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The Impact of the Sarbanes-Oxley Act on the Premia Paid in Mergers and Acquisitions

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The Sarbanes-Oxley Act of 2002 introduced both costs of compliance as well as benefits of transparency to U.S. corporations with implications for the merger market. Regardless of how transparent a target firm appears, acquiring firms bear the responsibility to conduct their own due diligence. This study investigates whether the Sarbanes-Oxley Act, by increasing the transparency of firms and therefore potentially reducing the costs of due diligence, increased the premia paid in mergers and acquisitions. Using a sample of 104 deals between 1995 and 2006, we find no significant differences in premia paid between the pre- and post-Sarbanes-Oxley periods. This suggests firms incur the same costs of due diligence and the legislation did not impact this component of financial transactions. Only the method of payment and the target firm's market-to-book ratio and return on assets are significant factors in explaining premia paid. Our results are robust to several specifications.

INTRODUCTION

It is well documented that federal regulation influences the mergers and acquisitions market. Weston, Mitchell, and Mulherin (2004) outline eight main securities laws that have significantly impacted financial markets and operations in the United States in the last century: the Securities Act of 1933, the Securities Exchange Act of 1934, the Public Utility Holding Company Act of 1935, the Trust Indenture Act of 1939, the Investment Company Act of 1940, the Investment Advisers Act of 1940, the Securities Investor Protection Act of 1970, and the Sarbanes-Oxley Act of 2002 (SOX). Many researchers today are trying to assess the economic effect of Sarbanes-Oxley on the U.S. securities market in general and public companies in particular.

Despite research that has been done on the potential impact of SOX on mergers and acquisitions, no analysis has been done so far attempting to empirically estimate any impact of the Act on the premia paid for target companies in mergers and acquisitions (M&A). SOX introduced both costs of compliance and benefits of transparency to U.S. corporations. However, regardless of how transparent a target firm appears, acquiring firms bear the responsibility to conduct their own due diligence. This study investigates whether SOX, by increasing the transparency of firms and therefore potentially reducing the costs of due diligence, increased the premia paid in mergers and acquisitions. Using a sample of 104 deals between 1995 and 2006, we examine premia paid between the pre- and post-SOX periods.

Our evidence suggests no significant differences in premia paid following the enactment of SOX relative to the period before the legislation. This is consistent with the argument that firms incur the same costs of due diligence and that the legislation did not impact this component of financial transactions. Our results indicate that only the method of payment and the target firm's market-to-book ratio and return on assets are significant factors in explaining premia paid. We find our results to be robust to several specifications.

Our study proceeds as follows. The next section reviews the Sarbanes-Oxley Act of 2002, as well as literature on the determinants of premia paid for target companies. Section 2 presents

the model, defines our variables, and establishes the hypothesis to be tested. Section 3 describes our sample and data. Results and discussion are contained in Section 4. Section 5 concludes and provides suggestions for future research.

1. EVIDENCE ON FACTORS AFFECTING PREMIA

The Sarbanes-Oxley Act was signed into law by President George W. Bush on July 31, 2002. Currently, many researchers and practitioners are analyzing the economic impact of the Act on the United States equity market. The results appear mixed: some studies report significant negative economic consequences of the Act [see, for example, Zhang (2007)], while others show net positive effects [Jain and Rezaee (2006), Jain et al. (2006)].

According to Zhang (2007) and Jain and Rezaee (2006), SOX was signed into law to increase corporate control, prevent accounting fraud, improve corporate governance, and increase disclosure transparency. The goal was to increase firm value, improve efficiency, and ultimately, lead to greater investor confidence. The way to achieve these goals as established by the Act is increased scrutiny of corporate financial reporting, greater penalties for management for fraudulent activities, enforced independence of auditing firms, restriction of non-audit services, and enhanced and timely corporate disclosure.

The benefits of SOX come at a price – there are imposed costs of compliance with the Act that can potentially outweigh the benefits. Many researchers and economists are concerned this legislation may be harming business activity rather than improving it. Some research shows that the costs of complying with certain provisions of SOX, especially Section 404 which addresses internal control measures, outweigh the economic benefits [see, for example, Zhang (2007)], particularly for smaller firms.

The empirical study of Jain and Rezaee (2006) investigates the effect of SOX on the U.S. capital market. The authors find that, on average, the market reaction to the Act was positive. Jain et al. (2006) find that SOX was successful in improving market liquidity and increasing investor confidence in financial information and argue that SOX is positively viewed by investors. Jain and Rezaee (2006) also find that the market reaction was more positive for companies that were more in compliance with the Act prior to its enactment. The authors explain that companies with poorer governance and lower disclosure standards had to incur more costs when bringing their firms to compliance with SOX, thus the Act was more likely to negatively affect these companies. Overall, the study of Jain and Rezaee suggests that induced benefits of the Act significantly outweigh any imposed compliance costs.

Brantley (2004) and Falis and Eaton (2004) predict that the Act will have a major impact on companies evaluating potential mergers and acquisitions. As an acquiring company, the buyer carries the responsibility of making sure the combined company is meeting the requirements of SOX after the deal is signed. This could of course increase the due diligence costs for the acquirer.

Betton and Moran (2004) discuss that acquiring companies face imperfect information about the true synergy gains from a potential acquisition. Potential failed acquisitions might occur as a consequence of imperfect information about the true gains derived from corporate takeovers. The provisions of SOX aimed at improving transparency and the quality of information about companies thus have a profound effect on the M&A market, allowing acquiring companies to better assess the potential target and pay a more fair acquisition premium. Jain and Rezaee (2006) explain that SOX and its provisions were intended to increase investor confidence and reduce information asymmetries about the financial condition of the companies. This means reduction in the risk premium and thus a lower discount rate used by investors to evaluate companies. For companies acquiring public targets this means more fair valuation of the target, less chance to overpay and therefore, a lower premium offered.

Walton and Greenberg (2003), in their working paper on the impact of SOX on merger & acquisition practices, discuss that the Act will have a substantial impact on three areas: the due

diligence process for an M&A transaction, the negotiation and documentation of these transactions, and most importantly, the nature and structure of these deals. The authors also analyze how SOX may potentially influence different kinds of deals: the acquisition of a private company by a public company, public company by a public company, and private company by a private company.

Falis and Eaton (2004) argue that not all transactions are influenced in the same way. For example, a publicly traded target company is assumed to be already in compliance with SOX. Moreover, if a target is of non-significant size relative to its acquirer, regardless of whether it is private or public, the costs of compliance with SOX are not going to be significant. According to Falis and Eaton, most concerns arise when a publicly traded company is trying to acquire a target of significant size that is held privately and therefore is not required to comply with SOX. The major compliance issues that are likely to arise include a review of internal control, evaluation of the company's financial disclosure procedures and accounting practices, and a general audit of the target. Therefore, as the authors suggest, it is critical for acquiring companies to perform a costly and thorough inspection of a potential target to identify and address SOX compliance concerns.

Even if the target is already a public company and, therefore, expected to comply with SOX provisions, a careful review of the target's prior filings is needed to ensure its accuracy. Walton and Greenberg (2003) also agree that after the merger, the surviving company's compliance with SOX provisions becomes a major issue that should be properly planned and addressed well before the transaction is closed.

A. Profitability

There are several characteristics of targets and acquirers discussed in economic literature that were found to be important factors determining the size of the premium offered in merger transactions. Crawford and Lechner (1996) discover a positive relationship between the acquisition premium and attributes that make the target attractive. For example, higher profitability of the target as measured by ROA or ROE ratios positively affect the premium size, since more profitable target will have higher revenues, higher levels of free cash flow, and thus will demand a higher price. Gart (1999) agrees that more profitable targets will have higher market value and thus a higher premium offered.

B. Market-to-Book Ratio

The market-to-book ratio is an important tool used by investors in valuing companies. Analysts often consider firms with low market-to-book ratios to be a less risky investment since book value is presumably a level below which market price will not fall. Many researchers find the market-to-book ratio to be one of the significant determinants of acquisition premia. The literature discusses several different ways the market-to-book ratio can be interpreted when valuing companies: some researchers view it as a proxy for market valuation, some view it as a proxy for growth opportunities, and some view it as a proxy for risk.

For example, Dong et al. (2006) use misvaluation theory as one of the most important factors influencing acquisition decisions. These authors use the book value -to-price ratio as one of the major determinants of acquisition premia. Their study shows that a lower book-to-price ratio for acquirers results in a higher bid premia, and more undervalued targets as measured by the book-to-price ratio receive higher premia as well. Han et al. (1998) show that high market-to-book ratios signal overvalued firms and will result in lower premia offered. Kaufman (1988) finds that a lower market-to-book ratio of the target results in a higher premium.

On the other hand, Crawford and Lechner (1996) mention high market-to-book ratios of the target firm as signaling more growth opportunities and thus a more attractive target. This effect may result in a higher premium offered for these targets. The study by Gondhalekar et al. (2004) confirms this finding, showing that acquiring firms with low market-to-book ratios have fewer investment opportunities and are likely to pay more for targets. High market-to-book ratios are typical for high growth firms with many good investment opportunities, thus these firms will

be likely to pay lower premia since they have less need for external acquisitions. Gondhalekar et al. found that firms with lower market-to-book ratios are over invested and pay higher premia for targets. Moran and Betton (2004) find the target offer premium is significantly affected by the target's volatility and market-to-book ratio. Moran and Betton further show that high growth potential and high volatility of the target are associated with a higher acquisition premium, and as a result, a lower return to the acquiring company.

C. Size

Gart (1999) discusses various other factors influencing the size of the premium offered. According to Gart, a larger target company would require a larger premium. Moeller et al. (2005), Antoniou et al. (2007), and Crawford and Lechner (1996) agree that the relative size of the target to the bidder matters in determining the size of the premium offered. Target size may also have a negative effect on the premium offered since the cost of acquiring a larger target is higher. This effect is larger for larger public targets due to the higher activity of arbitrageurs. Gondhalekar et al. (2004) found that relative size (the ratio of acquirer's market value of equity to that of the target) is significant and negatively related to the size of the premium. These authors further suggest that smaller size companies are easier to integrate, thus acquirers will be more likely to pay higher premia for smaller targets. Bruner's (2004) analysis shows premia in mergers of companies of equal size are typically much smaller than those on other transactions. Clearly, the empirical results are mixed with regard to the size relationship with premiums.

D. Leverage

The debt-to-equity ratio is often used by analysts as a proxy for company risk. A high level of debt is associated with a higher probability of default since there is a chance the firm will be unable to earn enough to cover interest payments. Gart (1999) determines the debt-to-equity ratio (financial leverage) of the target to be an important factor affecting the size of the premium. A higher ratio implies higher debt and thus higher risk of the target, thus lowering a potential premium. Gondhalekar et al. (2004) and Kaufman (1988) also find that acquirer's debt-to-equity ratio is inversely related to acquisition premia. On the acquirer side, this ratio serves as a proxy for the acquirer's ability to pay for the target, and thus a higher debt-to-equity ratio will limit the size of the premium the acquirer can offer.

E. Method of Payment

Many researchers find that merger premia are higher when cash is offered, rather than stock [see, for example, Moeller et al. (2003), Blackburn et al. (1997), and Chang and Suk (1998)]. Several research studies [Dong et al., (2006), Blackburn et al. (1997), Da Silva Rosa et al. (2004), Moeller et al. (2003)] find that cash deals, on average, generate higher returns than stock deals. Moeller et al. (2003), for example, find that cash acquisitions are associated with abnormal returns insignificantly different from zero (in other words, these transactions earn a normal rate of return), whereas stock-paid acquisitions earn significantly negative returns. Hazelkorn et al. (2004) confirm that cash-financed acquisitions are perceived better by the market than those paid with stock. Andrade et al. (2001) find that larger acquisition deals tend to have smaller premia, a greater tendency to be stock-financed, and also prove to be less profitable.

It may be the case that cash is used when managers of the acquiring company believe their stock is undervalued, thus using cash in an acquisition signals to the market "good news" about the company stock. Blackburn et al. (1997) agree that using cash or debt generally signals "high quality projects" and can be used if the buying company believes its stock is undervalued. Sirover and Sahni (2006) explain that in cash transactions, the risk of a successful merger is fully absorbed by the acquiring company, since these deals usually assume debt financing, which requires regular interest payments that act as a disciplinary tool that motivates a better execution of the merger and more control over the integration process. Thus, cash transactions tend to be viewed more positively by the market as a positive signal of confidence in the deal outcome.

On the other hand, most studies [see, for example, Sirover and Sahni (2006), Moeller et al. (2003), Blackburn et al. (1997), Dong et al. (2006)] agree that stock transactions are perceived

by the market as signaling that the acquirer believes its stock to be overpriced. Dong et al. (2006) show that firms whose stock is overvalued get low abnormal returns on acquisition deals, and that this misvaluation often stimulates takeover activity. Sirower and Sahni (2006) suggest that often the buying company will pay with stock for the acquisition when it is less confident about the deal outcome, since with stock transactions the merger risk is proportionally shared with the target.

2. MODEL

Previous research shows that a premium paid for a target company depends on many different factors, including method of payment and financial characteristics of the target and acquiring companies (profitability, relative size, assets, solvency, etc.). Based on these factors, our model is formulated as follows:

$$\text{Premium} = \beta_0 + \beta_1 \text{tgt_mtb} + \beta_2 \text{tgt_de} + \beta_3 \text{tgt_roa} + \beta_4 \text{aq_mtb} + \beta_5 \text{aq_de} + \beta_6 \text{aq_roa} + \beta_7 \text{aq_tgt_mkt_cap} + \beta_8 \text{cash_dummy} + \beta_9 \text{95_02_dummy} + \varepsilon \quad (1)$$

The variables are defined as follows, where all financial variables are calculated using data for the fiscal year-end prior to the deal announcement date using Compustat:

Dependent Variable:

Premium – premium paid for a target company (percent). Derived by comparing the per share offer price at announcement with the average price of a target company share over the 20 trading days prior to the announcement. Source: Bloomberg.

Independent Variables:

Tgt_mtb – target’s market-to-book ratio. Calculated as the target’s market capitalization – fiscal year closing stock price times common shares outstanding – divided by the target’s book value of common equity. The literature interprets the ratio in different ways: a higher ratio may imply higher risk of the target, overvaluation, or greater growth opportunities (-/+).

Tgt_de – target’s debt-to-equity ratio, measuring the target’s leverage. Calculated as the target’s total debt divided by the target’s market capitalization. A higher ratio implies a higher level of debt and therefore more risk of default (-).

Tgt_roa – target’s return on asset ratio, measuring the target’s profitability. Calculated as the target’s net income divided by total assets. A higher ratio implies more profitable targets (+).

Aq_mtb – acquirer’s market-to-book ratio. For acquirers, a low ratio may imply that the acquirer has few growth opportunities and thus is willing to pay a higher premium for a target to stimulate external growth. It is also possible that acquirers with low market-to-book ratios are overinvested and this may result in a lower premium offered (-/+).

Aq_de – acquirer’s debt-to-equity ratio. A lower ratio may indicate more debt capacity, better access to low cost borrowing, and thus a greater ability to pay for acquisitions (-).

Aq_roa – acquirer’s return on assets ratio, measuring the acquirer’s profitability. More profitable acquirers may have more money to spend on acquisitions and thus could offer a higher premium. On the other hand, it is possible that more profitable acquirers are more efficient and less willing to overpay (-/+).

Aq_tgt_mkt_cap – ratio of acquirer’s to target’s market capitalization, measuring the relative size of the two companies. A higher ratio implies a larger size of the acquirer compared to the target. Smaller targets are expected to be less expensive and receive higher premia (+).

Cash_dummy – dummy variable, set to 1 for cash deals and 0 for stock or stock and cash deals. Cash deals are expected to result in higher premia offered (+).

95_02_dummy – dummy variable, set to 1 for deals announced in the years 1995-2002 (prior to Sarbanes-Oxley), and 0 otherwise. If it is costly to bring target firms into full compliance with Sarbanes-Oxley, or if the Act increases transparency beyond what due diligence is capable of uncovering, thereby reducing the possibility of overpaying, we expect premia after the legislation to be lower than before. On the other hand, if increased transparency due to the Act reduces information asymmetry, acquirers may be willing to pay more for targets that are already in compliance with Sarbanes-Oxley, and we would expect premia following Sarbanes-Oxley to be greater than before. We expect no change in premia if firms incur the same costs of due diligence, and any changes in transparency as a result of Sarbanes-Oxley do not substitute for due diligence (-/+).

3. DATA DESCRIPTION AND SUMMARY STATISTICS

Our purpose is to try to find out how the enactment of the Sarbanes-Oxley Act of 2002 has impacted the premia paid for target companies in M&A transactions. Data come from several different sources, including the COMPUSTAT North America database, the Center for Research in Security Prices (CRSP) at the University of Chicago and Bloomberg. For our sample, both the target and acquirer are publicly traded U.S.-based firms.

To generate our sample, we use the “Names and Events” tool of the CRSP database. We compile the companies delisted from the U.S. exchanges (NYSE, AMEX and NASDAQ) for mergers (delisting codes 200-299) in the period 1996-2006. After obtaining the list of all companies delisted for mergers in this period, we exclude financial and utility companies (SIC codes 4900-4999 and 6000-6999) due to the difference in regulation. This results in a total of 3269 companies. Figure 1 presents the distribution of companies delisted by year in the period 1996-2006 for the total sample, excluding financial and utilities companies. See Figure 1.

The data on premia, announcement dates, and acquiring companies are obtained from terminal. Given the data collection issues, we select a random sample from the 3,269 transactions. This results in a sample of 108 delisted targets. Bloomberg is our source for the merger/acquisition announcement dates, information about acquiring companies and percentage premia paid for the target companies. We have excluded deals that were missing deal information. Furthermore, since we need data for both a target and its acquiring company, we excluded targets acquired by either privately held or foreign companies not listed on U.S. exchanges. We further restrict the sample by requiring the acquiring company to purchase at least 80% of the target company, since greater prior ownership of the target would result in a lower premium offered and would potentially bias our analysis. These restrictions result in a sample of 69 companies.

Since the above mentioned data restrictions limited the initial sample more than was expected, we obtained another random sample of companies by taking the initial sample of 3269 companies and using a random number generator come up with an additional sample of 55 companies. After excluding deals with missing information on the target company or the acquirer and those that did not meet the prior ownership restriction, we obtained an additional sample of 35 firms. Our combined samples result in a sample of 104 companies with complete data. Figure 2 shows the distribution of companies delisted each year in the final 104 firm sample. Figures 1 and 2 show that the distribution of delisted companies in our sample does not substantially differ from the overall CRSP sample. See Figure 2.

Table 1 presents descriptive statistics for our final sample. Bloomberg determines the acquisition premium comparing the per share offer price at the announcement with the average price of a target company share the 20 trading days prior to the announcement. Other financial data come from the COMPUSTAT North America Database for the fiscal year-end prior to the deal announcement date.

Descriptive statistics are calculated for the overall sample, and separately for the deals announced in pre- and post- Sarbanes-Oxley time periods: 1995-2002 and 2004-2006 (for several

target companies delisted in 1996, the deals were announced in 1995). We define the 2004-2006 time period as post- Sarbanes-Oxley, allowing some time for the Act to be implemented and for the companies to comply with the Act. We test for the difference between the means for the two time periods (1995-2002 and 2004-2006). None of the differences between the means appear to be significant at any of the commonly used levels of significance (one, five and ten percent level). This result suggests that the financial characteristics of the acquirer and the target have not changed significantly in the post- Sarbanes-Oxley period. The mean premium is not significantly different between the two time periods.

The only variable that is significant at the five percent level is the dummy variable for cash deals. Each deal was classified as paid by cash, stock or both based on the delisting codes specified in CRSP. In our sample of 104 deals, 52 deals were cash financed, 38 were stock deals, and 14 deals were financed with both cash and stock. This result suggests that method of payment takes on greater importance in the post- Sarbanes-Oxley time period. See Table 1.

Figure 3 shows a distribution of premia paid for target companies in the sample of 104 deals. The minimum and maximum premia are -28.9% and 322.9% respectively. See Figure 3.

From the figure, one can see that there are two obvious outliers in the premia distribution. While our primary analysis includes these observations, alternative specifications for the main model use a reduced sample of 102 deals with the two outliers omitted. We now turn to analyzing the premia determinants in a multivariate framework.

4. RESULTS AND DISCUSSION

The initial results of OLS regressions are presented in Table 2. Table 2 reports the results of estimating several specifications for the main estimated model using the full sample of 104 deals. All the specifications were tested for heteroskedasticity and multicollinearity. We use both the Breusch-Pagan/Cook-Weisberg test and White's general test to test each specification for heteroskedasticity. All the specifications except for Model 1 showed the presence of heteroskedasticity at the one percent level of significance. Robust test statistics were calculated to correct for heteroskedasticity for these specifications and are reported in Table 2. Each of the specifications was further tested for the presence of multicollinearity using variance inflation factors (VIF). The mean VIFs (not reported) confirm that multicollinearity is not a problem for any of the regressions. See Table 2.

The first specification examines the effect of the dummy variable for the 1995-2002 time period on premia. The second specification includes financial characteristics of the target (market-to-book ratio, debt-to-equity ratio and return on assets ratio). The third specification includes the relative size ratio of the acquiring company to the target. The fourth specification adds a cash dummy variable. The fifth specification adds the acquirer's market-to-book ratio. Finally, the sixth specification includes the rest of the financial characteristics of the acquiring company (debt-to-equity ratio and return on assets).

Our primary focus is the coefficient for the 1995-2002 dummy variable¹. Although it is positive, implying higher premia paid for target companies prior to Sarbanes-Oxley, the coefficient is statistically insignificant across all specifications, meaning that we cannot reject the null hypothesis that this coefficient is not different from 0. That shows that there is not enough evidence to conclude that there was a change in the size of premium paid for a target company after the enactment of the Sarbanes-Oxley Act of 2002.

The market-to-book ratio coefficient for the target is negative and statistically significant at the 5 percent level in the last three specifications, although it is very small and not economically significant. The negative sign of this coefficient may appear as a surprise, since a higher market-to-book ratio would imply more growth opportunities for the target and thus would require a higher premium. However, previous literature suggests this ratio may be a proxy for a target's relative valuation. Several research studies [for example, Kaufman (1988), Dong et al.

(2006) and Moeller (2005)] find that a higher ratio signals overvalued targets and results in a lower premium offered. Therefore, our result is generally consistent with these studies.

The coefficient on the target's debt-to-equity ratio has the expected sign but is insignificant in all specifications. The target's ROA ratio is significant at the ten percent level in the fourth and fifth specifications. The negative sign of this coefficient is a surprise, since again, we expect more profitable targets to be more attractive and require higher premia. The study of Bugeja and Walter (1995) helps to form a possible explanation for the sign of target's ROA coefficient. Bugeja and Walter suggest that one of the possible motivations for acquisitions is a desire to remove weak or inefficient management from the target. Therefore, the worse the performance of the target company prior to acquisition, the greater the chance that an acquisition will lead to improvement in the target firm's performance since the poorly performing managers of the target will be removed. The authors test the hypothesis that an acquisition premium is inversely related to a target's prior performance and will be higher the worse the target was performing prior to the announcement. Although Bugeja and Walter do not get significant results to prove their hypothesis, this hypothesis could be used to explain the negative coefficient on the target's ROA in our regression results.

The coefficient for the ratio of relative size of acquirer to target is insignificant in all specifications. None of the acquirer's financial characteristics appear to be significant as well. The dummy variable for cash deals is marginally significant at the ten percent level in the full model. The coefficient on this dummy variable is positive and consistent with previous research which shows that cash deals result in higher premia offered than stock deals.

We explore the robustness of our model by forming and testing three alternative specifications. Table 3 reports the results of OLS regressions for these three models². The purpose of the first two models is to test whether the pre- and post- Sarbanes-Oxley period dummy variable was correctly specified. Model 1 uses an alternative dummy variable that equals 1 for deals announced in the years 1995-2001 and 0 otherwise. The purpose of this specification is to see if perhaps companies were anticipating the enactment of Sarbanes-Oxley prior to the year 2002 when the law was signed. Model 2 uses an alternative dummy variable that equals 1 for deals announced in the years 2004-2006 and 0 otherwise. This model attempts to estimate whether the effects of Sarbanes-Oxley were somewhat delayed in time, assuming the Act's implementation was delayed and the companies took some time to comply with the Act. Finally, Model 3 excludes two extreme premia outliers and uses 102 deals for regressions with a dummy variable that equals 1 for deals announced in the years 1995-2002 and 0 otherwise, similar to the models in Table 2.

All specifications are again tested for heteroskedasticity using both the Breusch-Pagan/Cook-Weisberg test and White's general test. Wherever heteroskedasticity is detected, robust statistics are calculated and are reported. See Table 3.

From Table 3 one can see that the results of OLS regressions for alternative models are consistent with our prior findings. The dummies for different time periods (1995-2002, 1995-2001 and 2004-2006) are still all insignificant, although we can see the change of sign for the 2004-2006 time period. None of the other coefficients are significant in any of the alternative specifications, except for the target's market-to-book ratio, which is marginally significant at the ten percent level in the first model, consistent with the previous specifications. Therefore, the results are robust and consistent with the null hypothesis that there was no significant change in the size of premia paid for target companies post- Sarbanes-Oxley.

5. CONCLUSION AND SUGGESTIONS FOR FUTURE RESEARCH

This study investigates the impact of Sarbanes-Oxley on factors related to the premia paid for target companies in mergers and acquisitions. We analyze a sample of 104 deals, where both the target and the acquiring company are either U.S. based public companies, or foreign public companies listed on one of the major U.S. exchanges. We do not detect any significant difference

in merger premia pre- and post- Sarbanes-Oxley. Of all the variables included in our model that are predicted to affect the size of premium paid for a target company, only target's market-to-book ratio was found to have significant negative effect on the premium, although this effect is not economically significant. We also find that the target's ROA has a marginal negative effect on merger premia. Finally, our results show that method of payment plays a role in explaining of the size of a premium, with cash paid acquisitions resulting in a higher premium offered. None of the other variables were found to have a significant effect on the size of the premium offered for a target company.

Our evidence suggests that merger premia among public targets and acquirers are no different after the enactment of Sarbanes-Oxley compared to before the Act was passed. This is consistent with target firms incurring the same costs of due diligence regardless of the Sarbanes-Oxley Act. It appears this piece of legislation had no impact on this type of financial transaction. Of course, Sarbanes-Oxley does represent a major legislative action designed to restore confidence in information through greater transparency and further to bring greater accountability to corporate leaders for their actions. The finding that Sarbanes-Oxley does not appear to have influenced the premia paid in corporate mergers can be interpreted to indicate that the Act did not impede the market for corporate control at least as evidenced by premia.

FOOTNOTES

¹Test statistics for the six models are as follows: Model 1: $R^2 = 0.0036$, F test p-value = 0.5445; Model 2: $R^2 = 0.1148$, F test p-value = 0.1897; Model 3: $R^2=0.1174$, F test p-value = 0.0227; Model 4: $R^2 = 0.1486$, F test p-value = 0.0448; Model 5: $R^2 = 0.1486$; F test p-value = 0.0550; Model 6: $R^2 = 0.1523$, F test p-value = 0.1174. Even though test statistics for almost all the models are not significant, our purpose is not to get a good model that would predict premia, but to test the effect of the pre- and post- Sarbanes-Oxley variable.

²Besides the discussed alternative specifications, we run a model using all the variables and the 95-02 dummy, plus interaction terms of the dummy with each of the variables. After correcting for heteroskedasticity, the model has improved and significant test statistics ($R^2 = 0.2490$, F test p-value = 0.0000), but the results are still the same and none of the coefficients is significant at either the one, five or ten percent level.

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Table 1 - Descriptive Statistics

The data on premia come from Bloomberg. Other financial data come from the COMPUSTAT North America Database, fiscal year-end prior to the deal announcement. Medians are presented below means in parentheses. For the deals announced in the 2004-2006 period, ***, **, and * represent significance at the one percent, five percent, and ten percent levels, respectively, for mean and median differences with the deals announced in the 1995-2002 period.

	Overall Sample	Deals Announced in 1995-2002	Deals Announced in 2004-2006
Premium	0.3793	0.3953	0.3154
(Premium)	(0.2852)	(0.2625)	(0.3152)
Acquirer's market-to-book ratio	3.7364	3.7145	3.3830
(Aq_mtb)	(2.6742)	(2.6690)	(2.7988)
Acquirer's debt-to-equity ratio	0.6675	0.6159	0.9498
(Aq_de)	(0.3653)	(0.3614)	(0.4159)
Acquirer's ROA ratio	-0.0075	-0.0132	0.0395
(Aq_roa)	(0.0468)	(0.0480)	(0.0468)
Target's market-to-book ratio	8.9858	10.5164	5.6430
(Tgt_mtb)	(1.9769)	(2.0212)	(1.9610)
Target's debt-to-equity ratio	0.8857	0.9481	0.6226
(Tgt_de)	(0.3644)	(0.4014)	(0.3352)
Target's ROA ratio	-0.0313	-0.0204	0.0154
(Tgt_roa)	(0.0235)	(0.0255)	(0.0414)
Acquirer-to-target market capitalization ratio	54.4930	58.2038	47.5922
(Aq_tgt_mkt_cap)	(8.0680)	(8.0071)	(8.4421)
Dummy variable, 1 for cash deals, 0 for stock or stock and cash deals (Cash_dummy)	0.5	0.4286	0.7**
	(0.5)	(0.0)	(1.0)**
Number of Observations	104	77	20

Table 2 - OLS Estimation: Analysis of Premia Determinants

T-statistics are in parentheses below the estimated coefficients. * significant at ten percent level, ** significant at five percent level, *** significant at one percent level. All models were tested for heteroskedasticity. If heteroskedasticity was detected, robust statistics were calculated and are reported.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	0.3339*** (3.85)	0.3005*** (5.96)	0.2938*** (5.88)	0.1744* (1.80)	0.1759* (1.76)	0.1580 (1.54)
<i>95_02_dummy</i>	0.0612 (0.61)	0.0979 (1.16)	0.0959 (1.12)	0.1499 (1.45)	0.1498 (1.45)	0.1501 (1.41)
<i>Tgt_mtb</i>		-0.0002 (-1.22)	-0.0002 (-1.36)	-0.0004** (-2.24)	-0.0004** (-2.21)	-0.0004** (-1.97)
<i>Tgt_de</i>		-0.0165 (-0.97)	-0.0161 (-0.93)	-0.0165 (-0.98)	-0.0166 (-0.99)	-0.0207 (-1.01)
<i>Tgt_roa</i>		-0.7430 (-1.62)	-0.7436 (-1.61)	-0.8205* (-1.71)	-0.8208* (-1.71)	-0.7517 (-1.48)
<i>Aq_tgt_mkt_cap</i>			0.0001 (1.32)	0.0000 (0.02)	0.0000 (0.03)	0.0000 (0.08)
<i>Cash_dummy</i>				0.1733 (1.50)	0.1730 (1.48)	0.1847* (1.67)
<i>Aq_mtb</i>					-0.0003 (-0.05)	0.0019 (0.22)
<i>Aq_de</i>						0.0107 (0.32)
<i>Aq_roa</i>						-0.1351 (-0.36)
Number of observations	104	104	104	104	104	104

Table 3 - Alternative Specifications

T-statistics are in parentheses. * significant at the ten percent level, ** significant at the five percent level, *** significant at the one percent level. All models are tested for heteroskedasticity. If heteroskedasticity is detected, robust statistics were calculated and are reported.

	Model 1	Model 2	Model 3
Intercept	0.2240** (2.15)	0.2996*** (4.66)	0.2842*** (3.10)
<i>95_01_dummy</i>	0.0802 (0.73)		
<i>04_06_dummy</i>		-0.0803 (-1.23)	
<i>95_02_dummy</i>			0.0235 (0.32)
<i>Tgt_mtb</i>	-0.0003* (-1.88)	-0.0003 (-1.62)	-0.0004 (-0.73)
<i>Tgt_de</i>	-0.0197 (-0.96)	-0.0194 (-0.95)	0.0144 (0.86)
<i>Tgt_roa</i>	-0.7276 (-1.40)	-0.6873 (-1.37)	-0.2242 (-1.19)
<i>Aq_tgt_mkt_cap</i>	0.0000 (0.17)	0.0000 (0.29)	0.0001 (0.92)
<i>Cash_dummy</i>	0.1671 (1.54)	0.1594 (1.58)	0.0490 (0.70)
<i>Aq_mtb</i>	0.0014 (0.16)	0.0013 (0.14)	-0.0058 (-0.74)
<i>Aq_de</i>	0.0058 (0.17)	0.0082 (0.24)	0.0057 (0.15)
<i>Aq_roa</i>	-0.1326 (-0.34)	-0.1441 (-0.37)	0.2357 (1.22)
Number of observations	104	104	102

Figure 1 - Distribution of Companies Delisted from CRSP due to Mergers and Acquisitions, 3269 observations

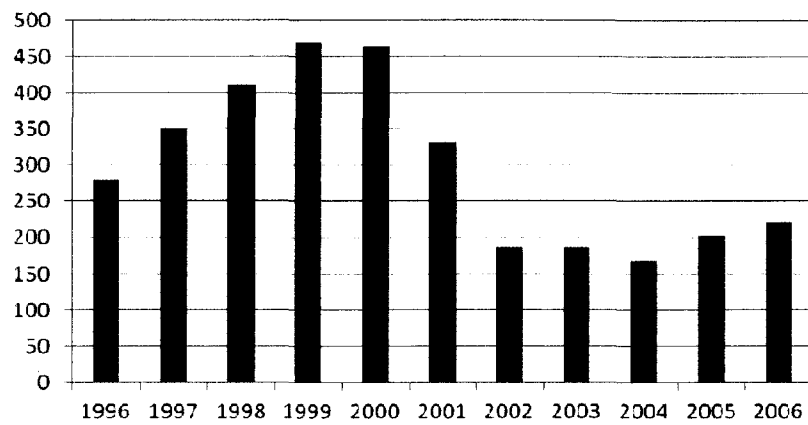


Figure 2 - Distribution of Sample Companies Delisted due to Mergers and Acquisitions, 104 observations

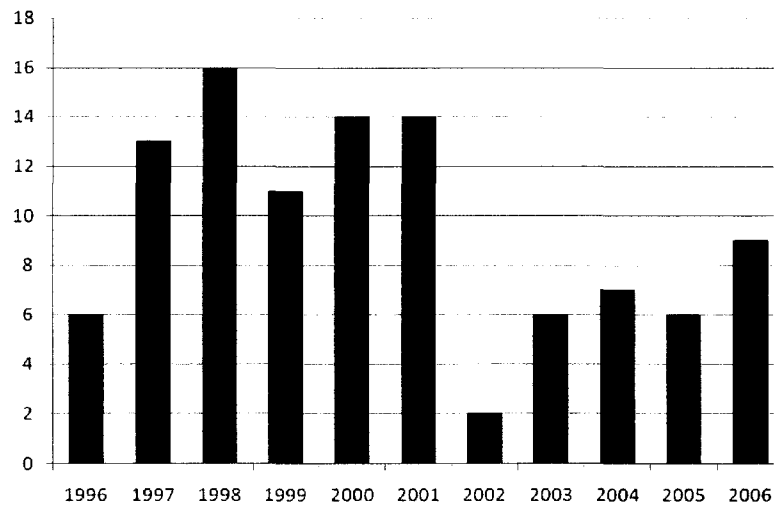


Figure 3 - Distribution of Premia Paid for Target Companies, 104 observations (premia expressed in decimal format)

