

**Corporate governance and merger and acquisition (M&A) FDI:  
firm-level evidence from Japanese FDI into the US**

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**Abstract**

Merger and acquisition (M&A) is a mechanism for promoting corporate governance. This suggests that an improvement in overall corporate governance may have a negative effect on M&A activity. Since M&A foreign direct investment (FDI) is a cross-border variant of M&A, stronger corporate governance may also reduce M&A FDI. Hence, we use firm-level evidence from Japanese FDI into the US to investigate the effect of US corporate governance on Japanese M&A FDI. Our results indicate that two landmark corporate governance regulations by the US SEC in 1992 contributed significantly to the sharp decline in Japanese M&A FDI in the US during the 1990s. Our evidence lends some support to the notion that corporate governance may affect not only domestic M&A activity but also cross-border M&A activity. Our study also sheds light on the puzzle of why Japanese FDI into the US fell during the 1990s despite the depreciation of the US dollar.

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## 1. Introduction

Prior to 1980, theories of foreign direct investment (FDI) focused traditionally on industrial organization motives related to the ownership of firm-specific assets which enable firms to remain competitive in foreign countries.<sup>1</sup> Examples of such assets include advanced technology, superior management skills and marketing capacity. Although the traditional theories have proved useful for explaining the pattern of FDI in particular industries, they cannot account for the stylized fact that FDI sometimes occur in waves, as happened in the case of Japanese FDI into the US during the 1980s and 1990s. This serious shortcoming of industrial organization theories of FDI motivated Froot and Stein (1991) to put forth relative wealth as a key determinant of FDI. More precisely, they argue that a depreciation of the US dollar increases the relative wealth of foreign firms, which, in turn, increases FDI into the US. Their key assumption is that owners of assets know the assets' realized payoffs without cost but external creditors can verify the payoffs only with costs. This makes external finance more costly than internal finance so foreign firms bidding for US assets rely mostly on internal funds. Since those internal funds are denominated in foreign currency, a depreciation of the US dollar increases foreign firms' relative wealth and allows them to bid more aggressively for US assets.

Froot and Stein's theoretical proposition fits in well with the stylized facts of the 1980s and early 1990s. Japanese FDI flows into the United States rose when the US dollar real exchange rate depreciated and fell when the US dollar appreciated.<sup>2</sup> After 1991, however, Japanese FDI into the US declined sharply despite the depreciation of the

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<sup>1</sup> Caves (1971) and Graham and Krugman (1995) review theories of FDI based on industrial organization motives.

<sup>2</sup> From the 1980 to 1991, Froot and Stein (1991) and Klein and Rosengren (1994) find evidence linking exchange rates and US FDI.

US dollar. To explain the apparent paradox, Klein, Peek and Rosengren (2002) propose the relative access to credit hypothesis, according to which Japanese firms' reduced access to credit drove the sharp drop in Japanese FDI in the 1990s. This proposition is based on the convergence of two factors – the Japanese banking crisis of the 1990s and the Japanese main bank system. Japanese firms investing in the US could have been constrained by the reduction of available credit from their main banks as those banks' finances weakened during the crisis.<sup>3</sup> Since a bank's financial health affects the availability of loans, Klein, Peek and Rosengren use Moody's bank rating as an indicator of the financial position of Japanese banks. The results of their logit regressions for firm-level data show that Japanese firms whose main banks have lower Moody's rating have a lower probability of undertaking FDI into the US. In a separate regression using firm-level data aggregated by main banks, they find that Moody's bank rating downgrades had an adverse impact on Japanese FDI into the US.

In this paper, we put forth another hypothesis as to why Japanese FDI into the US fell sharply since the early 1990s despite the depreciation of the US dollar. Our basic hypothesis is that improvement in US corporate governance in the 1990s had a negative impact on Japanese FDI into the US. More precisely, stronger US corporate governance reduces the scope for merger and acquisition (M&A) FDI. Along with establishing new plants and forming joint ventures, undertaking M&A is one of three main modes of FDI. The advantages of M&A FDI relative to the other two modes of FDI arise from ready access to market share, technology, brand name and other-firm specific assets which immediately provide the acquiring firm with a competitive advantage in the foreign market. M&A FDI is thus one of the fastest ways for the investing firm to enter a foreign

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<sup>3</sup> Gibson (1995) examines the effect of bank health in Japan to domestic investment.

market. In contrast, if the mode of FDI is to build new production facilities, the investor cannot begin its operations in the foreign market until those facilities are completed, which may require a substantial period of time. Although ideal for firms sharing tacit but distinct firm-specific assets, a joint venture requires a continuous negotiation of shared resources which may compromise efficiency in the use of assets.

It is certainly valid to view M&A FDI as one type of FDI, as we have just done. However, it is equally valid to view M&A FDI as a cross-border variant of M&A which typically involves the acquisition of a firm in one country by a firm from another country. For our purposes, M&A refers to the merger and acquisition of US firms by Japanese firms. Once we think of M&A FDI as one form of M&A, it becomes intuitively plausible that the factors which influence M&A in general should also have an effect on M&A FDI. One of the most powerful motivations for M&A activity in the US and elsewhere has been to create shareholder value and improve corporate governance.<sup>4</sup> There is no sound reason why this motivation for acquiring another firm should be any weaker when the acquiring firm happens to be a foreign firm. Regardless of whether the acquiring firm is foreign or domestic, weak corporate governance in the target firm implies opportunities to improve performance and thus increase shareholder value by strengthening governance. The presence of such opportunities can be expected to attract not only US investors but also Japanese and other foreign investors in the US market for corporate control.

Conversely, a stronger corporate governance environment will reduce the opportunities for improving corporate performance and increasing shareholder value. This will reduce the demand for M&A activity, including cross-border M&A activity such as the acquisition of US firms by Japanese firms. If there are fewer under-

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<sup>4</sup> See, for example, Stein (2003), Jensen (1988,1993) and Kaplan and Stein (1993).

performing US firms due to an improvement in overall US corporate governance, there would be fewer attractive targets for potential investors, whether American or Japanese. In this context, Kaplan (1997) notes that two landmark corporate governance regulations by the US Securities and Exchange Commission (SEC) in 1992 played a catalytic role in reshaping US corporate governance in the 1990s. First, the SEC reduced the cost to shareholders of coordinating challenges against underperforming management teams by relaxing the proxy rules regarding shareholder communications. Second, the SEC required public companies to provide more detailed disclosure of top executive compensation and its relation to firm performance, especially stock performance. The combined effect of the new SEC regulations has been to accelerate and consolidate the voluntary pursuit of shareholder-friendly policies by the managements of US corporations.

The original contribution of this paper to the empirical literature on the determinants of FDI is that it is the first to examine the relationship between corporate governance and M&A FDI. More specifically, using firm-level evidence, we test the possibility that the improvement in US corporate governance since 1992 had a significant negative effect on acquisition of US firms by Japanese firms. There are theoretical reasons for a negative relationship between corporate governance and M&A, and we have earlier argued that M&A FDI can be viewed as a cross-border form of FDI. Our study was motivated by the same puzzle which motivated the Klein, Peek and Rosengren (KPR) study, namely the sharp drop in Japanese FDI into the US despite the fall of the US dollar. Our suggested explanation for the puzzle of falling Japanese FDI in the face of a fall in the US dollar – improved US corporate governance – differs from the

explanation put forth by KPR – Japanese firms’ reduced access to credit. However, the two explanations are not mutually exclusive and it is certainly possible that both played a role. In order to capture the effect of corporate governance more accurately, we control for access to credit using KPR’s basic empirical framework. Holding the other factors constant, we find that the change in corporate governance rules in the US in 1992 explains 48.7% of the reduction in the rate of Japanese M&A FDI into the United States.

The KPR framework consists of two models. The first model uses data aggregated at the bank level with rate of FDI of Japanese firms affiliated with 11 Japanese banks as dependent variable and the changes in credit ratings of the main banks and changes in firms’ profits, firms’ relative wealth, unemployment rate in the US and job-offers-to-applicants ratio in Japan. The second model is a logit model using firm level data to determine how the probability of a Japanese firm’s FDI into the United States is affected by the rating of the firm’s main banks, the firm’s relative wealth, firm profit, firm size, US unemployment rate and Japanese job-offers-to-applicants ratio.

Although the KPR model provides our basic empirical framework in the sense that we use the same sets of firm-level explanatory variables, we do not use two models but instead use one unifying model to explain the Japanese firm’s rate of M&A FDI into the United States conditional on the firm’s intention to undertake M&A FDI into the United States.<sup>5</sup> The unifying model is called the zero negative binomial (ZINB) model, which reduces to the zero-inflated Poisson model when the dispersion parameter of the negative binomial distribution is equal to zero. Our main rationale for using the ZINB

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<sup>5</sup> We exclude macroeconomic variables such as the US unemployment rate and Japan job-offers-to-applicants ratio in our ZINB regression because Moulton (1990) argues that standard errors of regressors are biased upward when aggregate explanatory variables are included in regressions with firm-level dependent and independent variables. This is shown for ZINB regressions by Alba, Wang and Ho (2007).

model is that it is best suited to handle our data, which is count data with excess zeros. The excess zeros in the ZINB model may be explained by the behavioral traits of Japanese firms with observed FDI of zero. The first behavioral trait is of firms with no intention to undertake M&A FDI in the United States. These firms will always have zero FDI in the data. The second trait is of firms with the intention to undertake M&A FDI but for whatever reason did not undertake FDI for the period. These firms add an additional mass of zeros in the observations. With a zero observation, it is not obvious whether the observed zero is for a firm with or without the intention to undertake M&A FDI.

In the ZINB model, we can distinguish whether a firm does or does not intend to undertake M&A FDI by assuming that the firm's intention to undertake FDI is a partially observable binary random variable. The ZINB model estimates the probabilities of the firm's intention to invest in the United States as a logit function based on a vector of determinants. These determinants are similar to those used by Klein, Peek and Rosengren in their logit regressions. In addition, the model estimates the rate of FDI for a firm with intention to undertake M&A FDI as an exponential function based on the change in corporate governance variable and firm-level control variables as defined by Klein, Peek and Rosengren. Note that the rate of FDI for any firm is equal to the rate of FDI for a firm with intention to undertake FDI multiplied by the probability of the firm's intention to invest in the United States.<sup>6</sup>

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<sup>6</sup> In contrast, the NB model does not calculate the probabilities of the firm's intention to undertake FDI in calculating the firm's rate of FDI. Using the NB instead of the ZINB model underestimates the firm's rate of FDI. We would be making incorrect inferences on the firm's rate of FDI. We formally present the ZINB model in Section 2.

## **2. Data on Japanese firms and model specification**

We examine the impact of corporate governance on merger and acquisition (M&A) FDI of Japanese firms in the United States using Klein, Peek and Rosegren's (2002) model to control for relative access to credit, relative wealth, firm profitability and firm size. To build our data set on Japanese firms with M&A FDI into the United States, we consider all firms listed in the first section of the Japan Company Handbook (JCH) with at least one M&A FDI in the United States from 1987 to 1994 and associated with one of the 11 Japanese banks as their main bank. We follow Klein, Peek and Rosengren (2002) who identify the 11 banks as the Industrial Bank of Japan, Dai-Ichi Kangyo Bank, Sakura Bank, Mitsubishi Bank, Fuji Bank, Sumitomo Bank, Sanwa Bank, Tokai Bank, Asahi Bank, Long-Term Credit Bank and Daiwa Bank. One of the 11 banks is the firm's main bank if it is the first bank among reference banks listed in the JCH for the firm. From 1987 to 1994, 147 firms in the JCH with at least one M&A FDI in the United States are associated with one of the 11 banks.

Klein, Peek and Rosengren focus on the 11 primary or main banks of Japanese firms to examine the impact of reduced access to credit on Japanese firms' FDI. They justify focusing on Japanese firms' main bank rather than considering all of the firms' reference banks by pointing to the special relationship between the firms and their main banks in Japan. Among other banks, the main bank has the largest share of the firm's loan and is typically a principal shareholder of the firm. The equity holdings of the main bank allow its senior executives to serve on the firm's board. This gives the main bank access to private information on the firm and reduces the main bank's monitoring costs. Because of lower monitoring costs, the main bank can offer better credit terms to its client firm.



We construct a data set on the number of M&A FDI projects of 147 Japanese firms from 1987 to 1994. With 147 firms and 8 periods, our data set has 1176 observations. The observations on the number of FDI projects are compiled from the United States International Trade Administration (ITA) publication, “Foreign Direct Investment in the United States: Transactions.” We use observations on the number rather than values of M&A FDI projects because the ITA does not report the values on 51% of the FDI projects.<sup>7</sup> When ITA reports that a firm has a M&A FDI for a certain year, we record this as the number of M&A FDI for the firm in that year. Our data set has 250 observations in which the ITA reports M&A FDI of 147 firms ranging from one to four. During years when the ITA does not report any M&A FDI project for a firm, we record a zero as the observation for the firm during those periods. Our data set has 926 zero observations which account for 79% of our observations.

In addition to data on Japanese M&A FDI in the US, our empirical analysis also requires data on three firm-specific characteristics of Japanese firms and the credit ratings of their respective main banks, as will be explained in the next section on the determinants of M&A FDI. The data on bank ratings are from Moody’s long-term deposit ratings. Data on firm characteristics are from the Pacific-Basin Capital Markets Databases (PACAP). The US dollar-yen exchange rate is from the International Financial Statistics. The S&P 500 index is from Global Financial Data.

A firm may have no M&A FDI project for a given year but this does not mean that it has no intention to undertake M&A FDI in the United States for that year. A firm

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<sup>7</sup> ITA does not report values in 51% of FDI projects because of confidentiality agreements with firms. If we use only 49% of the observations with reported values, we would be introducing selection bias in our estimates. Hence, we use the number of FDI as our dependent variable. Similarly, Campa (1993), Blonigen (1997), Tomlin (2000), List (2001) and Klein, Peek and Rosengren (2002) use the number rather than the value of FDI projects from the same ITA data set. Swenson (2004) is the exception.

may have the intention to undertake M&A FDI but for whatever reason, it does not undertake M&A FDI. Hence, we distinguish among firms according to their intention to undertake M&A FDI in the United States by defining a partially observable binary random variable  $D_i$  as follows:

$$D_i = \begin{cases} 0 & \text{if firm } i \text{ does not intend to undertake M \& A FDI in the US; and} \\ 1 & \text{if firm } i \text{ intends to undertake M \& A FDI in the US.} \end{cases} \quad (1)$$

The probability that firm  $i$  does not intend to undertake M&A FDI in the United States is given by:

$$P_i \equiv \text{Prob}(D_i = 0) = \frac{\exp(\tilde{\beta}' Z_i)}{1 + \exp(\tilde{\beta}' Z_i)} \equiv \text{logit}(\tilde{\beta}' Z_i), \quad (2)$$

where  $P_i$  is a logit function of a vector of regressors ( $Z_i$ ).  $1 - P_i$  is the probability that firm  $i$  intends to undertake M&A FDI in the US.

If firm  $i$  does not intend to undertake M&A FDI in the United States ( $D_i = 0$ ) for a given year, we assume that it has no M&A FDI project for that year. However, if firm  $i$  intends to undertake M&A FDI in the United States ( $D_i = 1$ ), we assume that the number of its M&A FDI projects has a negative binomial distribution with a mean of  $\lambda_i$  and dispersion parameter  $\alpha > 0$ . Thus, the probability of having an observation of a zero M&A FDI project can be stated as:

$$\text{Prob}[FDI\_observation_i = \text{M \& A FDI}_i = 0] = P_i + (1 - P_i) \text{negativebinomial}(0; \lambda_i, \alpha); \quad (3)$$

and the probability of an observation having a non-zero M&A FDI project is given by:

$$\begin{aligned} \text{Prob}[FDI\_observation_i = \text{M \& A FDI}_i > 0] = \\ (1 - P_i) \text{negativebinomial}(\text{M \& A FDI}_i; \lambda_i, \alpha) \end{aligned} \quad (4)$$

The mean of the negative binomial distribution ( $\lambda_i$ ) is the firm  $i$ 's rate of M&A FDI conditional on the firm with intention to invest, and is an exponential function of the vector of regressors  $X_i$  :

$$\lambda_i = e^{\beta'X_i} . \quad (5)$$

For a firm with intention to invest in the United States, the conditional mean and variance of M&A FDI $_i$  are given respectively by:

$$E(\text{M \& A FDI}_i | D_i = 1) = \lambda_i \quad (6)$$

$$\text{Var}(\text{M \& A FDI}_i | D_i = 1) = \lambda_i + \alpha\lambda_i^2 \quad (7)$$

Equations (6) and (7) indicate that among firms with intention to invest in the United States, the model can account for the extra variation in M&A FDI projects relative to the Poisson distribution. The model is called the zero-inflated negative binomial (ZINB) regression model. The ZINB model reduces to a zero-inflated Poisson (ZIP) model as the limit of the dispersion parameter  $\alpha$  approaches zero.<sup>8</sup>

Note that the rate of M&A FDI for any firm  $i$  is given by:

$$E(\text{M \& A FDI}_i) = \lambda_i(1 - P_i) .^9 \quad (8)$$

Equation (8) implies that the rate of M&A FDI for any firm is affected by both the conditional rate of M&A FDI for a firm with intention to undertake M&A FDI in the United States ( $\lambda_i$ ) and the probability of a firm with intention to undertake M&A FDI in

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<sup>8</sup> The Poisson and the negative binomial regression models are discussed in Greene (2005). Greene (1994) and Freund, Knesner, LoSasso (1999) discuss dealing with excess zeros in count data.

<sup>9</sup> Equation (8) can be derived as

$E(\text{FDI}_i) = E(\text{FDI}_i | D_i = 0)\text{Pr}(D_i = 0) + E(\text{FDI}_i | D_i = 1)\text{Pr}(D_i = 1)$  in which  $E(\text{FDI}_i | D_i = 0) = 0$ ,  $E(\text{FDI}_i | D_i = 1) = \lambda_i$  and  $\text{Pr}(D_i = 1) = 1 - P_i$ .

the United States ( $1 - P_i$ ). In other words, given ( $1 - P_i$ ), we can infer the rate of M&A FDI for any firm  $i$  from the conditional rate of M&A FDI ( $\lambda_i$ ).

### **3. Determinants of M&A FDI**

In equation 2, the regressors in the vector  $Z_i$  are firm-level determinants from Klein, Peek and Rosengren's (2002) logit regression, namely the credit rating of the firm's main bank and the firm's own size, profits and relative wealth. These factors affect the probability that a Japanese firm has no intention to invest in the US ( $P_i$ ) and the probability that a Japanese firm has intention to invest in the US ( $1 - P_i$ ). Although our study differs from KPR in that we try to explain M&A FDI rather than FDI, there is no intuitively obvious reason why the KPR determinants have any less explanatory power for M&A FDI than they do for other types of FDI. If anything, the opposite may be true. For example, relative wealth, one of the KPR determinants, refers to the wealth of Japanese firms relative to the wealth of US firms, allowing them to bid more aggressively for US firms than other US firms.

The credit rating of the firm's main bank is measured by its Moody's long-term deposit rating in December of the previous year. The ratings are, from the strongest to the weakest rating, Aaa, Aa1, Aa2, Aa3, A1 and A2.<sup>10</sup> Except for the best rating of Aaa, each Moody's rating is assigned a dummy variable of either one for that rating or zero otherwise. Hence, the estimated coefficient on the five dummy variables indicates the effect relative to that when the firm's main bank has a Moody's Aaa rating. If the dependent variable is the probability that the firm intends to undertake M&A FDI, a negative coefficient means that the probability of intending to undertake M&A FDI falls

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<sup>10</sup> Due to the very small number of observations for a rating of A3, the coefficient of the dummy variable for A3 had a very large standard error. Hence, we excluded these observations from our analysis.

when the main bank has a lower credit rating. In other words, the higher the credit rating of a Japanese firm's main bank, the higher its probability of intending to invest in the US.

In addition to the credit rating of the main bank, KPR also includes three firm-specific variables which may influence the firm's probability of intending to invest. Two variables – relative wealth and profitability – measure the financial health of firms and a third variable measures firm size. The firm's relative wealth is the log of the firm's market value plus the log of the US dollar-Japanese yen exchange rate minus the log of the S&P 500 index. According to Froot and Stein (1991), a higher stock price and higher value of the yen should improve the financial ability of Japanese firms to bid for US assets, which implies a positive effect on the probability that the firm intends to undertake M&A FDI. Firm profitability is measured by the ratio of the firm's profit to assets. Profitability also improves the financial ability to bid for US assets, so again we expect a positive effect on the probability of intending to pursue M&A FDI. Firm size is measured by the log of the firm's assets deflated by the wholesale price index. According to KPR, larger firms are more likely to engage in international activities and have the funding capacity to undertake FDI.<sup>11</sup> As with the other two firm-specific variables, we expect firm size to have a positive impact on the probability of intending to invest.

For a firm with intention to invest in the US, the conditional rate of M&A FDI ( $\lambda_i$ ) is determined by the change in the rating of the firm's main bank and the annual changes in the firm's relative wealth, size and profitability. These determinants are included in our ZINB model as regressors in the vector  $X_i$  of equation 5.<sup>12</sup> Following

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<sup>11</sup> The importance of firm size in FDI is explained in Caves (1971) and in Horst (1972).

<sup>12</sup> Klein, Peek and Rosengren (2002) consider the following as determinants of the change in the number of FDI of firms associated with one of the 11 Japanese banks: the change in the Moody's rating of each bank; the change in the sum of profits of firms associated with each bank; and the change in relative wealth measured as the

KPR, we examine how the changes in the Moody's ratings of the firm's main bank affect the firm's rate of M&A FDI. We measure these changes with a dummy variable for a single downgrade, or a downgrade by one level, and another dummy variable for multiple downgrades, or downgrade by two or more levels. We also include three firm-specific variables as determinants of the rate of M&A FDI ( $\lambda_i$ ) – namely, annual changes in the firm's relative wealth, size and profitability. These correspond to the firm-specific determinants of the probability of intending to invest discussed above. Downgrades in the rating of the firm's main bank should be negatively related to  $\lambda_i$  while the three firm-specific variables should be positively related.

We expand the KPR empirical framework by adding a corporate governance variable. Doing so allows us to control for Japanese firms' reduced access to credit when we measure the effect of corporate governance on Japanese M&A FDI into the US. As discussed earlier, 1992 marked a pivotal year in US corporate governance because the Securities and Exchange Commission (SEC) put into effect two landmark corporate governance regulations in that year. One regulation lowered the cost of coordinating shareholder actions against management teams while the other required firms to provide more detailed information about the relationship between top executive compensation and the firm's stock performance. A dummy variable which is zero from 1987 to 1992 and one from 1993 to 1994 is our measure of corporate governance. We expect a negative coefficient on this dummy variable since the improvement in US corporate governance reduces the scope for Japanese firms to create shareholder value by acquiring US firms.

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percentage change in the nominal Nikkei stock index minus the percentage change in the US S&P 500 stock index plus the percentage change in the US dollar-yen exchange rate. Klein, Peek and Rosengren focus on first differences in the variables in order to capture the impact of the changes in these variables – particularly the changes in the financial conditions of banks – on the changes in the pattern of FDI.

#### 4. Empirical results

We report the results of our estimation of the ZINB model and the ZIP model in Table 1 below. As noted earlier, the ZINB model reduces to the ZIP model as the limit of the dispersion parameter  $\alpha$  approaches zero. To determine between ZIP or ZINB model, we use the log-likelihood ratio test with a null hypothesis that  $\alpha = 0$  and an alternative hypothesis that  $\alpha > 0$ . The log-likelihood statistic is  $2(\log\text{-likelihood of ZINB} - \log\text{-likelihood of ZIP})$ . It has chi-square distribution with one degree of freedom. If the null cannot be rejected, the ZIP model holds. However, if the null is rejected in favor of the alternative hypothesis, then the ZINB model holds. Our log-likelihood statistic is 1.12 and the p-value is 0.29, which is much larger than .10 or 10% level of significance. This suggests that the ZIP model is more appropriate than the ZINB model.

[Insert Table 1 here]

The bottom half of Table 1 shows the impact of the main bank's credit rating and three firm-specific variables on the probability that the Japanese firm intends to undertake M&A FDI in the US. For both the ZIP and ZINB models, only firm size has a positive effect on the probability that the Japanese firm intends to undertake M&A FDI in the US at the 5% level of significance. However, the ratings of the firm's main bank, the firm's relative wealth and profitability have no significant effects on the probability that the Japanese firm intends to undertake M&A FDI in the United States.

The top half of Table 1 shows the impact of single and multiple downgrades of the main bank's credit rating, changes in the three firm-specific variables, and change in corporate governance on the conditional rate of M&A FDI. For our purposes, the variable

of greatest interest is the dummy variable for change in corporate governance, which takes on a value of 1 for 1993 and 1994 in light of the two landmark SEC regulations which strengthened US corporate governance in 1992. For both the ZIP and ZINB model, change in corporate governance has a negative effect on the conditional rate of M&A FDI at the 5% level of significance. This suggests that the post-1992 improvement in US corporate governance led to a reduction in M&A FDI into the US by Japanese firms. Explicitly, the rate of FDI for a firm with intention to undertake FDI has decreased by 48.73%, given that all other factors are constant.<sup>13</sup>

For both the ZIP and ZINB model, multiple downgrades have a significant negative effect at the 5% level of significance. This is consistent with KPR's hypothesis that relative access to credit is a major determinant of FDI. The change in firm profitability has a significant positive effect on the conditional rate of M&A FDI at the 5% level of significance. This suggests that improved profitability enables Japanese firms to pursue more M&A FDI projects in the US. The change in firm size has a positive effect on the conditional rate of M&A FDI, which implies that an increase in size induces firms to undertake more M&A FDI in the US. The positive effect is significant at the 10% level of significance for the ZIP model but insignificant for the ZINB model. In addition, a single downgrade of the main bank's credit rating and a change in relative wealth has an insignificant effect on the conditional rate of Japanese M&A in the United States.

## **5. Concluding remarks**

Economic intuition suggests that weak corporate governance may have a positive effect on M&A FDI. It is plausible to view M&A FDI as a cross-border variant of M&A,

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<sup>13</sup> 48.73% is calculated by  $(\exp(-0.668)-1) * 100$ .



and it is equally plausible that the main drivers of M&A also have an impact on M&A FDI. To a large degree, M&A activity in the US and other developed countries is motivated by poor corporate governance which creates opportunities for improving corporate governance and thus creating shareholder value. For example, the boom in M&A activity in the US during the 1980s was driven by the hostile takeovers of underperforming firms by profit-seeking investors who sought to increase the value of those firms through better management. There is no compelling reason why this profit motive should be limited to domestic investors. A weak corporate governance environment implies the presence of profit opportunities for domestic and foreign investors alike. By the same token, stronger corporate governance reduces profit opportunities for both types of investors.

In this paper, we empirically examine the relationship between corporate governance and M&A FDI using firm-level evidence from Japanese FDI into the US. More specifically, we investigate whether there has been a reduction in M&A FDI into the US by Japanese firms since 1992, a year in which two landmark corporate governance regulations by the US Securities and Exchange Commission (SEC) catalyzed the improvement of US corporate governance. To control for the other variables which may influence FDI, we use the Klein, Peek and Rosen's (KPR) basic empirical framework. We expand the KPR framework, which includes the main bank's credit rating and three firm-specific variables, by adding our variable of primary interest – the corporate governance dummy variable – as an additional determinant of FDI. Our evidence indicates that the improvement in the US corporate governance environment since 1992 had a negative effect on M&A activity in the US by Japanese investors.

Hence, better corporate governance in the US in 1992 affected domestic investors as well as Japanese investors.

Our original contribution to the empirical literature on the determinants of FDI is that our study is the first to examine the relationship between corporate governance and M&A FDI. Our firm-level evidence from Japanese M&A FDI into the US implies a negative relationship between corporate governance in the FDI destination country and M&A FDI. That is, a weakening of corporate governance has a positive effect on M&A FDI whereas a strengthening of corporate governance has a negative effect. Therefore, government regulations and policies which affect corporate governance may influence not only domestic M&A activity but cross-border M&A activity as well. In addition to initiating the empirical literature on the relationship between corporate governance and M&A FDI, our study also sheds some light on the question of why Japanese FDI into the US fell sharply in the 1990s despite the real depreciation of the US dollar. While KPR proposed Japanese firms' reduced access to credit as a solution to this puzzle, our study indicates that improved US corporate governance may also have contributed to the decline in Japanese M&A FDI. The two explanations are not mutually exclusive and it is certainly possible that both played a role. Finally, we hope that our study will encourage other researchers to use data from other countries to further investigate the relationship between corporate governance and FDI.

## References

- Alba, J. D., Wang P. and Ho W.Y., 2007. Relative access to credit, relative wealth and FDI: firm-level evidence from Japanese FDI into the United States. *Journal of Economic Integration* 22, 231-255.
- Blonigen, B., 1997. Firm-specific assets and the link between exchange rates and foreign direct investment. *American Economic Review* 87, 447-465.
- Campa, J., 1993. Entry by foreign firms in the United States under exchange rate uncertainty. *Review of Economics and Statistics* 75, 614-622.
- Caves, R., 1971. International corporations: the industrial economics of foreign investment. *Economica* 38, 1-27.
- Freund, D., Kniesner, T. and LoSasso, A., 1999. Dealing with the common econometric problems of count data with excess zeros, endogenous treatment effects, and attrition bias. *Economic Letters* 62, 7-12.
- Froot, K. and Stein, J., 1991. Exchange rates and foreign direct investment: an imperfect capital markets approach. *Quarterly Journal of Economics* 106, 1191-1217.
- Gibson, M., 1995. Can bank health affect investment? Evidence from Japan. *Journal of Business* 68, 281-308.
- Graham, E. and Krugman, P., 1995. *Foreign Direct Investment in the United States*. Institute for International Economics: Washington, D.C.
- Greene, W., 1994. Accounting for excess zeros and sample selection in Poisson and negative binomial regression models. Working Paper EC-94-10, Department of Economics, New York University.
- Greene, W., 2005. *Econometric Analysis*. Prentice-Hall: New Jersey.
- Horst, T., 1972. Firm and industry determinants of the decision to invest abroad: an empirical study. *Review of Economics and Statistics* 54, 258-266.
- Jensen, M., 1988, Takeovers: their causes and consequences. *Journal of Economic Perspectives* 2, 21-48.
- Jensen, M., 1993. The modern industrial revolution, exit and the failure of internal control systems. *Journal of Finance* 48, 831-880.
- Kaplan, S., 1997. The evolution of U.S. corporate governance: we are all Henry Kravis now. *Journal of Private Equity* Fall 1997, 7-14.
- Kaplan, S. and Stein, J., 1993. The evolution of buyout pricing and financial structure in the 1980s. *Quarterly Journal of Economics* 108, 313-357.
- Klein, M., Peek, J. and Rosengren, E., 2002. Troubled banks, impaired foreign direct investment: the role of relative access to credit. *American Economic Review* 92, 664-682.
- Klein, M. and Rosengren, E., 1994. The real exchange rate and foreign direct investment in the United States: relative wealth vs. relative wage effects. *Journal of International Economics* 36, 373-389.
- List, J., 2001. US county-level determinants of inbound FDI: evidence from a two step modified count data model. *International Journal of Industrial Organization* 19, 953-973.
- Moulton, B. R., 1990. An illustration of a pitfall in estimating the effects of aggregate variables on micro unit. *Review of Economics and Statistics* 72, 334-338.

- Stein, J., 2003. Agency, Information and Corporate Investment. In Constantinides, G., Harris, M., Stulz, R. (Eds.), *Handbook of the Economics of Finance*. North-Holland: Amsterdam.
- Swenson, D., 2004. Foreign investment and the mediation of trade flows. *Review of International Economics* 12, 609-629.
- Tomlin, K., 2000. The effects of model specification on foreign direct investment models: An application of count data models. *Southern Economic Journal* 67, 460-468.

**Table 1**  
**Estimates of the Zero-Inflated Poisson (ZIP) and Zero Negative Binomial (ZINB) Models**

Variable	ZIP Model	ZINB Model
<b>Dependent variable: rate of <math>FDI_i</math> (conditional on firm <math>i</math> intending to undertake M&amp;A FDI)</b>		
Constant	-0.838*** (0.112)	-0.857*** (0.146)
Change in corporate governance	-0.668** (0.291)	-0.688** (0.286)
Single downgrade	-0.112 (0.175)	-0.113 (0.173)
Multiple downgrades	-0.823** (0.400)	-0.836** (0.376)
Change in relative wealth	-0.120 (0.186)	-0.108 (0.200)
Change in profitability	13.444** (5.595)	13.763** (5.741)
Change in firm size	1.076* (0.576)	1.102 (0.621)
<b>Dependent variable: Probability that firm <math>i</math> intends to undertake M&amp;A FDI (<math>1-P_i</math>)</b>		
Constant	25.685 (21.786)	28.748 (24.868)
Aa1	-1.493 (1.161)	-1.639 (1.367)
Aa2	-3.794 (2.668)	-4.247 (3.364)
Aa3	1.038 (2.138)	1.288 (2.316)
A1	0.641 (1.981)	0.805 (2.027)
A2	5.480 (4.334)	5.996 (4.345)
Relative wealth	5.817 (4.064)	6.402 (4.628)
Firm profitability	51.711 (36.822)	56.807 (40.727)
Firm size	0.850** (0.395)	0.904** (0.454)
$\alpha$		1.943 (7.711)
Number of firms	147	147
Log-likelihood	-590.068	-589.508
Log-likelihood ratio test of $\alpha = 0$		1.120 (p-value = 0.29)

Notes: The change in corporate governance is a dummy variable which is zero from 1987 to 1992 and one from 1993 to 1994. It measures the change in corporate governance rules by the US Securities and Exchange Commission in 1992. Relative wealth is the log of the firm's market value plus the log of the US dollar-Japanese yen exchange rate minus the log of the S&P 500 index. Firm profitability is the ratio of the firm's profit to assets. Firm size is the log of the firm's assets deflated by the wholesale price index. The probability of the firm with intention to invest in the United States equals one minus the probability of a firm without the intention to invest in the United States. Numbers in brackets are the standard errors. The log-likelihood test has a null that that  $\alpha = 0$  and an alternative hypothesis that  $\alpha > 0$ . The log-likelihood statistic is  $2(\log\text{-likelihood of ZINB} - \log\text{-likelihood of ZIP})$ . It has chi-square distribution with one degree of freedom. The number in parenthesis is the robust standard error of the coefficient. \*, \*\*, and \*\*\* refer to 10%, 5% and 1% levels of significance respectively.