason for this relationship. This is the first attempt to examine the effect of ownership structure on a merger decision. In particular, we focused on the family firms that went public in large numbers in the first half of the 1960s and are still prevalent among Japan's listed firms. M&A during the period of high economic growth and family firms were both neglected in previous studies.

Using a pooled dataset of the family and non-family firms that went public between 1949 and 1965, we found that almost 80% of the mergers between independent firms between 1955 and 1973 were conducted by non-family firms (Table 2) and that they were also significantly more "merger-intensive" than family firms (Table 4), even after controlling for firm and industry specific factors (Table 6). Thus, ownership is significant for merger decisions. Moreover, we can assume that relatively large and unprofitable firms tend to merge with smaller firms in the same industry.

Next, we considered the reasons for this difference in mergers between family and non-family firms. We argued that the owners of family firms are not willing to merge for fear of losing control over their firms and that the main banks provide their group firms with merger opportunities. Our hypotheses based on these arguments were examined by estimating the merger probability with the sub-samples of family and non-family firms (Table 7 and 8).

The results only support the hypothesis that family firms with a higher ratio of family ownership are more likely to merge than those with a lower ratio. Shareholding by financial institutions has unexpected negative effects on the merger decision, which requires further investigation. Thus far, the main reason for the different merger probabilities between family and non-family firms appears to be on the side of family firms.

A major implication of our study is that we should not neglect ownership structure in studying and discussing M&A. A primary contribution of this paper is our confirmation of the existence of a distinct difference in the merger probability between family and non-family firms. Therefore, our study provides a new perspective for the study of M&A. From the perspective of the changes in ownership structure and attitudes of founders and family members toward M&A, we may be able to explain the

sluggish M&A in the post-war period and the current M&A boom in Japan. Family firms will also bring new insight into the international comparison of M&A.

To draw this paper to a close, we will refer to some of our study's limitations in order to illustrate the future research agenda. First, we have insufficient information regarding the merger partners, because most of them are small, unlisted firms. For further research, we require more detailed and precise information on the relationship of merger partners and the motivation and process of the merger[22].

Second, we restricted our target to mergers and did not consider acquisitions, even though there have been many more acquisitions than mergers in Japanese history. We cannot reject the possibility that M&A are substitutions and family firms are less likely to merge with but more likely to acquire other firms than non-family firms, because acquisitions by definition do not influence the ownership structure of the acquiring firms.

Third, our estimation models should be extended and improved. For example, Tobin's Q, which was used in previous studies as a proxy for future business opportunities, should be included in the models. Fourth, we should determine the appropriate solution to the puzzle of why financial ownership has a negative influence on the merger probability of non-family firms. Last but not least, it is important to extend this line of research to M&A in recent years in order to examine the generality of our findings.

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[22] We should at least know precisely if the partners were truly independent of each other and if they were in the same industry prior to their merger.

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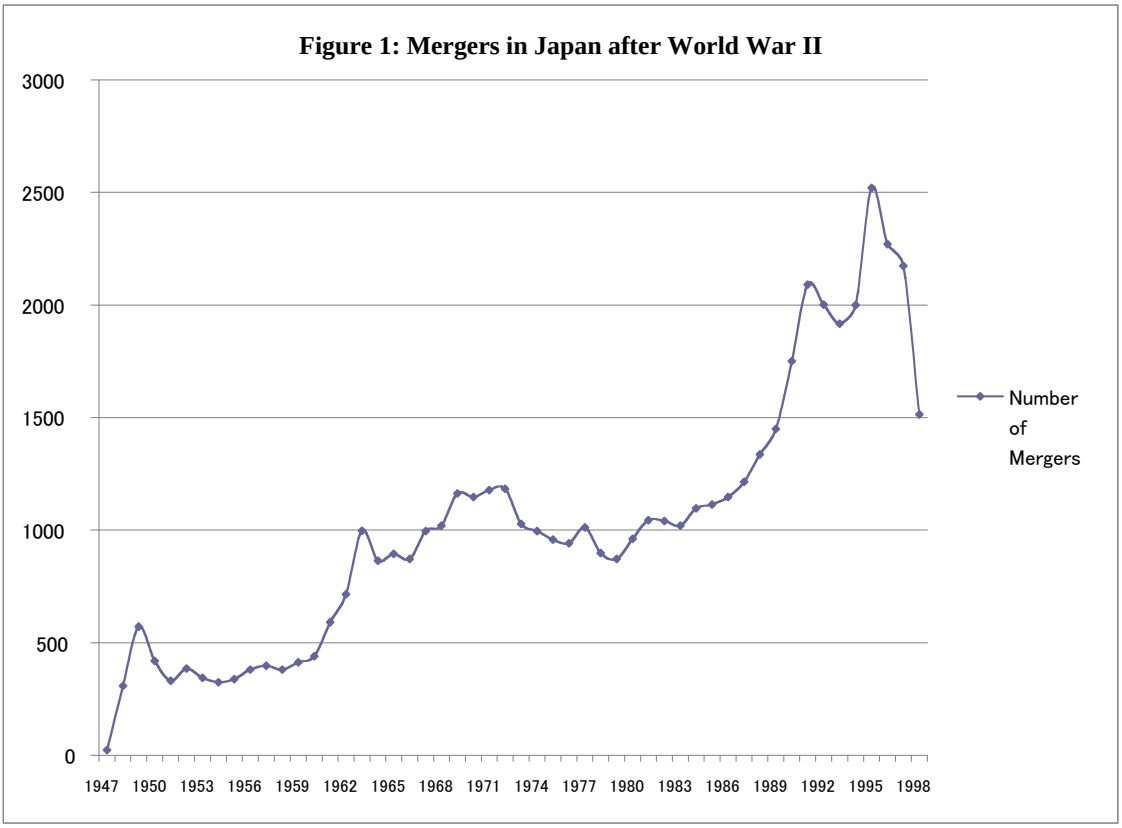
Figure 1: Mergers in Japan after World War II



Data Source: Japan Fair Trade Commission

Table 1: Family and Non-family Firms on the Japanese Stock Exchanges, 1949-1965

This table displays the number of family and non-family firms that went public in each year. We define family firms as those in which the founder or his family members are among the ten largest shareholders or in the top management (CEO or chairman).

IPO	Family firm	Non-family firm	Total
1949	101	312	413
1950	12	45	57
1951	2	20	22
1952	9	22	31
1953	6	16	22
1954	8	9	17
1955	7	3	10
1956	3	3	6
1957	5	5	10
1958	2	3	5
1959	1	7	8
1960	2	5	7
1961	183	190	373
1962	119	61	180
1963	69	26	95
1964	30	14	44
1965	1	0	1
Total	560	741	1,301

Table 2: Classification of Merger Types

Merger Type	Type 1		Type 2		Type 3	
Family	1	(1)	35	(35)	58	(53)
Non-family	9	(9)	95	(87)	211	(189)
Total	10	(10)	130	(122)	269	(242)

* Number of firms for which financial data are available in parentheses

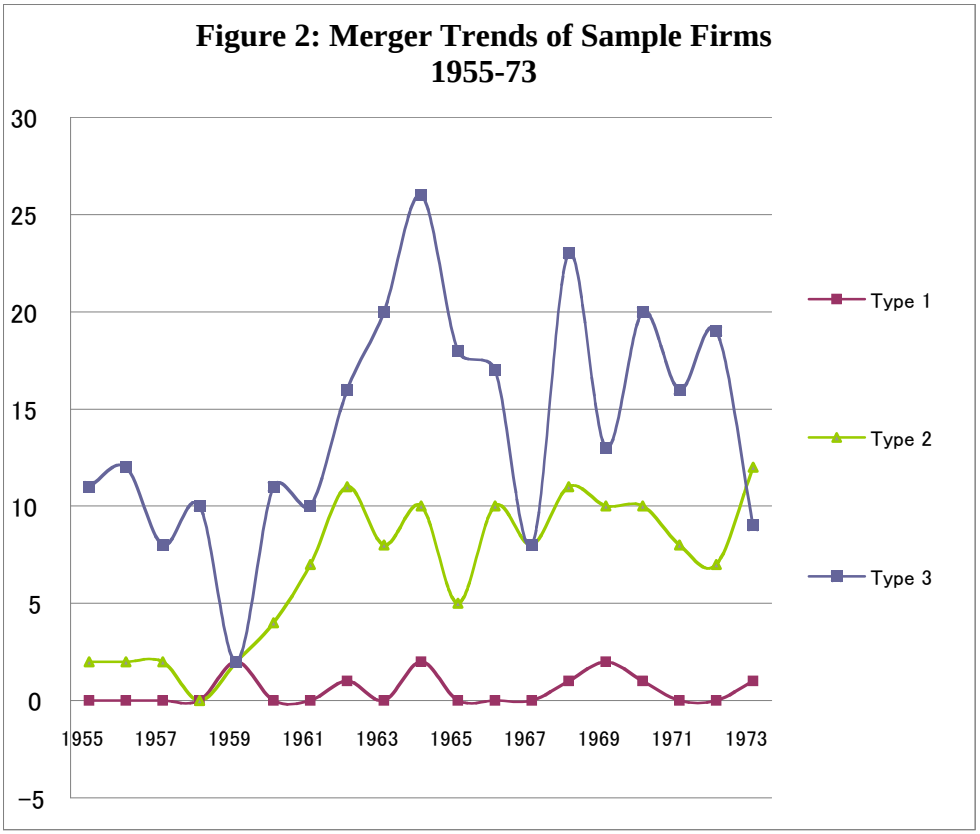


Table 3: Number of Mergers by Family and Non-family Firms in Various Industries

Industry	Total		Family		Non-family	
Food	27	(26)	8	(7)	19	(19)
Textile and Clothing	12	(12)	4	(4)	8	(8)
Paper	8	(8)	0	(0)	8	(8)
Printing and Publishing	6	(6)	1	(1)	5	(5)
Chemical	32	(28)	6	(6)	26	(22)
Rubber	3	(2)	2	(1)	1	(1)
Ceramics	10	(9)	0	(0)	10	(9)
Steel	15	(13)	0	(0)	15	(13)
Nonferrous Metals	10	(8)	1	(0)	9	(8)
Metal Products	6	(6)	1	(1)	5	(5)
General Machinery	16	(16)	1	(1)	15	(15)
Electrical Machinery	10	(9)	1	(1)	9	(8)
Transportation Equipment	13	(14)	6	(7)	7	(7)
Precision Instruments	2	(2)	2	(2)	0	(0)
Other Manufacturing	8	(6)	2	(2)	6	(4)
Construction	8	(9)	5	(5)	3	(4)
Wholesale and Retail	28	(20)	3	(3)	25	(17)
Real Estate	4	(4)	0	(0)	4	(4)
Transportation	37	(33)	12	(10)	25	(23)
Utilities	2	(2)	0	(0)	2	(2)
Services	12	(9)	3	(2)	9	(7)
Total	269	(242)	58	(53)	211	(189)

* Numbers of mergers for which financial data are not available in parentheses.

Table 4: Results of the Statistical Tests

Group	Target	Mergers	Sample	Ratio	Obs.	Probability	Difference
Panel A : Full Sample							
Family firm	Full sample	58	554	0.10	8,336	0.0069	0.0084***
Non-family firm		211	725	0.29	13,719	0.0153	(30.56)
Panel B : Sub-periods							
Family firm	1955Š1964	24	317	0.08	3,350	0.0071	0.0070***
Non-family firm		102	560	0.18	7,194	0.0141	(9.53)
Family firm	1965Š1973	34	554	0.06	4,986	0.0068	0.0098***
Non-family firm		109	725	0.15	6,525	0.0167	(22.55)
Panel C : Manufacturing and Non-manufacturing Industries							
Family firm	Manufacturing	35	410	0.09	6,084	0.0057	0.0089***
Non-family firm		143	513	0.28	9,737	0.0146	(26.90)
Family firm	Non-manufacturing	23	144	0.16	2,252	0.0102	0.0068**
Non-family firm		68	212	0.32	3,982	0.0170	(4.71)

* Mergers: Number of mergers

* Sample: Number of listed firms in 1973

* Ratio: Number of mergers / sample size

* Obs.: Number of observations (firm-year combinations)

* Probability: Number of mergers / number of observations

* Differences: Difference of probability between non-family and family firms.

Hotelling's t-squared generalized means test is used to test the significance of the differences.

F-values in parentheses. Level of significance: *** 1%; ** 5%.

Table 5: Descriptive Statistics

Variables	Group	Obs.	Mean	Median	Max	Min	SD
Probability of Merger	Full Sample	17,907	0.014	0.000	1.000	0.000	0.115
	Non-family	10,797	0.018	0.000	1.000	0.000	0.131
	Family	7,110	0.007	0.000	1.000	0.000	0.086
Financial Ownership (%)	Full Sample	13,212	11.200	9.830	53.810	0.000	9.134
	Non-family	7,311	13.490	12.670	53.810	0.000	9.582
	Family	5,901	8.363	6.850	41.400	0.000	7.648
ROA (%)	Full Sample	17,898	8.387	7.618	48.873	Š74.516	5.458
	Non family	10,790	7.861	7.268	48.873	Š74.516	5.230
	Family	7,108	9.187	8.296	41.448	Š18.364	5.696
Firm Size	Full Sample	17,907	15.975	15.808	21.954	11.958	1.487
	Non family	10,797	16.204	16.043	21.954	11.958	1.574
	Family	7,110	15.626	15.497	20.392	12.026	1.266
Firm Age	Full Sample	17,907	31.066	28.000	83.000	0.000	15.120
	Non family	10,797	32.351	29.000	83.000	0.000	16.420
	Family	7,110	29.115	26.000	80.000	4.000	12.653
Debt Ratio (%)	Full Sample	17,907	32.837	32.202	189.734	0.000	16.475
	Non family	10,797	35.975	35.381	189.734	0.000	16.684
	Family	7,110	28.071	27.591	151.112	0.000	14.942
Sales Growth (%)	Full Sample	16,954	17.291	15.625	335.379	Š88.957	19.378
	Non family	10,206	16.251	14.780	260.189	Š80.790	18.513
	Family	6,748	18.864	17.076	335.379	Š88.957	20.520

Table 6: Results of Probit Estimation

Variables	Marginal Effects
Family Dummy	Š0.0050 (Š2.71) ***
Financial Ownership	Š0.0002 (Š2.65) ***
ROA	Š0.0005 (Š3.26) ***
Firm Size	0.0044 (7.24) ***
Firm Age	0.0000 (1.58)
Debt Ratio	0.0000 (0.01)
Sales Growth	Š0.0000 (Š0.26)
Constant	Š0.1127 (Š10.71) ***
Number of obs.	11,765
Wald chi-squared(42)	193.03
Prob > chi-squared	0.0000
Pseudo R-squared	0.0982
Year dummy	yes
Industry dummy	yes

Marginal effects are shown instead of coefficients.

T-values in parentheses. Level of Significance: *** 1%.

Table 7: Estimation Results for Family Firms

Variables	Marginal Effects
Family Ownership	0.0001 (1.72) *
Financial Ownership	Š0.0001 (Š0.01)
ROA	Š0.0006 (Š2.70) ***
Firm Size	0.0022 (2.27) **
Firm Age	Š0.0001 (Š1.61)
Debt Ratio	Š0.0000 (Š0.23)
Sales Growth	Š0.0000 (Š0.28)
Constant	Š0.0579 (Š3.71) ***
Number of obs.	3,563
Wald chi-squared	49.40
Prob > chi-squared	0.0143
Pseudo R-squared	0.1227
Industry dummy	yes
year dummy	yes

Marginal effects are shown instead of coefficients.

T-values in parentheses. Level of Significance: *** 1%; ** 5%: * 10%.

Table 8: Estimation Results for Non-family Firms

Variables	Marginal Effects
Financial Ownership	Š0.0005 (Š3.09) ***
ROA	Š0.0008 (Š2.30) **
Firm Size	0.0084 (7.42) ***
Firm Age	0.0001 (1.91) *
Debt Ratio	0.0000 (0.07)
Sales Growth	Š0.0000 (Š0.27)
Constant	Š0.1940 (10.58) ***
Number of obs.	5,759
Wald chi-squared	130.46
Prob > chi-squared	0.0000
Pseudo R-squared	0.1083
Industry dummy	yes
year dummy	yes

Marginal effects are shown instead of coefficients.

T-values in parentheses. Level of Significance: *** 1%; ** 5%: * 10%.