THREE ESSAYS IN MERGERS AND ACQUISITIONS AND EXECUTIVE
COMPENSATION

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ABSTRACT

THREE ESSAYS IN MERGERS AND ACQUISITIONS AND EXECUTIVE COMPENSATION

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Several studies in the finance literature (and other fields) focus on how compensation contracts of CEOs shape incentives and affect risk-taking behaviour. We examine how CEOs with varying risk appetites approach merger and acquisition (M&A) deals differently due to incentives driven by their compensation structure. Relying on VEGA, the sensitivity of executive's portfolio to a one percent change in volatility of stock returns, we document that acquirers and targets behave differently vis-à-vis their compensation. We show that a longer time to completion is related to the target VEGA (and not bidder VEGA). We also find that a more risk-taking CEO (as encouraged by VEGA) selling his firm would delay completing a deal by a significant three weeks. We conjecture that target CEOs choose to delay deal completion to look for better bids that tally their need to change their portfolio of company holdings.

Next, we link executive compensation, mergers and acquisitions, and environmental, social and governance in one framework that produces new insights into how CEO's incentives yield sub-optimal investment decisions. Our sample consists of 1,280 mergers (M&A) from the period of 1993-2018 and uses the CEO's wealth sensitivity to stock price volatility (VEGA) as a proxy for risk-taking behaviour. We establish that there is a shift in the relation between CSR rating and cumulative abnormal announcement returns of M&As deals. After 2008, the market for corporate control no longer rewards more commitment to CSR activities. We examine the performance of our sample of mergers in comparison with that of a matched sample of non-bidding firms vis-à-

vis their environmental, social and governance (ESG) profiles over the long term. Our results indicate that more CSR commitment does not translate into better long-term returns for shareholders and stakeholders if the firms participate in M&As. Moreover, we investigate how the bidder and target CSR ratings, as well as management risk-taking incentives (proxied by VEGA), affect deals total synergy estimated around the announcement day. Our results show that firms with lower CSR ratings yield more synergy gains, which are not related to both bidder and target risk-taking incentives.

Finally, we provide new evidence related to the debate whether corporate social responsibility (CSR) strategies intrinsically benefit organizations and contribute to wealth creation after controlling for CEO compensation. We utilize a sample of M&A deals spanning the period 1993 to 2018 of target firms with different CSR ratings and investigate the effect of CEOs' executive compensation driven incentives. Our main finding is that Low CSR firms becoming targets of M&A contests in the subperiod post-2008 record the highest cumulative average abnormal returns (compared to High CSR over the same period and other subsamples). We report that Low CSR firms with High VEGA target CEOs specifically perform better in corporate control contests in later years. We justify this as Low CSR firms are characterized by lower governance and more agency costs where management seeks benefit its own interests instead of being considerate for the stakeholders at large.

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CHAPTER ONE – INTRODUCTION

In this research we link different finance disciplines, Mergers and Acquisitions (M&A), Corporate Social Responsibility (CSR) and Executive Compensation, to better explain wealth creation.

We investigate the effect of sensitivity of chief executive officers' pay to stock return volatility and report a robust statistically significant effect of compensation on the length of time to completion of a mergers and acquisitions deal. We show how the target firm's CEO compensation structure VEGA affects the time before the deal is rendered a success. Target firm CEOs delay deal completion by approximately 10 trading days (an effect as important as the effect of cash as a method of payment). We relate the risk-taking behaviour of CEOs to the M&A activity, where acquirers and targets make distinct decisions as dictated by respective compensation contracts. We show that the target firms with CEO rewarded more with VEGA, sensitivity of compensation to stock return volatility, take longer time to complete an M&A deal. We do not find similar relation of bidder VEGA and time to deal completion. Looking at High VEGA CEOs in turn supports our findings. The more risk-taking incentives driven by compensation, the deal time to become effective is elongated to a significant three weeks.

These CEOs (of target firms offering compensation rewarding higher VEGA) seem to extend completion to benefit from possible better deals and cater well for their own stock holdings. Furthermore, looking at the probability of deal success, we find that bidder firm CEO VEGA is more important than the VEGA of target CEOs. A bid would finish successfully depending on other factors specifically the relative size of target and bidder. If shareholders wish to profit more over that period, it seems worthwhile to investigate target firm CEO current compensation and

particularly the illiquidity of stocks and options. Waiting for more bids to come in, a CEO delays to benefit from longer periods to completion by increasing the uncertainty and thus the variance and probability of finishing with positive payoffs. An alternative explanation to our findings is related to the rigorousness of due diligence, need for revisions and resolution of challenges arising before closure of the deal. We may deem firms offering CEO compensation with more focus on VEGA as having investments that are risky and with uncertain cash flows. As these firms become targets of M&A contests, they present a more complex environment for proper valuation and settlement takes longer.

In chapter three, we re-examine CEO incentives and the choice of second-best investments. Here, we add corporate social responsibility and governance within the context of M&As and executive compensation. Holding CEO wealth sensitivity to stock price volatility (VEGA) as a proxy for risk taking behaviour, we claim that there is a shift in the relation between cumulative abnormal announcement returns of deals and CSR rating over our sample of 1,280 mergers (M&A) over the 1993-2018. We show that compared to before 2008, the market for corporate control no more values involvement in CSR practices. Creating subsamples by periods covered, we document a significant difference in announcement returns of deals due to bidder CSR between 1993-2007 and 2008-2018. Bidder CSR is not as important in the more recent subsample.

Furthermore, we create a long-term analysis of returns using a matched sample of bidders and non-bidders and their corresponding CSR profiles. Under the M&A umbrella, more CSR commitment is yielding shareholders and stakeholders better long-term returns. Our results show that firms with lower CSR ratings record more synergy gains around the announcement period, however target or bidder risk-taking incentives are not associated with this. Having a better CSR standing, bidding

firms lose more long-term excess buy and hold returns (BHR) compared to non-bidding firms. The relation between excess BHR and VEGA is significant and positive.

In chapter four, we shift the focus to targets of M&A contests. Over the period 1993-2018, we examine target firms with varying CSR standing and elucidate on the CEO's incentives elicited by current executive compensation structure. Our study touches on the plethora of literature on CSR practices and organizational wealth creation. Furthermore, we bring VEGA, the sensitivity of CEO's compensation to stock return volatility, into the target M&A literature as a proxy for risk-taking motivations. In the more recent sub-sample, we find evidence the Low CSR targets gain more from the deal going through conditional of the risk-taking incentives of the CEO. High CSR versus Low CSR firms do not make comparable decisions in M&A contests. Our findings support the notion the CSR practices signal the type of firms. We report the highest cumulative average abnormal returns over the Low CSR (post-2008) subsample if they engage in M&A activity. Over the same period, CEOs with High VEGA contracts profit more that other counterparts shall they manage to Low CSR firms. We attribute our results to agency costs and lower governance in Low CSR firms.

CHAPTER TWO – DEAL TIME TO COMPLETION AND EXECUTIVE COMPENSATION

2.1. Introduction

Several dynamics come into play in a merger activity (M&A). A deal takes place due to the interaction of motives of both bidder and target chief executive officers (CEO). We use three distinct samples to study the behaviour of bidder and target firm CEOs considering incentives driven from their compensation structures. Shareholders designing a CEO compensation contract predispose accepting more risk if the CEO is given a higher VEGA; sensitivity of the portfolio to stock return volatility.

Merger and acquisition deals are important in value creation for organizations. The slowdown in deal completion has economic disadvantages for investors. The longer the time to complete the deal, the longer funds are tied in and the less the possibility to reuse the capital in new investment opportunities. From an investor's view, a deal that takes longer to complete will be less preferred over a deal that completes sooner, all things being equal[1]. As deals are announced, bidders set an expected closing date in the deal filings. However, this expectation would eventually be revised or restated. This uncertainty in the closing date is costly for investors and hinders realizing the desired synergy gains.

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[1] As the annualized returns calculation for capital invested is being discounted over a longer timeframe. The offer price and the initial purchase price are already identified at the announcement, but the days to completion constitute an uncertainty in the measurement of returns. For example, when comparing two deals with 6% returns, one with 12 months to complete and the other 6 months to complete, time to completion should be factored in. Annualized returns (in percentage) = (Offer Price / Initial Purchase Price) $^{(365/t)}$ − 1. (Spink, 2017, Oct. 9).

Time to completion is defined as the number of days between the date the proposed deal is announced and the date of the deal completion - which is the effective day of the transaction (as stated by SDC)[2]. A deal will not complete until several issues are resolved. For the deal to go through there are human resource, legal, financing, regulatory, third-party, documentation/ provisions, intellectual property/ warrants and patents, more attractive possible incoming deals, among other matters that need to be handled in a complex setting. The bidder or target management may decide to breach or go through the initial offer. Incentives of the bidder and the seller are not similar, and the complexity of the situation is aggravated by risk appetite, personality, and interests of interacting parties.

Bhagwat et al. (2016) explain how more market-wide uncertainty drops deal-making. They investigated how the interim period between the announcement and completion varies with different deal characteristics. As cited by Bhagwat et al. (2016), the more volatility, as measured by VIX, the significantly shorter the tender offers and deal completion in concentrated industries. In bigger deals (measured by the size of the target) volatility effect is more accentuated. Specifically, the authors found that when it is in the best interest of the target (not the bidder), it is more statistically likely that deal renegotiation and failure take place. Merger risk is mainly endured by the bidders due to the costliness of delay to completion. Using OLS regressions with the dependant variable as the number of days to complete, the authors found that deal length shortens by 5% with an increase in target volatility by one standard deviation[3]. However, they establish that there is no significant effect of the volatility of the acquirer on the time to completion

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[2] A deal is complete if there is an effective date; a bid is deemed as failed where there is no effective date recorded for the deal on SDC.

[3] The effect is more acute and length decreases to 7% when using the log number of days to represent deals where there is high skewness or outlier volatility.

of tender offers. On another front, including both macro and firm-level volatility, they found that higher previous stock volatility decreases the probability of becoming a target. More volatile firms are 1.6% less likely to be targeted. Hence, volatility is an important control.

A related research conducted by Offenberg and Pirinski (2015) compared mergers to tender offers. They found that tender offers get completed at a substantially quicker pace than mergers. They cited the different regulatory reasons for the disparity in the length of the process. Cash tender offers are subject to dissimilar filing requirement (e.g. only an offer statement is required in tenders), there are variations in the antitrust review (15 days for tenders and 30 days for the exchange or merger offers), and also differences in the financing requirement (for mergers it could take months while for tenders it is stipulated to pay at 3 days from closure). Thus, if an offer is a tender, it yields shorter times to completion.

Many papers touch on risk-aversion in relation to compensation structures. Coles et al. (2006) proxy for the level of CEOs' risk-aversion through cash compensation and tenure. Similarly, Berger et al. (1997) explained that the CEO with more cash compensation and have been CEO in the firm longer would probably be more entrenched and take less risk. Guay (1999) established that more total cash compensation makes the CEO more risk-tolerant because they are more diversified with investments from outside.

Brockman et al. (2010) offer a good setting for our hypotheses. The researchers make different inferences regarding DELTA and VEGA in the risk-taking setting. They established that the bigger the VEGA, the bigger the risk-taking, while the bigger the DELTA, the less the risk-taking incentive. A large VEGA CEO has a stronger risk appetite (higher sensitivity to stock return volatility) and would have a firm's capital structure comprised of more short-term debt. They

disentangled the effect of DELTA and VEGA by excluding both in the same hypothesis (or regression) as DELTAs and VEGA are highly correlated.

CEOs are bound by their compensation contracts to own certain levels of their organizations' stocks and carry stock options. Cai and Vijh (2007) focus on liquidity constraints that impact the trading activity of CEOs. Holding a portfolio of stocks, CEOs know when compensation contract restrictions[4] lead to non-optimal transacting and they would try to find ways to break off. A possible acquisition or merger constitutes an opportunity for target CEOs to settle their positions, mainly when they deem their company holdings of stocks or options illiquid. Focusing on incentives, Cai and Vijh created an illiquidity discount measure to illustrate the extent of prospective gains for target CEOs from a merger deal. Once a deal is completed, target CEOs liquidate their stake in the merged company (and leave or join the newly created institution) as their compensation contracts terminate. This is not the case for acquiring firm CEOs, whose compensation contracts are not affected by deal completions - let alone their stock and option holdings in their company. Thus, bidder negotiations are not stirred by illiquidity incentives like those of targets during negotiations (delaying time to completion). Cai and Vijh showed instead that bidders are more interested in adding undervalued target stocks to alleviate their stock overvaluation for future periods. While the bidder CEO benefits from the current overvaluation, the target CEO wants a deal to complete the fastest possible to loosen the illiquidity problem. Our research builds on the work of Cai and Vijh (2007) who explained incentives with an ex-ante illiquidity discount measure. They establish that the market value of the target firm is an important

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[4] Cai and Vijh (2007) discussed a few restrictions like: short-selling of own company stock is not allowed, minimum ownership requirements, stock options may not be traded but can be exercised, vested options are not liquid but are less binding than unvested options, insider trading rules and compliance costs. CEOs would not need to wait for vesting periods or various restricting clauses if they sell out and become targets.

control variable because contests involving bigger targets tend to have delays in completion, also deals where the target and the bidder come from the same industry probably suffer antitrust scrutiny. Also, the availability of other payments to target firms in the event of a change of control gives incentives to complete faster. "The speed of acquisition completion is an indicator of resistance, which should decrease with increasing personal incentive effects of CEOs" (Cai and Vijh, 2007, p. 1920).

However, there seems to be a balance between the illiquidity of target CEO wishing to get out of their current compensation contracts (sell-off their stock) upon change of control and risk-taking incentives. We find that target firm CEOs with higher risk-taking incentives as dictated by their compensation contract behave a bit differently. Target CEOs that are more sensitive to stock return volatility take a longer time to complete deals (despite their illiquidity constraints).

Thompson and Kim (2020) assert the importance of studying the time to deal completion. The authors showed that the time taken to complete a deal has an informational signal towards the outcome of that deal after the merger is closed. They claim that the "opaqueness of targets" lengthens the time to complete deals because they have higher information asymmetry. When targets are obscure, bidders spend more time in due diligence to verify all the activities of the targets. As more time is needed with a less transparent target, there is a negative effect on post-merger performance. Thompson and Kim (2020) believe there is an inverse U-shaped relation between performance post the M&A and the deal time to completion. Also, there is a U-shaped relation between failure and completion time. They reached this conclusion by accounting for two competing hypotheses: the due diligence hypothesis and the overdue hypothesis. The due diligence hypothesis suggests that bidders spend more time gathering information about the target to make a more accurate assessment and ultimately closing the deal appropriately. So, deals where rigorous

due diligence is not completed would have a higher probability of lower performance. The overdue hypothesis is related to terminating deals that create big challenges to the deal itself (not because of due diligence).

This paper extends previous studies in the two widely researched fields: mergers and acquisitions (M&As) and compensation contracts. Lambert et al. (1991) developed a model that elucidates how shareholders choose a compensation contract by focusing on different costs and incentives to the manager. However, the manager focuses on different stimulants where the perceived payoff of compensation mix is changing with risk-aversion, ability to diversify (away from company stock), and amount of original wealth. We suggest that CEOs try to extend deal completion by many days; the higher the sensitivity to stock variance, the longer the completion window. In practice, when a CEO proposes to sell off the company, shareholders could capitalize on the share price by examining the current compensation, specifically the illiquidity of held stock. When a CEO faces a highly illiquid payoff mix (with the probability of being out-of-the-money takes over) but the contract sets high risk-taking incentives (higher VEGA), traders should expect longer settlements and the deal will not become effective until more bids come in (increasing the variance of the payoff and the probability of finishing in the money). This finding builds on Guay's (1999) paper demonstrate that a risk-averse manager's concave utility functions offset the (option-induced) convexity of the payoff structure. Another possible explanation to our findings is intertwined with the due diligence hypothesis. We may relate the longer time to complete to the complexity of the type of firms in question. We find that firms with higher target VEGA take longer time to complete a deal and conclude that these target firms are more complicated than other target firms offering compensation less focused on VEGA. Essentially, a board that ties the compensation structure of the CEO to the volatility of stock returns (and not just stock return movements) is giving incentives

to accept more risky investments. A firm with multiple risky investments is harder to evaluate de facto and would need a longer time for the integration and verification process to finally close a deal. The CEO compensation structure, specifically the sensitivity to stock return volatility, signals the breadth of (uncontrolled for) challenges in the transition, planning, and integration period. The M&A process starts with the interest of a bidder in a target firm, then bidders commence gathering information (directly with the target firm or through their legal and financial advisors) and initiate due diligence. But only after the announcement of the deal and the signature takes place, would the target be compelled to share secrets and details about projects and obligations. It is at this stage that the real complexity of the target firm becomes quantified.

In section 2.2, we present our main hypothesis and conjecture about behaviour of CEOs given their compensation contracts. Section 2.3 covers our sampling methodology, defines the variables, and provides descriptive statics. Section 2.4 reports the results and highlights our findings, section 2.5 presents some robustness checks. Section 2.6 concludes this chapter.

2.2. Hypothesis Development

In this section we state the hypotheses and details about the variables in question.

H1: A deal would complete if the bidder and (or) target perceive a significant positive effect of deal completion on their compensation structure. We test the probability of completion as a function of DELTAs and VEGAs of acquirer and target CEOs. Using the following logistic model:

$$\text{Probability (complete)} = \text{Log}\left(\frac{P(complete=1)}{1-P(complete=1)}\right) = a + a_1{*}\text{VEGAT}_i + a_2{*}\text{EDELTAT}_i + a_3{*}\text{ VEGAB}_i + a_4{*}\text{EDELTA}_i + a_5{*}\text{ RelativeTargettoBidderSize}_i + a_6{*}\text{ Cash\_only}_i + a_7{*}\text{ TenderDummy}_i + e_i.$$

H2: Another aspect of deals is the delay between the announcement and completion of the deal. So, we test the effect of the CEO's compensation on how long it takes for the deal to become effective in number of days.

$$
\begin{aligned}
\textit{Days to Effective}_i \\
&= a + a_1 * VegaT_i + a_2 * VegaB_i + a_3 * VegaT_i * cash + a_4 * VegaB_i * cash \\
&\quad + a_5 * VegaT_i * stock + a_6 * VegaB_i * stock + a_7 * EDeltaT_i + a_8 \\
&\quad * EDeltaB_i + a_9 * ETDC1T_i + a_{10} * ETDC1B_i + a_{11} * cashonly_i + a_{12} \\
&\quad * stockonly_i + a_{13} * hostile_i + a_{14} * tenderdummy_i + a_{15} \\
&\quad * RelativedealsizeT_i + a_{16} * RelativedealsizeB_i + a_{17} * MarkettobookT_i \\
&\quad + a_{18} * MarkettobookB_i + a_{19} * CAART_i + a_{20} * CAARB_i + a_{21} * VolT_i + a_{22} \\
&\quad * VolB_i + b * Industrydummy_i + c * Yeardummy_i + e_i
\end{aligned}
$$

Days to Effective is our main dependant variable. The i corresponds to the control bid (deal) in our sample. It is calculated as the number of days between the announcement of the deal and the effective date of completion as stated by SDC. Where a is the intercept, a_1 through a_{22} are the coefficients of the OLS regression over the independent variables, b is the coefficient vector over the five industries and c is over the years from 1994 to 2018. The suffix T refers to Targets and B refers to Bidders for all variables. VEGAT is the VEGA of the Target CEOs over the year before the M&A deal, and VEGAB is the VEGA of the Bidder CEO over the year before the M&A deal respectively. VEGA*cash is an interaction variable of CEO VEGA where the deal is paid out in cash only, similarly VEGA*stock for deals where the method of payment is stock only. We also have mixed deals where the deal is paid up in a combination of stock and cash. Since the DELTA and the VEGA of the same CEO are correlated at high levels, we orthogonalized the DELTA using the following equation:

$DELTA_i = \alpha_i + \beta*VEGA_i + EDELTA_i$; where EDELTA would be the uncorrelated error term of VEGA and DELTA. We used this estimated EDELTA in our main equation above. Moreover,

total compensation from Execucomp is used as TDC1, which includes Salary + Bonus + Other Annual + Restricted Stock Grants + LTIP Payouts + All Other + Value of Option Grants. We used this measure as it is expected that the higher your compensation (and the bigger you are) the higher the DELTA and the VEGA. So again, we calculated the uncorrelated error term of total compensation with respect to DELTA and VEGA from the following equation:

$TDC1_i = \alpha + \beta * VEGA_i + \gamma * DELTA_i + ETDC1_i$. We used this ETDC1 in our equation above to mitigate possible correlations. Cashonly and stockonly are dummies for the method of payment whether cash or stock, respectively. Hostile is a dummy indicating a hostile attitude of the deal as stated on SDC, and tenderdummy represents deals flagged as tender offers. Instead of using offer price and risk losing many observations where the offer price is not reported on SDC, we used Relativedealsize to represent our premium calculated as Value_of_Transaction_Dollar / marketcapitalization 40 days before the announcement. This measure is useful mainly for targets as the value of the transaction is how much the target was valued when the deal was announced, and we compare it to the market capitalization of the target stock before the run-up period at 40 days before the announcement. The Markettobook is measured as the CRSP stock price 40 days before the announcement divided by the Compustat book value per share. We winsorized the Markettobook at 2% and 98% following Coles et al., 2013. Where applicable, the RelativeTargettoBidderSize is the market capitalization of the target 40 days before the announcement of a deal divided by the bidder market capitalization 40 days before the announcement of that deal. CAAR is the cumulative abnormal returns calculated from CRSP as estimated by the market model over different windows (-2,2), markup (-1,1) and run-up (-42,-2). VolT and VolB are the volatility of the target and the bidder firm stock over one year before the deal. IndustryDummy is detailed below following the Fama French five Industry portfolio

definitions, while the YearDummy is a dummy for each year the deal falls in dropping out 1993. Finally, e is the error term of the regression.

2.3. Methodology

Our data has four main sources. We used Compustat for financial and accounting figures. Execucomp[5] is the primary database for details on the executives' characteristics and their compensation contracts. Mergers and acquisitions information is gathered from Securities and Data Corporation (SDC) - including the announcement of deals and effective dates for the events. Furthermore, the Center for Research in Security Prices (CRSP) provides us with prices and historical permno identifying data. We set the beginning year as 1992, which was the first fiscal year Execucomp database reports on executive compensation contracts. To start with, we got Funda full Compustat North America annual (1950-2018 786,277 observations) from wrds and msf monthly crsp stock file (4,509,846 observations 1925-dec till 2018-dec) and execcomp anncomp (287,955 observations 1992-2018). By setting Compustat as 1986-2018, we have 355,341 observations. To link crsp msf to compustat, we used linktable provided by WRDS database (210,207 observations 1946-2018 monthly). We got 60 months rolling window monthly stock return standard deviations representing our volatility measure. We used the rates_daily for risk-free rates (and where needed, we extrapolate to get the risk-free rate over the annum in question)[6].

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[5] Execucomp lists data on executive compensation as provided by DEF14A SEC form filing annually starting from 1992. Reporting standards changed in 2006 (new-FAS123R) and the financial statements show the equity-based compensation at the estimated fair value of the awards. We reconciliated our data series and calculation of major variables for pre-FAS123 and the more recent reporting requirement. Execucomp reports to a maximum of 9 executives per company (on average 5 executives) from S&P 1500 and S&P 500. Execucomp data organized by fiscal year.

[6] Execucomp assumes 7-year maturity of the options and 5th and 95th percentile winsorization of the volatility and dividend yield.

2.3.1. Estimating the sensitivities

Brockman et al. (2010), Coles et al. (2006) and Guay (1999), among others, provide an explicit procedure to estimate our main variables of interest - DELTA and VEGA. The main input variables to estimate DELTA and VEGA can be gathered from the Execucomp database and these are; the exercise price, the time to maturity, and dividend yield[7]; while stock price and volatility come from CRSP and the risk-free rate from Fed Reserve rates.

The sensitivity of individual options and common stocks is calculated based on the Black-Scholes formula for valuing European call options as modified to account for dividend payouts by Merton (1973), where:

$$\text{Option Value} = \left[Se^{-dT} N(Z) - Xe^{-rT} N\left(Z - \sigma T^{\left(\frac{1}{2}\right)}\right) \right]$$

and

$$Z = \left[\ln\left(\frac{S}{X}\right) + T(r - d + \sigma^2/2) \right] / \sigma T^{\left(\frac{1}{2}\right)}$$

such that:

S = price of the underlying stock

d = natural logarithm of expected dividend yield over the life of the option

T = time to maturity of the option in years

N = cumulative probability function for the normal distribution

X = the exercise price of the option

r = natural logarithm of the risk-free interest rate.

σ = the expected stock return volatility over the life of the option

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[7] Execucomp changed their reporting in 2007. To be able to make consistent inferences, we need to estimate our Black-Scholes dividend yield volatility after 2006. Volatility is based on a 60-month standard deviation over rolling windows, and the dividend yield is a 3-year average.

2.3.2. Definition of VEGA, DELTA, and time to complete

Liu and Mauer (2011) emphasized making distinct conclusions based on DELTA and VEGA as although positively correlated these are "mathematically distinct sensitivity measures" (p. 186).

DELTA (of the option) the sensitivity to 1% change in stock price is the Black-Scholes estimated value of the partial derivative of stock option value by price, similarly, VEGA (of the option) the sensitivity to 1% change in the Black-Scholes estimated value of the partial derivative of stock option value by the annualized standard deviation of stock returns. We calculate DELTA and VEGA as follows:

$$\text{DELTA} = \left[\frac{\partial(option\ value)}{\partial(price)} * \left(\frac{price}{100}\right)\right] = e^{-dT} N(Z) * \left(\frac{price}{100}\right)$$

$$\text{VEGA} = \left[\frac{\partial(option\ value)}{\partial(stock\ volatility)} * (0.01)\right] = e^{-dT} N'(Z) ST^{\left(\frac{1}{2}\right)} * (0.01)$$

Following Core and Guay (2002) and Brockman et al. (2010), where there is no data on exercise price and time to maturity, we estimated the average exercise price for previously granted options as the difference between the stock prices of previously granted options realizable value as a fraction of the number of options. However, new grant option values are readily provided by Execucomp.

After completing the estimation of DELTA and VEGA, we have a total of 246,116 observations from 1992-2018[8].

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[8] We followed Guay (1999) for the vega of share portfolio and calculation of option portfolio vega is as reported here. We estimate overall DELTA as the sum portfolio of shares DELTA and option DELTA following Coles et al. (WP 2013).

Next, relying on CRSP Header Sic codes (HSICCD), we divided our observations by the Fama French five Industry portfolio definitions: 1 Cnsmr: Consumer Durables, NonDurables, Wholesale, Retail, and Some Services (Laundries, Repair Shops), 2 Manuf: Manufacturing, Energy, and Utilities, 3 HiTec: Business Equipment, Telephone and Television Transmission, 4: Hlth: Healthcare, Medical Equipment, and Drugs, 5 Other: Other -- Mines, Constr, BldMt, Trans, Hotels, Bus Serv, Entertainment, Finance. We excluded financial and utility firms according to the commonly used procedure and following Daniel and Sibilkov (2010). This reduces our number of observations a bit. Upon merging to CRSP valid permnos and assigning the industries, our data drops to 195,043 observations.

We identified the chief executive officers (CEOs) from other executives bringing the number of observations to 35,116[9]. Next, we winsorized DELTA and VEGA at the 1% and 99% levels to account for outliers[10]. We created quartiles based on per year and industry for DELTA and VEGA, respectively, where Q1 represents the lowest DELTA observations below 25%, while Q4 represents the highest DELTA observations above 75% [11] and so on. We have a total of 30,243 observations of CEO nonzero DELTA and VEGA from 1992-2018. We created dummy variables for each observation based on these quartiles as follows: DELTAs in Q1 are assigned a Low DELTA dummy, in Q2 and Q3 a medium DELTA dummy, and Q4 are high DELTA dummy,

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[9] We choose to study CEOs, not all executives, as the values of DELTA and vega are not similar. CEOs tend to have a much larger compensation package, thus, treating executives and CEOs in the same fashion will mask the inferences. Also, research has shown that CEOs receive special treatment for completing M&A deals (Babenko, WP 2019).

[10] Like some prior literature like Coles et al., 2006, Guay, 1999, and Core and Guay, 2002. Our results are not affected by the winsorization; very few values were affected by the procedure. We also winsorized the market-to-book, cash compensation and total compensation where needed.

[11] Similarly for vega. Note we deleted observations where DELTAs are empty; there was no converged estimation under the Black-Scholes model.

VEGAs in Q1 are assigned a Low VEGA dummy, in Q2 and Q3 a medium VEGA dummy, and Q4 are high VEGA dummy.

Starting with 57,280 deals from SDC over 1992-2018, we removed transactions with less than $1 million dollars (resulting in 23,941 deals). Further, we limited the observations to deals of the form: merger, acquisition of the majority interest or acquisition, and set the acquirers and targets to public status and from the US. The resulting number of observations from SDC is 6,863 deals not yet matched to any other data set. We matched the SDC to CRSP permnos to get identifiers for each bidder or target firm separately by matching it to the 6-digit cusip and the most recent CRSP permno reported before the deal. We used this to match each CEO DELTA and VEGA by PERMNO and date. This results to 2,328 deals from 1993-2018 with acquirer information (called it B-sample) and 867 deals with target information (call it T-sample); we created the respective year dummies on these. Merging these two samples, we got a reduced sample (call it S-sample) of 621 deals with both acquirer and target information available on them. At this point, we have 3 different samples: bidder deals, target deals, and a matched sample of both. We added the payment type dummy as cash_only, stock_only or mixed deals.

Liu and Mauer (2011) and many others emphasized the importance of controlling for firm size. Since SDC offer price is missing in many observations, we rely on market capitalization 40 days before the deal announcement date to calculate our relative deal size[12].

mrktcap_40days_before = abs(prc_{-40}) * abs($shrout_{-40}$) * 1000;
log_size40 = log(mrktcap_40days_before);
rel_deal_size = Value_of_Transaction_Dollar / mrktcap_40days_before

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[12] We calculated the marketcap using COMPUSTAT and CRSP. We specifically need from Compustat the book value per share (bkvlps) over the most recent date to the announcement date and CRSP price (prc) and shares outstanding (shrout).

mrkt_to_book = abs(prc$_{-40}$) / bkvlps

Our bidder sample is now 2,221 deals (B-sample), targets sample 812 (T-sample) and the combined sample is 578 deals (S-sample). We calculated the previous volatility of returns as the standard deviation of daily returns over one year before the run-up period. Then we created dummy variables for completed versus failed deals (where there is no effective date). To identify if a certain company has high or low volatility over the year before the deal announcement, we used all SDC original data from 1992-2018 to create a new dummy of High volatility or Low volatility above the median arranged by industry and year and matched it to our three samples[13]. We created dummies for attitude (Friendly, Hostile, or Other) and tender offers. For our S_sample, we further created a dummy where the bidder's prior volatility is greater than the target's prior volatility before the deal.

We run a standard event study to get the cumulative average return from the market-adjusted model over the run-up, markup and announcement periods as CAAR$_{(-42,-2)}$, CAAR$_{(-1,1)}$, and CAAR$_{(-2,2)}$, respectively. Where the subscript indicates the number of days before and after the event and the event is day zero, which is the announcement date of a deal on SDC. Our targets' sample (T-sample) is now 799 deals; bidders' sample (B-sample) is 1,871; S-sample with information on both bidder and target is 575.

Figures 1, 2, and 3 show the distribution of each of the samples' VEGAs compared to the universe of all observations. Our samples seem to be representing well the population of all estimated VEGAs.

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[13] We call these variables Below_Median_Tar_Sdc_Vol, Above_Median_Tar_Sdc_Vol, Below_Median_Acq_Sdc_Vol, and Above_Median_Acq_Sdc_Vol as applicable.

2.3.3. Descriptive statistics

Table 2.1.1 Panel A reports descriptive statistics of our T-sample: Sample of Deals with Target CEOs' compensation. This sample is a total of 798 deals with 629 completed from 1993-2018. Our main compensation variables of interest are VEGA and DELTA along with total compensation. The average target VEGA is $99,050 (median $46,580), while DELTAs tend to be much higher and more dispersed with an average of $451,530 (median $165,960). Target relative deal size is 1.62 on average, with the log of firm size at 20.86 before the announcement, showing that the targets are not too small and have some negotiation power. The cumulative average announcement returns are positive and in line with findings of finance literature. The average number of days to complete a deal is 134 days with mixed and stock deals taking longer than cash deals. Tender offers tend to be the fastest.

Table 2.1.1 Panel B. The correlation matrix shows how our main independent variables relate to each other. In the T-sample, we only identify one relatively high correlation where VEGA and DELTA recorded 0.323. The current trend in literature on DELTA and VEGA avoids including both in the same regression as the inferences are not in the same direction. Higher VEGA promotes more risk-taking, while lower DELTA advocates more risk-taking (Brockman et al., 2010). To mitigate this, we orthogonalized by taking the residuals of the DELTA over VEGA regression and used the residual EDELTA instead of DELTA in our tests. This regression yields a statistically significant relation between DELTA and VEGA at the 1% level.

Table 2.1.2 Panel A gives an overview of the B-Sample descriptive statistics with a sample of 1,870 M&A deals and bidder CEOs' information. Of which, 1,631 deals completed successfully. Bidder DELTAs are large and widely differ with a mean and median of $1,427,970 and $443,590, respectively. Bidder VEGAs tend to be smaller with an average of $228,300 (median $99,660).

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Volatility is not high. Bidder's relative deal size shows that the deals are not very sizeable compared to the bidder before the deal. Announcement period returns are negative as outlined by the literature on M&As. The average number of days to completion is 113 days, where cash deals are fast and tender offers are quickest to complete.

Table 2.1.2 Panel B displays the correlation matrix of the B-sample. Here we find that the highest correlation between DELTA and VEGA at 0.481, which we treated in the same fashion as mentioned in Table 2.1.1 Panel B.

Table 2.1.3 Panel A and B reveal the descriptive statistics and correlation matrix of our main variables of interest on the S-sample: the sample with both target and bidder compensation information. Very similar to the tables depicted before, average VEGAs of the target firm CEOs is $97,070 while bidders' average is $266,780. Target's DELTAs are substantially smaller than bidder's DELTAs. Bidders are larger than targets, are less volatile, record lower announcement period returns. Target average VEGAs is lower than bidder average VEGAs, this is consistent with the fact that bidder firms tend to be larger value firms while targets are growing firm.

The average days to effective of our S-sample is 135 days. Also, tender offers are faster and cash deals are quicker than other consideration type deals. From the correlation, we see Bidder DELTAs and Bidder VEGAs highly correlated, similar to Target DELTAs and Target VEGAs.

Furthermore, the volatility of the bidder before the deal is highly correlated to the volatility of the target before the deal announcement at 0.657. We expected this as many M&A deals have bidders and acquirers sharing the same industry, so the respective volatilities are naturally related. The deals in question are big in size, and a bidder will not go out of the risk profile of its company to attract a very risky target unless it tallies their business.

The relative deal size of the target represents the premium paid by the bidder to (possibly) acquire the target, and it is correlated with the cumulative abnormal returns of the target at the announcement. A higher premium translates into a higher abnormal return.

Figures 4, 5, and 6 show the average VEGA per industry and year for each of our samples compared to the total number of observations from where we estimated VEGA (the universe of 30,243 observations). We see that bidders have larger VEGAs than average in almost all industries, while the target VEGAs are closer to the average VEGAs of all firms. CEOs of Industry 3 – HiTec firms – always have high average VEGAs than all other groups, whether Bidder or Target CEOs. This is in line with the high-risk profile of firms with typically large research and development (R&D) expenditure and growth potential.

2.4. Testing

2.4.0 Results on H1

We test how the probability of completing a deal successfully is affected by the bidder or target compensation package. Table 2.2.0 reports the results of the logistic regression on the event=1 as complete or event=0 as failed bid. We expected the bidder's compensation to be of importance because a bidder CEO will not initiate a deal unless there are expected personal benefits from the deal going through successfully. Firstly, from the targets sample, there seems to be no effect of CEO compensation on the probability of the completion (or failure) of a merger or acquisition bid. Secondly, the bidder sample shows that the VEGA (and not other compensation elements) of the bidder CEO plays a significant role in the probability that a bid finishes successfully. However, when we consider within the equation the instances, where the bid is a tender or cash-only method

of payment, we find that the effect of bidder VEGA on the probability of completion is still significant but weaker.

When the sample with bidder and target compensation information is examined, both the target VEGA and bidder VEGA is are not significant. Specifically, when introducing the relative size of the target to the bidder, the probability of deal completion would no longer depend on the method of payment, the tender type, or the compensation.

But target CEOs do have a role in the completion of a deal; so we expect that target firm CEOs play a different role in the process, which brings us to the results of next hypothesis.

2.4.1 Results on H2

To test H2, we present three sets of results based on different samples: B-Sample is the biggest sample of deals and contains Bidder CEOs' compensation information, T-Sample is the sample of deals containing Target CEOs' compensation, and S-sample is the smallest sample and contains information on both the Bidder and Target CEOs' compensation packages. The results from these three samples complement each other and clarify our interpretations.

2.4.1.1 T-Sample: Targets Sample Results

Investigating the T-sample, which is the sample of M&A deals containing information on the target firm and the compensation contract of the target firm's CEO. Our main dependent variable is days to effective, which measures the number of days to complete the deal after the announcement, limits this sample to 629 completed deals. Table 2.2.1 shows the effect of compensation of the target CEO on the length of the negotiation for deals paid in cash, stock, or a combination of both. This table shows the importance of the target CEO compensation on the delay to complete an

M&A deal. The last two columns of Table 2.2.1 identify different variables that affect the deal time to completion. Target CEO VEGA and a hostile offer will extend deal completion, while a tender offer, cash payment and volatility of the target firm (along with the orthogonalized DELTA and the orthogonalized total compensation) reduce the delay[14].

Considering VEGAT, the target CEO VEGA, we record a 0.101 coefficient significant at 1% (and 0.082 when including the year and industry effects). *This can be translated into an overall significant extension of the deal completion by a minimum of 10 trading days driven only by target CEO sensitivity to volatility.* This finding yields that CEOs with more risk incentives as outlined by their compensation contracts are more inclined to accept uncertainty in the outcome of the deal and tend to bargain for longer to reap up more benefits. Extending the deal further gives the target CEO the option to accept other deals or get a "better" new compensation contract with the newly merged firm. This effect is very close to using cash as a method of payment which makes deal completion faster by about 11 days. Our results are economically important, whereas cash considerations have been largely documented, our results report another important factor affecting the length of the period to complete a deal.

2.4.1.2 B-Sample: Bidders Sample Results

Next, we consider a much larger sample. Our sample of deals with compensation information on the bidder of the announced M&A deals constitutes 1,631 completed deals. Table 2.2.2 reports the results obtained from the sample of cash, stock and mixed bidder deals. The sensitivity of the bidder CEO to the volatility of his stocks is also significant and estimates a delay of 5 days in the deal completion. Furthermore, this table shows that the method of payment in the case of cash

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[14] Mean for completed deals: EDELTAT is -15.66, ETDC1T is -98.56, Tender Dummy is 0.21, CashOnly is 0.38, Vol is 0.03 and Hostile is 0.30.

deals) and the interaction variable VEGA×Cash are significant. The main difference is that this table also deems the bidder's relative deal size highly significant. Bidder relative deal size is substantial; the larger the transactions, the higher this variable, while the smaller the bidder relative to the size of the target, the higher this variable. This effect is expected as larger deals are documented to take longer to complete.

2.4.1.3 S-Sample: Bidder and Target Sample Results

To verify the direction and magnitude of the reported effect of CEO VEGA on deal completion, we used another sample, the S-sample, which contains information on both the bidder and the target CEO compensation package as presented in Table 2.2.3. Table 2.2.3 has 472 completed deals paid up in cash, stock or a combination of both. Here, we introduced both bidder VEGA VEGAB and target VEGAT. In this setting, bidders' relative size continues to be significant while the volatility of the target and the bidder seem to be less important. We can attribute the change in the volatility effect to the fact that the volatility of the target and bidder are highly correlated as shown in the descriptive statistics of this sample. Persistent cash payment, hostility and tender offer are still significant.

But in this table, the VEGA of the target CEO is significant and registers 15 days (12 days) delay in completion (with the year and industry dummies); however, the VEGA of the bidder is no longer significant. The only other variable still relevant is VEGAB×Stock; significant at 1%. This displays a divergence in the behaviour of target and bidder CEOs by considering their compensation package. A target finds it in his/her best interest to delay the completion of deals by almost 3 weeks to benefit from other possible deals coming in or for negotiating better contracts for his/her future.

2.5. Robustness checks and other hypotheses

As we find that the effect of the method of payment is a bit unclear, we run some further tests removing the mixed deals from our samples. This is reported in Tables 2.3.1.1-2.3.1.2 for targets, 2.3.2.1-2.3.2.2 for bidders and 2.3.3.1-2.3.3.2 for both. Tables 2.3.1.1 and 2.3.1.2 for target CEOs are constructed similarly, but one reports on cash dummy and the other reports on stock dummy. There seems to be no significant difference between deals paid up in cash or stock from the target compensation perspective. In both stock and cash deals, VEGAT significantly increases the time to completion, confirming our hypothesis.

Nonetheless, Tables 2.3.2.1 and 2.3.2.2 for bidder CEOs are slightly different. The VEGAB is only important in cash deals, and the effect is big in magnitude too (over 11 days), but VEGAB is not significant for stock deals while VEGAB×Stock is significant at 1% (similar findings reported in Table 2.2.3 above). This means bidders whose contracts allow for more risk-taking will negotiate longer and not accept what the target CEOs are bargaining for even when they already offered a cash deal. Consistently as well, comparing Tables 2.3.3.1 and 2.3.3.2, target VEGA is significant for both cash and stock deals, while the interaction between the VEGAB and method of payment is on the bidders' side.

2.5.1 Subsamples based on method of payment

To quantify the magnitude of the effect of compensation contracts on the period to complete a merger and acquisition bid, we created subsamples from each of our three samples based on the methods of payment.

Table 2.3.4.1 examines the effect of the VEGA of the Target CEO on Cash Deals, while Table 2.3.4.2 shows the effect of the VEGA of the Target CEO on stock deals. In Table 2.3.4.1, the VEGA of target firm CEOs with deals completed and paid up in cash is significant at the 1% level. The target CEO extends the negotiation by about 11 days on average for cash deals. More specifically, in this sample, the average number of days to complete is 106 days showing that target CEOs extend deal completion by around 10% based on their risk profile as highlighted by their VEGAs. In Table 2.3.4.2, VEGA CEOs paid up in stock are also significant, with a coefficient of 0.101 yielding about 9 days delay in deal completion. Noticeably, for stock deals, the volatility of the stock significantly decreases the days to complete (with a coefficient of -980.6) up to 34 days.

From the bidders' sample, Table 2.3.5.1 for cash deals and Table 2.3.5.2 for stock deals, we reported different inferences. Bidder VEGA for cash deals does not affect the length of the period to complete the deal, however, in stock deals, the bidder VEGA is highly significant. In other words, the bidder CEO tends to benefit more from pushing forward the completion date by almost 10 days over an average completion period of 141 days for these stock deals.

For further illustration, Tables 2.3.6.1 and 2.3.6.2 display results of the S-sample for cash deals separately from stock deals; however, these samples are much smaller in size. Firstly, we pointed that the cash deals model has a much higher R^2 than that of the stock model at 0.4479 and 0.1627, respectively. While in cash deals, the VEGA of the target is significant at 1%, in stock deals, the VEGA of the bidder is somewhat more important than that of the targets in delaying deals' final acceptance.

2.5.2 Subsamples based on volatility of bidders and targets

To shed some brief light on the effect of the negotiating parties' volatility and how it links to compensation structure, we created a new dummy where the volatility of the bidder is greater than the volatility of the target. Table 2.3.7 reports S-sample in the instances where the bidder volatility is greater than the target firm volatility (and relative effects considering methods of payment)[15]. Mainly, bidder volatility tends to be less than the target firm volatility as the targets are smaller growing firms while bidding firms are larger value firms. The most important result comes from the all deals columns in Table 2.3.7. When the bidder volatility is higher than the target firm volatility, the VEGA of the bidder and the VEGA of the target CEO are no longer significant. Distinctly, when the volatility of the target firm stock is higher than that of the bidder firm stock the compensation of the target firm CEO would significantly affect the deal time to completion. Moreover, this effect is specifically attributed to cash deals, not stock deals.

This shows that a firm that is already volatile (and has a CEO who is predisposed to accept more risk by the compensation contract he/she holds) would not directly accept cash. Instead, a target CEO will wait longer to complete a deal and benefit from fluctuation in the stock volatility as translated by more VEGA. This can be explained by the fact that target CEO contract will be settled (terminated) when the deal completes.

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[15] These results are not highly emphasized as the sample sizes are not very big, but these do give an idea about the interaction during the completion period.

2.5.3 Dividing our samples into Q1 Low VEGA and Q4 High VEGA for Bidder and Target

To further investigate the relation between CEO compensation VEGA and the period to completion, we divided our samples into high VEGA and low VEGA quartiles. The quartiles are created based on sorting the original sample of firms where we estimated VEGAs and DELTAs from Execucomp (before merging to SDC and other databases); we arranged for each year and industry the VEGAs and DELTAs to assign the respective quartiles. Q4 represents firms that have very high VEGAs compared to similar firms in its industry and each specific year. Q1 is the low VEGA firms. Table 2.3.8 depicts the regression results for the bidder sample and the target sample when looking at Q1 or Q4 subsample distinctly. Due to smaller sample sizes, we do not report this for the S-sample, although the results are available and are giving the same inferences as the T-sample and B-sample Q1 and Q4 results.

This table shows that the results on VEGA and its relation to deal completion are not driven by outlier effects. On the T-sample, the low VEGA ones are not significant but the high VEGA ones are significant. More prominently, the effect of VEGA on days to effective comes from the middle quartiles as evident in all deals targets sample. The bidder sample shows that the VEGA is by and large not significant in deal completion although the descriptive statistics show that higher VEGA deals take longer to complete. We find that more deals are from high VEGA bidders, and low VEGA bidders are not common. Naturally, bidders are larger firms, hence the corresponding pay structure will reflect the use of other than basic cash compensation - including larger VEGAs.

We further divided the samples into above-median SDC volatility and below-median SDC volatility; however, this does not yield changes in the inferences on volatility. What seems to be relevant is how the volatility of the bidder and the target are related to each other and not how big the volatility levels we are measuring.

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2.5.4 Scaled VEGA

Because DELTAs and VEGAs of CEOs are correlated, we used the orthogonalized DELTA (EDELTA) and orthogonalized total compensation (ETDC1) as inputs in our main hypothesis equation.

Liu and Mauer (2011) reduce the correlation between DELTA and VEGA by scaling each of these measures by total compensation (which includes bonus, restricted stock and option grants, long-term incentive payouts, and other compensation). Size is directly correlated with the total compensation package value, but DELTA and VEGA also are correlated to the total compensation of the CEO. Essentially, one might be paid a big amount in VEGA, but VEGA may represent a small portion of the relative total compensation and how big his firm. They reported a correlation of DELTA to VEGA of 0.44 and scaled DELTA to scaled VEGA correlation of 0.27. We vary our equation as follows:

$$
\begin{aligned}
Days\ to\ Effective_i \\
= a + a_1 * VegaScaledbyTDC1T_i + a_2 * VegaScaledbyTDC1B_i + a_3 \\
* cashonly_i + a_4 * stockonly_i + a_5 * hostile_i + a_6 * tenderdummy_i + a_7 \\
* Relativedealsize_i + a_8 * RelativedealsizeB_i + a_9 * CAART_i + a_{10} \\
* CAARB_i + a_{11} * VolT_i + a_{12} * VolB_i + b * Industrydummy_i + c \\
* Yeardummy_i + e_i
\end{aligned}
$$

In the hopes of producing clearer inferences, we followed Liu and Mauer's scaling procedure. We divided VEGA and DELTA by total compensation for our samples of deals to decrease the commonality between DELTA and VEGA. Like elsewhere in this paper, we winsorized our total compensation measure TDC1 from Execucomp at 2% and 98% as suggested by Coles et al. (WP 2013) and customary in other papers too.

In the T-sample, target VEGA scaled by target total compensation is correlated, with target DELTA at 0.458. In the B-sample, bidder VEGA scaled by bidder total compensation is correlated to bidder DELTA at 0.987. In the S-sample, bidder scaled VEGA is 0.938 correlated, with bidder scaled DELTA while target scaled VEGA is 0.624 correlated to target scaled DELTA. We find that the scaling procedure does not reduce the correlation between DELTA and VEGA, and we explain this by the fact that both DELTA and VEGA are items within the compensation package and are correlated with the total compensation. Regression results for the previous equation did not affect our findings because scaled values are highly correlated, making the findings puny.

2.5.5 Deflated VEGA

In figures 7, 8 and 9, we compare our three samples' nominal VEGAs to their relative real values. We notice that our sample of bidders tends to have higher VEGAs on average than the universe of all VEGAs estimated in over 30,243 observations. The targets seem to have VEGAs lower than the average VEGAs from the universe of all observations. We apply a constant dollar value over the total period and deflate our monetary variables to 2008 figures. We re-run all regression results and the deflated VEGA consistently behaves like the VEGA used in previous tables.

2.6. Conclusions

We examine how chief executive officers' (CEO) compensation contracts affect their incentives in merger and acquisition M&A deal-making. We investigated three distinct samples to shed some light on how the behaviour of CEOs affects M&A contests regarding the probability of deal completion and the delay to complete a deal. While including other compensation sources such as DELTA (the sensitivity of compensation to a 1% change in stock price) and total compensation,

we focus on the CEO's VEGA (the sensitivity of compensation to one a percentage change in the volatility of firm stock returns) to convey our conjectures. We summarize our findings as follows.

It seems that the probability of a contest finishing successfully is not related to the VEGA of target CEOs, while bidder CEO VEGAs are more important in this context. A bid would finish successfully depending on other factors, specifically, the relative size of the target and bidder.

Also, we document a robust significant effect of compensation on the time to deal completion. Target CEOs' relative sensitivity to stock volatility as elicited by their compensation contract plays an important role during the period before the deal becomes effective. We find that target VEGA affects deal delays by up to 10 trading days (close to how much the choice of cash affects the completion period). While the choice of payment methods has been widely documented, our findings iterate compensation VEGA as an important factor in the process. Our results are economically important, where higher VEGA (fourth quartile) contracts compel target CEOs to extend deal completion by an average of 43 trading days.

CHAPTER THREE – CEO RISK INCENTIVES, ENVIRONMENTAL, SOCIAL AND GOVERNANCE PERSPECTIVES AND MERGER ACTIVITY

3.1. Introduction

Value maximization for shareholders has the lion's share in the finance literature. However, over the years, the interests of a broader set of stakeholders have been largely investigated. Research shows that there is inconclusive evidence whether investors and organizational management should engage in corporate social responsibility activities.

A significant number of firms (and across different industries) have engaged in investment opportunities that favour social good and social development[16]. Although environmental, social and governance (ESG) investments have gained considerable importance over the past two decades[17], it is still not clear through which channels CSR affects a firm's financial and long-term prosperity. For instance, Dunbar et al. (2017 WP) attest that higher CSR rated firms succeed in gathering more goodwill and moral capital. However, corporations with CSR strategic visions have CEOs that move away from taking more risk and show less market discipline.

Presently, there is a heated debate on how corporate social responsibility plays a role in improving shareholders' value, especially as more firms are seen giving priority to sustainability departments and reports. CSR considerate strategies are believed to be vital in the long-term but may allow for short-term undervaluation. Yet, many researchers still argue against investing in such activities.

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[16] This is well documented and mainly in mutual funds investments.
[17] and more so in the last couple of years (with the growth of green literature)

Several studies have shown that CSR profiles modify the incentives of firms' CEOs outside the framework of shareholders' wealth because the CEO tries to harness distinct requirements of different stakeholders. Certainly, corporate executive managers can alter a firm's risk by varying the choice of investment opportunities (like investing in stable income projects or preferring highly volatile cash flow projects) and often opt for second best firm risk levels. As such, the risk-taking incentives of CEOs should be monitored closely by shareholders when ranking investment opportunities.

Agency problem as framed by Jensen and Meckling (1976) and Fama (1980) states that conflict arises as CEOs, hoping to increase their utility, solve a value maximization problem that is not perfectly aligned with shareholders' interests. On the one hand, part of the suboptimal maximization problem is mitigated by drafting corporate governance policies that are consistent with shareholder value-maximizing. On the other hand, compensation structures through different combinations of cash, stock, and option profiles play a role in alleviating agency issues. Linking CEOs' wealth to shareholder welfare grew very common since Jensen and Murphy (1990) conceded the importance of this idea. Bebchuk et al. (2002) and Guay (1999) explain how agency costs can be decreased when boards choose a specific CEO compensation mix by varying risk and reward elements[18]. Managers are more exposed to firm-specific risk driven by their compensation contracts than the owners of the firms that are fully diversified (through dividing their investments over multiple firms). Less diversification of the manager's wealth results in forgoing opportunities that shareholders would like to have invested in.

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[18] Boards' choice of compensation contract is influenced by CEO power, whereby CEOs can extract rents from shareholders by modifying their compensation contracts (Bebchuk et al., 2002). In these cases, mitigating agency problem is not possible when designing equity-based compensation.

There is a trade-off between long-term (stakeholder) perspective benefits and executives' short-term goals. Long-term orientation focuses on sustainable development enhancing various stakeholders' benefits, while short-term opportunistic activities rotate around the executives and shareholders' wealth. We try to review the heterogeneous preferences of risk-averse CEOs who are rational utility maximizers facing changing shareholder as well as various stakeholders (suppliers, customers, and the community as a whole) value.

When designing compensation contracts and choosing operating environments that maximize stakeholders' benefits on top of wealth for shareholders, it is critical to discern the behaviour of CEOs and their risk preferences under the umbrella of CSR investments. This concept is framed by Andy Green:

"Management, it is argued, is held accountable to shareholders through stock-based compensation, as well as through short-termist hedge funds, high debt buyout private equity, and the broader market for corporate control. Workers, communities, and the public have little role in corporate governance as they, fundamentally, have interests that are inherently in conflict with shareholders…the rise of long-term investors whose interests align more with those of workers, the environment, and communities opens the possibility for moving management and companies to act in ways that benefit all these groups (Green, 2019, p. 910-911)."

We believe that the sensitivity of CEOs' wealth to stock return volatility, VEGA, as a proxy for risk-taking incentives provides an opportunity for shareholders to shift the CEO's behaviour and direct CSR investments. We empirically investigated our views in the corporate mergers and acquisitions arena (M&A) as M&A decisions have readily observable results and investor reactions directly show shareholders' gains or losses.

In the market for corporate control, the effect of incentive contracts is crucial. M&A contests are affected by the risk aversion of the deal makers and optimal incentive contracts would help push the outcome drastically. Acquisitions constitute risky investments that may be driven by managerial preferences and private benefits leading to personal wealth maximization.

We used event study methodology to test the cumulative abnormal announcement returns (CAR) of our sample of M&A deals covering the period of 1993-2018. As well researched, bidders have negative and significant CARs but high CSR rated firms record less negative and significantly better CAR as compared to low CSR-rated firms. Dividing our sample by announcement year, we found a significant difference between the two subsamples 1993-2007 and 2008-2018. In the earlier sample, deals' announcement returns were affected by bidder CSR, but this result vanishes in the later years.

Later, using OLS regressions, we found that CSR rating and VEGA are not significantly related to bidder CAR for the 1993-2018 sample. CSR rating is negatively related to short-term CAR, this applies mainly to low CSR firms. High CSR firms in the 1993-2007 sample have a significant and positive relation with CAR, but this result disappears in the following years. Similarly, VEGA has more significant relations with CAR in the sample before 2008.

A central finding is that over the long-term, bidding firms miss more long-term excess buy and hold returns (BHR) compared to a portfolio of non-bidding peers if they have a better CSR rating. The relation between excess BHR and VEGA is significant and positive. Also, the lower the bidder CSR, the better the synergy gains from the announced deal.

While CEO risk-taking incentives, as proxied by compensation VEGA are widely researched in liaison with CSR goals, we added new evidence in the M&A context. Our contribution to the

literature is in two way: we document a shift in the importance of CSR rating in the context of M&A. Our results show that a firm which ranks high on CSR activities benefits upon announcement of an M&A bid, but the effect is not significantly different from that of a Low CSR firm. Before 2008, firms taking up more corporate social responsibility activities (High CSR firms) would reliably yield more cumulative abnormal announcement returns (CAR) compared to Low CSR firms; nonetheless, this is not the case in more recent years. We conjecture that there is a kind of saturation in the markets where low CSR firms in more recent years can be considered "like" high CSR firms of earlier years (before 2008).

The remainder of this chapter is organized as follows. Section 3.2 reviews the most relevant literature, then presented our main hypotheses and conjecture about the behaviour of CEOs given their compensation contracts. Section 3.3 covers our sampling methodology, defines the variables, and provides descriptive statics. Section 3.4 reports the results and highlights our findings, and section 3.5 presents some robustness checks. Section 3.6 gives the main conclusions.

3.2. Literature Review and Hypothesis Development

In this section, we discussed the main reference papers that constitute the basis for our study. We categorized the reference literature under five headers: executive compensation and risk-taking incentives, executive compensation and corporate social responsibility, corporate social responsibility and performance, executive compensation and mergers and acquisitions, and corporate social responsibility and mergers and acquisitions.

Executive Compensation and Risk-Taking Incentives

Low (2009) inspired our work. She reports that managerial risk-taking constitutes a serious agency problem. As well established, when less risk is accepted, more shareholder value is destroyed. However, she establishes that increasing VEGA tends to mitigate this effect. Low VEGA CEOs are those who accept less risk, while high VEGA CEOs' behaviour aligns with shareholders' welfare. This is specifically in line with the general understanding that increasing VEGA advocates executive risk-taking activities through declining risk-aversion (and approaching optimal risk-taking). Moreover, DELTA provides miscellaneous incentives rendering its effect insignificant[19].

Dittmann, Yu, and Zhang (2017) offer a novel estimation with risk-taking incentives. They consider that the more risk a CEO tolerates (due to his compensation contract), the more the firm gains. They realize that the traditional empirical model of executive compensation does not explain the observed compensation contracts in real life, that is, managers are not punished for large decreases in stock price but are highly incentivized for medium and large jumps in price. Their work focuses on including risk-taking incentives in the design of the compensation contracts not just through exposing the CEO to more firm-specific risks but also to risks that improve the shareholder's benefits. They suggest that a more optimal contract should reward good performance with incentives for both risk-taking and efforts. They argue that their model of risk avoidance which incorporates both VEGA and DELTA better captures observed outcomes. This is mainly true because the VEGA effect of increasing risk-taking could be mitigated by large DELTA. Thus, they used a "better" measure of risk-taking incentives as the utility-adjusted VEGA scaled by the utility-adjusted DELTA. When VEGA is very small (negative), the manager will avoid risk (with

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[19] DELTA adversely affects the compensation payoff as the price of the stock declines, at the same time, more DELTA makes the manager more vulnerable to firms' risks which augments risk aversion.

positive NPV) unless his high DELTA suggests huge gains from the additional investment. Alternatively, when VEGA is very high, the executive will accept negative NPV projects as someone who is given incentives to accept more risky projects. Here again, the high DELTA will kick in and the executive will refrain from engaging in negative NPV because it adversely affects his/her pay. They conclude that the ratio of marginal utility benefits of VEGA and DELTA is more informative in explaining risk-taking incentives.

<u>Executive Compensation and Corporate Social Responsibility (CSR)</u>

CSR contingent pay structures serve to align the interests of managers looking to maximize their own benefits, as well as the interests of stakeholders. Ikram et al. (2019) differentiate between compensations related to objective or subjective CSR targets. The more unexpected the results of investments, the more the compensation relying on subjective CSR targets leads to performance enhancement. The better the governance, the harder it is for the executive to attain corporate social performance (CSP). The more the compensation is tied to specific and spelt out CSR requirements, the more likely the benefits in CSP (Ikram et al., 2019).

Further research investigating compensation-driven incentives is provided by Maas, 2018. The author considered the inclusion of corporate social performance targets into the compensation structure. Maas (2018) found that as more firms incorporate CSP objectives in the reward and evaluation of executives, those objectives did not yield improvements in the firms' CSP standing. The decision to invest more in CSP does not seem to be related to a CEO's compensation targets. This paper hints at the existence of a huge debate about the benefits of linking CEO pay to attaining specific CSP levels, further confirming the ineffectiveness of such contracting.

Like a few other papers, MacDonald (2016 WP) documents that VEGA has a strong significant relation with CSR, and DELTA is not significant in this respect. He demonstrated that CEOs know that a firm's risk increases with CSR activities. This paper reports a causal impact of compensation contracts on CSR. The author deems that CEOs believe that CSR investing is risky in a similar fashion to R&D expenditures, financial leverage, and non-diversified product lines. Hao and Kang (2019) maintain that corporate environmentally responsible (CER a subset of CSR) firms are less risky, which allows for promoting more risky but positive NPV projects. They found that VEGA (and the CEO's risk-taking incentives) is positively related to the CER standing of the year before.

Further, Dunbar et al. (2017 WP) investigated whether a higher CSR rating is also associated with higher VEGA. Their hypothesis is based on the proposition that CSR increases goodwill and stakeholder's benefits but moves the investments away from risk-taking. They stated that higher VEGA CEOs prefer more risky investments, and more so for CSR strengths. Moreover, they posit that High CSR-rated firms with low firm risk would utilize higher VEGA contracts to increase CEOs' risk-taking incentives (more than in any other setting). They found that the coefficient of CSR in predicting VEGA is positive and significant, thus, confirming that better CSR leads to more risk-taking incentives. Furthermore, it is the strengths that initiate that effect, not the concerns. They find that firms with a lower risk reveal a more positive effect of CSR on risk-taking behaviour.

Frye et al. (2006) show that non-socially responsible (non-SR) firms exhibit stronger relation between firms' performance and CEOs' compensation than their counterparts. But boards in more socially responsible corporation would more probably let go of the CEO following a lower performance than non-SR firms. In non-SR firms, future firm risk activities are significantly related to the CEO's stock option grants, which is not the case for SR firms. Commenting on

previous work related to the CEO's power in setting compensation, Ferreira (2018 WP) found that the more power the executive has, the weaker the compensation is tied to CSR. Nonetheless, opaque CSR contracts (hard to substantiate and easy to manipulate) are positively related to firms' performance. The author attests that drafting contracts that relate compensation to CSR still yields better outcomes even if the CEO is powerful (incurring more agency costs).

CSR and Performance

Çelniku and Chen (2019) document that taking up more CSR activities decreases the deviation from optimal investments and leads to increases in firm value. They reach this conclusion through asserting that corporate risk-taking and CSR are negatively associated and lead to increasing total value for stockholders.

Laura Starks' keynote speech at EFA 2009 focuses on investors' interests in addressing the main corporate governance and CSR notions. CSR is vague with less straightforward implications as compared to corporate governance. She investigates if investors are concerned about corporate governance and CSR and if these practices should be undertaken. Investors over the years have come to agree that there is an economically viable performance advantage coming from CSR initiatives. Environmental, social and governance (ESG) has emerged as the new field that jointly links the CSR and corporate governance actions of corporations. However, Starks points out that investors believe governance is the most useful while social and environmental dimensions are less key.

Many papers establish a negative relation between CSR rating and firm risk. While excessive risk-taking is considered value-destroying, it is established that increasing corporate value will not prevail without accepting more risk. Researchers do not yet fully understand the risks faced by

CEOs that affect their actions and decisions. It is still not clear how CSR affects value in altering risk sources like regulatory and litigation risk, supply chain risk, reputational risk, product and technology risk among others. Chakrabortya et al. (2019) investigated how risk varies with VEGA in firms that target more CSR investments. They observe that VEGA has a significant positive relation with total risk and idiosyncratic risk. Further, they establish that this positive relation between VEGA and risk holds only in low CSR firms. Thus, high CSR firms' risk is not affected by VEGA. Their definition of low or high CSR is based on industry median CSR scores. They claim that VEGA promotes risk-taking only when the firm is trying to maximize its shareholder's interests and not when it is trying to maximize non-investing stakeholder's interests.

Executive Compensation and Mergers and Acquisitions (M&A)

Croci and Permezas (2015) document that risk-taking incentives lure CEOs into accepting investment, namely M&A deals. The higher the VEGA, the higher the probability to invest in acquisitions. They found that the relation between VEGA and acquisition investments holds only when the CEO is not overconfident. Abnormal bidder announcement returns are positively related to VEGA whereas corporate governance has no association. Stock option compensation is positively and significantly related to takeover abnormal announcement returns (Datta et al., 2001). With high equity-based compensation, the CEO would only engage in those deals that are too good to ignore and usually yield positive outcomes. Also, they showed that the higher the levels of equity-based compensation the riskier the investment and the lower the takeover premium (Datta et al., 2001).

Benson et al. (2014) challenged the increased risk-taking concept driven by VEGA. They highlight that equity risk after the takeover is negatively related to VEGA. They demonstrated that higher convexity created by option-based compensation does not mandate more risk-taking. They find

that post-merger decrease in risk significantly destroys shareholder value (mainly for high DELTA and VEGA CEOs). Also, they record that higher VEGA is related to more takeover diversification. Boulton et al. (2014) reported the corporations' propensity to make acquisitions in relation to equity-based compensation with a robust positive relation. They build their investigation on DELTA and incentive ratio estimations. They demonstrated that equity-based compensation is positively related to the choice of stock payment and the size of the acquisition. Nonetheless, acquisition abnormal announcement returns are not uniformly positive across varying equity compensation structures.

Feito-Ruiz and Renneboog (2017) anticipated that acquisitions will earn more returns when the agency problem is mitigated by employing equity-based compensation. They underlined the effect of concentrated ownership in firms' decision-making; that major blockholders' power shifts managerial actions and substitutes the effect of equity-driven incentives. They reported that dominant shareholder blocks undermine the strong positive relation between takeover abnormal announcement returns and equity-based compensations. Excess pay is observed when firms have powerful CEOs and weak boards, which in turn decreases bidders' announcement returns. Based on the findings of Datta et al. (2001), Zhao (2017 WP) reports a strong positive relation between high equity-based compensation CEOs and acquisition announcement returns. The author links high-equity compensation to longer-term positive post-acquisition returns even for up to three years after the announcement. The sample used spans from 2007 to 2017. The author claimed that equity-based compensation does not seem to explain the decision to undertake an acquisition, although positive announcement returns are reported.

Corporate Social Responsibility (CSR) and Mergers and Acquisitions (M&A)

Deng et al. (2013) highlight the importance of social performance and stakeholder theory in merger performance. They investigated how corporate social responsibility generates value for shareholders of acquisitions. They report that high CSR bidders yield higher announcement returns compared to low CSR bidders of mergers. Also, they posit that the market does not recognise the benefits of CSR immediately and that high CSR bidders tend to gather better long-term stock returns as well.

These findings led to our main hypotheses. We take into consideration the risk-taking incentives of CEOs and observe the impact on the results of Deng et al. (2013). As CEO VEGA significantly affects CSR activities, we further investigate the possible effect of sensitivity of CEO's compensation to stock return volatility in CSR and M&A literature with VEGA as a proxy for risk-taking incentives.

H1: Upon announcement of an M&A deal, firms investing more in corporate social responsibility would earn significantly better returns than bidder firms with low CSR ratings.

H2: An M&A deal is a high-risk investment. High VEGA CEOs tend to accept more risk, so they would likely go ahead with the deal even if it is value-destroying and report negative returns.

We tested our hypotheses using the following equation:

$$CAR_{(-1,1)i} = a + a_1 * CSRrating_i + a_2 * Vega_i + a_3 * Delta_i + a_4 * BidderVol_i + a_5 * RelativeDealSize_i$$
$$+ a_6 * Size_i + a_7 * MarketToBook_i + a_8 * Premium_i + a_9 * Leverage_i + a_{10} * Tenure_i$$
$$+ a_{11} * Cash_{Only_i} + a_{12} * Stock_{only_i} + a_{13} * Hostile_i + a_{14} * TenderDummy_i + a_{14}$$
$$* Horizontal_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

Then, we investigated the joint effect of CSR and compensation using interaction variables.

H3: Upon announcement of an M&A deal, a firm with more investment in corporate social responsibility and that designs a compensation contract for its CEO, eliciting more risk-taking, (i.e. High VEGA) would gain more announcement returns than a Low CSR firm with High VEGA CEOs. A High VEGA CEO would accept undertaking less profitable deals.

$$CAR_{(-1,1)i} = a + a_1 * LowCSR_i * LowVega_i + a_2 * HighCSR_i * LowVega_i + a_3 * HighCSR_i * HighVega_i$$
$$+ a_4 * Delta_i + a_5 * BidderVol_i + a_6 * RelativeDealSize_i + a_7 * Size_i + a_8$$
$$* MarketToBook_i + a_9 * Premium_i + a_{10} * Leverage_i + a_{11} * Tenure_i + a_{12} * CashOnly_i$$
$$+ a_{13} * StockOnly_i + a_{14} * Hostile_i + a_{14} * TenderDummy_i + a_{14} * Horizontal_i + a_{14}$$
$$* HighLeverage_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

In the above equations, i represents an M&A deal. Details of the variable in this equation are available in Table 3.1.F[20] below.

A priori, High CSR firms have a long-termist view of caring for all society stakeholders. Hence,

H4: If High CSR firms compensate their CEOs in a way that advocates more risk-taking (with High VEGA and maximizes their short-term benefits), they would suffer more in the future, while Low CSR firms that are short-termists and compensate their CEOs with High VEGA would perform better over the long run.

Finally, we conjecture that along with the bidder CSR, the CSR of the target firm should also affect the deal-making process and realized announcement returns for the bidder and target.

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[20] Volatility is a firm's total risk and is the annualized monthly standard deviation of a firm's return measured up to one year before the announcement of the deal. Tenure is the length of time since the CEO held this title before the announcement of the deal. As a proxy to investment opportunities, we utilize MB market-to-book. Method of payment is related to the uncertain value of bidder and target; more stock is used when there is more uncertainty about target value. Horizontal (diversifying) is needed to account for the increase in risk due to more uncertainty about the target if the bidder and target do not share the same industry sector.

H5: High CSR bidder who invests in High CSR target firms chooses a better deal and should have better cumulative abnormal announcement return as markets anticipate more synergy in such deals.

3.3. Methodology

To test our hypotheses, we needed multiple data sources. We gathered the bidder and deal information from the Securities and Data Corporation (SDC) Platinum database. Execomp was utilised for information on the compensation structure of the CEO and to compute our sensitivity of wealth to volatility. We used the Center for Research in Security Prices (CRSP) for stock-related data and COMPUSTAT for financial and accounting measures. Finally, ESG STATS – KLD for ESG rating.

Mergers and Acquisitions: M&A

We commenced with all deals on SDC from 1992-2018, we excluded contests with a transaction value of less than USD$1 million. We chose the bids to include mergers, acquisitions of a majority interest, and acquisitions. We also excluded non-US, financial, and private bidders and targets. At this stage we had 6,863 SDC deals not yet matched to any other data set. The stock prices, industry, returns, and the number of shares outstanding were obtained from the CRSP. We identified the needed COMPUSTAT items as follows: total assets (at), book value per share (bkvlps), debt (dt), and shareholders' equity (teq). Further, we merged the compensation contract details from Execucomp and estimated VEGA (and DELTA). Finally, we have 2,328 deals from 1993-2018 with bidder and CEO characteristics figures.

Executive Compensation and VEGA:

To proxy for risk-taking incentives, we used VEGA, which is the sensitivity of CEO wealth to stock return volatility. Option value increases with the volatility of stock returns due to the convexity of utility-maximizing risk-averse executive payoff. Tying compensation to options induces managers to accept more risky investments though sub-optimal. Compensation contracts that dictate high VEGA make firm risk more valuable to CEOs, thus shifting managerial incentives towards accepting more risk, which is not in line with the best interests of shareholders. Executives may attain either profits or losses when the stock options maturity comes, but these are relative to the expectation built upon their future wealth prospects. More risk-tolerant managers may welcome risk when the firm's risk is high. Higher VEGA, as such, represents an opportunity to display the risk-taking behaviour of managers in an optimal investment setting.

We focus on VEGA for intuitive reasoning (and empirically documented effect). The cash compensation part of the total contract is independent of the stock's prosperity, while the equity compensation is dependent on the stock's future position. Considering stock compensation, the sensitivity of options compensation varies with the structure of the contract, but the CEO's gain varies linearly with stock price (DELTA=1) (MacDonald, 2016 and Guay, 1999). Moreover, Coles et al. (2006) showed that to attain the desired behaviour from CEOs, DELTA and VEGA should be chosen exogenously and treated separately. VEGA mainly acts to alter risk-taking by affecting risk-aversion, while DELTA approaches changes in executive wealth to shareholders'.

CSR rating:

To investigate the environmental, social, and governance practices of our bidders, we rely on the MSCI ESG STATS data set, which was formerly Kinder, Lydenberg, and Domini (KLD) ratings.

This database is annual and covers publicly listed firms from MSCI KLD 4000 Social Index, MSCI USA Index, and MSCI USA IMI Index. Data collected in this database includes the firm's management of ESG risks and exposure at the macro-level (segmental and geographic information from NGOs, academics, and government sources), from 10-K disclosures and sustainability report of the firm, and other stakeholder resources (like supplier questionnaires and media). The ratings are defined within a number of dimensions under the three major headers environmental, social, and governance. A firm could be rated positively or negatively for various dimensions.

Starting with all firms available on ESG STATS KLD from 1992-2018, we separated observations with no ratings (as blanks) and NR (not rated) from those where the rating is zero or one. For clarification, a strength rating of one means that the firm has a positive rating, while a zero strength means they have not done enough to earn strength in that specific dimension. Further, a rating of one in the concerns means that the dimension in questions is relevant and reveals negative practices for that firm, while a concern rating of zero means that the ratings' analysts found no issue for that firm relative to that dimension.

Our construction of the ratings variables is done as follows. First, we separated all strengths and concerns for each firm-year. Then calculated the CSR_strength_rating as the sum of all that firm's strengths ratings (adding the zeros and ones) and divide by the count of the strength (how many times the firm was rated for a strength dimension). Similarly, CSR_concern_rating is the sum of all that firm's concerns ratings divided by the count of concerns. Our numerical variable CSR_rating would then be the difference between the CSR_strength_rating and the CSR_concerns_rating. When the strength rating is empty, the CSR_rating is the negative of the CSR_concern_rating. To better represent the available data at the time of the deal, the CSR_rating is lagged by one year when matching with the SDC date of the deal announced. Next, we sorted

out all the CSR_ratings to create or the dummy variables, High_CSR (Low_CSR) as the observations where the firm ranks in the top 50th (bottom) over other firms in the same year and industry. With these constructed variables, we matched the year and GVKEY to COMPUSTAT, then SDC and EXECUCOMP. The final sample of bidders contains 1,280 firms.

Figure 10 provides a graphical representation of the growth in CSR activities as well as the distribution of average VEGA over our sample years from 1993-2018. This display reveals that CSR ratings increasing but become more steeply after 2008, whereas VEGA seems to fluctuate more. We observe a drop in average VEGA surrounding the 2007-2008 financial market crisis. Although the uncertainty was high, the market value of compensation contracts shrunk with less and less liquidity and even decreased in profitable investment projects.

3.3.1. Descriptive statistics

Tables 3.1.A to 3.1.E report the descriptive statistics of our main variables, while Table 3.1.F details variable definitions.

As shown in Table 3.1.A, our sample consists of 1,280 deals that span from year 1993 to 2018. The sample is uniform across the years as there is no year where the number of observations is too low or too high. The years with the most and least firm-year observations are 1999 and 1993, respectively (explained by the fact that Execucomp reporting started in 1992). Furthermore, considering the distribution across Fama-French five industries, we noticed a good diversity across all Consumer, Manufacturing, HiTec, Health and Other groups. We observed that deals in the HiTec industry constitute 37%, which is in line with the SDC total deals activity given that HiTec

firms engage in merger activity to maximize growth opportunities by acquiring other firms, developing competing technologies, and research.

We highlight the main sample summary statistics in Panel A of Table 3.1.B. The average CSR rating of our sample is 0.0103 with a median of 0. This CSR rating is a net score adjusted by the number of dimensions rated per firm, hence a mean of 0.0103 shows that our sample is affected by more strengths in corporate social performance as opposed to concerns. However, the dispersion ranges from a minimum score of -0.175 to a maximum standing of 0.373, which gives a good variation across the firm-years[21]. Our measure is comparable to studies like Dunbar et al. 2013, amongst others. We also considered lagged CSR rating as an alternative measure to better capture the availability of CSR rating at the time when the CEO is making the M&A decision. The lagged CSR rating reflects the information available on ESG STATs one year before the most recent fiscal year relevant to the deal announcement date. By comparing the CSR strengths rating mean and CSR concerns rating mean of 0.0502 and 0.0399, respectively, we confirmed that Strengths affect the total CSR rating net score due to its higher mean. We noticed that this is the case for all ESG STATS (KLD) databases that strengths ratings are more common than concerns ratings.

The reported VEGA and DELTA statistics are those of the winsorized figures. Average VEGA is $292,250 while average DELTA is $1,694,760. These are in line with the mean reported in the literature like Guay (1999) and Coles et al. (2006). Our sample of estimated VEGA is very well

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[21] To alleviate any problems with the estimation of CSR score (which is based on ordinal values ranging from -1 to 1), we further winsorized values at a 1% level and took the natural logarithm of our measure. We do not rely on these in our reported results following customary literature, the results are relatively similar.

dispersed, from a maximum of $3.2 million to a minimum of $3. This allows for a sufficiently large sample when dividing into high and low VEGA as the upper 75% and lower 25% subsamples.

Scaling our DELTA and VEGA by total compensation gives a better idea of the importance of these sensitivities when a CEO is considering alternative investment decisions. Scaled VEGA by total compensation average is 5.4% (median 2.4%) while that of DELTA is 61% (7.9%). So evidently, DELTAs constitute a large portion of compensation activities.

The average bidder firm size, which is the natural logarithm of market capitalization 40 days before the announcement of the deal stands at 22.9 and the market to book value at 4.5. As bidders, these are large value firms. Bidder volatility is around 2.25%. We have a big variation in the relative deal size, which indicates that some acquirers are bidding for targets at roughly 30% of their value while some are undertaking mergers at 1% of their market value.

Our sample yields value destruction for the bidders at the announcement; CAR (-1,1) and the other windows CAR are negative in the overall sample from 1993-2018 and it seems that our bidders are overpaying for their chosen targets with a premium at 1.4. For those observations where leverage is available, our firms seem to be not highly leveraged with more equity than debt. The average tenure of a CEO around the deal-making date is 8 years.

The majority of the deals are paid in full with cash (54% of our total sample), while others have a payment combination of stock and cash (30% of the sample) and stock (17% of our sample). The few CEOs that undertook hostile bids and targets are mostly outside the industry of the bidder.

Panel B of Table 3.1.B presents the Pearson correlation of our main independent variables. Naturally, by construction, CSR score is mainly positively correlated to strengths and negatively correlated to concerns. The size of the firm is highly correlated with all other variables. CSR and

VEGA are positively correlated at 0.187 (this does not constitute an alarming level). VEGA is positively correlated with total compensation at 30%, the bigger the compensation contract the more variation in the sensitivity of a CEO's total wealth to stock return volatility. DELTA is highly positively correlated with tenure. All other correlations amongst our independent variables are considered within acceptable ranges.

Table 3.1.C is a snapshot of the subsample sizes after dividing our sample of 1,280 bids into High/Low CSR and High/Low VEGA. We observe that our bidders are mostly high VEGA and a bigger portion of them are Low CSR. Notably, only 44 deals are performed by High CSR firms with Low VEGA.

Next, we display the descriptive statistics of our high CSR (620 deals) versus low CSR (660) subsamples with a t-test of difference in means in Table 3.1.D. This table readily demonstrates the significant difference between our two subsamples, although however, the cumulative abnormal returns of the two subsamples are not significantly different. The CSR rating of the high CSR subsample is +0.05 on average while that of low CSRs is -0.03 with a significant difference in mean of 0.084[22]. VEGA of the High CSR sample is significantly larger than that of the Low CSR sample with a mean VEGA difference of almost $160,000 while their DELTAs are quite comparable. This indicates that our two subsamples are distinct and have divergent characteristics. The average bidder firm size is 23.3 for High CSRs and 22.5 for Low CSRs, indicating that high CSR firms are significantly larger than low CSR firms. Low CSR firms are more volatile than high CSR firms and tend to undertake deals that are relatively larger in comparison with their size and

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[22] This is not too important because we are dividing the samples by high and low CSR.

are more leveraged (though not significantly). Low CSR firms' CEOs have longer tenure. High CSR firms tend to pay more as the mean difference in premium is 0.051 (significant at 10% level).

Table 3.1.E reports the descriptive statistics of the two subsamples dividing our original sample by announcement year into 1993 to 2007 and 2008 to 2018. It seems that our sample of bidders in the older sample recorded the worse cumulative announcement returns than those of the 2008-2018 subsample as the CSR rating increased over the years (see the graph of Figure 10). More firms are engaging in corporate social responsibility than ever and are achieving more strengths. Mean CSR rating before 2007 is -0.00153 while from 2008 onwards it is +0.03160, this constitutes a positive significant increase in CSR rating in later years. Also, VEGA over the two subsamples did not significantly increase on average (but the median VEGA increased). DELTAs are significantly less in the later years, validating that after the recession in 2008, there was a huge restructuring of compensation schemes after the public criticized board members' and CEOs' too big compensation contracts.

These descriptive statistics tables set the stage for testing our hypothesis in the next section.

3.4 Test Results

Here, we describe the findings from testing our hypotheses. Our first set of results are based on running event study methodology on bidder cumulative abnormal announcement returns and then based on regression analysis.

3.4.1 Bidder Cumulative Abnormal Announcement Returns Event Study

The results of the univariate testing are displayed in Table 3.2. Also, we performed a daily event study methodology to test the cumulative abnormal announcement returns CAR of our sample of

M&A deals. The CAR is estimated over four windows surrounding the announcement of a merger and acquisition (M&A) deal (where 0 is the announcement day): 3 days (-1,1), 5 days (-2,2), 11 days (-5,5) and long-term post-announcement return (0,+1,250)[23]. CAR estimation is carried out with the daily returns estimation window using the market model over 200 trading days till 11 days before the announcement.

Further, we depict the univariate results over the subsamples divided into High / Low CSR. Moreover, we also divided our sample into two time frames 1993-2007 and 2008-2018, and display the results again.

Testing the cumulative abnormal announcement returns of our full sample from 1993-2018 yields negative and significant results. As well documented in merger literature, the bidder announcement abnormal returns are negative.

On examining the Low CSR (656 deals) and High CSR (616 deals) subsamples alone, we record that High CSR bidders earn less negative and significantly better (at 10% confidence) cumulative abnormal announcement returns (-0.63) as compared to the Low CSR bidders (-0.73). Our definition of Low versus High CSR is based on the industry and the year sorting of all CSR ratings from ESG Stat (KLD database). We defined high CSR as those firms that have a rating that is above the median rating for the firm's relative industry-specific rating during a given year. This sorting is suitable because we are comparing a firm to its relevant peers in its industry, specifically using a comparable time as the CSR procedures and incentives evolve with time.

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[23] The event study methodology is not highly recommended over long-term windows as largely cited in the literature; we only report these as indicative values.

This finding is in line with Deng et al. (2013), which claims that high CSR bidders have better CAR than their Low CSR counterparts. But they reported positive announcement returns for High CSR and negative and significant returns for Low CSR over their sample spanning 1992-2007[24].

To validate our results with Deng et al. (2013), we divided our sample by deal announcement year into two subsamples 1993-2007 (to compare to their sample of mergers from the years 1992-2007 specifically) and 2008-2018.

We find that the subsample 1992-2007 (817 deals) reports more negative abnormal returns than the 2008-2018 subsample (455 deals) tallying the descriptive statistics that reveal a significant difference between the two sample CARs as well. The CAR(-1,1) is negative and significant at -1.23 for 1993-2007 and positive at 0.34 for 2008-2018.

To complete our comparison with Deng et al. (2013), we divided each subsample again into High or and Low CSR. We subsequently find that pre-2008, the high CSRs were doing better indeed but slightly. While for the more recent deals, the low CSR bidders report better CARs. We consider this result important as it showed that older deals were more affected by CSR profiles of the bidders while newer deals are less so. And this may be explained by the fact that before 2008, firms that were engaging in ESG practices were doing so because the business environment started realizing the importance of corporate social practices and started requiring implementing them. Back then, markets rewarded those firms that promised better environmental, social, and governance considerations.

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[24] To cross-check our findings with theirs, we divided our sample with above median and below median *in-sample* CSR to define alternative High/Low ESG profiles. Our findings now yield closer inferences to Deng et al. (2013) although our samples differ largely.

But in later years and up to 2018, more and more firms seem to have included ESG in their strategies and supply chain that it has become a *normal* thing. This led to a saturation as noticed by the upward trends of the CSR rating. It is like saying that what was considered as High CSR in the past changed to a Low CSR after 2008. At the same time, High CSR bidders of later periods are way ahead in incorporating CSR into their business models that it became a common practice and no longer too important a factor in deal-making decisions.

We observe a shift in CSR rating effect from before 2007 as compared to the more recent years. The marginal benefit of making more CSR considerate investments has decreased in the merger and acquisition context. We believe that CSR investments are not easily measured as the benefits of these investments cannot be perceived directly in the firm's value. So as more and more CSR activities are required, in more recent years, CSR considerations are becoming less important in justifying which opportunities the managers are accepting and which ones they are letting go of. Next, we checked if overinvestment in CSR is value-destructive and being used for the CEO's private benefits of gaining compensation and improving pay.

3.4.2 Bidder Cumulative Abnormal Returns Regression with CSR and VEGA

Table 3.3 provides the estimated results of our model in relation to hypotheses 1 and 2[25]. For all the models we later added industry and year dummies.

The dependent variable is the cumulative abnormal announcement returns, CAR(-1,1), it is estimated over the three days window surrounding the announcement of an M&A deal (where 0 is the announcement date) from 1993-2018. CAR estimation is carried over the daily returns

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[25] The results are similar when using other windows for cumulative abnormal announcement returns such as (-2, 2) and (-5,5).

estimation window using the market model over 200 trading days till 11 days before the announcement.

The findings in Table 3.3 establish that bidder CAR over the 3-day window around an M&A deal is not significantly related to CSR rating and also not significantly related to VEGA. The coefficient of CSR rating over the full sample is +0.014 (t-value 0.55) for CAR(-1,1).VEGA plays a little effect and explains little about the announcement returns. These results contradict those of Deng et al. (2013) who reported a significant CSR rating effect on CAR(-1,1). This finding strikes a puzzle, so we further analysed various subsamples to verify our findings.

CAR(-1,1) is significantly and negatively related to bidder volatility over the previous year ending before the run-up period at day -42 from the announcement. The more volatile the bidders' previous returns and the more uncertainty to the outcome of the deal completion, the lower the abnormal returns. Many volatile bidders make lesser returns. The relative deal size is also significantly and negatively related to bidders' CAR. The bigger the value of the transaction compared to the market capitalization of the bidder, the more the deal is complex, resulting in less immediate gains from such deals. The smaller the bidder, the better the CAR. Cash deals do better than mixed and stock deals.

3.4.3 Bidder Cumulative Abnormal Returns Regression with Subsamples based on Announcement Year and High vs. Low CSR

Table 3.4 gives the regressions of our dependant variable CAR(-1,1) over three time frames 1993-2018 (full sample), 1993-2007, and 2008-2018. This table details the difference between high CSR and low CSR subsamples over the various time frames.

First, by comparing all samples across the different time windows, we found that CSR rating is negatively related to CAR. We exhibit that the Low CSRs are the ones driving this result. Low CSR means, not making enough effort towards corporate social responsibility and this results in a drop in CAR at the announcement. But this inverse relation is not significant. We highlight that the High CSRs in 1993-2007 yield positive and significant relation with CAR and only in this sample. This confirms the findings of Deng et al. (2013) who found that high CSR firms earn positive CAR while low CSR firms earn negative CAR. But this effect of CSR seizes to exist beyond their sample. Thus, we report a shift in the relation between CSR and CAR in later years. This is our main finding, and it is robust to the inclusion of other explanatory variables.

Moreover, the effect of VEGA on CAR is mitigated when considering the full sample, namely the sample with later years. VEGA is positively related to CAR but the effect is only partly significant in Low CSR firms. The size of the deal is significantly and negatively related to CAR(-1,1); this means bigger firms earn lesser announcement returns, and the higher the CSR, the more important the effect of size. Higher CSRs that are bigger firms yield significantly higher CAR especially, in later years. Relative deal size is negatively and significantly related to bidder CAR. A low CSR firm reports better CAR if the value of the transaction is a bigger portion of its market capitalization. It seems that low CSR firms that engage in M&A contexts would only do so if the deal is big enough to make a drastic change in the firm after the deal succeeds. As well documented, cash as a method of payment results in a positive and significant increase in bidder CAR. Tender offers of low CSRs yield better CAR compared to high CSR (although this effect is not significant). A hostile bid leads to lower CAR and more so for High CSRs.

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In summary, this table shows that the proportion of High CSR firms that record better bidder cumulative abnormal announcement returns is not significant. We also found that the effect of CSR on CAR and the effect of VEGA on CAR are not significant on their own.

However, the results from investigating the interaction between High/Low CSR and High/Low VEGA are significant.

3.4.4 Bidder Cumulative Abnormal Returns Regression with Subsamples based on Announcement Year and High or Low CSR and VEGA interaction dummies

Related to H3, Table 3.5 ascertains that compensation contract considerations affect the behaviour of CEOs in the context of M&As even though the results are weak. The sensitivity of the CEO's wealth to stock return volatility has a more significant effect in the sample before 2007.

Further, we included in these tests a dummy variable for High Leverage. High leverage firms behave differently than their counterparts. Before 2007, when a firm is highly leveraged and thus riskier, more risk-taking as proxied by high VEGA would lead to significantly lower CAR. Completing an M&A deal is not considered good for shareholders when the firm is highly leveraged because the CEO is looking to increase his wealth by accepting more risk. After 2008, a highly leveraged firm would yield the highest CAR if the CEO is not taking extra risks and is serving in a low CSR firm. This result shows that CSR incurs extra costs to shareholders and deal-making is punished when the firm is highly risk-averse as proxied by its high leverage.

3.5 Robustness checks and other hypotheses

So far, we have only focused on a sample of bidders and the short-term announcement returns. Next, we administered some checks to validate if the above-reported results are robust over the long term. We also looked at a sample of deals with target explanatory variables added.

3.5.1 Buy and Hold Long Term Performance

To test H4 for the long-term effect of having completed a merger contest, we need to devise a portfolio of non-bidding peers to benchmark the performance of our bidders.

Peer (Buy-and-Holding Return) Matching:

Firstly, we used Lyon, Barber, and Tsai's (1999) matching methodology to identify convenient peers for our bidders' sample. Starting from all firms available on COMPUSTAT across our sample of 1,280 contests, we removed all firms that are bidders for the same firm year and industry as our bidders. This further reduced our number of observations largely. Then we sorted out the firms that were not bidders in the same year and industry as our sample by the 4-digit SIC code (then 3-digit and then 2-digit iteratively) and matched them to the bidders' sample. We measured the size as the logarithm of the market value of equity calculated as price per share multiplied by shares outstanding at day -42 before the announcement date (run-up period)[26]. Matching to our

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[26] We used an alternative measure of size as the natural logarithm of total assets at the most recent data date available on COMPUSTAT (closest to the day -42 from the deal announcement) to perform a long-term buy and hold strategy. From the full COMPUSTAT data beginning from 1992 till March 2019, we had 533,842 observations. We found that only 423,563 observations have total assets figure (item at) not blank, which constitutes a loss of approximately 26% of the observations. Furthermore, setting total assets to non-zero yields 421,563 observations (another loss of 0.3%). Over our sample of bidders, starting with 1,280 deals, we recorded a similar loss of almost 20% of samples when sorting based on the availability of total assets (1,070 deals remain). As this is not tiny and for consistency, we decided to calculate size based on an average of the most recent three years from the needed date (for all COMPUSTAT and Bidders too) instead. This allows us to benefit from bigger samples without affecting our results significantly. In cases where the match does not yield returns over the full window, we assume that the portfolio of peers is reweighted with the available matched peers instead. The unreported results are like the ones presented and available.

bidders, we allowed a size range of 30%. This yields a set of possible peers as matches to each of our bidders. Then, we calculated the market to book (MTB) as the market value per share at day -42 over the most recent book value per share (provided by COMPUSTAT). We assumed the market_to_book of bidder minus market_to_book of peer divided by market_to_book of the bidder to be within 0.3. We allowed only the closest three peers to each bidder according to year, industry, size and MTB. To create our buy-and-hold benchmark, we calculated the long-term buy-and-hold return of our bidders from day -42 to 5 years after (1,250 days). Similarly, we also obtained the buy-and-hold return of the portfolio of peers. Shall one firm drop over the long-term, we assume the portfolio is reweighted with the available matched peers instead. For our regressions and testing, we kept deals where at least one peer is staying longer than 4 years (except for most recent data).

Our independent variable is Excess_BHR and is defined per deal as the buy-hold return of the bidder minus the buy-hold return of the portfolio of peers. Where the buy-and-hold return is:

$$\text{Buy-and-Hold Return} = \text{BHR}_{it} = \prod_{t=-42}^{1,250}(1 + r_{it}) - 1$$

In this equation, i is the contest in question and t is the period.

To perform a long-term buy and hold procedure, we observed if the performance of the bidders is statistically and significantly different from the peers while accounting for various conventional deal characteristics.

$$ExcessBHR_{it} = a + a_1 * CSRrating_i + a_2 * Vega_i + a_3 * Delta_i + a_4 * BidderVol_i + a_5$$

$$* RelativeDealSize_i + a_6 * Size_i + a_7 * MarketToBook_i + a_8 * Premium_i$$

$$+ a_9 * Leverage_i + a_{10} * Tenure_i + a_{11} * CashOnly_i + a_{12} * StockOnly_i$$

$$+ a_{13} * Hostile_i + a_{14} * TenderDummy_i + b * Industrydummy_i + c$$

$$* Yeardummy_i + e_i$$

3.5.1.1 Regression of Long Term Buy and Hold Bidder Returns

Table 3.6 presents the results of testing the above equation over three sample time frames. The most prominent result is that Bidder's CSR rating is negatively related to excessBHR. Over the long term, bidding firms would lose more than the peers if their CSR-rating is higher. This result only applies after 2008, which means that the ever-increasing investment in CSR is bad news for shareholders of firms involving in merger activity. The VEGA is also significantly and positively related to long-term returns.

A firm may decide to strategically take a long-termist view that supports better practices and benefits to a larger set of stakeholders in addition to its shareholders or choose a short-termist view focusing on shareholders only. The long-term focus is proxied by a high CSR, while the short-term focus is proxied by a low CSR. VEGA proxies for risk-taking incentives. In this setting, our results show that investing in mergers no longer tallies the long-termist's objectives since there is a shift in the benefits of investing in better CSR practices. Since 2008, increasing CSR has not been favourable to shareholders and stakeholders, especially if they engage in M&A activity.

3.5.1.2 Regression of Long Term Buy and Hold Bidder Returns with High or Low CSR and VEGA interaction dummies

In this part, we repeated the excess buy and hold return testing using dummy variables for high VEGA (low VEGA) and high CSR (low CSR) to verify our findings. Here again, we found that over the long-term, low CSR firms gain significant positive returns compared to their peers, while High CSR firms do not. This result holds only for the sample of 2008-2018.

3.5.2 Value-weighted sample of deals with both target and bidder explanatory variables

We repeated the results of Tables 3.3 and 3.4 over a smaller sample of 407 bids where we were able to gather both the bidder and target explanatory variables. We looked at total synergy gains (losses) reaped at the announcement of an M&A deal and tested hypothesis 5 as follows:

$$
\begin{aligned}
TotalCAR_{(-1,1)i} = a &+ a_1 * BidderCSR_i + a_2 * TargetCSR_i + a_3 * BidderVega + a_4 * TargetVega_i + a_5 \\
&* BidderDelta_i + a_6 * TargetDelta_i + a_7 * RelativeVol_i + a_8 * RelativeDealSize_i + a_8 \\
&* BidderSize_i + a_9 * TargetSize_i + a_{10} * BidderMarketToBook_i + a_{11} \\
&* TargetMarketToBook_i + a_{12} * CashOnly_i + a_{12} * StockOnly_i + a_{13} * Hostile_i + a_{14} \\
&* TenderDummy_i + b * Industrydummy_i + c * Yeardummy_i + e_i
\end{aligned}
$$

The dependent variable is TotalCAR: Bidder and Target value-weighted CAR(-1,1). TotalCAR is both the bidder and target cumulative abnormal announcement returns estimated over the three days window surrounding the announcement of an M&A deal (where 0 is the announcement date) weighted by corresponding market capitalization of bidder and target. Then we vary the model by examining cross relations between Bidder and Target High or Low CSRs.

3.5.2.1 Bidder Cumulative Abnormal Returns with value-weighted sample with both target and bidder explanatory variables.

Interestingly, it seems that in this sample, the bidder CSR is highly negatively significant. The higher the bidder CSR, the more loss in synergy gains. Acquiror return is dominating the combined

target plus bidder total returns of synergy. So, the target return looks mitigated. Bidder CEOs in Low CSR firms yield better synergy gains. This confirms our previous results that CEOs in High CSR firms tend to not capture better gains and are doing the deals for other reasons. Bidder and target VEGAs are not related to total synergy gains as well.

A low CSR firm has shareholders and boards that prefer their short-term benefits over the long-term benefits of stakeholders. High VEGA managers are those who accept more risk and forego a positive NPV project if that better suits their benefits (of more compensation). We found that over the long term, firms that are involved in M&A perform significantly better than others if their CEOs are High VEGA and short-termists.

3.5.3 Other specifications

We performed other extensive tests that are not reported here and do not change our inferences[27]. We included other explanatory variables like R&D intensity proxy for high-risk firms, EXECDIR for duality proxy for CEO power as chairman of the board, CEO's Age at the time of the deal (instead of tenure), or dummy for tenure greater than five years since younger CEOs tend to be more risk tolerant. Furthermore, scaling our VEGA and DELTA by total compensation as suggested by a few papers in the literature rendered all VEGA and DELTA results insignificant.

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[27] It is worth mentioning that firms can exhibit a strong as well as a weak social performance at the same time but on other dimensions. It is worthwhile to look at the sample CSR strengths separately from the weaknesses. If we are summing the two, we are not capturing the true conclusions. For instance, two firms may have a net CSR rating of -0.02, however, one is rated on the absence of strength while the other has both strengths and concerns. We will investigate this in the future.

3.6 Conclusion

Shareholders would advocate an M&A decision if they see that the CEO will share their fate of profit or loss because of the decision. If the CEO stands to lose more possible pay from lower performance, her compensation contract affects utility and risk taking. Well-designed compensation contracts can tempt executives into exploring value enhancing and riskier projects.

Risk aversion is mitigated by adjusting the CEO's contracts to capture more risk-taking opportunities, and in turn, accepting more risky projects yields better firm performance (positive NPV investments). A problem arises as market performance or accounting indicators do not correctly portray managerial effort, additional hints into executive behaviour are needed to convey performance. Alignment of executive and shareholder interests is easily validated in an M&A deal-making.

By differentiating deals based on corporate, social and governance standing, this study shed new light on how incentives driven by executive compensation contracts can affect merger and acquisition short-term and long-term returns. Our work provides an update to Deng et al. (2013) by expanding their sample to the end of 2018; however, we added compensation considerations to our investigation.

CHAPTER FOUR – M&A TARGET CSR AND CEO COMPENSATION SENSITIVITY

4.1. Introduction

There is wide controversy as to whether CSR strategies alter firm value and firm motivation for CSR practices. Although we observe extensive shareholder interest in CSR[28], it is not the shareholders that are making the CSR strategic decisions. CEOs and executives are the ones creating the CSR profile of firms. To align the interests of the CEO with those of the shareholders, and thus decrease agency, compensation contracts are a credible tool to induce taking desired actions and avoiding (unfavorable) others.

CSR standing has gained extensive popularity over the recent years. Basically, CSR investment can arguably be considered a risky decision. In essence, strategically deciding to be more responsible leads to accepting more innovative projects, changing the business cycle, and having a long-term perspective - at the same time focusing more on overall stakeholders rather than on short-term shareholder wealth maximization. CSR is now a requirement in many facets of business. For example, to be competitive and not lose market share (customers and/or suppliers) to industry participants, firms try to make sure that attain high CSR standards (Porter and Kramer, 2006; Vilanova et al., 2009; Bansal and Roth, 2017).

At the same time, "CEO compensation has a profound influence on firm outcomes such as financial performance and investment and policy decisions; however, its effects on firm social performance are underexplored" (Ikram et al., 2020, p.1). As academic research continues to find conflicting relations between compensation and ethical, social and governance (ESG) practices (Krüger, 2015;

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[28] "Shareholders can be relatively intense in their requests for CSR" (Michelon and Rodrigue, 2015, p.157).

Masulis and Reza, 2015), it may be plausible to conclude that CEOs are not certain how CSR activity affects their firm's wealth (Michelon and Rodrigue, 2015).

The market for corporate control offers a readily observable event where we can infer CEO risk taking behavior and incentives. Using CEO pay sensitivities (as an alternative to the basic level of compensation) allows us to better evaluate the rationale for certain investment choices - specifically M&A decisions.

We gather a sample of merger deals with target firm information, target CEO executive compensation and corporate social responsibility (CSR) rating over the period 1993-2018. We study the effect of CSR standing on the announcement period returns of target M&As taking into consideration the effect of target CEO pay sensitivity to stock return volatility VEGA. Our results show a distinct effect over subsample periods pre- and post-2008. Low CSR firms record the highest 3-day window cumulative abnormal returns over the subperiod 2008-2018 at 24.39% compared to other groups (whether Low CSRs in 1993-2007 and High CSR in both subperiods). As standard firm and deal characteristics do not fully explain our reported announcement period return differences, we attribute our findings to the risk-taking incentives of CEOs driven by their compensation structure. We report that Low CSR firms with High VEGA CEOs specifically do significantly better at selling their firm.

We connect our findings to those of Dutordoir et al. (2021) which find, among other things, a positive trend in announcement period returns for target firms with a declining trend in target run-up. The authors explain that tougher regulations on insider trading is the reason for the target run-up decline over the more recent years (2010-2016) compared to earlier periods. In our run-up period regressions, we find that indeed Low CSRs are capturing higher returns (particularly in the later subperiod. We propose that as Low CSR firms are characterized by lower governance and

more agency costs where management seeks to benefit their own interests rather than stakeholders and consequently the impact of insider trading may be amplified at these firms with low governance. Higher VEGA CEOs have more risk-taking incentives; and when in Low CSR firms, these CEOs appear to seek to optimize their gains through merging instead of continuing with the business at hand.

The main contributions of this paper can be summarized as follows. We bridge different disciplines Mergers and Acquisitions, Corporate Social Responsibility and Executive Compensation to better explain wealth creation. We add to the M&A literature on target CSR performance the possible effect of sensitivity of CEO's compensation to stock return volatility, VEGA, as a proxy for risk-taking incentives. CSR initiatives hint at the type of firms; we report clear evidence on the importance of CSR in M&A. The market evaluates merger activity differently for high and low CSR firms. Particularly, when coupled with risk-taking incentives of CEO, Low CSR firms are reported to benefit most at the sale of the firm in the later subperiods.

The remaining of this chapter is organized as follows. Section 4.2 summarizes the related literature on mergers and acquisitions, corporate social responsibility and compensation structure then develops the guiding hypotheses for our study. Section 4.3 presents the sampling methodology and descriptive statistics. Section 4.4 and 4.5 provide the empirical investigation and robustness checks. Section 4.6 suggests other specifications of our models. Section 4.7 concludes this research.

4.2. Literature Review and Hypothesis Development

There is a proliferation of literature related to corporate social responsibility in the recent years (and particularly in 2020) reflecting the heighted interest in this topic in many fields. We review below some of the extant CSR papers in liaison with mergers and acquisitions and executive compensation.

CSR:

Barnett et al. (2020) provides a thorough review of the evolution of literature on CSR. They concede that there is a limited set of resources allocated by firms to CSR activities and that it is crucial to investigate how CSR initiatives may be improved to create greater good for society. They conclude that although CSR literature is very vast, there remains insufficient comprehension into the effectiveness of CSR schemes. Scholars are not able to properly determine the effectiveness of CSR in delivering promised benefits. Consistent with these claims, Michelon and Rodrigue (2015) report on the growing importance of CSR. They examine the increase in the number of shareholder proposals requesting CSR inclusions and revisions; hence, they underline the popularity of CSR to shareholders. Their work is in line with our idea that the demand for CSR is pressuring CEOs to engage in these activities; although, CEOs do not necessarily grasp the real consequences of CSR initiatives on their firm's prospects. In 60% of Michelon and Rodrigue sampled firms, there is a shareholder CSR-proposal more than once a year; specifically, the greater demand for transparency is significant.

Mayberry (2020) underlines the association between managerial compensation and corporate social responsibility activity. The author find a negative relation between VEGA and CSR; higher VEGA managers benefit most with higher volatility and thus seek lower CSR projects. Another confirmation of the causal relationship between VEGA and CSR is that of Ikram, Li and McDonald (2020). They find that DELTA is not a significant factor in CSR activities taken by firms while VEGA indeed is very important. They claim that CEOs profit from engaging in more responsible activities by increasing their compensation with more volatile investments (i.e. higher VEGA is realized). As such, to increase CSR involvement, increasing the VEGA of compensation contracts proves to be effective (Ikram et al, 2020).

McGuire et al. (2019) find that the behaviour of CEOs driven by pay-performance sensitivity does not have a monotone relation with corporate social performance (CSP). They utilize duration of CEO compensation (in addition to pay-performance sensitivity) to claim that CEO facing long-term compensation horizon behave differently than their counterparts. The negative effects of poor social performance become more relevant over longer periods. They differentiate between weak CSP and strong CSP. Weak CSP is risky (yielding short-term gains but also potentially significant negative outcomes) and lead CEOs seek to decrease their likely losses. On the other hand, strong CSP acts like insurance to sustain positive compensation (McGuire et al., 2019).

Similarly, Hong et al. (2016) discusses how corporate governance incentives structured for improving corporate social performance are favorable to shareholders. They make a case against the agency cost of managers at the expense of owners and report that linking compensation to CSR leads to higher social performance. They show that linking CEO compensation to engagement in CSR is very common and is likely to incentivize CEOs engage in CSR. They conclude by asserting

that the relationship between executive compensation and CSR is still widely unknown. Furthermore, Derchi et al. (2020) show that, for Named Executive Officers (NEOs), CSR performance can be attained through the utilization of compensation contract tied to CSR goals. They show that corporate learning affects the relationship between CSR performance and executive compensation from CSR targets. In order to promote decision making focused on CSR activities, investing in CSR specific governance systems (CSR reports, CSR audits and BD CSR committee) proves successful in CSR contracting.

On another front, Kim (2019) introduces another notion into the literature of sensitivity of CEO compensation. Kim alleges that CEOs underestimate market risk, making them miscalibrated; the degree of CEO miscalibration is positively related to pay-performance sensitivity (and negatively related to hedging)[29]. Zerbini (2017) constitutes another paper that reviews the signalling theory behind CSR schemes. This paper illustrates how CSR initiatives act as a strategic plan to signal to outsiders the ethical activities of the firm (and avoid adverse selection). Here, CSR is no longer considered an agency cost (conducive of manager personal gain over shareholder benefits). CSR projects serve as signals to differentiate ethical from non-ethical businesses.

CSR and M&A:

Chen et al. (2019) record more favourable value creation in M&A when the target firm has better CSR than its respective bidder. The authors ascertain that the bidders learn more from the target firm CSR settings and yield greater gains. The higher the target versus bidder CSR performance, the more the synergy gains from the deal. Cho et al. (2020) compare the CSR of target and bidder firms and find that higher premium for target shareholders is attained when target CSR

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[29] However, he later interprets miscalibration as overconfidence which leads to firm's exploitation of CEO's positively biased beliefs.

performance is superior to that of the bidder. They attribute this finding to market expectation of target being fairly valued if it has good relative CSR standing. In addition, Tong et al. (2020) reiterate the positive relation between target firm CSR and bidder abnormal returns on announcement of M&A deals. Their findings favour the stakeholder preservation perspective; whereby retaining good relationships with target stakeholders and not having to violate existing contracts seems to foster deal value creation. They rebuff the stakeholder appropriation view that the transfer of control to acquirors leads to positive market reaction through abandoning target stakeholder contracts (Tong et al., 2020).

From another angle, Choi et al. (2015) test the effect of CSR on deal premium. In M&A contest, the bidder needs to gather a lot on information about the target. At the time of signing the deal, the bidder cannot clearly estimate the value of the firm due to unknown activities that the target did not share. This papers states that target CSR constitutes a signal about its quality of information. The more the target is socially responsible, the less the information asymmetry that the bidder suffers, the higher the premium offered. Bidders with more asymmetric information will be affected most by target corporate social irresponsibility.

In their 2020 paper, Okafor and Ujah investigate the role of golden parachutes and corporate social responsibility. They find a negative association between short-term and long-term compensation, golden parachute, and CSR. They report that CEOs with golden parachutes get involved in CSR projects that create long term positive performance. Inclusion of golden parachutes in the compensation package is positively related to accepting CSR projects. Aside, they find evidence that female CEOs are the ones ready to undertake CSR activities. Yen and Andre (2019) provide similar evidence from emerging markets. They explain that the indirect benefits of CSR in business efficiency is less critical to the market than the cost of CSR concerns. The market perceives CSR

performance as important in cross border investments, and the bidder pre-merger CSR rating helps deal making. Park et al. (2019) look at the M&A activity and corporate CSR under the international framework. They examine cross-border deals to conclude that there may be a standardized CSR setting where firms can operate and respond to the interests of global stakeholders. The authors write about the need to consider both profitability and CSR strategy as benefits for stakeholders in far geographical locations.

Gomes and Marsat (2018) examine how bid premium is affected by CSR rating. They find that target firm CSR is positively related to deal premium. They conclude that better target firm CSR alleviates the information asymmetry in M&A deals and reduces risk related to target firm. They attribute this to the resource-based view (which leads to better competitive advantage). More specifically, social performance seems to be valued in cross-border deals and is associated with higher premium. Moreover, "poor CSR performance could be used as a lever in negotiating a discount (Gomes and Marsat, 2018, p. 71). Then Gomes (2019) discusses the influence of CSR on the choice of target firm. This paper compares CSR rating of target versus a matched sample of non-target firms; targets have higher CSR rating. Also, Gomes finds a positive relation between the propensity to become a target and its CSR rating (Gomes, 2019). Walters et al., (2020) finds that top management teams of target firms' retention is positively related to acquisition performance and this is facilitated by CSR performance.

A paper at the core of our investigation is Dutordoir et al. (2021); in this work the authors report a decrease in M&A returns in the run-up period over the period after 2010. The average change in run-up returns (from 50% to 17% of the overall stock price effect) is very substantial and is coupled with an uptick in announcement period stock returns. The authors fail to explain these finding

based on merger anticipation theory; however, they find that insider trading regulation modification strongly affect the M&A pre-announcement activity.

Hypotheses:

Inspired by the above, our main hypotheses are the following. The existing literature does not agree whether CSR investments improve value. First, we examine the direction of the effect of CSR on target firms' returns.

H1: Upon announcement of a merger, target firms with High CSR rating would earn significantly better returns than target firms with Low CSR rating.

Nevertheless, CEO VEGA significantly affects CSR activities. Thus, CSR endeavors create a challenge in elucidating the various risk trade-offs across different combinations of compensation VEGA. So, we add to CSR and M&A literature the possible effect of sensitivity of target CEO's compensation to stock return volatility, VEGA, as a proxy for risk-taking agenda. Specific firm risk is the focus and not market risk when a firm is targeted in a merger and acquisition negotiations.

H2: An M&A deal is inherently a high-risk investment. As High VEGA CEOs tend to accept more risk, they are more likely to go ahead with the deal even if it is value-destroying and report negative returns.

We test our hypotheses using the following equation:

$$CAR_{(-1,1)i} = a + a_1 * CSRrating_i + a_2 * Vega_i + a_3 * Delta_i + a_4 * TargetVol_i + a_5 * Premium_i + a_6 * Size_i \\ + a_7 * MarketToBook_i + a_8 * Cash_{Only_i} + a_9 * Stock_{only_i} + a_{10} * Hostile_i + a_{11} \\ * TenderDummy_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

From *H1* and *H2*, CSRrating is expected to be positively related to CAR(-1,1) and VEGA is negatively related to announcement returns.

Next, we utilize interaction variables to determine the joint effect of CEO compensation structure and target firm CSR strategies.

H3: At M&A announcement date, a firm with more investment in corporate social responsibility and designs a compensation contract for its CEO eliciting more risk taking (i.e. High VEGA) would gain more target announcement returns than Low CSR firm with High VEGA CEOs. High VEGA CEO would accept undertaking less profitable deals.

$$
\begin{aligned}
CAR_{(-1,1)i} = a &+ a_1 * CSRrating_i + a_2 * Vega_i + a_3 * LowCSR_i * LowVega_i + a_4 * HighCSR_i * LowVega_i \\
&+ a_5 * HighCSR_i * HighVega_i + a_6 * HighCSR_i * HighVega_i + a_7 * Delta_i + a_8 \\
&* TargetVol_i + a_9 * Premium_i + a_{10} * Size_i + a_{11} * MarketToBook_i + a_{12} * CashOnly_i \\
&+ a_{13} * StockOnly_i + a_{14} * Hostile_i + a_{15} * TenderDummy_i + b * Industrydummy_i + c \\
&* Yeardummy_i + e_i
\end{aligned}
$$

In this equation, the HighCSR*HighVEGA is supposed to be positively related to target announcement returns, but that of LowCSR*HighVEGA is negatively related to CAR$_{(-1,1)}$. Method of calculation and variable definitions for all items in the above equations are given in Table 3.1.E. Suffix i denotes distinct M&A deals.

4.3. Methodology

Our sample selection is completed in multiple steps. For starters, we begin by gathering target and deal information from Thomson Securities and Data Corporation (SDC) Platinum Mergers and Acquisitions database over the period January 1, 1992 through December 31, 2018 (6,863 deals). We limit our M&A deals to cases where: the form of the deal is merger or acquisition of majority interest, the nation is US, bidder and target are public firms. Further, we impose several restrictions including value of the deal is more than $10 million, bidder holds less than 50% of the target firm shares before the deal announcement and more than 50% after the transaction, neither bidder or target belong to utilities or financials industries. Next, we utilize Standard and Poor's

EXECUCOMP annual database to prepare our CEO compensation contract sensitivities DELTA and VEGA (following Coles et al. (2006) and Guay (1999) which frame the procedure to estimate our main variables of interest). EXECUCOMP starts in 1992 and includes over 3,400 firms corresponding to S&P1500 index current or past component holding firms. To be included in our sample, a target firm must be large enough to have a *complex* compensation structure so we may calculate the VEGA. This leads us to have a sharply smaller sample of deals. To be able to investigate CSR initiatives, we use MSCI ESG STATs data set (previously KLD) to calculate adjusted CSR ratings of firms based on different CSR criteria, whether product, human rights, environmental, employee, diversity or company. ESG STATs is a respected and broad database and is the most used in finance literature on CSR. Target annual financial data are gathered from COMPUSTAT and Center for Research in Security Prices (CRSP) gives the stock return data needed in univariate analysis and reporting on volatility. Our sample of deals with information on executive compensation and CSR standing is 599 deals[30].

4.3.1. Descriptive statistics

Figure 11 displays the sample average CSR and VEGA per year over the period 1993-2018. The average CSR ratings for M&A targets shows a jump into positive territories over the later years in our sample. In the early part of sample, the CSR average rating per year for target firms is predominantly negative. A more negative CSR rating means that there are more concerns or alternatively there are not enough strengths. Essentially, the firms are less likely to pursue practices that are corporate, social, and environmentally responsible. However, it seems firms started

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[30] For more details about the sampling methodology, kindly refer to our two papers: Deal Time to Completion and Executive Compensation (WP 2020) and CEO risk incentives, environmental, social and governance perspectives and merger activity (WP 2020).

increasing CSR activities over the more recent years and exhibit more "care" to perform better with regards to ESG practices. As such, it appears that there are new norms that command different behaviour from CEOs in line with ESG activities in later years.

Moreover, the behaviour of CEOs is affected by their compensation structure. We can clearly see that for our sample of target firms, CEO VEGA fluctuates a lot over all years. It appears as though CSR and VEGA do not share a pattern. However, we can see there is a relation between CSR rating of target firms and EDELTA (the orthogonalized residuals of the regression of DELTA as a function of VEGA) in the later years roughly from 2008 onwards.

Descriptive statistics are provided in Tables 4.1.A, 4.1.B, 3.1.C and 4.1.D. Referring to Table 4.1.A, we see that the sampled deals are well distributed over all years covering our testing period. The biggest number of deals per year occurs in 2007. In addition, we have a combination of SIC codes where there does not seem to be a specific industry overruling other industries in our sample. Of course, as this is a sample of targets, we note that 141 deals are in HiTec industry sector. In line with merger literature, HiTec firms or start-ups tend to be targeted for merger deals as they are fast growing and promise good future profitability.

Table 4.1.B gives the main variable summary statistics for our sample of target firms of merger deals over the period 1993-2018. While our sampling procedure yielded 599 deals, we where able to collect all needed control variables for 436 completed deals[31]. Consistent with the extant literature, we find target firm cumulative abnormal returns over the 3-day window averaged 21.4% at deal announcement date. Target firms tend to yield positive profits at deal announcement. The runup period returns are positive 3.8% over the period (-42,-2) before the deal announcement.

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[31] We lose a lot of observations to account for per merger target volatility over one year before the deal, market to book calculation and premium.

Although, there is a large variability in runup returns with a minimum of -96.7% and a maximum of 79.6% gains). Average premium offered is high at 53%; these merging firms are expecting the future target value to be more than its current market value. This is in line with the larger average market to book at 2.7. CSR rating - our measure for corporate social responsibility activities - is positive over the total sample though the median is slightly negative at -0.00238. The CSR strengths are slightly higher than average CSR concerns, and more so in later years. Average sample DELTA stands at $528,711 and mean VEGA is almost $136,758. These are driven by the fact that the target firms captured in our sampling procedure are typically smaller than their bidders, albeit they are not small firms. Where, target firm size measured as the natural logarithm of the market capitalization before the runup period is 21.5. Deals paid in cash constitutes 45% of our sample, while stock deals comprise 17% of our sample, and 38% are paid in a mixture of cash and stock. Most of the deals are friendly with only 8% hostile.

The correlation matrix of major variables of concern is provided in Table 4.1.B panel B. In line with the literature, the firm size is a major factor in M&A targets and is highly correlated with all other variables. With regards to compensation and as customary, VEGA and DELTA are very correlated. As such, we orthogonalize and use EDELTA (the residual regression variable) instead of DELTA for clearer insights.

Table 4.1.C shows comparative descriptive statistics for High CSR versus Low CSR subsamples over the total sample period. Most notably, the Markup period CAR(-1,1) and the Premium are not statistically different between High and Low CSR target firms. However, average sample VEGA and CSR rating are statistically different over the two subsamples. High CSR firms have higher average VEGA and are larger in size relatively.

Furthermore, Table 4.1.D summarizes the difference in means between two subperiods 1993-2007 and 2008-2018 instead of the total sample and highlights some major observations. First, the Markup has increased in the later subsample and statistically significantly so. CSR rating is positive over the 2008-2018 sample and is higher than that pre-2008. There is an improvement in CSR activities[32]. The markup return has apparently been increasing; however, the target firm size, VEGA and DELTA are not statistically different between more recent or older years. Premium offered seems lower in later years, this is a puzzling observation. Which brings us to consider how CSR and compensation translate into returns to targets of merger deals.

4.4 Test Results

To test our main hypotheses, we first run event study methodology then a set of regressions to better gauge our findings.

4.4.1 Event Study

The event study results are presented in Table 4.2 related to Hypothesis 1. We report the cumulative abnormal return over the market model measured with daily returns at different windows. We run the event study over the whole sample, two subsamples from 1993-2007 and 2008-2018, and the respective High versus Low CSR subsamples. Main findings here can be summarized as follows. Over the full sample, target firms are yielding 21.29% (positive and statistically significant at 1%) cumulative abnormal returns over the 3-day window around

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[32] We note that there is a real observed increase in average CSR ratings in the later subperiod compared to the period before. This is not attributed to the number of CSR dimensions that firm is actively engaging; CSR rating is net of total dimensions followed by each firm-year.

announcement, CAR(-1,1). Which turns out to be very similar to those of High and Low CSR subsamples.

It would appear as though CSR standing by itself is not an influencing factor in the target announcement returns. However, upon examining the subsamples divided by period pre-2008 and post-2008 we conjecture differently. CAR(-1,1) is higher for target firms after 2008 compared to the earlier subperiod. More specifically, the Low CSR subsample over 1993-2007 are performing the worst among all the four groups at 18.85% 3-day CAR. Whereas, the Low CSR subsample over 2008-2018 record the highest CAR(-1,1) at 24.39%.

By and large, the targets' sample after 2008 is gaining more announcement abnormal returns compared to before 2008. Our tests are showing some form of structural shift between the earlier years and the more recent years

We also perform similar event study on the run-up period CAR(-42,-2) over our various subsamples. We report in Table 4.2 a runup period return of 3.16% over the total sample period from 1993-2018, while High CSRs subsample earn 2.76%, Low CSRs gain 3.45% in the pre-announcement period returns. Moreover, we find that High CSR in the later subsample from 2008-2018 are yielding 5.86% compared to Low CSRs 3.89% over the same period. High CSRs over the earlier subperiod spanning 1993-2007 did not earn significant runup period returns.

4.4.2 Regression Analysis

In this paper we focus mainly on the 3 day window surrounding the announcement date, CAR(-1,1)[33]. Table 4.3 reports the regression results of our basic model related to Hypothesis 2. In

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[33] We run the same tests over other periods, but the results are left unreported as those are relatively similar.

confirming the event study findings, on the face of it, the regression with CAR(-1,1) as the main dependant variable shows that CSR rating has no important effect on target announcement returns. The significantly negative effect of VEGA is mitigated with the inclusion of other variables that are established in the literature to be affecting the target firms' announcement returns (size, premium and cash method of payment). Target volatility plays a small role in the determination of the gains at announcement with the inclusion of industry and year dummies. While market to book would normally be a significant factor affecting target abnormal returns, it does not yield significant coefficients when we account for Premium and Firm Size. The largest significant affect on our dependent variable comes from Premium and Firm Size. Where, the larger the firm size the lower the gains and the higher the offered premium the more the CAR. This is directly related to how the bidder values the prospective payoff of the merger deal and hence the value offered to the target shareholders. The premium comprises an important item in the determination of the announcement abnormal returns for targets of M&A deals. For a average sample premium of 1.53 and a regression coefficient of 0.0946 (last column in Table 4.3), the CAR significantly increases by approximately 14%. Similarly, size effect stands at a decrease of 0.6134 in the CAR over the same period. Typically, as well, deal paid up in cash result in better announcement returns compared to stock or mixed deals.

As the correlation matrix reports a high correlation between VEGA and DELTA, we orthogonalize DELTA by VEGA and use the residuals of DELTA regression on VEGA as an independent variable replacing DELTA in our main regression equation. The use of EDELTA instead of DELTA does not change any of the inferences from our regression equation. EDELTA over the total sample is not significant and VEGA as well.

Table 4.4 and Table 4.6 regression tests are similar, the main difference is that Table 4.4 includes DELTA while Table 4.6 has EDELTA instead. We report both as DELTA has an economic meaning, while EDELTA does not (but EDELTA resolves the correlation concern between DELTA and VEGA). Over the total sample, size, premium and payment in cash are the most important factors affecting the target firm cumulative abnormal returns over the 3 days surrounding the announcement of a merger deal, namely the Markup period CAR(-1,1). However, when looking at High CSR targets versus Low CSR targets, we find distinct results. DELTA becomes significant at the 5% level and the premium continues to be highly significant at the 1% level for High CSR targets; while this is not the case for Low CSR where Premium is slightly significant and CSR rating is slightly significant, but VEGA and DELTA are not.

We notice that the specification of the regression equation on High CSR subsamples has remarkably higher R-squared compared to Low CSR. Next, we look at our control variable Premium in Table 4.4 across different regression equation specifications. We observe that high CSRs target firms' markup returns are significantly positively related to Premium offered and the coefficient is larger compared to Low CSR. Moreover, when examining the last column of Table 4.4, we find a -1.98 coefficient of Low CSR. Average CSR rating of Low CSR subsample over 2008-2018 is negative. Low CSR firms after 2008 seem to be recording significantly better markup return compared to their High CSR counterparts as such. We shows that our work displays a clear divergence in how target firms are affected at deal announcement when considering both their CSR standing and CEO's sensitivity of compensation to different pay structures.

Furthermore, we divide the sample into subperiods to better grasp these findings. The effect of Premium is shown to be mitigated in Low CSRs in both period subsamples. DELTA seems to kick in at later periods and this is in line with Figure 11 presented below. CSR ratings shift to positive

(meaning more strengths than concerns) in more recent years and this means that these target firms have better governance and social responsibility as well. As target firm CEOs follow better CSR practices, they also tend to be rewarded better by achieving better merger announcement returns and this directly reflect on the DELTA which is related to improvement in stock price. It happens that as the business world moves into requiring more CSR practices, target firms are more affected by CEO DELTA not VEGA. This could be explained by the fact that target will not continue to be a standalone entity after the merger completion; probably making CEO DELTA more observable as the remaining life of the firm is short term[34].

Table 4.5 reinvestigates the announcement returns by introducing interaction variables between our main independent variables VEGA and CSR. It turns out that interacting LowCSR or HighCSR with LowVEGA or HighVEGA respectively does not lead to significant coefficients. None-the-less, the DELTA becomes more significant specifically in the 2008-2018 period.

As the results are not conclusive, we clarify by using EDELTA (which tackles the higher correlation with VEGA) instead of DELTA. Table 4.6 reiterates the findings of Table 4.4. Using EDELTA adds some value to the coefficient of VEGA and to its significance, but not enough to become substantial. EDELTA stays an important explanatory variable in the 2008-2018 period. Also, Table 4.7 parallels table 4.5 and there is no major difference between DELTA and EDELTA in the stability of the coefficients explaining CAR(-1,1).

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[34] Another note here, the sample covers completed deals so the uncertainty about deal failure is lower than failed deals where VEGA effect may be more evident.

4.5. Robustness checks

Based on these findings, we conjecture that there might be a shielded effect of executive compensation over the period before the announcement window. We therefore report the runup period returns CAR (-42,-2), in addition to the markup period returns CAR (-1,1), to further clarify our investigation inferences. So, we execute a set of regressions on Runup in Table 4.8 and Table 4.9.

Our findings in Table 4.8 comprise the best highlights of this research, we first find that there is a difference between 1993-2007 and 2008-2018 subsamples with respect to many variables and in the determination of the cumulative abnormal returns before announcement period. As expected, and in line with previous findings, Premium is always statistically significant and there is no discernible difference in sign or measure of the Premium loadings across various subsamples. This is not the case for CSR ratings variable. CSR rating does not seem to behave in a homogenous pattern from 1993 to 2018. We find that High CSR over 1993-2007 and Low CSR over 2008-2018 have a significant relation with Runup returns. Low CSR rating over 2008-2018 has a net negative effect on Runup returns and the destruction is economically significant too. Mean CSR rating for Low CSR sample over 2008-2018 is -0.024709 and the regression coefficient is 1.65243 (t-value 2.35 significant at 95% confidence level) leads to -0.041 change is runup CAR(-42,-2). In this period, market is penalizing Low CSR firms more. In addition, VEGA is significant over the same subsample. A significant positive VEGA may be explained as: a risk-taking CEO who is rewarded for accepting more risk has more incentives to engage in M&A deals. In such case, the risk-taking appetite of the CEO allows for negotiating deals although the firm is not regarded highly with respect to various stakeholders (Low CSR). This CEO is catering for his own benefit and short-

term shareholders and not very interested in the long-term well-being of the community as a whole. Examining the results over 1993-2007, we see a different set of objectives maximized by a different type of CEOs. CSR Rating for High CSR targets over 1993-2007 has a 3.22666 coefficient and EDELTA and VEGA are negatively related to CAR(-42,-2). In this sample, the CEO's risk-taking attitude is destroying wealth for the target firm. But, when the firm engages is more responsible practices, the market positively reacts to the possibility of a deal coming in the future in the hopes to overcome the entrenched activities of the CEO.

Table 4.9 revisits the effect of interaction between VEGA and CSR. Using cross dummy variables, we again find the important effect of compensation in the case where the CEO is rewarded with High VEGA (proxying for the compensation contract encouraging the CEO to take up more risk) but is managing a Low CSR firm. In the runup period before the deal announcement, we report a coefficient of 0.0747 (t-value 2.39 significant at 95% level) for LowCSR×HighVEGA. This finding coupled with a negative EDELTA diminish the CAR(-42,-2) substantially.

4.6 Other specifications

To reiterate our results, we respecify our abnormal returns hypothesis to include the runup and the markup simultaneously in the same equation. We now test the following model instead:

$$
\begin{aligned}
CAR_{(-1,1)i} = a &+ a_1 * CSRrating_i + a_2 * Vega_i + a_3 * LowCSR_i * LowVega_i + a_4 * HighCSR_i * LowVega_i \\
&+ a_5 * HighCSR_i * HighVega_i + a_6 * HighCSR_i * HighVega_i + a_7 * Delta_i + a_8 \\
&* TargetVol_i + a_9 * RunupCAR_{(-42,-2)i} + a_{10} * Size_i + a_{11} * MarketToBook_i + a_{12} \\
&* CashOnly_i + a_{13} * StockOnly_i + a_{14} * Hostile_i + a_{15} * TenderDummy_i + b \\
&* Industrydummy_i + c * Yeardummy_i + e_i
\end{aligned}
$$

Table 4.10 reports the corresponding results. Once again, we find significant relation between announcement period cumulative abnormal returns CAR(-1,1) and LowCSR×HighVEGA

interaction variable. This is in line with the previous finding that a high-risk taking CEO will seek to make a deal but being in a firm that has less focus on the larger stakeholder base (and does not seem to listen to outside scrutiny) negatively affects target announcement period returns[35].

4.7. Conclusion

To date, evidence is still mixed with regards to the relation between investments and CSR. The debate on whether CSR practices are creating value or how CSR engagement is affecting CEO decision making is still unsettled. We comment on the CSR activity through the lens of the market for corporate control and respective target firm CEO compensation contracts.

In the design of contracts, it is worthwhile to take into consideration the effect of VEGA under CSR strategy and not only investments. VEGA contributes to tailoring the risk-taking appetite such that executives rewarded with Higher VEGA are characterized by accepting more risky investments. Being in a Low CSR rated firms allows more room for a risk-taking CEO to benefit most from investments that do not tally to the needs of various stakeholders. Although Higher CSR firms engage in risky investments (like product innovation and R&D), these firm are characterized by better governance (which better monitors CEOs' misuse of resources and have better oversight).

Although many papers examine the inclusion of CSR targets in the executive compensation contract to drive more CSR activities in firms, we found there is no substantial evidence citing the link between Target CEO CSR and sensitivity of compensation to stock return volatility. By dividing our sample of M&A deals (with target firm, deal and CEO executive compensation

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[35] We also tried other variants of our main independent variables including one7 period lagged CSR, logarithm of VEGA and DELTA, ratio of VEGA to DELTA, and VEGA to total compensation. These yield slightly different results, but the inferences do not largely change accordingly.

information available) into subperiods from 1993-2007 and 2008-2018, we find that firms with Lower CSR standing which undergo merger deals tend to record better markup returns (cumulative abnormal returns over day -1,0, and 1) compared to other firms with Higher CSR over the later period. We relate our findings to the CEO's pay sensitivity to stock return volatility and executive compensation driven incentives. We demonstrate that Higher VEGA CEOs choose to engage in mergers to realize higher rewards from selling.

CHAPTER FIVE – CONCLUSION

Merger and acquisition deals are beneficial for the growth of organizations. An M&A strategically improves business relationships, allows for access to more financing, offers better human resource capacity, enhances competitiveness, builds market position, aids better brand recognition, and decrease various costs.

In this work we shed the light on two evident trends in the market for corporate control: the increased length of time to completion of deals and the increased interest in social, corporate, and environmental initiatives.

Before the deal closes, a period is needed to resolve all outstanding issues. This period includes reviewing, rectifying, and signing of all documents for due diligence, renegotiation of contracts, preparation for the new entity, and fulfilling all legal requirements. The CEO is responsible for making decisions and signing off on a possible deal. Signing a deal states the terms and conditions, while closing constitutes the transfer of profits to the bidder and the actual sale of assets and shares. The closing date signifies that all terms and conditions have been resolved.

Deal time to completion extends long periods. Gartner Inc., a leading research and advisory organization report over 30% increase in time to close an M&A Deal compared to the last decade (Gartner, 2019). They attribute the delay in deal completion to the increased complexity of the deal making environment. They find that legal and regulatory scrutiny impacted the length of the process, also the growth in value and volume of the deals. We witness more complicated deals due to advancement in digital firms, cross-border differences, and varying firm scopes.

From a practical point of view, it is not in the best interest of the bidder that an announced deal's closing date is delayed (i.e. deal completion takes longer than expected). There are several well documented factors that lead to delays in mergers and acquisitions becoming effective, including deal complexity, deal hostility, government scrutiny and shareholder support. We explore another factor, target CEO VEGA; we report that target CEO VEGA seems to significantly increase deal time to completion.

The discussion and benefits of corporate social responsibility (CSR) are attracting more interest in the academic literature. Although many firms seem to focus more on CSR, there does not seem to be a unified understanding as to how CSR initiatives affect firm performance and maximization of stakeholder well being. We find there are not many papers that tackle the relation between CSR and M&A outcomes. M&A deals involve uncertainty about the target firm information and value but provide a convenient setting for observing the outcomes of the CEO decision making. We look at corporate, social, and responsible activities of participants in M&A contests.

We study a sample of M&A contests with corresponding information on CSR standing and CEO executive compensation. We begin by looking at the M&A bidders, then we study a sample of contests with both bidder and target characteristics. We find that despite the increased interest in CSR initiatives, CSR no longer affects the deal announcement returns significantly. When controlling for CSR and executive compensation of CEOs, we find that the market does not yield better abnormal returns in the subperiod after 2008 compared to earlier subsample. CSR have become a requirement of business and do not necessarily explain which investments an CEO prefers. We examine both short-term and long-term behaviour. Non-bidding firms are performing better than their matched bidding firms with High CSR rating.

Moreover, we investigate the firms which become targets of M&A contests in liaison with CSR initiatives. We find no considerable evidence relating the target firm CEO's compensation sensitivity to stock return volatility and CSR practices. We find that firms which invest less in CSR initiatives earn higher announcement period cumulative abnormal return compared to those firms who chose more CSR investments in the subperiod after 2008. It seems as though High VEGA CEO succeed in yielding higher rewards from M&A contests when controlling for CSR.

REFERENCES

Agrawal, Anup, and Tareque Nasser. (2012). Insider trading in takeover targets. *Journal of Corporate Finance*, 18, 598-625.

Agrawal, Anup, and Tareque Nasser. (2019). Blockholders on Boards and CEO Compensation, Turnover and Firm Valuation. *Quarterly Journal of Finance*, 9(3), 1950010.

Akhigbe, Aigbe and Jeff Madura. (1999). The industry effects regarding the probability of takeovers, *The Financial Review*, 34, 1-18.

Aktas, Nihat, Eric de Bodt, Helen Bollaert, and Richard Roll. (2016). CEO Narcissism and the Takeover Process: From Private Initiation to Deal Completion, *Journal of Financial and Quantitative Analysis*, 51(1), 113-137.

Ali-Yrkkö, Jyrki, Ari Hyytinen and Mika Pajarinen. (2005). Does patenting increase the probability of being acquired? Evidence from cross-border and domestic acquisitions, *Applied Financial Economics*, 15, 1007-1017.

Ambrose, Brent W. and William L. Megginson. (1992). The role of asset structure, ownership structure, and takeover defenses in determining acquisition likelihood, *The Journal of Financial and Quantitative Analysis*, 27(4), 575-589.

Antonczyk, Ron Christian and Astrid Juliane Salzemann. (2014). Overconfidence and optimism: The effect of national culture on capital structure. *Research in International Business and Finance*, 31, 132-151.

Avery, Christopher, Judith A. Chevalier and Scott Schaefer. (1998). Why Do Managers Undertake Acquisitions? An Analysis of Internal and External Rewards for Acquisitiveness, *Journal of Law, Economics, & Organization* 14(1), 24-43.

Babenko, Ilona, Fangfang Du and Yuri Tserlukevich. (2017). Will I Get Paid? Employee Stock Options and Mergers and Acquisitions. European Corporate Governance Institute (ECGI) – Finance Working Paper No. 486/2016. Available at SSRN:

http://dx.doi.org/10.2139/ssrn.2749045

Baixauli-Soler, J. Samuel, Maria Belda-Ruiz and Gregoria Sanchez-Marin. (2015). Stock options and gender differences in risk taking: The moderating role of corporate hierarchy (Working Paper). Retrieved from

http://www.efmaefm.org/0EFMAMEETINGS/EFMA%20ANNUAL%20MEETINGS/2015-Amsterdam/papers/EFMA2015_0361_fullpaper.pdf

Baker, Malcolm, Daniel Bergstresser, George Serafeim, and Jeffrey Wurgler. (2018). The Response to Climate Change: The Pricing and Ownership of U.S. Green Bonds NBER Working Paper No. 25194.

Bansal, Pratima and Kendall Roth, (2017), Why Companies Go Green: A Model of Ecological Responsiveness, *Academy of Management Journal*, 43, 4, 717-736.
https://doi.org/10.5465/1556363

Barnett, Michael L., Irene Henriques, and Bryan W. Husted. (2020). Beyond Good Intentions: Designing CSR Initiatives for Greater Social Impact, *Journal of Management* 46, 6, 937-964.

Bebchuk, Lucian Arye and Jesse M. Fried. (2003). Executive Compensation as an Agency Problem, *Journal of Economic Perspectives*, 17(3), 71-92.

Benson, Bradley W., Jung Chul Park and Wallace N. Davidson III. (2014). Equity-Based Incentives, Risk Aversion, and Merger-Related Risk-Taking Behavior, *The Financial Review*, 49, 117-148.

Berger, Philip G., Eli Ofek and David L. Yermack. (1997). Managerial Entrenchment and Capital Structure Decisions, *The Journal of Finance*, 52(4), 1411-1438.

Berkovitch, Elazar, and M. P. Narayannan. (1993). Motives for Takeovers: An Empirical Investigation, 1993, *The Journal of Financial and Quantitative Analysis*, 28(3), 347-362.

Bernile, Gennaro, Vineet Bhagwat, and P. Raghavenendra Rau. (2017). What doesn't kill you will only make you more risk-loving: Early life disasters and CEO behavior, *The Journal of Finance*, 72(1), 167-206.

Bhagwat, Vineet, Robert Dam and Jarrad Harford. (2016). The Real Effects of Uncertainty on Merger Activity, *The Review of Financial Studies*, 29, 11, 3000-3034.

Black, Fisher and Merton Scholes. (1973). The pricing of options and corporate liabilities. *Journal of Political Economy*, 81, 637-659.

Bodolica, Virginia and Martin Spraggon. (2015). Mergers and Acquisitions and Executive Compensation eBook, Routledge Studies in Corporate Governance, Routledge.

Boulton, Thomas J., Marcus V. Braga-Alves, and Frederik P. Schlingemann. (2014). Does equity-based compensation make CEOs more acquisitive? *The Journal of Financial Research* 36 (3), 267-293.

Bris, Arturo. (2002). Toeholds, takeover premium, and the probability of being acquired, *Journal of Corporate Finance*, 8, 227-253.

Brockman, Paul, Xiumin Martin and Emre Unlu. (2010). Executive Compensation and the Maturity Structure of Corporate Debt, *The Journal of Finance*, 65, 1123-1161.

Cadman, Brian, Sandy Klasa, and Steve Matsunaga. (2010). Determinants of CEO Pay: A Comparison of ExecuComp and Non-ExecComp Firms, *The Accounting Review* 85, 5, 1511-1543.

Cai, Jie and Anand M. Vijh. (2007). Incentive Effects of Stocks and Option Holdings of Target and Acquirer CEOs, *The Journal of Finance*, 64, 1891-1933.

Carpenter, Jennifer N. (2000). Does option compensation increase managerial risk appetite? *The Journal of Finance*. 55, 2311–2331.

Çelniku, Kliti and Yao Chen. (2019). The impact of Corporate Social Responsibility on Corporate Risk Taking and Firm Value, Masters Programme in Accounting and Finance Thesis, Lund Univerisity.

Chakrabortya, Atreya, Lucia Silva Gaoa, and Shahbaz Sheikhb. (2019). Managerial risk taking incentives, corporate social responsibility and firm risk, *Journal of Economics and Business*, 101, 58-72.

Chen, Chong, Weijie Lu, and Min Liu. (2019). Corporate social responsibility learning in mergers and acquisitions, *Asia-Pacific Journal of Accounting & Economics*, 2164-2257. DOI: 10.1080/16081625.2019.1680297.

Chen, Xiaoying (Cindy) and Jasmine Yur-Austin. (2007). Re-measuring agency costs: The effectiveness of blockholders, *The Quarterly Review of Economics and Finance*, 17, 588-601.

Chen, Yangyang, Cameron Troung and Madhu Veeraraghavan. (2015). CEO Risk-Taking Incentives and the Cost of Equity Capital, *Journal of Business Finance & Accounting*, 42, 7-8, 915-946.

Chen, Zhian, Wing-Yee Hung, Donghui Li, and Lu Xing. (2017). The impact of bank merger growth on CEO compensation, *Journal of Business Finance & Accounting*, 44, 1398-1442.

Cho, Kyumin, Seung Hun Han, Hyeong Joon Kim, and Sangsoo Kim. (2020). The valuation effects of corporate social responsibility on mergers and acquisitions: Evidence from U.S. target firms, *Corporate Social Responsibility and Environmental Management*. https://doi.org/10.1002/csr.2055.

Choe, Chongwoo and Chander Shekhar. (2010). Compulsory or voluntary pre-merger notification? Theory and some evidence, *International Journal of Industrial Organization*, 28, 10-20.

Choh, Candice, and Carlos Soto. (2020, May 28). Common Topics of Review in M&A Due Diligence. Gibson, Dunn & Crutcher LLP. LexisNexis. https://www.lexisnexis.com/supp/LargeLaw/no-index/coronavirus/mergers-acquisitions/corporate-and-ma-common-topics-of-review-in-ma-due-diligence.pdf

Choi, Gunae, Christmann, Petra, & Kim, Tae-Nyun. (2015). Target CSR as a Signal in Acquisitions: Its Effect on Acquisition Premium. Academy of Management Proceedings, 17621.

Coles, Jeffrey L., Naveen D. Daniel, and Lalitha Naveen. (2006). Managerial Incentives and Risk-taking, *Journal of Financial Economics*, 79, 431-468.

Coles, Jeffrey L., Naveen D. Daniel, and Lalitha Naveen. (Jul 19, 2013). Calculation of Compensation Incentives and Firm-Related Wealth Using Execucomp: Data, Program, and Explanation. Available at SSRN: http://dx.doi.org/10.2139/ssrn.2296381.

Coles, Jeffrey L., Naveen D. Daniel, and Lalitha Naveen. (2014). Co-opted Boards, *The Review of Financial Studies*, 27(6), 1751-1796.

Core, Jeffrey and Wayne R. Guay. (2002). Estimating the value of employee stock option portfolios and their sensitivities to price and volatility, *Journal of Accounting Research*, 40(3), 613-630.

Croci, Ettore and Dimitris Petmzas. (2015). Do risk-taking incentives induce CEOs to invest? Evidence from acquisitions, *Journal of Corporate Finance*, 32, 1-23.

Cukurova, S. (2012). Interlocking directors and target selection in mergers and acquisitions, Working Paper available at SSRN 1966816.

Daniel, Naveen D. and Martin, J. Spencer and Naveen, Lalitha. (2004). The Hidden Cost of Managerial Incentives: Evidence from the Bond and Stock Markets. Available at SSRN: https://ssrn.com/abstract=612921 or http://dx.doi.org/10.2139/ssrn.612921

Datta, Sundip, Mai Inskandar-Datta, and Kartil Raman. (2001). Executive Compensation and Corporate Acquisition Decisions, *The Journal of Finance*, 56(6) 2299-2336.

Davidson, Robert H., Abbie J. Smith, and Aiyesha Dey. (2019). CEO Materialism and Corporate Social Responsibility, *The Accounting Review* 94, 1, 101–126. https://doi.org/10.2308/accr-52079

Deng, Xin, Jun-kooKang, and Buen Sin Low. (2013). Corporate social responsibility and stakeholder value maximization: Evidence from mergers. *Journal of Financial Economics*, 110, 87-109.

Denis, David, and Valeriy Sibilkov. (2010). Financial constraints, investment, and the value of cash holdings, *Review of Financial Studies*, 23, 247–269.

Derchi, Giovanni-Battista, Zoni, Laura, and Andrea Dossi. (2020). Corporate Social Responsibility Performance, Incentives, and Learning Effects. *Journal of Business Ethics*. https://doi.org/10.1007/s10551-020-04556-8.

Devers, Cynthia E., Albert A. Canella, Jr., Gregory P. Reilly, and Michele Yoder. (2007). Executive Compensation: A Multidisciplinary Review of Recent Developments, *Journal of Management*, 33(6), 1016-1072.

Dietrich, J. Kimball and Eric Sorensen. (1984). An Application of Logit Analysis to Prediction of Merger Targets, *Journal of Business Research*, 12, 393-402.

Dittmann, Ingolf, Ko-Chia Yu, and Dan Zhang. (2017). How Important Are Risk-Taking Incentives in Executive Compensation? *Review of Finance*, 1805-1846.

Dludozs, Jennifer, Rüdiger Fahlenbrach, Paul Gompers, and Andrew Metrick. (2006). Large blocks of stock: Prevalence, size, and measurement, *Journal of Corporate Finance*, 12, 594-618.

Dunbar, Craig G. and Zhichuan (Frank) Li, and Yaqi Shi. (2017 WP). Corporate Social Responsibility and CEO Risk-Taking Incentives. Available at SSRN: https://ssrn.com/abstract=2828267.

Dutordoir, Marie, Evangelos Vagenas-Nanos, Patrick Verwijmeren, and Betty Wu. (2021). A rundown of merger target run-ups, *Financial Management.* (DOI: 10.1111/fima.12331). (Early Online Publication).

Eckbo, B. Espen and Peggy Wier. (1985). Antimerger Policy under the Hart-Scott-Rodino Act: A Reexamination of the Market Power Hypothesis, *The Journal of Law and Economics*, 28(1), 119-149.

Ekelund, Robert B., Jr., George S. Ford and Mark Thornton. (2001). The Measurement of Merger Delay in Regulated and Restructuring Industries, *Applied Economics Letters*, 8, 535-537.

Fama, Eugene. (1980). Agency Problem and the Theory of the Firm. *The Journal of Political economy*, 35 (9), 2388-2406.

Feito-Ruiz, Isabel and Luc Renneboog. (2017). Takeovers and (excess) CEO compensation, Journal of International Financial Markets, Institutions & Money, 50, 156-181.

Ferreira, Tanner, (2018 WP). Executive Power and CSR Compensation Contracts. Available at SSRN: https://ssrn.com/abstract=3169687.

Fisher, Mario. (2017). The source of financing in mergers and acquisitions, *The Quarterly Review of Economics and Finance*, 65, 227-239.

Frye, Melissa B., Edward Nelling and Elizabeth Webb. (2006). Executive Compensation in Socially Responsible Firms, *Corporate Governance*, 14 (5), 446-455.

Gartner. (2019, Oct. 15). Gartner Says the Average Time to Close an M&A Deal Has Risen More Than 30 Percent in the Last Decade. Newsroom. Press Releases.

https://www.gartner.com/en/newsroom/press-releases/2018-10-15-gartner-says-the-average-time-to-close-an-manda-deal-has-risen-more-than-30-percent-in-the-last-decade.

Gervais, Simon, J. B. Heaton and Terrance Odean. (2011). Overconfidence, Compensation Contracts, and Capital Budgeting, *The Journal of Finance*, 66(5), 1735-1777.

Grant, Julia, Garen Markarian, Antonio Parbonetti. (2009). CEO Risk-Related Incentives and Income Smoothing, *Contemporary Accounting Research*, 26(4) 1029-65.

Green, Andy. (2019). Making Capital Markets Work for Workers, Investors, and the Public: ESG Disclosure and Corporate Long-Termism, *Case Western Reserve Law Review*, 69(4), 909-926.

Godos-Díez, José-Luis, Roberto Fernández-Gago and Almudena Martínez-Campillo. (2011). How Important Are CEOs to CSR Practices? An Analysis of the Mediating Effect of the Perceived Role of Ethics and Social Responsibility. Journal of Business Ethics 98, 531–548. https://doi.org/10.1007/s10551-010-0609-8

Golubov, Andrey and Theodosia Konstantinidi. (2019). Where is the risk in Value? Evidence from a Market-to-Book Decomposition, *The Journal of Finance*, 74(6), 3135-3186.

Gomes, Mathieu and Sylvain Marsat. (2018). Does CSR impact premiums in M&A transactions?, *Finance Research Letters*, 26, 71-80. https://doi.org/10.1016/j.frl.2017.12.005.

Gomes, Mathieu. (2019). Does CSR influence M&A target choices?, *Finance Research Letters* 30, 153-159, https://doi.org/10.1016/j.frl.2018.09.011.

Guay, Wayne R. (1999). The sensitivity of CEO wealth to equity risk: an analysis of the magnitude and determinants, *Journal of Financial Economics*, 53, 43-71.

Harford, Jarrad and Kai Li. (2007). Decoding CEO Wealth and Firm performance: The case of acquiring CEOs, *The Journal of Finance*, 62(2), 917-949.

Hao, Jongyu and Paula Fei Kang. (2019). Corporate Environmental Responsibilities and Executive Compensation: A Risk Management Perspective. *Business and Society Review*, 124 (1), 145-179.

Hickfang, Michael and Ulricke Holder. (2018). The impact of stock options on risk-taking: Founder-CEOs and innovation, Diskussionspapier des Instituts für Organisationsökonomik 12/2018, available at: http://hdl.handle.net/10419/192996.

Hirshleifer, David, Angie Low, and Siew Hong Teoh. (2012). Are Overconfident CEOs Better Innovators? *The Journal of Finance*, 67(4), 14571498.

Ho, Po-Hsin, Chia-Wei Huang, Chih-Yung Lin, and Ju-Fang Yen. (2016). CEO overconfidence and financial crisis: Evidence from Bank lending and leverage, *Journal of Financial Economics*, 120, 194-209.

Hong, Bryan, Zichuan Li, and Dylan Minor. (2016). Corporate Governance and Executive Compensation for Corporate Social Responsibility. *Journal of Business Ethics*, 136, 199–213. https://doi.org/10.1007/s10551-015-2962-0.

Hong, Harrison, G Andrew Karolyi, José A Scheinkman. (2020). Climate Finance. *The Review of Financial Studies*, 33(3), 1011–1023.

Ikram, Atif, Zhichuan (Frank) Li, Dylan Minor. (2019). CSR-contingent executive compensation contracts, *Journal of Banking and Finance*. https://doi.org/10.1016/j.jbankfin.2019.105655.

Ikram, Atif, Zhichuan (Frank) Li, and Travis MacDonald. (2020). CEO Pay Sensitivity (DELTA and VEGA) and Corporate Social Responsibility. *Sustainability*, 12, 7941.

Ismail, Ahmad and Andreas Krause. (2010). Determinants of the method of payment in mergers and acquisitions, *The Quarterly Review of Economics and Finance*, 50, 471-484.

Jensen, Michael C. and Kevin J. Murphy. (1990). CEO incentives-It's not how much you pay, but how, *Harvard Business Review*, 68(3), 138-153.

Jensen, Michael C. and William H. Meckling. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure, *Journal of Financial Economics*, 3, 305-360.

Jiang, Feng. (2012). Essays in empirical corporate finance: CEO Compensation, social interactions, and M&A, PhD (Doctor of Philisophy) thesis, University of Iowa. http://ir.uiowa.edu/etd/3319.

Kamiya, Shinichi and Kang, Jun-Koo and Kim, Jungmin and Milidonis, Andreas and Stulz, René M. (2018). What is the Impact of Successful Cyberattacks on Target Firms? *National Bureau of Economic Research Working Paper Series* 24409, Available http://www.nber.org/papers/w24409.

Kathleen Marshall Park, Olimpia Meglio, and Svante Schriber. (2019). Building a global corporate social responsibility program via mergers and acquisitions: A managerial framework, *Business Horizons*, 62, 3, 395-407.

Kim, Hwa-Sung. (2019). Effects of CEO miscalibration on compensation and hedging, *Finance Research Letters*, 30, 216-220. https://doi.org/10.1016/j.frl.2018.10.007.

Krüger, Philip. (2015). Corporate Goodness and Shareholder Wealth. *Journal of Financial Economics*, 11, 2, 304-329.

Lambert, Richard A., David F. Larcker, and Robert E. Verrecchia. (1991). Portfolio considerations in valuing executive compensation, *Journal of Accounting Research*, 29(1), 129–149.

Levi, Maurice, Kai Li, and Feng Zhang. (2014). Director gender and mergers and acquisitions, *Journal of Corporate Finance*, 28, 185-200.

Liu, Yixin and David C. Mauer. (2011). Corporate Cash Holdings and CEO compensation incentives, *Journal of Financial Economics*, 102, 183-198.

Low, Angie. (2009). Managerial risk-taking behaviour and equity-based compensation, *Journal of Financial Economics*, 92, 470-490.

Lyon, John D., Brad Barber and Chih-Ling Tsai, 1999, Improved Methods for Tests of Long-run Abnormal Stock Returns, *Journal of Finance*, 54, 165-201.

Luypaert, Mathieu and Wouter De Maeseneire. (2015). Antecedents of time to completion in mergers and acquisitions, *Applied Economics Letters*, 22(4), 299-304.

Maas, Karen. (2018). Do corporate social performance targets in executive compensation contribute to corporate social performance? *Journal of Business Ethics*, 148, 573-585.

MacDonald, Travis. (2016 WP). CEO Wealth Sensitivity and Corporate Social Responsibility. Available at SSRN: https://ssrn.com/abstract=2768578.

Malmendir, Ulrike and Geoffrey Tate. (2008). Who makes acquisitions? CEO overconfidence and the market reaction, *Journal of Financial Economics*, 89, 20-43.

Martin, Kenneth J. (1996). The Method of Payment in Corporate Acquisitions, Investment Opportunities, and Managerial Ownership, *The Journal of Finance*, 51, 4, 1227-1246.

Masulis, Ronald W. and Syed Walid Reza. (2015). Agency problems of corporate philanthropy. Review of Financial Studies, 28, 2, 592-636.

Mayberry, Michael. (2020). Good for managers, bad for society? Causal evidence on the association between risk-taking incentives and corporate social responsibility. *Journal of Business Finance & Accounting*. https://doi.org/10.1111/jbfa.12451.

Mba.tuck.dartmouth.edu. (2019). Kenneth R. French – Data Library. [online] Available at: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_5_ind_port.html. [Accessed 6 March 2019].

McGuire, Jean, Jana Oehmichen, Michael Wolff, and Roman Hilgers. (2019). Do Contracts Make Them Care? The Impact of CEO Compensation Design on Corporate Social Performance. *Journal of Business Ethics* 157, 375–390. https://doi.org/10.1007/s10551-017-3601-8.

Meador, Anna Lee, Pamela H. Church and L. Gayle Rayburn. (1996). Development of Prediction Models for Horizontal and Vertical Mergers. 1996. *Journal of Financial and Strategic Decisions*, 9(1), 11-23.

Merton, R. (1973). Theory of Rational Option Pricing. *Bell Journal of Economics and Management Science*, 4, 141-183.

Michelon, Giovanna and Michelle Rodrigue. (2015). Demand for CSR: Insights from Shareholder Proposals, *Social and Environmental Accountability Journal*, 35, 3, 157-175, DOI: 10.1080/0969160X.2015.1094396.

Minor, Dylan. (2016 WP). Executive Compensation and Environmental Harm. Harvard Business School Strategy Unit Working Paper No. 16-076. Available at SSRN: https://ssrn.com/abstract=2714438.

Offenberg, David and Christo Pirinsky. (2015). How do acquirers choose between mergers and tender offers? *Journal of Financial Economics*, 116, 331-348.

Okafor, Collins E. and Nacasius U. Ujah. (April 2020). Executive compensation and corporate social responsibility: does a golden parachute matter? *International Journal of Managerial Finance*, 16, 5, 575-598.

Painter, Marcus. (2020). An inconvenient cost: The effects of climate change on municipal bonds, *Journal of Financial Economics*, 135 (2), 468-482.

Palepu, Krishna G. (1986). Predicting Takeover Targets: A methodological and Empirical Analysis, *Journal of Accounting and Economics*, 8, 3-35.

Park, Kathleen Marshall, Olimpia Meglio, and Svante Schriber. (2019). Building a global corporate social responsibility program via mergers and acquisitions: A managerial framework, *Business Horizons*, 62, 3, 395-407.

Porter, Michael E. and Mark R. Kramer. (2006). The link between competitive advantage and corporate social responsibility, *Harvard business review* 84, 12, 78-92.

Powell, Ronan G. (1997). Modelling Takeover Likelihood, *Journal of Business Finance and Accounting,* 24(7 & 8), 1009-1030.

Ramiah, Vikash, Belinda Martin, and Imad Moosa. (2013). How does the stock market react to the announcement of green policies? Journal of Banking & Finance 37(5), 1747-1758.

Savović, Slađana. (2013, Jan.). Due diligence as a key success factor of mergers and acquisitions. *Actual Problems of Economics*. 6. 424-434.

Schneider, Christoph and Oliver G. Spalt, (2015). Acquisitions as Lotteries? The Selection of Target-Firm Risk and its Impact on Merger Outcomes. *Critical Finance Review*, 6(1), 77-132.

Shaw, Kenneth W. (2012). CEO incentives and the cost of debt, *Review of Quantitative Finance and Accounting*, 38, 323-346.

Shen, Carl Hsin-han and Hao Zhang. (2013). CEO risk incentives and firm performance following R&D increases, *Journal of Banking & Finance*, 37, 1176-1194.

Song, Moon H. and Ralph A. Walking. (1993). The Impact of Managerial Ownership on Acquisition Attempts and Target Shareholder Wealth, *The Journal of Financial and Quantitative Analysis*, 28(4), 439-457.

Song, Moon H. and Ralph A. Walkling. (2000). Abnormal returns to rivals of acquisition targets: A test of the 'acquisition probability hypothesis,' *Journal of Financial Economics*, 55, 143-171.

Spink, Mal. (2017, Oct. 9). Time Is Money: Costly Deal Delays Put M&A Arbitrage Returns in The Spotlight. Seeking Alpha. https://seekingalpha.com/article/4112538-time-is-money-costly-deal-delays-put-m-arbitrage-returns-in-spotlight.

Starks, Laura T. (2009). EFA Keynote Speech: Corporate Governance and Corporate Social Responsibility: What Do Investors Care about? What Should Investors Care about? *The Financial Review*, 44, 461-468.

Stuart, Toby E. and Soojin Yim. (2010). Board interlocks and the propensity to be targeted in private equity transactions, *Journal of Financial Economics*, 97, 174-189.

Sudarsanam, Sudi, and Jian Huang. (2006). Managerial Incentives, Overconfidence, Risk-taking, and Acquirer Shareholder Value Creation in Mergers and Acquisitions, working paper, Cranfield School of Management.

Thompson, Ephraim Kwashie and Changki Kim. (2020, August). Information asymmetry, time until deal completion and post-M&A performance, *Journal of Derivatives and Quantitative Studies*, 28, 3, 123-140. https://doi.org/10.1108/JDQS-06-2020-0014

Thompson, Ephraim Kwashie and Changki Kim. (2020, April). Post-M&A Performance and Failure: Implications of Time until Deal Completion. *Sustainability* 2020, 12, 2999. https://doi.org/10.3390/su12072999

Tong, Li, Heli Wang and Jun Xia. (2020). Stakeholder Preservation or Appropriation? The Influence of Target CSR on Market Reactions to Acquisition Announcements, *Academy of Management Journal* 63, 5, 1535-1560. https://doi.org/10.5465/amj.2018.0229.

Travlos, Nickolaos G., and James F. Waegelein. (1992). Executive Compensation, Method of Payment and Abnormal Returns to Bidding Firms at Takeover Announcements, *Managerial and Decision Economics*, 13, 493-501.

Utke, Steven. (2019). Propensity Score Matching with Replacement using Weighted Least Squares: SAS Code and Macros, (July 2, 2019). Available at SSRN: https://ssrn.com/abstract=2964990 or http://dx.doi.org/10.2139/ssrn.2964990.

Vilanova, Marc, Josep Maria Lozano, and Daniel Arenas. (2009). Exploring the Nature of the Relationship Between CSR and Competitiveness. *Journal of Business Ethics* 87, 57–69. https://doi.org/10.1007/s10551-008-9812-2

Walters, Bruce A., Mark J. Kroll, Son Le, and Sammy Muriithi. (2020, Winter). Acquirers' Corporate Social Responsibility Engagement, Target Executive Retention, and Acquisition Outcomes. *Journal of Managerial Issues*, 32, 4, 361-382.

Williams, MA, TB Michael and ER Waller. (2008). Managerial incentives and acquisitions: a survey of the literature, *Managerial Finance*, emeraldinsight.com.

What is the Difference Between Signing and Closing? (Accessed March 5, 2020). Merger Strategy. M&A Know How. https://merger-strategy.com/difference-signing-vs-closing/

Wright, Christopher and Daniel Nyberg. (2016). An Inconvenient Truth: How Organizations Translate Climate Change into Business as Usual, *Academy of Management Journal*, 60, 5, 1633-1661. Special Research Forum. https://doi.org/10.5465/amj.2015.0718

Yen, Tze-Yu and Paul André. (2019). Market reaction to the effect of corporate social responsibility on mergers and acquisitions: Evidence on emerging markets, *The Quarterly Review of Economics and Finance*, 71, 114-131.

Zerbini, Fabrizio. (2017). CSR Initiatives as Market Signals: A Review and Research Agenda. *Journal of Business Ethics*, 146, 1–23. https://doi.org/10.1007/s10551-015-2922-8.

Zhao, Ke. (2017 WP). Executive Compensation and Acquisition Decisions: Revisiting the Impact of CEO Equity Incentives on M&A, *Research Gate*. https://www.ResearchGate.net/publication/317338902.

FIGURES

Figure 1 – T-Sample: Target Sample - Distribution of VEGA compared to Universe of all observations
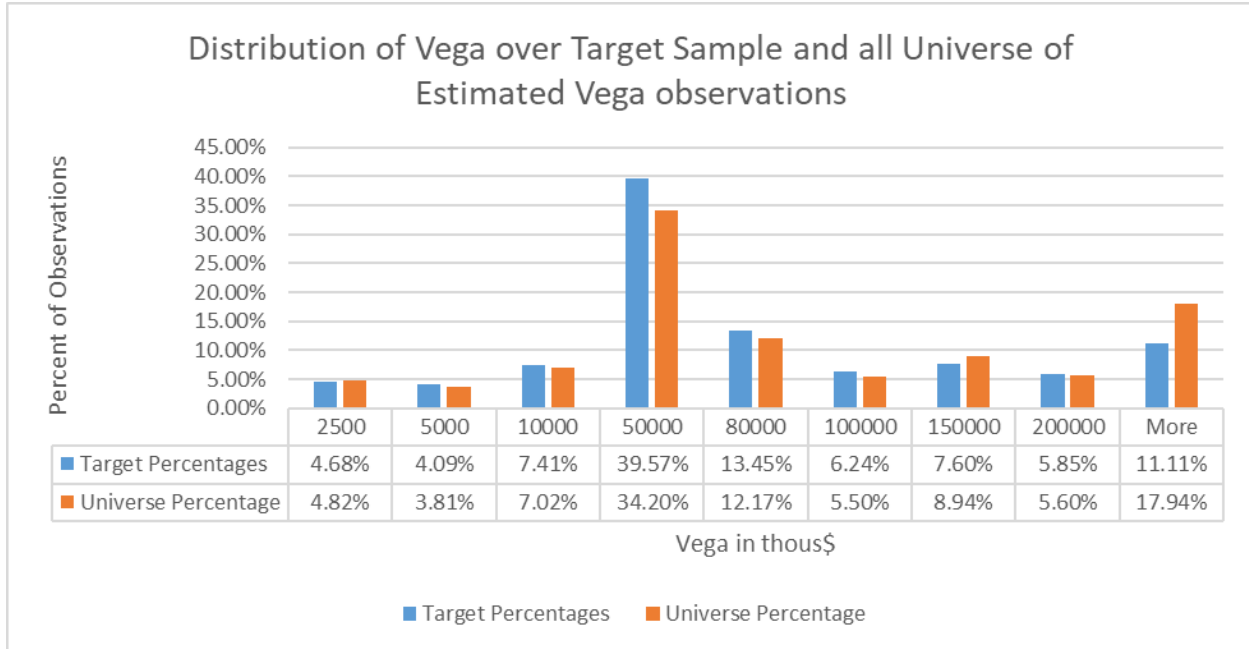
Figure 2 – B-Sample: Bidder Sample - Distribution of VEGA compared to Universe of all observations
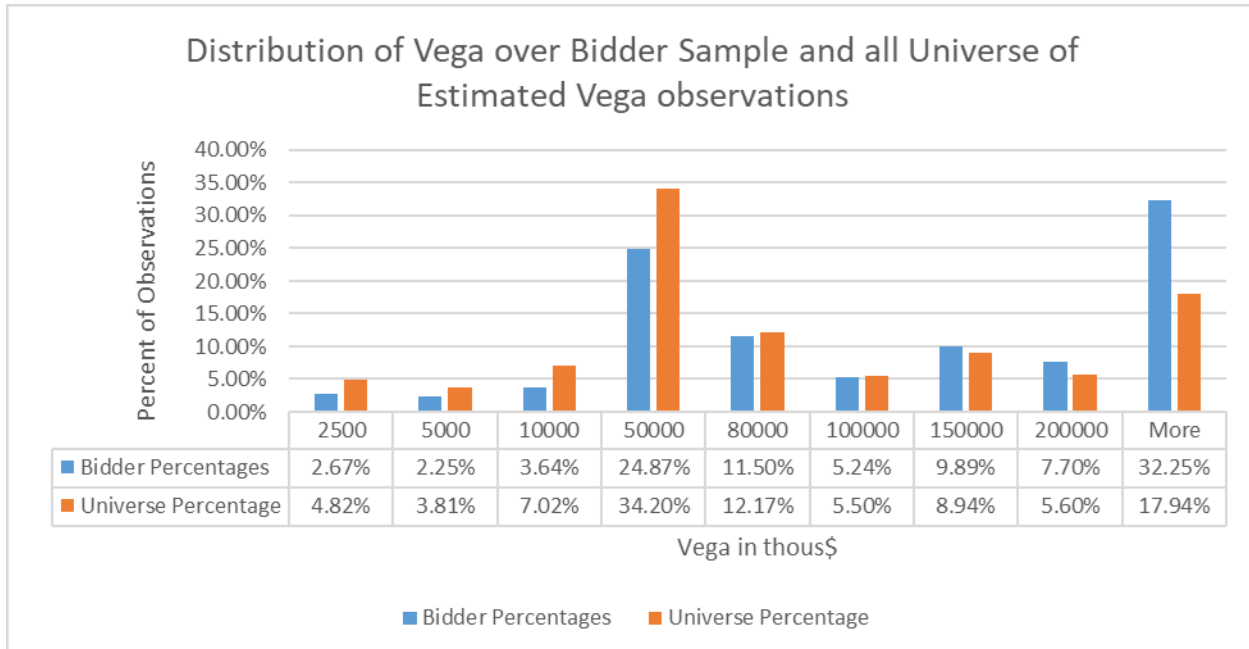
Figure 3 – S-Sample: Sample with Both Bidder and Target - Distribution of VEGA compared to Universe of all observations
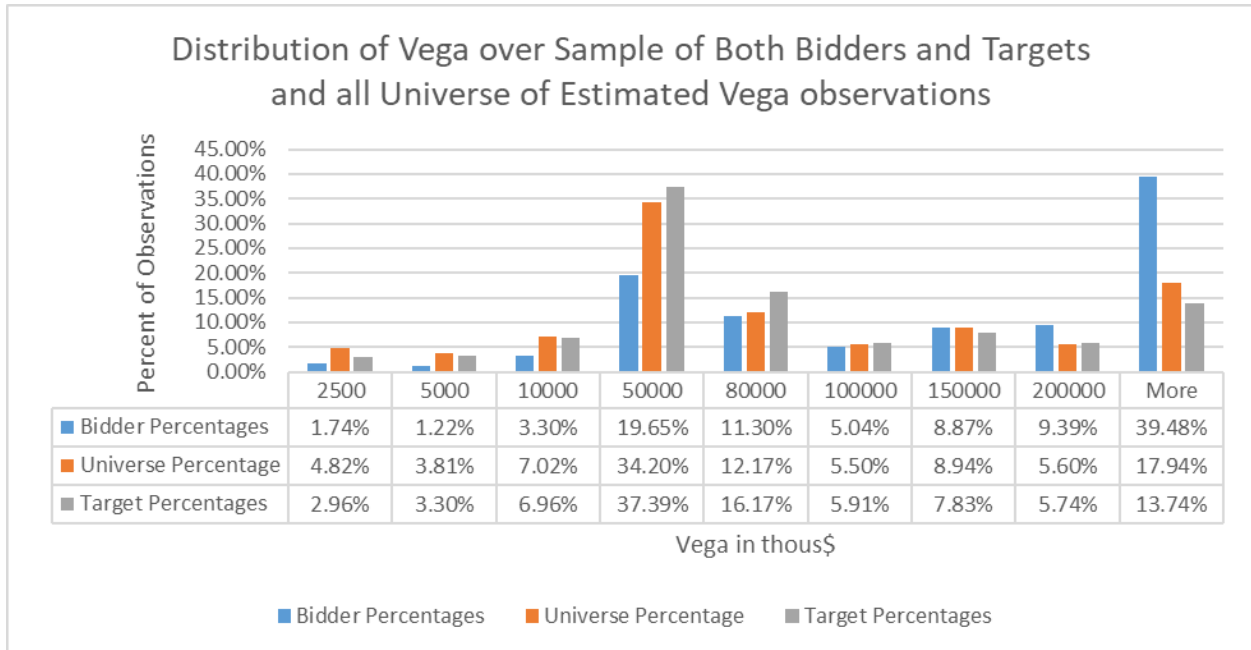
Figure 4 – T-Sample: Targets Deals Average VEGA per Industry and Year
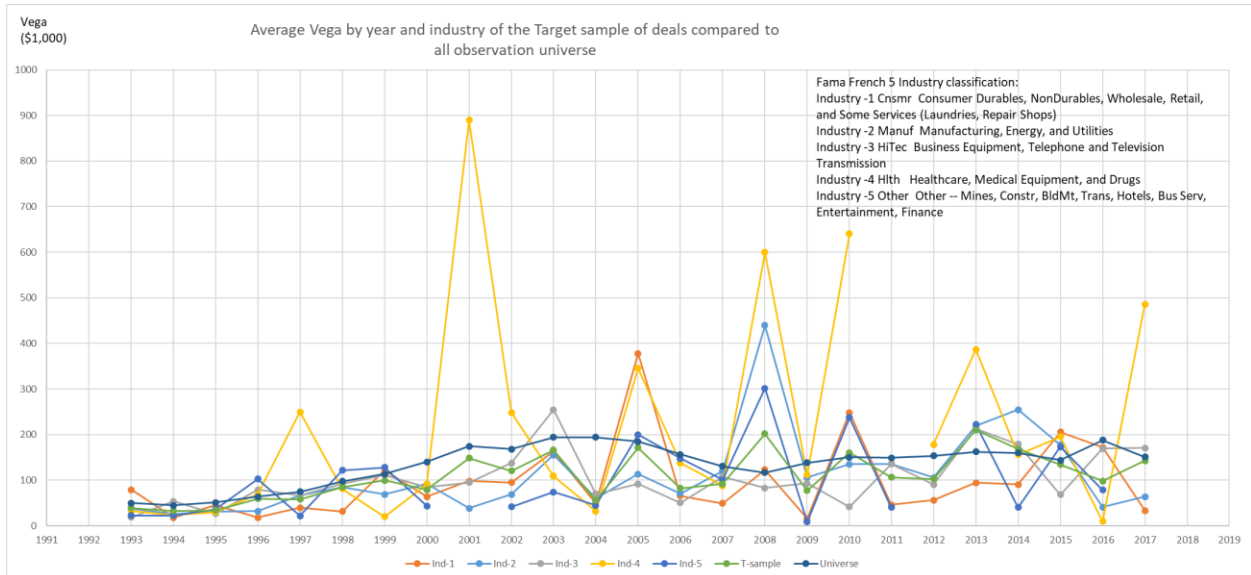
Figure 5 – B-Sample: Bidder Deals Average VEGA per Industry and Year
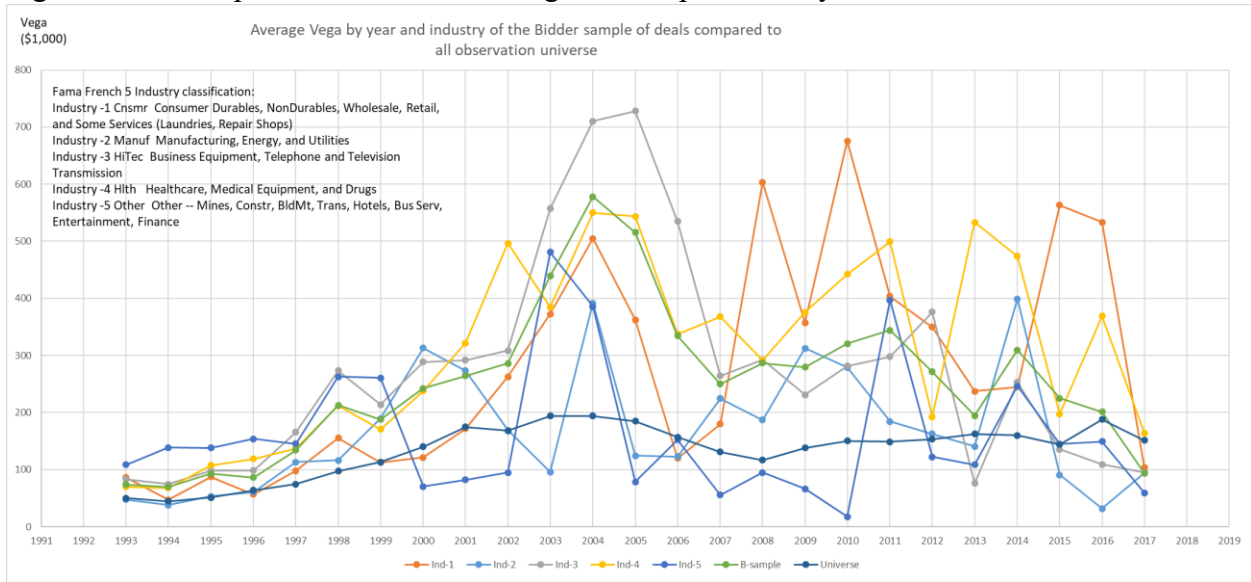
Figure 6 – S-Sample: Sample Deals of Both Bidder and Target Average VEGA per Industry and Year
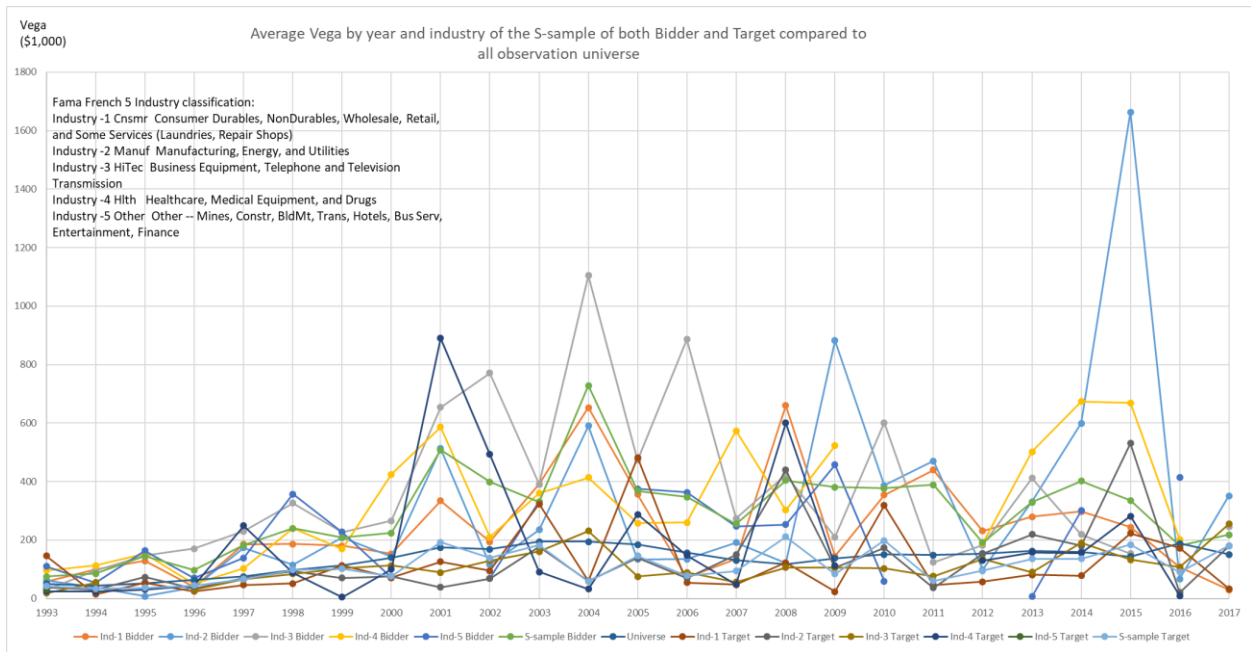
Figure 7 – T-Sample: Targets Deals Average VEGA per Year - Deflated

T-Sample: Target Deals (798 observations) Average Vega (in Thousand USD$) by Year compared to Universe of Estimated Vegas (30,243 observations)
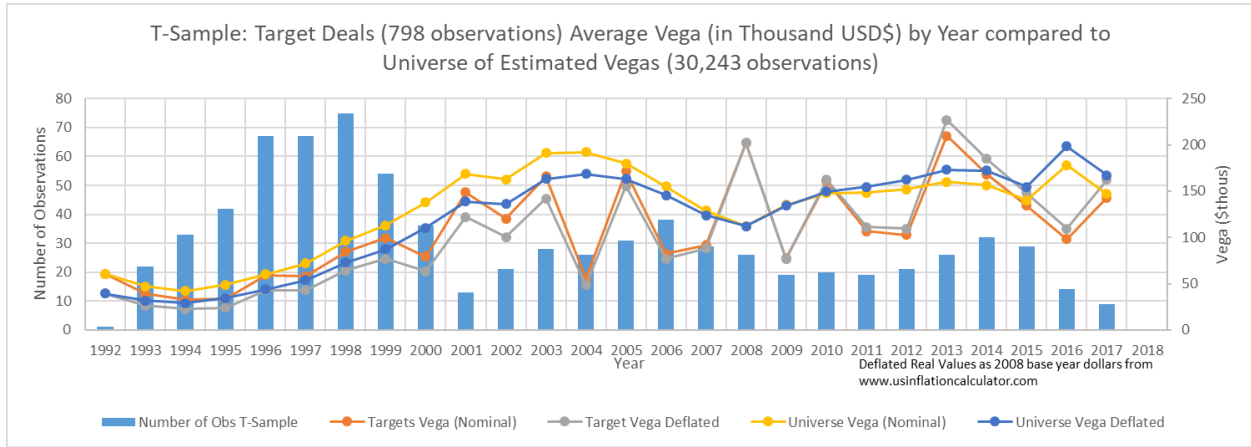
Figure 8 – B-Sample: Bidder Deals Average VEGA per Year - Deflated

B-Sample: Bidder Deals (1,870 observations) Average Vega (in Thousand USD$) by Year compared to Universe of Estimated Vegas (30,243 observations)
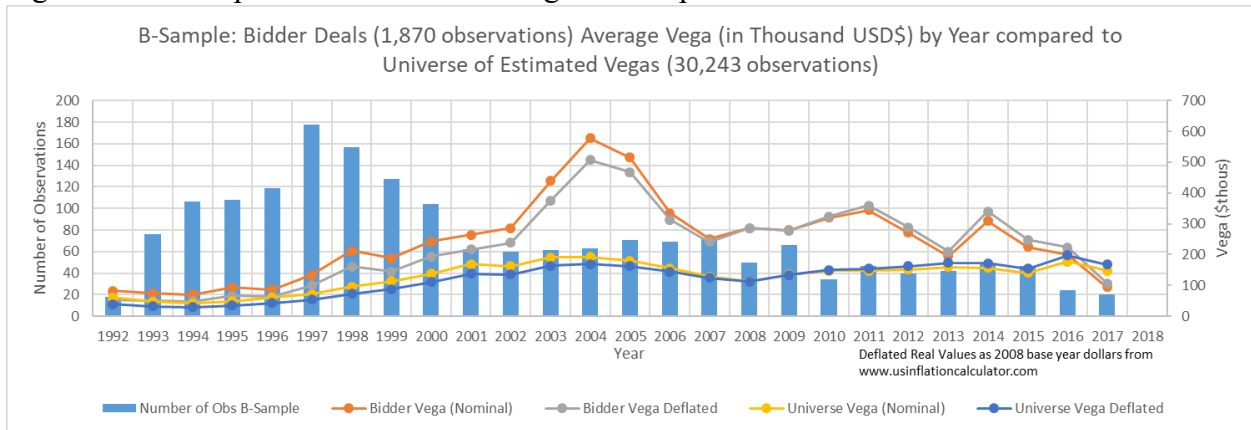
Figure 9 – S-Sample: Sample of Both Bidders and Targets Average VEGA per Year - Deflated

S-Sample: Sample of M&A Deals with Both Bidder and Target Compensation Figures (575 observations) Average Vega (in Thousand USD$) by Year compared to Universe of Estimated Vegas (30,243 observations)
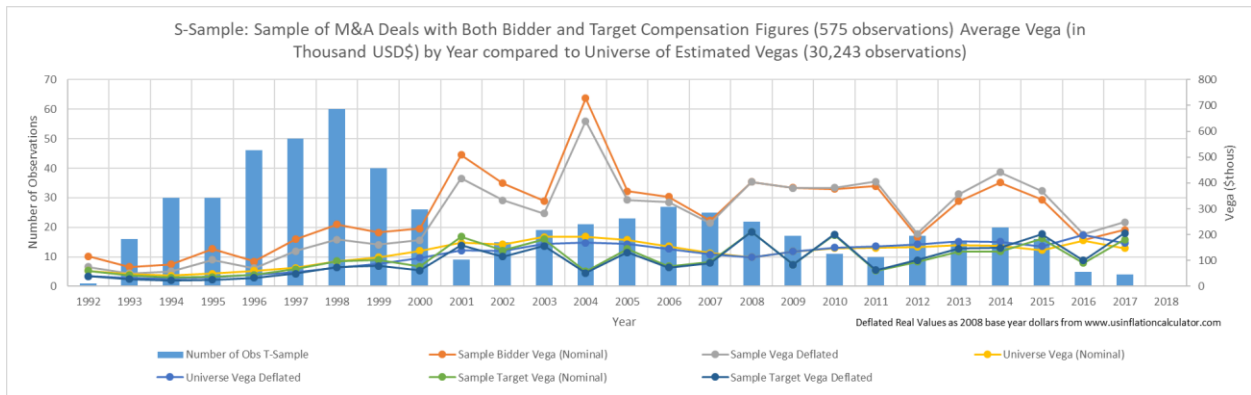
Figure 10 – Graph of Sample M&A Deals per year average CSR and average VEGA (in thousand USD) over 1993-2018.
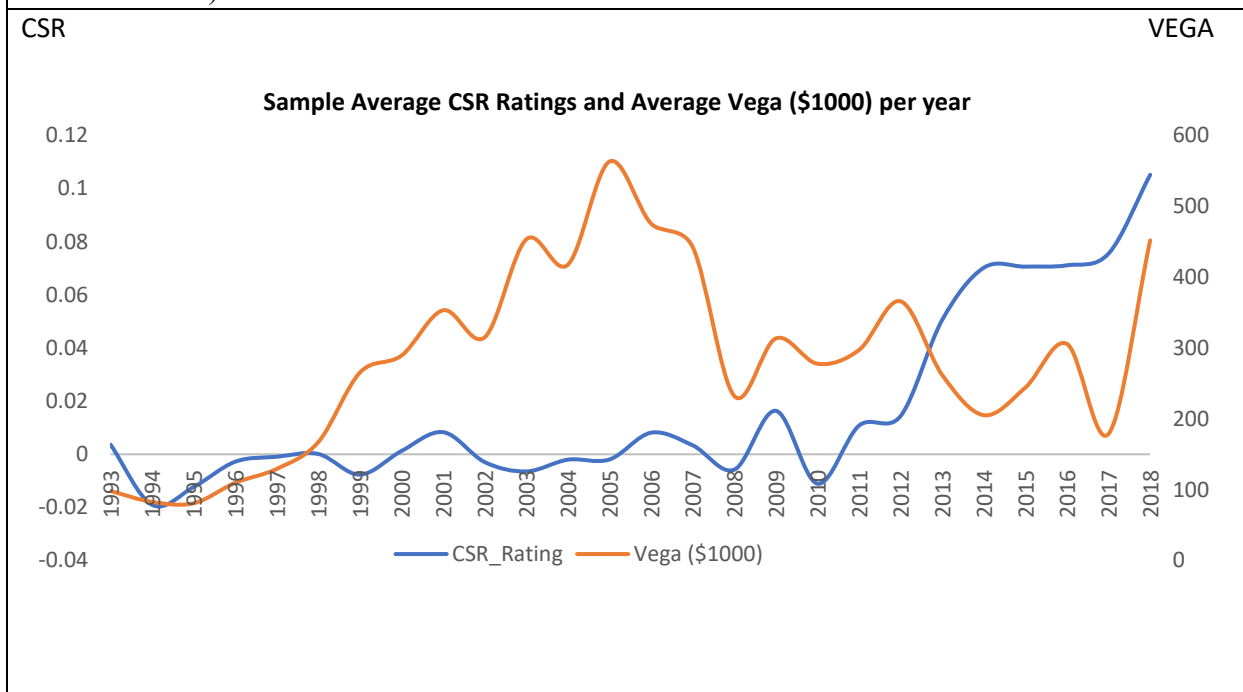
Figure 11 – Graph of Sample M&A Deals per year average target CSR and average target CEO VEGA (in thousand USD) over 1993-2018.
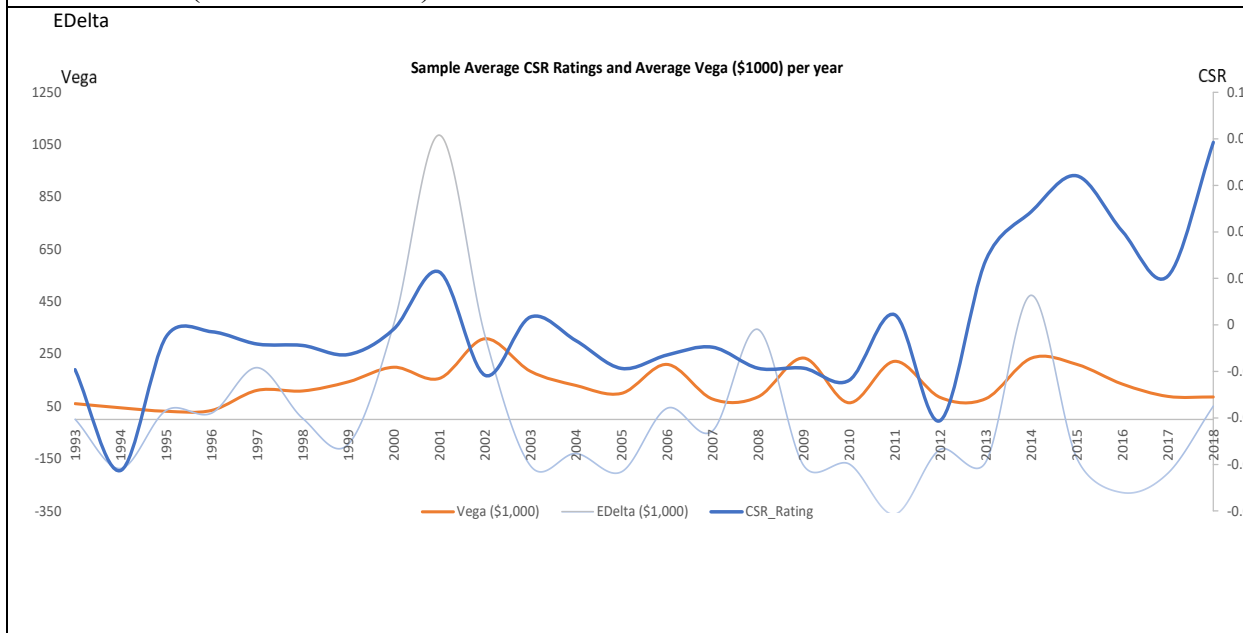
TABLES

Table 2.1.1 – T-Sample: Targets Sample - Summary statistics

Panel A reports descriptive statistics for T-sample: the sample of target deals. Our sampling procedure yields 798 deals from SDC over 1993-2018. The deals have public targets and public bidders, both from the US. Days-to-effective is reported in number of days (not available for failed deals). Compensation variables are gathered from Execucomp, while other financial variables come from Compustat and CRSP. DELTA and VEGA are presented in $1,000 and have been winsorized at the 1st and 99th percentile. Volatility is calculated as the standard deviation of daily CRSP returns over one year before the run-up period. The market to book is abs (prc_40days-before) / bkvlps, we winsorized the market to book at the 1st and 99th percentile sorted by industry and year; we also removed observations where COMPUSTAT reports missing book value or negative figures. Firm size is the natural logarithm of the market capitalization 40 days before the announcement log(mktcap_40days_before) = log [abs(prc)*abs(shrout)*1000]. Relative deal size is measured as value_of_transaction_dollar / mrktcap_40days_before for target deals and accounts for premium.

Panel B reports the correlation matrix of the main time-series-regression independent variables.

A. Descriptive statistics of main variables

	Mean	Median	Maximum	Minimum
Target VEGA ($1,000)	99.05	46.58	1,230.63	0.0003
Target DELTA ($1,000)	451.53	165.96	12,577.79	1.90
Target VEGA/Total Compensation	0.03	0.02	0.59	2.0406679E-7
Target DELTA/Total Compensation	0.30	0.06	55.03	0.001
Target Firm Size	20.86	20.79	25.33	16.20
Target Market to Book	4.24	2.36	997.90	-279.75
Target Volatility	0.029	0.026	0.097	0.001
Target Relative Deal Size	1.62	1.49	7.91	0.02
Target CAR(-2,+2)	0.21	0.19	1.67	-1.10
Target Runup CAR (-42,-2)	0.05	0.04	1.43	-0.97
Target Markup CAR (-1,+1)	0.20	0.18	1.53	-0.86
Days-to-effective	134	108	703	1
		Mean Days to effective	Median Days to effective	
Number of Observations (Completed)	798 (629)	134	108	
Cash_only	307 (241)	106	80	
Stock_only	205 (166)	141	116	
Mixed	286 (222)	159	132	
Hostile	57 (17)	215	151	
Tender Offer	162 (131)	91	60	

B. T-Sample correlation matrix – This presents the correlations between main independent variables for the T-sample (sample of Target deals).

	DELTA	VEGA	Relative Deal Size	Market to Book	Volatility	CAAR (-2,2)
DELTA	1					
VEGA	**0.323**	1				
Relative Deal Size	-0.085	-0.124	1			
Market to Book	0.014	-0.002	0.01	1		
Volatility	-0.058	-0.186	0.233	0.022	1	
CAAR (-2,2)	-0.107	-0.091	0.269	0.002	0	1

Table 2.1.2 – B-Sample: Bidders Sample - Summary statistics

Panel A reports descriptive statistics for B-sample: sample of bidder deals. Our sampling procedure yields 1870 deals from SDC over 1993-2018. The deals have public targets and public bidders, both from the US. Days-to-effective is reported as number of days (not available for failed deals). Compensation variables are gathered from Execucomp, while other financial variables come from Compustat and CRSP. DELTA and VEGA are presented in $1,000 and have been winsorized at the 1st and 99th percentile. Volatility is calculated as the standard deviation of daily CRSP returns over one year before the run-up period. The market to book is abs (prc_40days-before) / bkvlps, we winsorized the market to book at the 1st and 99th percentile sorted by industry and year; we also removed observation where COMPUSTAT reports missing book value or negative figures. Firm size is the natural logarithm of the market capitalization 40 days before the announcement log(mktcap_40days_before) = log [abs(prc)*abs(shrout)*1000]. Relative deal size is measured as value_of_transaction_dollar / mrktcap_40days_before for bidder deal and accounts for premium.

Panel B reports the correlation matrix of the main time-series-regression independent variables.

A. Descriptive statistics of main variables

	Mean	Median	Maximum	Minimum
Bidder VEGA ($1,000)	228.30	99.66	3,157.77	0.003
Bidder DELTA ($1,000)	1,427.97	443.59	78,222.42	2.022
Bidder VEGA/Total Compensation	0.05	0.02	20.02	2.9595145E-7
Bidder DELTA/Total Compensation	0.54	0.08	453.56	0.0008
Bidder Firm Size	22.32	22.15	27.10	16.71
Bidder Market to Book	4.71	3.10	587.33	-128.09
Bidder Volatility	0.025	0.022	0.158	0.007
Bidder Relative Deal Size	0.34	0.127	7.07	0.000
Bidder CAR(-2,+2)	-0.012	-0.010	0.623	-0.44
Bidder Runup CAR (-42,-2)	-0.001	-0.002	1.117	-0.684
Bidder Markup CAR (-1,+1)	-0.011	-0.006	0.393	-0.500
Days-to-effective	113	92	703	0

		Mean Days to effective	Median Days to effective	
Number of Observations (Completed)	1870 (1631)	113	92	
Cash_only	860 (764)	86	67	
Stock_only	458 (404)	132	111	
Mixed	552 (463)	140	120	
Hostile	65 (23)	194	141	
Tender Offer	462 (424)	74	49	

B. B-Sample correlation matrix – This presents the correlations between main independent variables for the B-sample (sample of Bidder deals).

	DELTA	VEGA	Relative Deal Size	Market to Book	Volatility	CAAR (-2,2)
DELTA	1					
VEGA	**0.481**	1				
Relative Deal Size	-0.077	-0.148	1			
Market to Book	0.042	0.016	0.013	1		
Volatility	0.046	-0.161	0.073	0.002	1	
CAAR (-2,2)	-0.009	0.009	-0.129	-0.014	-0.119	1

Table 2.1.3 – S-Sample: Both Bidder and Target Sample - Summary statistics

Panel A reports descriptive statistics for S-sample: sample of deals with information on both the bidders and targets. Our sampling procedure yields 575 deals from SDC over 1993-2018. The deals have public targets and public bidders, both from the US. Days-to-effective is reported as number of days (not available for failed deals). Compensation variables are gathered from Execucomp, while other financial variables come from Compustat and CRSP. DELTA and VEGA are presented in $1,000 and have been winsorized at the 1st and 99th percentile. Volatility is calculated as the standard deviation of daily CRSP returns over one year before the run-up period. The market to book is abs (prc_40days-before) / bkvlps, we winsorized the market to book at the 1st and 99th percentile sorted by industry and year; we also removed observation where COMPUSTAT reports missing book value or negative figures. Firm size is the natural logarithm of the market capitalization 40 days before the announcement log(mktcap_40days_before) = log [abs(prc)*abs(shrout)*1000]. Relative deal size is measured as value_of_transaction_dollar / mrktcap_40days_before for bidder and target separately and accounts for premium.

Panel B reports the correlation matrix of the main time-series-regression independent variables. Preffix B_ for bidder variables and Preffix T_ for target variables.

A. Descriptive statistics of main variables

	Mean	Median	Maximum	Minimum
Target VEGA ($1,000)	97.07	49.43	970.86	0.004
Target DELTA ($1,000)	427.62	170.74	7,579.72	3.085
Target VEGA/Total Compensation	0.029	0.018	0.59	1.6123802E-6
Target DELTA/Total Compensation	0.251	0.061	54.51	0.001
Target Firm Size	20.94	20.84	25.33	16.90
Target Market to Book	5.03	2.38	997.90	-35.81
Target Volatility	0.029	0.026	0.097	0.009
Target Relative Deal Size	1.63	1.51	7.53	0.14
Target CAR(-2,+2)	0.235	0.204	1.665	-0.301
Target Runup CAR (-42,-2)	0.225	0.196	1.529	-0.234
Target Markup CAR (-1,+1)	0.055	0.042	1.312	-0.529
Bidder Market to Book	5.04	3.12	452.58	-20.58
Bidder Volatility	0.023	0.021	0.083	0.007
Bidder VEGA ($1,000)	266.78	138.90	3,157.77	0.012
Bidder DELTA ($1,000)	1,605.29	556.70	78,222.42	4.976
Bidder VEGA/Total Compensation	0.041	0.023	4.17	1.6089702E-6
Bidder DELTA/Total Compensation	0.451	0.085	99.37	0.0008
Bidder Firm Size	22.75	22.64	27.10	18.24
Bidder Relative Deal Size	0.55	0.33	3.92	0.0008
Bidder CAR(-2,+2)	-0.022	-0.016	0.259	-0.339
Bidder Runup CAR (-42,-2)	-0.008	-0.005	0.576	-0.586
Bidder Markup CAR (-1,+1)	-0.019	-0.013	0.276	-0.317
Days-to-effective	135	108	703	1
		Mean Days_to_effective	Median Days_to_effective	
Number of Observations (Completed)	575 (472)	135	108	
Cash_only	225 (186)	103	77	
Stock_only	147 (123)	145	116	
Mixed	203 (163)	164	134	
Hostile	44 (16)	222	174	
Tender Offer	129 (108)	94	59	cont'd

	B-DELTA	T-DELTA	B-VEGA	T-VEGA	B-Relative Deal Size	T-Relative Deal Size	B-Market to Book	T-Market to Book	B-Volatility	T-Volatility	B-CAAR (-2,2)	T-CAAR (-2,2)
B. S-Sample correlation matrix – This presents the correlations between main independent variables for the S-sample (sample of Bidder deals).												
B-DELTA	1											
T-DELTA	0.048	1										
B-VEGA	**0.603**	0.027	1									
T-VEGA	0.135	**0.329**	0.24	1								
B-Relative Deal Size	-0.102	0.099	-0.205	0.127	1							
T-Relative Deal Size	0.013	-0.077	-0.04	-0.129	0.044	1						
B-Market to Book	0.025	0.063	0.006	0.117	0.112	-0.038	1					
T-Market to Book	0.004	0.006	0.013	0.006	-0.042	0	0.002	1				
B-Volatility	0.049	-0.02	-0.145	-0.043	0.121	0.134	0.001	-0.001	1			
T-Volatility	0.075	-0.065	0.001	-0.143	-0.168	0.265	0.022	0.009	**0.657**	1		
B-CAAR (-2,2)	-0.004	-0.087	0.041	-0.097	-0.117	0.012	0.033	0.045	-0.272	-0.13	1	
T-CAAR (-2,2)	-0.002	-0.151	-0.022	-0.134	-0.243	**0.314**	-0.023	-0.01	-0.064	0.113	0.161	1

Table 2.2.0 – Logistic Regression Results for the Probability of an Offer Finishing Successfully over Bidder or Target CEO Compensation

Table 2.2.0 presents the results of the logistic regression on three samples: B-Sample for bidder CEOs, T-sample for target CEOs, and S-Sample: for both target and bidder CEOs. We test the following:

$$\text{Probability (complete)} = \text{Log}\left(\frac{P(complete=1)}{1-P(complete=1)}\right) = a + a_1 \text{*VEGAT}_i + a_2 \text{*EDELTAT}_i + a_3 \text{* VEGAB}_i + a_4 \text{* EDELTAB}_i + a_5 \text{* RelativeTargettoBidderSize}_i + a_6 \text{* Cash\_only}_i + a_7 \text{* TenderDummy}_i + e_i$$

A deal is deemed complete if there is an effective date recorded for that deal on SDC; otherwise, it is considered a failed bit. The suffix T represents the target, while the suffix B represents the bidder. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA. Cash only refers to the method of payment for the offer. Relative deal size is calculated as the Value of the transaction divided by the market capitalization 40 days before the deal announcement and estimated separately for bidders and targets. RelativeTargettoBidder size is calculated as target market capitalization 40 days before the announcement of the deal over the bidder market capitalization 40 days before the announcement. Tenderdummy shows if the offer was a tender offer. We consider deals paid up in cash or stock.

Probability of Deal Completion

	Targets Sample				Bidders Sample				Both Target and Bidder Sample			
	VEGAT and EDELTAT		Other variables		VEGAT and EDELTAT		Other variables		VEGAT, EDELTAT, VEGAB and EDELTAB		Other variables	
	Estimate	Pr > ChiSq	Estimate	Pr > ChiSq	Estimate	Pr > ChiSq	Estimate	Pr > ChiSq	Estimate	Pr > ChiSq	Estimate	Pr > ChiSq
Intercept	1.3644 ***	<.0001	1.2644 ***	0.0002	1.7640 ***	<.0001	2.1918 ***	<.0001	1.3000 ***	<.0001	2.3499 ***	<.0001
VEGAT	-0.0001	0.8884	-0.0000	0.9876					-0.0000	0.9841	0.0012	0.4313
VEGAB					0.0016 ***	0.0007	0.0014 ***	0.0019	0.0013 *	0.0857	0.0004	0.4498
EDELTAT	-0.0000	0.4719	-0.0001	0.4454					-0.0002	0.1848	-0.0001	0.4164
EDELTAB					0.0000	0.7100	0.0000	0.8914	0.0001	0.3621	0.0000	0.5359
Cash only			-0.2619	0.2921			-0.5864 ***	0.0044			-0.5358	0.1284
Relative Deal Size			0.1310	0.4773			-0.8391 ***	<.0001				
Relative Target To Bidder Size											-1.7629 ***	<.0001
Tender Dummy			0.1954	0.4927			0.9372 ***	<.0001			0.0078	0.9831
N	512				1318				372			
Completed	407 (80%)				1168 (89%)				309 (83%)			
Rescaled R²	0.0016		0.0068		0.0267		0.0840		0.0295		0.1242	

Table 2.2.1 - T-Sample: Target Sample with Cash, Stock and Mixed Deals Regression Results

Table 2.2.1 presents the results of the OLS regression on our T-Sample which is the sample with target CEO information. We test the following:

$$Days\ to\ Effective_i = a + a_1 * VegaT_i + a_2 * VegaT_i * cash + a_3 * VegaT_i * stock + a_4 * EDeltaT_i + a_5 * ETDC1T_i + a_6 * cashonly_i + a_7 * stockonly_i + a_8 * hostile_i + a_9 * tenderdummy_i + a_{10} * RelativedealsizeT_i + a_{11} * MarkettobookT_i + a_{12} * CAART_i + a_{13} * VolT_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is days to effective calculated as the number of days between the announcement of a deal and the date the deal becomes effective as stated by SDC. The suffix T represents the target. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA, similarly, ETDC1 is that of total compensation on DELTA and VEGA. Cash only and stock only refer to the methods of payment for the offer. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. CAAR is the cumulative abnormal return estimated using the market model over the five- day window (-2,2). Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the runup period. VEGA×Cash and VEGA×Stock are interaction variables to explain the effect of method of payment on VEGA. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC and tenderdummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama French five industry model as denoted by the SIC codes on CRSP. The year dummy is a dummy for the year the offer is announced.

Dependent Variable Days to Effective

	VEGAT and EDELTAT		Relative Deal Size CAAR and Market to Book		ETDC1T		VolT		Cash or Stock		VEGAT×Cash and VEGAT×Stock		Hostile		Tender Dummy		Industry and Year	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	120.946***	<.0001	112.826***	<.0001	112.632***	<.0001	126.924**	<.0001	147.227***	<.0001	148.775***	<.0001	146.703***	<.0001	151.408***	<.0001	395.156***	<.0001
VEGAT	0.133***	<.0001	0.131***	<.0001	0.135***	<.0001	0.127***	<.0001	0.120***	<.0001	0.108***	0.0010	0.111***	0.0006	0.101*	0.0015	0.082**	0.0136
EDELTAT	0.012***	0.0043	0.010**	0.0118	0.011**	0.0059	0.011***	0.0047	0.010***	0.0077	0.010***	0.0079	0.010***	0.0074	0.009*	0.0168	0.007*	0.0851
ETDC1T					0.005***	<.0001	0.005***	<.0001	0.004***	<.0001	0.004***	<.0001	0.004***	<.0001	0.004**	<.0001	0.004***	<.0001
Cash only					-39.870				-40.536***	<.0001	-43.595***	<.0001	-40.959***	<.0001	-29.861***	0.0020	-27.519**	0.0067
Stock only					-10.415				-5.622	0.5139	-7.271	0.4778	-6.579	0.5162	-13.274	0.1853	-12.127	0.2493
Relative Deal Size T			11.317**	0.0443	10.965**	0.0467	14.429**	0.0107	11.442**	0.0415	11.343**	0.0437	10.846*	0.0513	10.673*	0.0503	8.970	0.1108
Market to Book T			0.075	0.3809	0.0835	0.3167	0.08593	0.3004	0.065	0.4231	0.0649	0.4256	0.068	0.3971	0.061	0.4378	0.052	0.5127
CAAR T			-47.406***	0.0031	-43.901***	0.0051	-46.392**	0.0030	-19.228	0.2330	-18.834	0.2442	-25.979	0.1069	-14.461	0.3642	-19.966	0.2116
Vol T							-626.080***	0.0093	-750.347***	0.0019	-749.584***	0.0020	-699.784***	0.0035	-684.965***	0.0036	-897.371***	0.0023
VEGAT×Cash											0.029	0.5685	0.012	0.8077	0.003	0.9477	0.042	0.4164
VEGAT×Stock											0.014	0.7945	0.012	0.8186	0.028	0.5918	0.034	0.5231
Hostile													20.123**	0.0002	98.109***	<.0001	94.718**	<.0001
Tender Dummy															-45.701***	<.0001	-44.417**	<.0001
Industry Dummy																	Yes	
Year Dummy																	Yes	
N	629																	
Adj. R²	0.0608		0.0729		0.1104		0.1187		0.1550		0.1527		0.1709		0.2039		0.2299	

Table 2.2.2 - B-Sample: Bidder Sample with Cash, Stock and Mixed Deals Regression Results

Table 2.2.2 presents the results of the OLS regression on our B-Sample which is the sample with bidder CEO information. We test the following:

$$Days\ to\ Effective_i = a + a_1 * VegaB_i + a_2 * VegaB_i * cash + a_3 * VegaB_i * stock + a_4 * EDeltaB_i + a_5 * ETDC1B_i + a_6 * cashonly_i + a_7 * stockonly_i + a_8 * hostile_i + a_9 * tenderdummy_i + a_{10} * RelativedealsizeB_i + a_{11} * MarkettobookB_i + a_{12} * CAARB_i + a_{13} * VolB_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is days to effective calculated as the number of days between the announcement of a deal and the date the deal becomes effective as stated by SDC. The suffix B represents the bidder. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA, similarly, ETDC1 is that of the total compensation on DELTA and VEGA. Cash only and stock only refer to the methods of payment for the offer. Relative deal size is calculated as the SDC value of the transaction dollar by the divided market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. CAAR is the cumulative abnormal return estimated using the market model over the five-day window (-2,2). Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. VEGA×Cash and VEGA×Stock are interaction variables to explain the effect of methods of payment on VEGA. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC, and tenderdummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama French five industry model as denoted by the SIC codes on CRSP. The year dummy is a dummy for the year the offer is announced.

Dependent Variable Days to Effective

	VEGAB and EDELTAB Estimate	P-Value	Relative Deal Size CAAR and Market to Book Estimate	P-Value	ETDC1B Estimate	P-Value	VolB Estimate	P-Value	Cash or Stock Estimate	P-Value	VEGAB×Cash and VEGAB×Stock Estimate	P-Value	Hostile Estimate	P-Value	Tender Dummy Estimate	P-Value	Industry and Year Estimate	P-Value
Intercept	113.045***	<.0001	97.641***	<.0001	97.619***	<.0001	99.471***	<.0001	133.392***	<.0001	131.360***	<.0001	129.629***	<.0001	131.892***	<.0001	186.520***	<.0001
VEGAB	-0.001	0.7655	0.007	0.1451	0.007	0.1435	0.007	0.1701	0.013***	0.0072	0.022**	0.0337	0.0217**	0.0318	0.022*	0.0239	0.021**	0.0398
EDELTAB	0.001	0.2509	0.000	0.2841	0.000	0.2835	0.001	0.2591	0.000	0.2934	0.000	0.3742	0.000	0.4878	0.000	0.3843	0.000	0.5068
ETDC1B					0.000	0.8321	0.000	0.8150	0.000	0.5685	0.000	0.9327	0.000	0.9000	0.000	0.8416	-0.000	0.9685
Cash only									-47.405***	<.0001	-43.431***	<.0001	-43.516***	<.0001	-28.891***	<.0001	-26.869**	<.0001
Stock only									-0.804	0.8755	-2.88	0.6283	-2.848	0.6297	-6.589	0.2576	-7.398	0.2213
Relative Deal Size B			41.368***	<.0001	41.438***	<.0001	41.533***	<.0001	30.853**	<.0001	30.900**	<.0001	30.137**	<.0001	28.871***	<.0001	29.966**	<.0001
Market to Book B			0.111	0.3388	0.109	0.3494	0.109	0.3484	0.098	0.3804	0.094	0.4031	0.098	0.3802	0.077	0.4838	0.137	0.2205
CAAR B			-38.661	0.1024	-38.35450	0.1059	-39.501*	0.0979	-3.546	0.8780	-4.340	0.8509	-5.715	0.8032	-3.420	0.8792	4.900	0.8304
Vol B							-72.614	0.6564	-448.872***	0.0054	-436.481***	0.0068	-401.603*	0.0122	-306.920*	0.0518	-621.512**	0.0027
VEGAB×Cash											-0.01542	0.1881	-0.015	0.1876	-0.022*	0.0599	-0.021*	0.0732
VEGAB×Stock											0.01679	0.3563	0.016	0.3665	0.015	0.4009	0.016	0.3734
Hostile													76.109***	<.0001	94.049	<.0001	92.441**	<.0001
Tender Dummy															-36.604***	<.0001	-38.038**	<.0001
Industry Dummy																	Yes	
Year Dummy																	Yes	
N	1631																	
Adj. R²	-0.0004		0.0661		0.0627		0.0871		0.1361		0.1376		0.1499		0.1806		0.1915	

Table 2.2.3 - S-Sample: Both Bidder and Target Sample with Cash, Stock and Mixed Deals Regression Results

Table 2.2.3 presents the results of the OLS regression on our S-Sample which is the sample with both bidder and target CEO information. We test the following:

$$Days\ to\ Effective_i = a + a_1 * VegaT_i + a_2 * VegaB_i + a_3 * VegaT_i * cash + a_4 * VegaB_i * cash + a_5 * VegaT_i * stock + a_6 * VegaB_i * stock + a_7 * EDeltaT_i + a_8 * EDeltaB_i + a_9 * ETDC1T_i + a_{10} * ETDC1B_i + a_{11} * cashonly_i + a_{12} * stockonly_i + a_{13} * hostile_i + a_{14} * tenderdummy_i + a_{15} * RelativedealsizeT_i + a_{16} * RelativedealsizeB_i + a_{17} * MarkettobookT_i + a_{18} * MarkettobookB_i + a_{19} * CAART_i + a_{20} * CAARB_i + a_{21} * VolT_i + a_{22} * VolB_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is days to effective calculated as the number of days between the announcement of a deal and the date the deal becomes effective as stated by SDC. The suffix B represents the bidder, and suffix T represents the Target. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA, similarly, ETDC1 is that of the total compensation on DELTA and VEGA. Cash only and stock only refer to the methods of payment for the offer. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. CAAR is the cumulative abnormal return estimated using the market model over the five-day window (-2,2). Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. VEGA×Cash and VEGA×Stock are interaction variables to explain the effect of the methods of payment on VEGA. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC, and tenderdummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama French five industry model as denoted by the SIC codes on CRSP. The year dummy is a dummy for the year the offer is announced.

	VEGAB VEGAT EDELTAT and EDELTAB		Relative Deal Size CAAR and Market to Book		ETDC1B and ETCD1T		VolB and VolT		Cash or Stock		VEGAB×Cash VEGAT×Cash VEGAB×Stock and VEGAT×Stock		Hostile		Tender Dummy		Industry and Year	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	117.001***	<.0001	90.461***	<.0001	90.350***	<.0001	91.498***	<.0001	113.936***	<.0001	120.322***	<.0001	116.629***	<.0001	122.448***	<.0001	390.553***	<.0001
VEGAT	0.202***	<.0001	0.175***	<.0001	0.187***	<.0001	0.185***	<.0001	0.177***	<.0001	0.168***	0.0001	0.169***	<.0001	0.158***	0.0002	0.127**	0.0050
VEGAB	-0.006	0.5894	0.008	0.4191	-0.002	0.8331	-0.001	0.9143	0.005	0.6563	-0.013	0.4913	-0.011	0.5593	-0.012	0.5289	-0.004	0.8271
EDELTAT	0.012**	0.0161	0.010*	0.0589	0.010**	0.0394	0.010**	0.0377	0.0107**	0.0310	0.010**	0.0315	0.011**	0.0228	0.010**	0.0418	0.004	0.4230
EDELTAB	0.002*	0.0985	0.001	0.2125	0.001	0.3326	0.001	0.3576	0.001	0.3136	0.001	0.3337	0.001	0.5036	0.001	0.2815	0.001	0.2502
ETDC1T					0.005***	<.0001	0.005	<.0001	0.004***	0.0002	0.004***	0.0003	0.004***	0.0008	0.003***	0.0009	0.004	0.0009
ETDC1B					-0.000	0.4619	-0.000	0.4432	-0.000	0.4786	-0.001	0.4306	-0.000	0.6536	-0.000	0.7243	-0.0002	0.8133
Cash only									-35.204***	0.0006	-44.501***	0.0009	-40.414***	0.0024	-30.011**	0.0246	-23.483*	0.0893
Stock only									-5.026	0.6289	-15.202	0.2624	-12.851	0.3369	-19.984	0.1338	-28.964*	0.0415
Relative Deal Size T			8.827	0.1971	9.441	0.162	10.72944	0.1277	9.000	0.2010	7.996	0.2570	8.011	0.2492	7.622	0.2659	3.539	0.6153
Relative Deal Size B			37.315***	<.0001	34.296***	<.0001	32.139***	<.0001	26.697***	0.0012	26.620**	0.0013	26.871***	0.0010	25.665***	0.0014	22.838***	0.0050
Market to Book T			0.0920	0.2841	0.103	0.224	0.102	0.2266	0.081	0.3352	0.081	0.3357	0.085	0.3050	0.080	0.3266	0.054	0.5063
Market to Book B			0.401	0.5875	0.723	0.325	0.703	0.3425	0.476	0.5175	0.630	0.3924	0.647	0.3731	0.544	0.4481	0.678	0.3601
CAAR T			-39.0455*	0.0505	-33.770*	0.0877	-33.003*	0.0968	-13.609	0.5030	-9.105	0.6546	-20.308	0.3167	-10.4990	0.6022	-20.260	0.3241
CAAR B			15.449	0.7592	30.416	0.5419	31.118	0.5441	45.413	0.3720	44.324	0.3845	34.701	0.4902	24.511	0.6213	13.463	0.7937
Vol T							-338.767	0.4111	-351.802	0.3875	-412.429	0.3118	-273.012	0.4986	-327.052	0.4110	-405.94	0.3392
Vol B							332.249	0.5479	90.065	0.8709	136.705	0.8055	14.409	0.9790	106.122	0.8444	212.93	0.7282
VEGAT×Cash											0.0708	0.3445	0.055	0.4586	0.033	0.6493	0.0768	0.3021
VEGAT×Stock											-0.062	0.3603	-0.067	0.3257	-0.051	0.4441	-0.043	0.5204
VEGAB×Cash											0.013	0.5610	0.012	0.6198	0.014	0.5328	0.008	0.7226
VEGAB×Stock											0.080**	0.0250	0.077**	0.0277	0.078**	0.0236	0.092***	0.0075
Hostile													81.304***	0.0002	100.612***	<.0001	97.459***	<.0001
Tender Dummy															-39.506***	0.0002	-44.496***	<.0001
Industry Dummy																	Yes	
Year Dummy																	Yes	
N	472																	
Adj. R²	0.0972		0.1546		0.1813		0.1789		0.1988		0.2033		0.2262		0.2487		0.2816	

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Table 2.3.1.1 - T-Sample: Target Sample with Cash and Stock Only Deals Regression Results (Cash Dummy)

Table 2.3.1.1 presents the results of the OLS regression on our T-Sample which is the sample with target CEO information. We test the following:

$$Days\ to\ Effective_i = a + a_1 * VegaT_i + a_2 * VegaT_i * cash + a_3 * EDeltaT_i + a_4 * ETDC1T_i + a_5 * cashonly_i + a_6 * hostile_i + a_7 * tenderdummy_i + a_8 * RelativedealsizeT_i + a_9 * MarkettobookT_i + a_{10} * CAART_i + a_{11} * VolT_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is days to effective calculated as the number of days between the announcement of a deal and the date the deal becomes effective as stated by SDC. The suffix T represents the target. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA, similarly, ETDC1 is that of the total compensation on DELTA and VEGA. Cash only refers to the method of payment for the offer. Relative deal size is calculated as the SDC value of the transaction dollar divided market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. CAAR is the cumulative abnormal return estimated using the market model over the five-day window (-2,2). Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. VEGA×Cash is an interaction variable to explain the effect of the method of payment on VEGA. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC, and tenderdummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama French five industry model as denoted by the SIC codes on CRSP. The year dummy is a dummy for the year the offer is announced.

Dependent Variable Days to Effective

	VEGAT and EDELTAT		Relative Deal Size CAAR and Market to Book		ETDC1T		VolT		Cash		VEGAT×Cash		Hostile		Tender Dummy		Industry and Year	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	108.308 ***	<.0001	103.022 ***	<.0001	109.801 ***	<.0001	115.809 ***	<.0001	137.586 ***	<.0001	138.226 ***	<.0001	137.717 ***	<.0001	135.309 ***	<.0001	120.530 ***	0.0009
VEGAT	0.140 ***	<.0001	0.140 ***	<.0001	0.139 ***	<.0001	0.135 ***	<.0001	0.136 ***	<.0001	0.129 ***	0.0020	0.131 ***	0.0016	0.136 ***	0.0007	0.123 ***	0.0038
EDELTAT	0.007	0.1838	0.006	0.3001	0.005	0.2969	0.006	0.2787	0.005	0.3335	0.005	0.3304	0.004	0.3768	0.003	0.5772	0.005	0.3777
ETDC1T					0.006 ***	<.0001	0.006 ***	<.0001	0.006 ***	<.0001	0.006 ***	<.0001	0.005 ***	<.0001	0.005 ***	<.0001	0.005 ***	0.0003
Cash only									-33.797 ***	<.0001	-34.939 ***	0.0005	-33.403 ***	0.0008	-14.335	0.1695	-13.966	0.2604
Relative Deal Size T			12.11453	0.0733	11.197 *	0.0899	12.916 *	0.0585	13.682 **	0.0415	13.685 **	0.0417	12.583 *	0.0593	12.741 **	0.0495	11.942 *	0.0753
Market to Book T			-0.57975	0.4884	-1.084	0.1884	-1.008	0.2234	-1.310	0.1090	-1.302	0.1118	-1.217	0.1338	-1.064	0.1777	-0.730	0.3667
CAAR T			-48.26135	0.0080	-52.889 ***	0.0030	-54.277 ***	0.0024	-32.440 *	0.0769	-32.190 *	0.0801	-37.147 **	0.0427	-25.771	0.1511	-30.292 *	0.0969
Vol T							-273.781	0.3202	-527.861 *	0.0582	-531.312 *	0.0573	-496.924 *	0.0730	-504.664 *	0.0612	-591.015 *	0.0855
VEGAT×Cash											0.0126	0.8230	-0.002	0.9693	-0.030	0.5871	-0.014	0.8034
Hostile													71.106 ***	0.0048	96.955 ***	0.0001	94.875 ***	0.0003
Tender Dummy															-48.703 ***	<.0001	-45.840 ***	<.0001
Industry Dummy																	Yes	
Year Dummy																	Yes	
N	407																	
Adj. R²	0.0537		0.0660		0.1114		0.1113		0.1424		0.1404		0.1554		0.2014		0.2294	

Table 2.3.1.2 - T-Sample: Target Sample with Cash and Stock Only Deals Regression Results (Stock Dummy)

Table 2.3.1.2 presents the results of the OLS regression on our T-Sample which is the sample with target CEO information. We test the following:

$$Days\ to\ Effective_i = a + a_1 * VegaT_i + a_2 * VegaT_i * stock + a_3 * EDeltaT_i + a_4 * ETDC1T_i + a_5 * stockonly_i + a_6 * hostile_i + a_7 * tenderdummy_i + a_8 * RelativedealsizeT_i + a_9 * MarkettobookT_i + a_{10} * CAART_i + a_{11} * VolT_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is days to effective calculated as the number of days between the announcement of a deal and the date the deal becomes effective as stated by SDC. The suffix T represents the target. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA, similarly, ETDC1 is that of the total compensation on DELTA and VEGA. Stock only refers to the method of payment for the offer. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. CAAR is the cumulative abnormal return estimated using the market model over the five-day window (-2,2). Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. VEGA×Stock is an interaction variable to explain the effect of the method of payment on VEGA. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC, and tenderdummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama French five industry model as denoted by the SIC codes on CRSP. The year dummy is a dummy for the year the offer is announced.

Dependent Variable Days to Effective

	VEGAT and EDELTAT		Relative Deal Size CAAR and Market to Book		ETDC1T		VolT		Stock		VEGAT×Stock		Hostile		Tender Dummy		Industry and Year	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	108.308 ***	<.0001	103.022 ***	<.0001	109.801 ***	<.0001	115.809 ***	<.0001	103.789 ***	<.0001	103.287 ***	<.0001	104.314 ***	<.0001	120.974 ***	<.0001	106.564 ***	0.0025
VEGAT	0.140 ***	<.0001	0.140 ***	<.0001	0.139 ***	<.0001	0.135 ***	<.0001	0.136 ***	<.0001	0.142 ***	0.0002	0.129 ***	0.0009	0.107 ***	0.0048	0.108 ***	0.0061
EDELTAT	0.007	0.1838	0.006	0.3001	0.005	0.2969	0.006	0.2787	0.005	0.3335	0.005	0.3304	0.004	0.3768	0.003	0.5772	0.005	0.3777
ETDC1T					0.006 ***	<.0001	0.006 ***	<.0001	0.006 ***	<.0001	0.006 ***	<.0001	0.005 ***	<.0001	0.005 ***	<.0001	0.005 ***	0.0003
Stock only									33.797 ***	<.0001	34.939 ***	0.0005	33.403 ***	0.0008	14.335	0.1695	13.966	0.2604
Relative Deal Size T			12.11453 *	0.0733	11.197 *	0.0899	12.916 *	0.0585	13.682 **	0.0415	13.685 **	0.0417	12.586 *	0.0593	12.741 **	0.0495	11.942 *	0.0753
Market to Book T			-0.57975	0.4884	-1.084	0.1884	-1.008	0.2234	-1.310	0.1090	-1.302	0.1118	-1.217	0.1338	-1.065	0.1777	-0.730	0.3667
CAAR T			-48.26135	0.0080	-52.889 ***	0.0030	-54.277 ***	0.0024	-32.440 *	0.0769	-32.190 *	0.0801	-37.147 *	0.0427	-25.771	0.1511	-30.292 *	0.0969
Vol T							-273.781	0.3202	-527.861 *	0.0582	-531.311 *	0.0573	-496.924 *	0.0730	-504.665 *	0.0612	-591.015 *	0.0855
VEGAT×Stock											-0.013	0.8230	0.002 ***	0.9693	0.030	0.5871	0.014	0.8034
Hostile													71.106 ***	0.0048	96.955 ***	0.0001	0.803 ***	0.0003
Tender Dummy															-48.704 ***	<.0001	-45.840 ***	<.0001
Industry Dummy																		
Year Dummy																		
N	407																	
Adj. R²	0.0537		0.0660		0.1114		0.1113		0.1424		0.1404		0.1554		0.2014		0.2294	

Table 2.3.2.1 - B-Sample: Bidder Sample with Cash and Stock Only Deals Regression Results (Cash Dummy)

Table 2.3.2.1 presents the results of the OLS regression on our B-Sample which is the sample with bidder CEO information. We test the following:

$$Days\ to\ Effective_i = a + a_1 * VegaB_i + a_2 * VegaB_i * cash + a_3 * EDeltaB_i + a_4 * ETDC1B_i + a_5 * cashonly_i + a_6 * hostile_i + a_7 * tenderdummy_i + a_8 * RelativedealsizeB_i + a_9 * MarkettobookB_i + a_{10} * CAARB_i + a_{11} * VolB_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is days to effective calculated as the number of days between the announcement of a deal and the date the deal becomes effective as stated by SDC. The suffix B represents the bidder. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA, similarly, ETDC1 is that of the total compensation on DELTA and VEGA. Cash only refers to the method of payment for the offer. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. CAAR is the cumulative abnormal return estimated using the market model over the five-day window (-2,2). Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. VEGA×Cash is an interaction variable to explain the effect of the method of payment on VEGA. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC, and tenderdummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama French five industry model as denoted by the SIC codes on CRSP. The year dummy is a dummy for the year the offer is announced.

Dependent Variable Days to Effective

	VEGAB and EDELTAB		Relative Deal Size CAAR and Market to Book		ETDC1B		VolB		Cash		VEGAB×Cash		Hostile		Tender Dummy		Industry and Year	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	102.484***	<.0001	91.554***	<.0001	91.665***	<.0001	87.432***	<.0001	129.813***	<.0001	124.429***	<.0001	122.239***	<.0001	119.680***	<.0001	129.679***	<.0001
VEGAB	-0.003	0.5970	0.004	0.4610	0.004***	0.4758	0.005	0.3887	0.011**	0.0372	0.0439***	0.0020	0.044***	0.0019	0.043***	0.0018	0.046***	0.0010
EDELTAB	0.001	0.1298	0.006	0.2085	0.001	0.2186	0.001	0.2918	0.003	0.3769	0.001	0.5872	0.000	0.7712	0.000	0.6082	0.000	0.7378
ETDC1B					-0.002	0.4817	-0.001	0.4514	-0.001	0.5418	-0.001	0.2007	-0.001	0.2105	-0.000	0.2226	-0.000	0.2951
Cash only									-45.637***	<.0001	-38.935***	<.0001	-38.992***	<.0001	-20.595***	0.0003	-19.780***	0.0021
Relative Deal Size B			37.718***	<.0001	37.364***	<.0001	36.986***	<.0001	29.292***	<.0001	29.075***	<.0001	28.447***	<.0001	26.944***	<.0001	25.912***	<.0001
Market to Book B			0.138	0.2179	0.144	0.1988	0.142	0.2053	0.103	0.3422	0.10	0.3559	0.103	0.3339	0.075	0.4725	0.122	0.2597
CAAR B			-33.763	0.2071	-34.313	0.2001	-32.072	0.2329	4.040	0.8769	2.603	0.9203	4.778	0.8533	3.731	0.8826	3.648	0.8868
Vol B							167.899	0.3490	-320.016*	0.0744	-300.648*	0.0932	-247.691	0.1644	-117.061	0.5034	-117.181	0.6144
VEGAB×Cash											-0.038**	0.0124	-0.038***	0.0128	-0.043***	0.0042	-0.044***	0.0036
Hostile													73.936***	<.0001	92.120***	<.0001	87.356***	<.0001
Tender Dummy															-35.962***	<.0001	-36.709***	<.0001
Industry Dummy																	Yes	
Year Dummy																	Yes	
N	1168																	
Adj. R²	0.0004		0.0426		0.0422		0.0421		0.1154		0.1194		0.1325		0.1715		0.1842	

Table 2.3.2.2 - B-Sample: Bidder Sample with Cash and Stock Only Deals Regression Results (Stock Dummy)

Table 2.3.2.2 presents the results of the OLS regression on our B-Sample which is the sample with bidder CEO information. We test the following:

$$Days\ to\ Effective_i = a + a_1 * VegaB_i + a_2 * VegaB_i * stock + a_3 * EDeltaB_i + a_4 * ETDC1B_i + a_5 * stockonly_i + a_6 * hostile_i + a_7 * tenderdummy_i + a_8 * RelativedealsizeB_i + a_9 * MarkettobookB_i + a_{10} * CAARB_i + a_{11} * VolB_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is days to effective calculated as the number of days between the announcement of a deal and the date the deal becomes effective as stated by SDC. The suffix B represents the bidder. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA, similarly, ETDC1 is that of the total compensation on DELTA and VEGA. Stock only refers to the method of payment for the offer. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. CAAR is the cumulative abnormal return estimated using the market model over the five-day window (-2,2). Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. VEGA×Stock is an interaction variable to explain the effect of the method of payment on VEGA. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC, and tenderdummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama French five industry model as denoted by the SIC codes on CRSP. The year dummy is a dummy for the year the offer is announced.

Dependent Variable Days to Effective

	VEGAB and EDELTAB		Relative Deal Size CAAR and Market to Book		ETDC1B		VolB		Stock		VEGAB×Stock		Hostile		Tender Dummy		Industry and Year	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	102.484 ***	<.0001	91.554 ***	<.0001	91.665 ***	<.0001	87.432 ***	<.0001	84.176 ***	<.0001	85.493 ***	<.0001	83.247 ***	<.0001	99.086 ***	<.0001	109.900 ***	<.0001
VEGAB	-0.003	0.5970	0.004	0.4610	0.004 ***	0.4758	0.005	0.3887	0.011 **	0.0372	0.006	0.3277	0.006	0.3010	0.000	0.9335	0.003	0.6698
EDELTAB	0.001	0.1298	0.006	0.2085	0.001	0.2186	0.001	0.2918	0.000	0.3769	0.000	0.5872	0.000	0.7712	0.000	0.6082	0.000	0.7378
ETDC1B					-0.002	0.4817	-0.001	0.4514	-0.000	0.5418	-0.000	0.2007	-0.000	0.2105	-0.000	0.2226	-0.000	0.2951
Stock only									45.637 ***	<.0001	38.935 ***	<.0001	38.992 ***	<.0001	20.595 ***	0.0003	19.780 ***	0.0021
Relative Deal Size B			37.718 ***	<.0001	37.364 ***	<.0001	36.986 ***	<.0001	29.292 ***	<.0001	29.075 ***	<.0001	28.447 ***	<.0001	26.944 ***	<.0001	25.912 ***	<.0001
Market to Book B			0.138	0.2179	0.144	0.1988	0.142	0.2053	0.103	0.3422	0.010	0.3559	0.103	0.3339	0.075	0.4725	0.122	0.2597
CAAR B			-33.763	0.2071	-34.313	0.2001	-32.072	0.2329	4.040	0.8769	2.603	0.9203	4.778	0.8533	3.731	0.8826	3.648	0.8868
Vol B							167.899	0.3490	-320.016 *	0.0744	-300.648	0.0932	-247.691	0.1644	-117.062	0.5034	-117.181	0.6144
VEGAB×Stock											0.038	0.0124	0.0379 **	0.0128	0.043 ***	0.0042	0.044 ***	0.0036
Hostile													73.936 ***	<.0001	92.120 ***	<.0001	87.356 ***	<.0001
Tender Dummy															-35.962 ***	<.0001	-36.709 ***	<.0001
Industry Dummy																	Yes	
Year Dummy																	Yes	
N	1168																	
Adj. R²	0.0004		0.0426		0.0422		0.0421		0.1154		0.1194		0.1325		0.1715		0.1842	

Table 2.3.3.1 - S-Sample: Both Bidder and Target Sample with Cash and Stock Only Deals Regression Results (Cash Dummy)

Table 2.3.3.1 presents the results of the OLS regression on our S-Sample which is the sample with both bidder and target CEO information. We test the following:

$$Days\ to\ Effective_i = a + a_1 * VegaT_i + a_2 * VegaB_i + a_3 * VegaT_i * cash + a_4 * VegaB_i * cash + a_5 * EDeltaT_i + a_6 * EDeltaB_i + a_7 * ETDC1T_i + a_8 * ETDC1B_i + a_9 * cashonly_i + a_{10} * hostile_i + a_{11} * tenderdummy_i + a_{12} * RelativedealsizeT_i + a_{13} * RelativedealsizeB_i + a_{14} * MarkettobookT_i + a_{15} * MarkettobookB_i + a_{16} * CAART_i + a_{17} * CAARB_i + a_{18} * VolT_i + a_{19} * VolB_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is days to effective calculated as the number of days between the announcement of a deal and the date the deal becomes effective as stated by SDC. The suffix B represents the bidder and suffix T represents the Target. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA, similarly, ETDC1 is that of the total compensation on DELTA and VEGA. Cash only and stock only refer to the methods of payment for the offer. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. CAAR is the cumulative abnormal return estimated using the market model over the five-day window (-2,2). Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. VEGA×Cash and VEGA×Stock are interaction variables to explain the effect of methods of payment on VEGA. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC, and tenderdummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama French five industry model as denoted by the SIC codes on CRSP. The year dummy is a dummy for the year the offer is announced.

	VEGAB VEGAT EDELTAT and EDELTAB		Relative Deal Size CAAR and Market to Book		ETDC1B and ETDC1T		VolB and VolT		Cash		VEGAB×Cash and VEGAT×Cash		Hostile		Tender Dummy		Industry and Year	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	101.655***	<.0001	73.529***	<.0001	80.824***	<.0001	75.032***	<.0001	95.344***	<.0001	92.276***	<.0001	89.262***	<.0001	89.123***	<.0001	39.934	0.4322
VEGAT	0.206***	<.0001	0.1636***	<.0001	0.166***	<.0001	0.008	0.4853	0.165***	<.0001	0.097*	0.0604	0.093*	0.0690	0.099**	0.0470	0.100*	0.0613
VEGAB	-0.001	0.9536	0.0159	0.1704	0.008	0.5007	0.169***	<.0001	0.013	0.2707	0.068**	0.0175	0.070**	0.0133	0.069**	0.0131	0.092***	0.0014
EDELTAT	0.005	0.4552	-0.000	0.9574	0.001	0.8512	0.001	0.8645	0.002	0.7062	0.002	0.7113	0.002	0.6808	0.001	0.9000	0.003	0.6272
EDELTAB	0.002***	0.0296	0.001	0.2067	0.001	0.4255	0.001	0.4885	0.007	0.4344	0.001	0.4012	0.000	0.6648	0.001	0.3369	0.001	0.5189
ETDC1T					0.007***	<.0001	0.007***	<.0001	0.006***	0.0001	0.006	0.0005	0.005***	0.0025	0.005	0.0026	0.004	0.0078
ETDC1B					0.000	0.9473	0.000	0.9120	0.000	0.8659	-0.000	0.9035	0.000	0.8167	0.000	0.7760	0.001	0.4695
Cash only									-25.028**	0.0203	-22.367*	0.0906	-20.805	0.1108	-2.439	0.8583	8.002	0.6137
Relative Deal Size T			12.118	0.1469	12.443	0.1297	11.301	0.1778	11.797	0.1566	11.252	0.1743	10.735	0.1889	10.387	0.1939	35.468***	0.0032
Relative Deal Size B			51.578***	<.0001	48.602***	<.0001	49.856***	<.0001	46.220***	0.0002	46.609	0.0002	46.521	0.0001	43.113	0.0003	5.625	0.4907
Market to Book T			-1.794	0.1591	-1.641	0.1868	1.316	0.2288	-1.872	0.1325	-2.216*	0.0775	-2.262*	0.0679	-1.875	0.1229	-1.982	0.1183
Market to Book B			1.565	0.1571	1.335	0.2174	-1.721	0.1692	0.922	0.4011	1.250	0.2581	1.320	0.2263	1.073	0.3153	1.279	0.2513
CAAR T			-44.776*	0.0519	-50.106**	0.0275	-50.3874	0.0282	-36.255	0.1234	-30.883	0.1896	26.158	0.6495	-28.974	0.2097	-49.117**	0.0405
CAAR B			4.592	0.9374	-2.603	0.9636	4.871	0.9336	20.757	0.7223	23.397	0.6884	-39.929*	0.0885	16.813	0.7655	-14.500	0.8049
Vol T							57.273	0.9276	-224.053	0.7251	69.219	0.8805	116.393	0.7979	22.597	0.9595	443.770	0.3538
Vol B							202.856	0.6611	169.728	0.7118	-151.738	0.8118	-76.802	0.9028	21.436	0.9722	326.519	0.6412
VEGAT×Cash											0.11968	0.1168	0.112	0.1365	0.071	0.3410	0.074	0.3340
VEGAB×Cash											-0.066**	0.0341	-0.067**	0.0295	-0.063**	0.0332	-0.078**	0.0118
Hostile													80.369***	0.0028	104.388***	0.0001	109.289***	0.0001
Tender Dummy															-42.554***	0.0002	-42.777***	0.0007
Industry Dummy																	Yes	
Year Dummy																	Yes	
N	309																	
Adj. R²	0.1022		0.1734		0.2138		0.2098		0.2216		0.2303		0.2512		0.2831		0.3400	

Table 2.3.3.2 - S-Sample: Both Bidder and Target Sample with Cash and Stock Only Deals Regression Results (Stock Dummy)

Table 2.3.3.2 presents the results of the OLS regression on our S-Sample which is the sample with both bidder and target CEO information. We test the following:

$$Days\ to\ Effective_i = a + a_1 * VegaT_i + a_2 * VegaB_i + a_3 * VegaT_i * stock + a_4 * VegaB_i * stock + a_5 * EDeltaT_i + a_6 * EDeltaB_i + a_7 * ETDC1T_i + a_8 * ETDC1B_i + a_9 * cashonly_i + a_{10} * hostile_i + a_{11} * tenderdummy_i + a_{12} * RelativedealsizeT_i + a_{13} * RelativedealsizeB_i + a_{14} * MarkettobookT_i + a_{15} * MarkettobookB_i + a_{16} * CAART_i + a_{17} * CAARB_i + a_{18} * VolT_i + a_{19} * VolB_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is days to effective calculated as the number of days between the announcement of a deal and the date the deal becomes effective as stated by SDC. The suffix B represents the bidder and suffix T represents the Target. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA, similarly, ETDC1 is that of the total compensation on DELTA and VEGA. Cash only and stock only refer to the methods of payment for the offer. Relative deal size is calculated as the SDC value of transaction dollar divided market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. CAAR is the cumulative abnormal return estimated using the market model over the five-day window (-2,2). Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. VEGA×Cash and VEGA×Stock are interaction variables to explain the effect of the methods of payment on VEGA. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC, and tenderdummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama French five industry model as denoted by the SIC codes on CRSP. The year dummy is a dummy for the year the offer is announced.

	VEGAB VEGAT EDELTAT and EDELTAB		Relative Deal Size CAAR and Market to Book		ETDC1B and ETCD1T		VolB and VolT		Stock		VEGAB×Stock and VEGAT×Stock		Hostile		Tender Dummy		Industry and Year	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	101.655***	<.0001	73.529***	<.0001	80.824***	<.0001	75.032***	<.0001	70.316***	0.0001	69.909	0.0002	68.458	0.0002	86.685***	<.0001	47.936	0.3232
VEGAT	0.206***	<.0001	0.1636***	<.0001	0.166***	<.0001	0.008	0.4853	0.165***	<.0001	0.217	0.0002	0.205***	0.0004	0.171***	0.0030	0.175***	0.0029
VEGAB	-0.001	0.9536	0.0159	0.1704	0.008	0.5007	0.169***	<.0001	0.013	0.2707	0.003	0.8286	0.004	0.7632	0.005	0.6659	0.014	0.3022
EDELTAT	0.005	0.4552	-0.000	0.9574	0.001	0.8512	0.001	0.8645	0.002	0.7062	0.002	0.7113	0.002	0.6808	0.000	0.9000	0.003	0.6272
EDELTAB	0.002***	0.0296	0.001	0.2067	0.001	0.4255	0.001	0.4885	0.001	0.4344	0.001	0.4012	0.0004	0.6648	0.0008	0.3369	0.001	0.5189
ETDC1T					0.007***	<.0001	0.007***	<.0001	0.006	0.0001	0.006	0.0005	0.005***	0.0025	0.005***	0.0026	0.004	0.0078
ETDC1B					0.000	0.9473	0.000	0.9120	0.000	0.8659	-0.000	0.9035	0.000	0.8167	0.000	0.7760	0.001	0.4695
Stock only									25.028**	0.0203	22.367	0.0906	20.805	0.1108	2.439	0.8583	-8.002	0.6137
Relative Deal Size T			12.118	0.1469	12.443	0.1297	11.301	0.1778	11.797	0.1566	11.252	0.1743	10.735	0.1889	10.387	0.1939	5.625	0.4907
Relative Deal Size B			51.578***	<.0001	48.602***	<.0001	49.856***	<.0001	46.220***	0.0002	46.609***	0.0002	46.521***	0.0001	43.113***	0.0003	35.468**	0.0032
Market to Book T			-1.794	0.1591	-1.641	0.1868	1.316	0.2288	-1.872	0.1325	-2.216*	0.0775	-2.262*	0.0679	-1.875	-1.87496	-1.982	0.1183
Market to Book B			1.565	0.1571	1.335	0.2174	-1.721	0.1692	0.922	0.4011	1.250	0.2581	1.320	0.2263	1.073	0.3153	1.279	0.2513
CAAR T			-44.776*	0.0519	-50.106**	0.0275	-50.3874**	0.0282	-36.255	0.1234	-30.884	0.1896	-39.930*	0.0885	-28.974	0.2097	-49.117**	0.0405
CAAR B			4.592	0.9374	-2.603	0.9636	4.871	0.9336	20.757	0.7223	23.397	0.6884	26.158	0.6495	16.813	0.7655	-14.500	0.8049
Vol T							57.273	0.9276	169.728	0.7118	69.219	0.8805	-76.803	0.9028	22.597	0.9595	443.770	0.3538
Vol B							202.856	0.6611	-224.051	0.7251	-151.738	0.8118	116.392	0.7979	21.436	0.9722	326.519	0.6412
VEGAT×Stock											-0.120	0.1168	-0.112	0.1365	-0.071	0.3410	-0.074	0.3340
VEGAB×Stock											0.066**	0.0341	0.067**	0.0295	0.064**	0.0332	0.078**	0.0118
Hostile													80.369***	0.0028	104.388***	0.0001	109.289***	0.0001
Tender Dummy															-42.554***	0.0002	-42.777***	0.0007
Industry Dummy																	Yes	
Year Dummy																	Yes	
N	309																	
Adj. R²	0.1022		0.1734		0.2138		0.2098		0.2216		0.2303		0.2512		0.2831		0.3400	

Table 2.3.4.1 - T-Sample: Target Sample with Cash Only Deals Regression Results

Table 2.3.4.1 presents the results of the OLS regression on our T-Sample which is the sample with target CEO information paid up in cash only. We test the following:

$$Days\ to\ Effective_i = a + a_1 * VegaT_i + a_2 * EDeltaT_i + a_3 * ETDC1T_i + a_4 * hostile_i + a_5 * tenderdummy_i + a_6 * RelativedealsizeT_i + a_7 * MarkettobookT_i + a_8 * CAART_i + a_9 * VolT_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is days to effective calculated as the number of days between the announcement of a deal and the date the deal becomes effective as stated by SDC. The suffix T represents the target. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA, similarly, ETDC1 is that of the total compensation on DELTA and VEGA. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by book value per share as stated by COMPUSTAT. CAAR is the cumulative abnormal return estimated using the market model over the five-day window (-2,2). Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC, and tenderdummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama French five industry model as denoted by the SIC codes on CRSP. Year dummy is a dummy for the year the offer is announced.

Dependent Variable Days to Effective

	VEGAT and EDELTAT		Relative Deal Size CAAR and Market to Book		ETDC1T		VolT		Hostile		Tender Dummy		Industry and Year	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	94.136***	<.0001	66.92732	<.0001	74.115***	<.0001	75.450**	<.0001	78.987***	<.0001	93.419***	<.0001	85.467**	0.0343
VEGAT	0.133***	0.0007	0.13839	0.0004	0.162***	<.0001	0.161***	<.0001	0.146***	0.0001	0.123***	0.0006	0.121***	0.0017
EDELTAT	-0.002	0.8039	-0.002	0.8160	0.003	0.6527	0.003	0.6461	0.001	0.8477	-0.003	0.7108	-0.001	0.9078
ETDC1T					0.009***	<.0001	0.009***	<.0001	0.008***	<.0001	0.008**	<.0001	0.008***	<.0001
Relative Deal Size T			21.443**	0.0197	20.641**	0.0180	20.919**	0.0188	18.363**	0.0380	19.128**	0.0223	11.683	0.1963
Market to Book T			-0.383	0.7426	-0.509	0.6452	-0.526	0.6366	-0.440	0.6895	-0.118	0.9098	0.244	0.8212
CAAR T			-22.553	0.2979	-28.421	0.1678	-28.267	0.1714	-32.556	0.1127	-17.073	0.3829	-26.485	0.1893
Vol T							-63.384	0.8676	-48.754	0.8968	-47.923	0.8927	73.920	0.8687
Hostile									73.657***	0.0125	98.951***	0.0005	101.392***	0.0015
Tender Dummy											-51.268***	<.0001	-53.016***	<.0001
Industry Dummy														
Year Dummy														
N	241													
Adj. R²	0.0395		0.0509		0.1457		0.1421		0.1613		0.2515		0.2944	

Table 2.3.4.2 - T-Sample: Target Sample with Stock Only Deals Regression Results

Table 2.3.4.2 presents the results of the OLS regression on our T-Sample which is the sample with target CEO information paid up in stock only. We test the following:

$$Days\ to\ Effective_i = a + a_1 * VegaT_i + a_2 * EDeltaT_i + a_3 * ETDC1T_i + a_4 * hostile_i + a_5 * tenderdummy_i + a_6 * RelativedealsizeT_i + a_7 * MarkettobookT_i + a_8 * CAART_i + a_9 * VolT_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is days to effective calculated as the number of days between the announcement of a deal and the date the deal becomes effective as stated by SDC. The suffix T represents the target. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA, similarly, ETDC1 is that of the total compensation on DELTA and VEGA. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. CAAR is the cumulative abnormal return estimated using the market model over the five-day window (-2,2). Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC, and tenderdummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama French five industry model as denoted by the SIC codes on CRSP. Year dummy is a dummy for the year the offer is announced.

Dependent Variable Days to Effective

	VEGAT and EDELTAT		Relative Deal Size CAAR and Market to Book		ETDC1T		VolT		Hostile		Tender Dummy		Industry and Year	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	127.560 ***	<.0001	137.848 ***	<.0001	140.741 ***	<.0001	162.158 ***	<.0001	160.193 ***	<.0001	159.983 ***	<.0001	183.125 ***	<.0001
VEGAT	0.148 ***	0.0006	0.153 ***	0.0005	0.148 ***	0.0008	0.128***	0.0039	0.129 ***	0.0036	0.132 ***	0.0032	0.101 **	0.0347
EDELTAT	0.011	0.1460	0.010	0.1652	0.009	0.2176	0.00924	0.2084	0.010	0.1906	0.010	0.1964	0.012	0.1315
ETDC1T					0.002	0.2773	0.00200	0.3012	0.002	0.3461	0.002	0.3752	0.001	0.4883
Relative Deal Size T			1.746	0.8601	1.698	0.8638	8.61992	0.4007	8.821	0.3898	8.879	0.3878	10.570	0.3130
Market to Book T			-1.343	0.2647	-1.641	0.1840	-1.037	0.4056	-1.017	0.4146	-1.020	0.4145	-0.500	0.6972
CAAR T			-48.797	0.1939	-53.031	0.1602	-57.210	0.1257	-61.628	0.1012	-61.521	0.1026	-61.184	0.1134
Vol T							-937.607 **	0.0259	-902.517 **	0.0324	-902.303 **	0.0328	-980.597 *	0.0699
Hostile									49.802	0.2909	71.677	0.2561	51.527	0.4330
Tender Dummy											-32.889	0.6002	-19.233	0.7681
Industry Dummy													Yes	
Year Dummy													Yes (not all years are covered by the sample)	
N	166													
Adj. R²	0.0724		0.0719		0.0730		0.0961		0.0968		0.0926		0.1254	

Table 2.3.5.1 - B-Sample: Bidder Sample with Cash Only Deals Regression Results

Table 2.3.5.1 presents the results of the OLS regression on our T-Sample which is the sample with target CEO information paid up in cash only. We test the following:

$$Days\ to\ Effective_i = a + a_1 * VegaT_i + a_2 * EDeltaT_i + a_3 * ETDC1T_i + a_4 * hostile_i + a_5 * tenderdummy_i + a_6 * RelativedealsizeT_i + a_7 * MarkettobookT_i + a_8 * CAART_i + a_9 * VolT_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is days to effective calculated as the number of days between the announcement of a deal and the date the deal becomes effective as stated by SDC. The suffix B represents the bidder. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA, similarly, ETDC1 is that of the total compensation on DELTA and VEGA. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. CAAR is the cumulative abnormal return estimated using the market model over the five-day window (-2,2). Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC, and tenderdummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama French five industry model as denoted by the SIC codes on CRSP. Year dummy is a dummy for the year the offer is announced.

Dependent Variable Days to Effective

	VEGAB and EDELTAB		Relative Deal Size CAAR and Market to Book		ETDC1B		VolB		Hostile		Tender Dummy		Industry and Year	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	84.762	<.0001	78.996***	<.0001	79.232***	<.0001	81.128***	<.0001	78.635***	<.0001	93.440***	<.0001	102.602***	0.0005
VEGAB	0.003	0.518	0.007	0.1927	0.006	0.2334	0.006	0.2599	0.007	0.2225	0.001	0.8594	0.004	0.5185
EDELTAB	0.001	0.1295	0.001	0.1393	0.001	0.1528	0.001	0.1422	0.001	0.2540	0.001	0.1762	0.001	0.2279
ETDC1B							-0.001	0.5875	-0.000	0.7513	-0.001	0.7318	-0.000	0.8372
Relative Deal Size B			25.579***	<.0001	25.305***	<.0001	25.325	<.0001	24.453***	0.0001	21.961***	0.0003	22.261***	0.0004
Market to Book B			0.129	0.2237	0.131	0.2173	0.130	0.2209	0.134	0.2026	0.107	0.2855	0.151	0.1487
CAAR B			-7.965	0.8328	-9.327	0.8052	-8.876	0.8147	-5.002	0.8938	-11.020	0.7580	-5.394	0.8843
Vol B					-0.000	0.5715	-83.242	0.7338	-25.784	0.9154	243.406	0.2973	191.557	0.5535
Hostile									81.238***	<.0001	103.401***	<.0001	104.400***	<.0001
Tender Dummy											-39.727***	<.0001	-42.512***	<.0001
Industry Dummy													Yes	
Year Dummy													Yes	
N	764													
Adj. R^2	0.0010		0.0192		0.0183		0.0172		0.0377		0.1243		0.1397	

Table 2.3.5.2 - B-Sample: Bidder Sample with Stock Only Deals Regression Results

Table 2.3.5.2 presents the results of the OLS regression on our T-Sample which is the sample with target CEO information paid up in stock only. We test the following:

$$Days\ to\ Effective_i = a + a_1 * VegaT_i + a_2 * EDeltaT_i + a_3 * ETDC1T_i + a_4 * hostile_i + a_5 * tenderdummy_i + a_6 * RelativedealsizeT_i + a_7 * MarkettobookT_i + a_8 * CAART_i + a_9 * VolT_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is days to effective calculated as the number of days between the announcement of a deal and the date the deal becomes effective as stated by SDC. The suffix B represents the bidder. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA, similarly, ETDC1 is that of the total compensation on DELTA and VEGA. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. CAAR is the cumulative abnormal return estimated using the market model over the five-day window (-2,2). Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC, and tenderdummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama French five industry model as denoted by the SIC codes on CRSP. Year dummy is a dummy for the year the offer is announced.

Dependent Variable Days to Effective

	VEGAB and EDELTAB		Relative Deal Size CAAR and Market to Book		ETDC1B		VolB		Hostile		Tender Dummy		Industry and Year	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	126.406 ***	<.0001	115.773 ***	<.0001	113.997 ***	<.0001	127.231 ***	<.0001	125.272 ***	<.0001	125.106 ***	<.0001	132.558 ***	0.0002
VEGAB	0.0441 ***	0.0053	0.0521 ***	0.0009	0.060 ***	0.0004	0.057 ***	0.0009	0.057 ***	0.0008	0.058 ***	0.0007	0.0631 ***	0.0008
EDELTAB	-0.002	0.1241	-0.002 *	0.0897	-0.002 *	0.0715	-0.002	0.1080	-0.002	0.1101	-0.002	0.1041	-0.002	0.1065
ETDC1B							-0.001	0.2207	-0.001	0.1688	-0.001	0.1540	-0.001	0.2823
Relative Deal Size B			35.610 ***	0.0001	34.658 ***	0.0002	35.465 ***	0.0001	35.037 ***	0.0001	35.096 ***	0.0001	25.591 ***	0.0080
Market to Book B			-0.282	0.4787	-0.126	0.7620	-0.0440	0.9160	-0.025	0.9520	-0.007	0.9874	0.162	0.7037
CAAR B			19.331	0.6124	20.234	0.5957	14.024	0.7137	15.411	0.6862	14.914	0.6960	3.318	0.9324
Vol B					-0.001	0.1944	-458.061 *	0.0959	-417.336	0.1297	-430.432	0.1192	-163.503	0.6567
Hostile									58.032 *	0.0884	51.533	0.1452	61.844 *	0.0817
Tender Dummy											17.092	0.4965	22.825	0.3811
Industry Dummy													Yes	
Year Dummy													Yes	
N	404													
Adj. R²	0.0158		0.0492		0.0508		0.0551		0.0596		0.0583		0.0920	

Table 2.3.6.1 - S-Sample: Both Bidder and Target Sample with Cash Only Deals Regression Results

Table 2.3.6.1 presents the results of the OLS regression on our T-Sample which is the sample with target CEO information paid up in cash only. We test the following:

$$Days\ to\ Effective_i = a + a_1 * VegaT_i + a_2 * VegaB_i + a_3 * EDeltaT_i + a_4 * EDeltaB_i + a_5 * ETDC1T_i + a_6 * ETDC1B_i + a_7 * hostile_i + a_8 * tenderdummy_i + a_9 * RelativedealsizeT_i + a_{10} * RelativedealsizeB_i + a_{11} * MarkettobookT_i + a_{12} * MarkettobookB_i + a_{13} * CAART_i + a_{14} * CAARB_i + a_{15} * VolT_i + a_{16} * VolB_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is days to effective calculated as the number of days between the announcement of a deal and the date the deal becomes effective as stated by the SDC. The suffix B represents the bidder. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA, similarly, ETDC1 is that of the total compensation on DELTA and VEGA. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal. Market to book is absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. CAAR is the cumulative abnormal return estimated using the market model over the five-day window (-2,2). Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC, and tenderdummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama French five industry model as denoted by the SIC codes on CRSP. Year dummy is a dummy for the year the offer is announced.

Dependent Variable Days to Effective

	VEGAB, VEGAT, EDELTAT and EDELTAB		Relative Deal Size CAAR and Market to Book		ETDC1B and ETDC1T		VolB and VolT		Hostile		Tender Dummy		Industry and Year	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	85.166 ***	<.0001	42.561 **	0.0370	57.142 ***	0.0044	26.874	0.2535	25.913	0.2621	43.979 **	0.0489	26.029	0.5953
VEGAT	0.2428 ***	<.0001	0.254 ***	<.0001	0.227 ***	0.0001	0.227 ***	<.0001	0.216 ***	0.0001	0.180 ***	0.0008	0.176 ***	0.0013
VEGAB	-0.003	0.8338	0.007	0.5975	-0.003	0.8334	-0.000	0.9997	0.00126	0.9192	0.002	0.8363	0.016	0.2093
EDELTAT	0.002 **	0.0205	0.002 *	0.0598	0.001	0.8774	0.000	0.9600	0.000	0.9738	-0.003	0.6862	0.005	0.5439
EDELTAB	0.000	0.9630	-0.000	0.9811	0.001	0.2967	0.000	0.5673	0.000	0.8710	0.001	0.4449	0.000	0.6959
ETDC1T					0.009 ***	<.0001	0.009 ***	<.0001	0.008 ***	0.0003	0.001	0.0002	0.005 **	0.0274
ETDC1B					-0.000	0.7234	-0.002	0.7648	0.000	0.9688	-0.000	0.9483	-0.000	0.7606
Relative Deal Size T			14.697	0.1315	14.270	0.1281	10.587	0.2608	9.395	0.3099	9.311	0.2879	-2.595	0.7789
Relative Deal Size B			47.034 ***	0.0022	45.238 ***	0.0024	46.421 ***	0.0032	45.589 ***	0.0032	38.406 ***	0.0090	29.288 **	0.0478
Market to Book T			-1.332	0.4140	-1.001	0.5212	-0.706	0.6485	-0.733	0.6299	0.03757	0.9793	-0.667	0.6711
Market to Book B			1.374	0.4337	1.461	0.3847	1.452	0.3828	1.528	0.3496	0.949	0.5406	1.948	0.2313
CAAR T			-0.847	0.9744	-13.439	0.5988	-16.800	0.5129	-25.226	0.3211	-8.226	0.7353	-36.576	0.1448
CAAR B			105.299	0.2089	65.861	0.4144	81.365	0.3106	86.368	0.2732	71.049	0.3414	-56.667	0.4799
Vol T							356.741	0.5035	414.662	0.4289	251.923	0.6124	1104.499 *	0.0508
Vol B							1286.990	0.1592	1349.370	0.1330	1617.905 *	0.0582	1641.748	0.1199
Hostile									83.763 ***	0.0073	107.963 ***	0.0004	154.012 ***	<.0001
Tender Dummy											-47.890 ***	<.0001	-47.136 ***	0.0001
Industry Dummy													Yes	
Year Dummy													Yes	
N	186													
Adj. R²	0.1157		0.1648		0.2373		0.2526		0.2795		0.3542		0.4479	

Table 2.3.6.2 - S-Sample: Both Bidder and Target Sample with Stock Only Deals Regression Results

Table 2.3.6.2 presents the results of the OLS regression on our T-Sample which is the sample with target CEO information paid up in stock only. We test the following:

$$Days\ to\ Effective_i = a + a_1 * VegaT_i + a_2 * VegaB_i + a_3 * EDeltaT_i + a_4 * EDeltaB_i + a_5 * ETDC1T_i + a_6 * ETDC1B_i + a_7 * hostile_i + a_8 * tenderdummy_i + a_9 * RelativedealsizeT_i + a_{10} * RelativedealsizeB_i + a_{11} * MarkettobookT_i + a_{12} * MarkettobookB_i + a_{13} * CAART_i + a_{14} * CAARB_i + a_{15} * VolT_i + a_{16} * VolB_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is days to effective calculated as the number of days between the announcement of a deal and the date the deal becomes effective as stated by the SDC. The suffix B represents the bidder and suffix T represents the Target. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA, similarly, ETDC1 is that of the total compensation on DELTA and VEGA. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. CAAR is the cumulative abnormal return estimated using the market model over the five-day window (-2,2). Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC, and tenderdummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama French five industry model as denoted by the SIC codes on CRSP. Year dummy is a dummy for the year the offer is announced.

Dependent Variable Days to Effective

	VEGAB, VEGAT, EDELTAT and EDELTAB		Relative Deal Size CAAR and Market to Book		ETDC1B and ETDC1T		VolB and VolT		Hostile		Tender Dummy		Industry and Year	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	121.922 ***	<.0001	109.891 ***	0.0001	111.123 ***	0.0001	132.198 ***	<.0001	128.303 ***	<.0001	128.6136 ***	<.0001	100.221	0.1916
VEGAT	0.110 **	0.0411	0.0617	0.2731	0.059	0.3188	0.046	0.4401	0.046	0.4458	0.048	0.4302	0.015	0.8477
VEGAB	0.063 **	0.0360	0.087 ***	0.0054	0.080 **	0.0155	0.081 **	0.0157	0.083	0.0137	0.0820 **	0.0155	0.099 **	0.0156
EDELTAT	0.010	0.2966	0.005	0.6268	0.005	0.6139	0.006	0.6023	0.00	0.5771	0.006	0.5913	0.016	0.1928
EDELTAB	-0.000	0.7694	-0.002	0.3512	-0.002	0.2720	-0.002	0.4177	-0.002	0.3992	-0.002	0.4258	-0.002	0.4414
ETDC1T					0.001	0.6093	0.001	0.6177	0.001	0.7142	0.001	0.7362	0.000	0.9200
ETDC1B					0.001	0.4568	0.001	0.5518	0.001	0.5090	0.001	0.4764	0.002	0.1892
Relative Deal Size T			5.882	0.7097	7.897	0.6228	12.194	0.4638	13.400	0.4207	13.730	0.4124	23.384	0.2009
Relative Deal Size B			46.737 ***	0.0134	47.889 **	0.0140	44.060 **	0.0337	43.813 **	0.0343	43.178 **	0.0387	25.401	0.2821
Market to Book T			-4.077 **	0.0495	-3.974 *	0.0572	-3.281	0.1233	-3.344	0.1156	-3.342	0.1175	-2.375	0.3237
Market to Book B			1.949	0.2195	1.672	0.3028	1.645	0.3107	1.661	0.3052	1.639	0.3141	1.769	0.3447
CAAR T			-74.45064	0.1586	-82.196	0.1265	-78.292	0.1475	-87.425	0.1088	-89.278	0.1052	-155.658 **	0.0193
CAAR B			3.57834	0.9686	4.778	0.9583	-18.120	0.8463	-13.754	0.8829	-11.956	0.8987	76.313	0.4858
Vol T							-446.366	0.6697	-537.127	0.5507	-541.143	0.5495	-464.265	0.6657
Vol B							-526.177	0.5597	-343.308	0.7430	-336.267	0.7492	181.259	0.8786
Hostile									59.159	0.2258	73.577	0.2798	58.861	0.4329
Tender Dummy											-21.082	0.7596	-19.821	0.7897
Industry Dummy													Yes	
Year Dummy													Yes	
N	123													
Adj. R²	0.0947		0.1605		0.1519		0.1563		0.1601		0.1529		0.1627	

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Table 2.3.7 - S-Sample: Both Bidder and Target Sample with Cash and Stock Only where Bidder Volatility is greater than Target Volatility Regression Results (Vol Bidder > Vol Target Dummy)

Table 2.3.7 presents the results of the OLS regression on our S-Sample which is the sample with both bidder and target CEO information. We test the following:

$$Days\ to\ Effective_i = a + a_1 * VegaT_i + a_2 * VegaB_i + a_3 * VegaB_i * cash\_only + a_4 * EDeltaT_i + a_5 * EDeltaB_i + a_6 * ETDC1T_i + a_7 * ETDC1B_i + a_8 * cashonly_i + a_9 * stockonly_i + a_{10} * hostile_i + a_{11} * tenderdummy_i + a_{12} * RelativedealsizeT_i + a_{13} * RelativedealsizeB_i + a_{14} * MarkettobookT_i + a_{15} * MarkettobookB_i + a_{16} * CAART_i + a_{17} * CAARB_i + a_{18} * VolT_i + a_{19} * VolB_i + a_{20} * VolBgreaterVOLTdummy_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is days to effective calculated as the number of days between the announcement of a deal and the date the deal becomes effective as stated by the SDC. The suffix B represents the bidder and suffix T represents the Target. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA, similarly, ETDC1 is that of the total compensation on DELTA and VEGA. Cash only and stock only refer to the methods of payment for the offer. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. CAAR is the cumulative abnormal return estimated using the market model over the five-day window (-2,2). Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. VEGA×Cash and VEGA×Stock are interaction variables to explain the effect of the methods of payment on VEGA. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC, and tenderdummy shows if the offer was a tender offer. We further divided our sample where the bidder volatility is greater than the target volatility and created VolBgreaterVolTdummy. Industry dummy is the dummy over the Fama French five industry model as denoted by the SIC codes on CRSP. Year dummy is a dummy for the year the offer is announced.

Dependent Variable Days to Effective

	All Deals				Cash Only				Stock Only			
	Vol Bidder Greater Vol Target		Vol Bidder Less Vol Target		Vol Bidder Greater Vol Target		Vol Bidder Less Vol Target		Vol Bidder Greater Vol Target		Vol Bidder Less Vol Target	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	53.953	0.5983	47.540	0.4046	140.549	0.1091	70.164	0.2182	98.848	0.3463	129.133 ***	0.0001
VEGAT	0.010	0.3249	0.167 ***	0.0001	-0.031	0.8801	0.207 ***	0.0013	0.130	0.5327	0.023	0.7437
VEGAB	0.009	0.8571	0.020	0.1224	0.073	0.3343	0.001	0.9250	-0.027	0.8646	0.092 **	0.0131
EDELTAT	0.014	0.2889	0.000	0.9818	0.032	0.6210	0.004	0.6181	0.032	0.5413	-0.007	0.6043
EDELTAB	0.001	0.8801	0.001	0.5583	0.006	0.4840	0.002	0.1086	0.014	0.4894	-0.003	0.1994
ETDC1T	0.005 **	0.0487	0.007 ***	0.0004	0.001	0.9269	0.007 ***	0.0046	0.005	0.3110	-0.001	0.7368
ETDC1B	0.004 **	0.0161	-0.000	0.9714	0.003	0.3812	-0.001	0.3076	0.012 ***	0.0016	0.001	0.7536
Relative Deal Size T	45.613 **	0.0400	4.668	0.5828	-11.188	0.7698	-0.885	0.9274	62.850	0.1330	3.122	0.8553
Relative Deal Size B	20.330	0.1461	35.118 **	0.0185	51.839 *	0.0758	21.469	0.3365	64.146	0.3943	49.470 **	0.0360
Market to Book T	1.526	0.3716	-0.704	0.6275	-2.899	0.8376	0.086	0.9624	-5.242	0.3532	-0.842	0.7272
Market to Book B	0.209	0.8786	0.734	0.5973	-1.947	0.6705	1.389	0.4240	-8.693 *	0.0524	-3.599	0.1533
CAAR T	-111.852 **	0.0212	-30.350	0.2299	-23.137	0.8158	-10.792	0.6879	-233.015	0.1067	-67.306	0.2759
CAAR B	17.523	0.8640	-52.631	0.4576	253.103	0.4411	-133.907	0.1806	186.734	0.3152	10.128	0.9284
Hostile	149.643 ***	0.0030	86.154	0.0032	0	.	124.193 ***	0.0008	0	.	26.139	0.7557
Tender Dummy	-43.183 *	0.0603	-41.815	0.0007	-75.527 **	0.0411	-51.578 ***	0.0003	-433.736 *	0.0822	48.351	0.6373
Industry Dummy	Yes		Yes									
Year Dummy	Yes		Yes									
N	110		244		27		159		38		85	
Adj. R²	0.2678		0.3531		0.0452		0.4472		0.3275		0.1421	

Table 2.3.8 – B-Sample: Bidder Sample and T-sample: Target Sample - High VEGA versus Low VEGA Regression Results

Table 2.3.8 presents the results of the OLS regression on our B-Sample which is the sample with bidder CEO compensation information separate from the T-sample which is the sample with target CEO. We test the following:

$$Days\ to\ Effective_i = a + a_1 * Vega_i + a_2 * EDelta_i + a_3 * ETDC1_i + a_4 * tenderdummy_i + a_5 * Relativedealsize_i + a_6 * Markettobook_i + a_7 * CAAR_i + a_8 * Vol_i + e_i$$

The dependent variable is days to effective calculated as the number of days between the announcement of a deal and the date the deal becomes effective as stated by the SDC. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA and DELTA. VEGA is reported in $1,000. EDELTA is the orthogonalized error term of the regression of DELTA on VEGA, similarly, ETDC1 is that of the total compensation on DELTA and VEGA. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. CAAR is the cumulative abnormal return estimated using the market model over the five-day window (-2,2). Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC, and tenderdummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama French five industry model as denoted by the SIC codes on CRSP. Year dummy is a dummy for the year the offer is announced. We have mixed, cash and stock deals in these samples.

	B-Sample						T-Sample					
	All Deals		Q1 VEGA alone		Q4 VEGA alone		All Deals		Q1 VEGA alone		Q4 VEGA alone	
Mean:												
VEGA	228.302		8.916		116.509		99.051		9.470		304.822	
Days-to-effective	112.689		114.100		437.656		134.002		114.903		171.964	
Volatility	0.0250		0.030		0.0224		0.029		0.0349		0.0245	

	B-Sample						T-Sample					
Dependent Variable Days to Effective	All Deals		Q1 VEGA alone		Q4 VEGA alone		All Deals		Q1 VEGA alone		Q4 VEGA alone	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	115.804 ***	<.0001	124.759 ***	<.0001	114.240 ***	<.0001	135.153 ***	<.0001	121.921 ***	<.0001	158.397 ***	0.0001
VEGA	0.005	0.2887	-0.298	0.6111	-0.002	0.7332	0.118 ***	<.0001	-0.306	0.6435	0.080 *	0.0675
EDELTA	0.001	0.1743	0.003	0.1642	0.000	0.4116	0.010 **	0.0126	0.013 **	0.0404	-0.004	0.6996
ETDC1	0.000	0.5788	0.000	0.4059	-0.000	0.6599	0.004 ***	<.0001	0.009 ***	0.0015	0.004 ***	0.0054
Relative Deal Size	36.260 ***	<.0001	29.971 ***	<.0001	76.147 ***	<.0001	14.177 **	0.0103	13.260 **	0.0277	18.590	0.4789
Market to Book	0.071	0.5303	0.053	0.5792	0.458	0.2217	0.074	0.3613	-0.059	0.9496	0.333	0.8024
CAAR	-21.212	0.3579	3.900	0.9154	-48.510	0.2883	-23.65	0.1348	-12.578	0.5082	-78.192	0.1993
Vol	-141.847	0.3680	-345.761	0.1994	-19.766	0.9512	-705.613 ***	0.0028	-10.843	0.9697	-853.392	0.3187
Tender Dummy	-47.063 ***	<.0001	-55.366 ***	<.0001	-48.480 ***	<.0001	-45.998 ***	<.0001	-61.689 ***	<.0001	-38.745	0.1628
N	1631		201		760		629		155		137	
Adj. R²	0.1279		0.1967		0.1673		0.1580		0.2408		0.0885	

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Table 3.1.A – Number of Deals per Year and Distribution by Industry	
This table provides the number of deals per year from our 1280 bids from 1993 to 2018, then the distribution over the five Fama-French industries. The sample construction is based on availability of the firms' data and their CEOs from five different sources: CRSP, COMPUSTAT, EXECUCOMP, SDC, and ESG STATS.	
Year	Number of Observations
1993	12
1994	27
1995	39
1996	56
1997	56
1998	79
1999	100
2000	67
2001	54
2002	38
2003	43
2004	53
2005	67
2006	66
2007	65
2008	66
2009	50
2010	63
2011	33
2012	43
2013	40
2014	44
2015	53
2016	41
2017	22
2018	13
Industry	Number of Observations
1- Cnsmr : Consumer Durables, NonDurables, Wholesale, Retail, and Some Services (Laundries, Repair Shops)	224
2- Manuf : Manufacturing, Energy, and Utilities	250
3- HiTec : Business Equipment, Telephone and Television Transmission	474
4- Hlth : Healthcare, Medical Equipment, and Drugs	217
5- Other : Other – Mines, Constr, BldMt, Trans, Hotels, Business Services, and Entertainment	115

Table 3.1.B – Summary statistics

Panel A displays a summary of the descriptive statistics for our sample of bidders. Our sampling procedure yields 1,280 deals from SDC over 1993-2018. The deals have public targets and public bidders, both from the US. Compensation variables are gathered from Execucomp, while other financial variables are from Compustat and CRSP. DELTA and VEGA are presented in $1,000 and have been winsorized at the 1st and 99th percentile. Volatility is calculated as the standard deviation of daily CRSP returns over one year before the run-up period. Market to book is abs (prc_40days-before) / bkvlps, we winsorize market to book at the 1st and 99th percentile sorted by industry and year; we also remove observation where COMPUSTAT reports missing book value or negative figures. Firm size is the natural logarithm of the market capitalization 40 days before the announcement log(mktcap_40days_before) = log [abs(prc)*abs(shrout)*1000]. Relative deal size is measured as value_of_transaction_dollar / mrktcap_40days_before for bidder deal and accounts for premium. Leverage is measured as debt to shareholders' equity, tenure is the amount of time the CEO held his title since before the deal announcement date, and premium is the price per share before the deal divided by the target price 42 days before the deal.

Panel B reports the correlation matrix of the main time-series-regression independent variables.

A. Descriptive statistics of main variables

	Full Sample			
	Mean	Median	Max	Min
CSR Rating	0.0103	0	0.373	-0.175
CSR Rating Lag	0.0090	0	0.377	-0.183
CSR Strength Rating	0.0502	0.0278	0.4063	0
CSR Concern Rating	0.0399	0.0299	0.2687	0
Bidder VEGA ($1,000)	292.25	150.45	3,157.77	0.003
Bidder DELTA ($1,000)	1,694.76	532.210	78,222.42	2.598
Bidder VEGA/Total Compensation	0.0540	0.0240	20.023	0.0000003
Bidder DELTA/Total Compensation	0.6101	0.0788	453.557	0.0008
Bidder Firm Size	22.884	22.804	27.098	18.382
Bidder Market to Book	4.526	3.201	452.560	-128.086
Bidder Volatility	0.0225	0.0203	0.0797	0.00689
Bidder Relative Deal Size	0.2961	0.0100	7.068	0.0001
Bidder CAR(-2,+2)	-0.0074	-0.0057	0.2535	-0.3086
Bidder Runup CAR (-42,-2)	-0.0019	0.000001	0.6499	-0.6472
Bidder Markup CAR (-1,+1)	-0.0067	-0.0031	0.3749	-0.3042
Tenure	7.83	6	48	0
Leverage	0.387	0.612	19.750	-269.489
Premium	1.4527	1.3842	5.3737	-3.1086
Number of Observations				
Cash_only	687	(54%)		
Stock_only	216	(17%)		
Mixed	377	(30%)		
Hostile	43	(3%)		
Tender Offer	352	(28%)		
Completed	1,136	(89%)		
Form of the Deal is Merger	1,260	(98%)		
Horizontal (non-Diversifying)	467	(36%)		
High Leverage	340	(51%)		
Total	1,280			

(cont'd)

B. Correlation matrix – This panel presents the correlations between our main independent variables.												
	CSR_Rating	CSR_concern	CSR_strength	DELTA	VEGA	Total Comp.	Bidder Volatility	Relative Deal Size	Size	Market to Book	Premium	Leverage	Tenure
CSR_Rating	1												
CSR_concern	**-0.302**	1											
CSR_strength	**0.823**	**0.293**	1										
DELTA	0.019	-0.009	0.014	1									
VEGA	0.187	0.209	**0.312**	**0.479**	1								
Total Compensation	0.145	0.083	0.196	0.176	**0.303**	1							
Bidder Volatility	-0.126	-0.155	-0.219	0.095	-0.116	0.035	1						
Relative Deal Size	-0.097	-0.105	-0.16	-0.091	-0.146	-0.072	0.073	1					
Size	**0.294**	**0.419**	**0.545**	**0.252**	**0.477**	**0.296**	-0.265	**-0.318**	1				
Market to Book	0.078	-0.009	0.073	0.056	0.034	0.034	0.002	0.075	0.119	1			
Premium	0.066	0.039	0.091	0.033	0.043	0.048	0.105	-0.077	0.083	0.008	1		
Leverage	-0.098	0.024	-0.08	0.027	0.014	0.012	0.031	-0.026	0.031	0.034	0.003	1	-0.037
Tenure	-0.012	-0.035	-0.034	**0.3**	0.235	0.161	-0.051	-0.042	0.066	-0.015	-0.081	0.032	1

Table 3.1.C – Subsamples divided by CSR and VEGA Dummies

Numbers of observations in subsamples of Low VEGA with Low CSR, Low VEGA with High CSR, High VEGA with Low CSR, and High VEGA with High CSR.

We divided our sample of 1280 M&A deals (spanning over 1993-2018) into four subsamples. We sort all firms on COMPUSTAT and match these to the EXECUCOMP database to add the estimated VEGA per firm CEO for a given date and took the lowest quartile and highest quartile sort by industry and year to assign the dummy High or Low VEGA. Similarly, we sort all ESG STATS firms based on net CSR score and then assign dummy High and Low CSR as above or below median CSR by industry and year.

Number of Observations		
	Low VEGA	High VEGA
Low CSR	166	319
High CSR	44	383

Table 3.1.D – Descriptive Statistics High CSR versus Low CSR samples

This table displays a summary of the descriptive statistics High CSR sample versus Low CSR sample. Our sampling procedure defines above (below) median CSR rating firms as High CSR (Low CSR) firms based on a sort by industry and the year of rating over the full ESG STATS observations from 1992-2018. We linked the CSR ratings to SDC to gather the M&A-related data. The deals in our sample have public targets and public bidders both from the US. Compensation variables are gathered from Execucomp, while other financial variables are from Compustat and CRSP. DELTA and VEGA are presented in $1,000 and have been winsorized at the 1st and 99th percentile. Volatility is calculated as the standard deviation of daily CRSP returns over one year before the run-up period. Market to book is abs (prc_40days-before) / bkvlps, we winsorize market to book at the 1st and 99th percentile sorted by industry and year. We also remove observation where COMPUSTAT reports missing book value or negative figures. Firm size is the natural logarithm of the market capitalization 40 days before the announcement log(mktcap_40days_before) = log [abs(prc)*abs(shrout)*1000]. Relative deal size is measured as value_of_transaction_dollar / mrktcap_40days_before for bidder deal. Leverage is measured as debt to shareholders' equity, tenure is the amount of time the CEO held his title since before the deal announcement date, and premium is the price per share before the deal divided by the target price 42 days before the deal. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

A. Descriptive statistics of main variables

	High CSR (n=620)		Low CSR (n=660)		Test of Mean Difference (t-value)
	Mean	Median	Mean	Median	
CSR Rating	0.0537	0.0341	-0.030	-0.0193	0.084*** (29.09)
Bidder VEGA ($1,000)	374.656	205.982	214.835	118.730	159.8*** (6.9)
Bidder DELTA ($1,000)	1,802.690	645.839	1,593.362	449.266	209.3 (0.71)
Bidder Firm Size	23.3183	23.436	22.477	22.374	0.842*** (9.3)
Bidder Market to Book	5.338	3.527	3.763	2.945	1.576* (1.91)
Bidder Volatility	0.0216	0.0198	0.0232	0.021	-0.002*** (-2.79)
Bidder Relative Deal Size	0.232	0.068	0.3556	0.136	-0.123*** (-4.48)
Bidder Markup CAR (-1,+1)	-0.006	-0.003	-0.007	-0.003	0.0011 (0.31)
Leverage	0.061	0.612	0.697	0.618	-0.636 (-0.68)
Tenure	7.462	6	8.199	6	-0.736* (-1.82)
Premium	1.479	1.407	1.428	1.373	0.051* (1.7)

Table 3.1.E – Descriptive Statistics 1993-2007 versus 2008-2018 Sub-samples

This table displays a summary of descriptive statistics for 1993-2007 and 2008-2018 subsamples.
We divided our sample of deals from 1993-2018 into two subsamples based on the year of deal announcement: 1993-2007 and 2008-2018. Our samples have CSR ratings linked to M&A-related data. The deals in our samples have public targets and public bidders, both from the US. Compensation variables are gathered from Execucomp, while other financial variables are from Compustat and CRSP. DELTA and VEGA are presented in $1,000 and have been winsorized at the 1st and 99th percentile. Volatility is calculated as the standard deviation of daily CRSP returns over one year before the run-up period. Market to book is abs (prc_40days-before) / bkvlps, we winsorize market to book at the 1st and 99th percentile sorted by industry and year; we also remove observation where COMPUSTAT reports missing book value or negative figures. Firm size is the natural logarithm of the market capitalization 40 days before the announcement log(mktcap_40days_before) = log [abs(prc)*abs(shrout)*1000]. Relative deal size is measured as value_of_transaction_dollar / mrktcap_40days_before for bidder deal. Leverage is measured as debt to shareholders' equity, tenure is the amount of time the CEO held his title since before the deal announcement date, and premium is the price per share before the deal divided by the target price 42 days before the deal. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

A. Descriptive statistics of main variables

	1993-2007 Sub-sample (n=866)		2008-2018 Sub-sample (n=456)		*T*est of Mean Difference (t-value)
	Mean	*Median*	Mean	*Median*	
CSR Rating	-0.00153	*-0.00271*	0.03160	*0.9000*	*0.0842**** *(29.09)*
Bidder VEGA ($1,000)	303.830	*149.136*	271.463	*153.141*	*32.3678* *(1.32)*
Bidder DELTA ($1,000)	2,124.024	*565.129*	924.320	*440.741*	*1,199.7**** *(3.93)*
Bidder Firm Size	22.980	*22.894*	22.714	*22.690*	*0.266**** *(2.74)*
Bidder Market to Book	4.486	*3.462*	4.599	*2.675*	*-0.1127* *(-0.13)*
Bidder Volatility	0.0228	*0.0207*	0.0220	*0.0194*	*0.0007* *(1.25)*
Bidder Relative Deal Size	0.2613	*0.0842*	0.3585	*0.1377*	*-0.0972**** *(-3.38)*
Bidder Markup CAR (-1,+1)	-0.0123	*-0.0055*	0.0031	*-0.0003*	*-0.0153**** *(-4.12)*
Leverage	0.6882	*0.6089*	-0.2045	*0.6572*	*0.8926* *(0.9)*
Tenure	7.8425	*6*	7.8318	*6*	*0.0107* *(0.03)*
Premium	1.4474	*1.3812*	1.4644	*1.3997*	*-0.0171* *(-0.53)*

Table 3.1.F – Variable Definitions	
This table details the construction and definitions of main variables appearing in our tests.	
Variable	**Definition**
CSR Rating	Net score of CSR standing (total strengths minus total concerns) scaled by number of dimensions rated for each firm calculated at the most recent year from the deal announcement date.
CSR Concerns Rating	The sum of all CSR concerns scores per firm as rated on ESG-STATS database (KLD).
CSR Strength Rating	The sum of all CSR strengths scores per firm as rated on ESG-STATS database (KLD).
CSR Rating Lag	One year lagged net score of CSR standing.
Bidder VEGA	Dollar change in the value of CEO's annual equity-based compensation associated with a 1% change in the annualized standard deviation of the stock returns. VEGA is presented in $1,000 and have been winsorized at the 1st and 99th percentile.
Bidder DELTA	Dollar change in the value of CEO's annual equity-based compensation for a 0.01 change in the stock price. DELTA is presented in $1,000 and have been winsorized at the 1st and 99th percentile.
Total Compensation	Salary + Bonus + Other Annual + Restricted Stock Grants + LTIP Payouts + All Other + Value of Option Grants. Total compensation is presented in $1,000 and have been winsorized at the 1st and 99th percentile.
Bidder Firm Size	The natural logarithm of the market capitalization 40 days before the announcement = log [abs(price)*abs(shares outstanding)*1000].
Bidder Market to Book	Abs (price 40 days before announcement) / book value per share, we winsorize market to book at the 1st and 99th percentile sorted by industry and year.
Bidder Volatility	The standard deviation of daily CRSP returns over one year before the run-up period.
Bidder Relative Deal Size	Figure calculated as dollar value of transaction divided by market capitalization of bidder 40 days before the deal.
Bidder CAR(-2,+2)	Cumulative abnormal return of the bidder over the 5 day window (from 2 days before the deal announcement to 2 days after) calculated using the market model.
Bidder Runup CAR (-42,-2)	Cumulative abnormal return of the bidder from -42 days before the deal announcement to -2 days after calculated using the market model.
Bidder Markup CAR (-1,+1)	Cumulative abnormal return of the bidder from 1 days before the deal announcement to 1 days after calculated using the market model.
Tenure	The number of years between year of deal announcement and the year CEO became CEO.
Leverage	(Total Debt in Current Liabilities + Total Long-Term Debt) / Total Stockholders Equity.
Tender	Dummy = 1 if the deal is a tender offer, zero if otherwise.
Stock_only	Dummy = 1 if the method of payment is stock only, zero if otherwise.
Cash_only	Dummy = 1 if the method of payment is cash only, zero if otherwise.
Mixed	Dummy = 1 if the method of payment is a combination of cash and stock, zero if otherwise.
Hostile	Dummy = 1 if the bid is hostile, zero if otherwise.
Low_CSR	Dummy = 1 if a firm's CSR rating is below the median industry-year sorted CSR rating of all CSR rated firms, zero if otherwise.
High_CSR	Dummy = 1 if a firm's CSR rating is above the median industry-year sorted net CSR rating of all CSR rated firms on ESG STATs, zero if otherwise.
Low_VEGA	Dummy = 1 if a firm's estimated VEGA is in the low 75% quantile as compared to all firms with available Execucomp data, zero if otherwise.
High_VEGA	Dummy = 1 if a firm's estimated VEGA is in the top 75% quantile as compared to all firms with available Execucomp data, zero if otherwise.
Premium	Offer Price as Initial Price Per Share divided by Target Price 42 days before announcement.
Horizontal Dummy	Dummy = 1 if the bidder and the target share the same 4 digit SIC code, zero if otherwise.
High_Leverage Dummy	Dummy = 1 if a firm's leverage is above the median industry-year sorted leverage of all firms on Compustat, zero if otherwise.
Completed	Dummy = 1 if the deal is completed successfully, zero if otherwise.
Relative Size	Target Firm Size divided by Bidder Firm size. Both calculated as the natural logarithm of the market capitalization 40 days before the announcement = log [abs(price)*abs(shares outstanding)*1000].
Relative Vol	Target Volatility divided by Bidder Volatility. Both calculated as the standard deviation of daily CRSP returns over one year before the run-up period.
Industry Dummy	Dummy = 1 for each industry for Fama-French five industry groups given by: 1- Cnsmr Consumer Durables, NonDurables, Wholesale, Retail, and Some Services (Laundries, Repair Shops) ; 2- Manuf Manufacturing, Energy, and Utilities ; 3- HiTec Business Equipment, Telephone and Television Transmission ; 4- Hlth Healthcare, Medical Equipment, and Drugs ; 5- Other Other -- Mines, Constr, BldMt, Trans, Hotels, Bus Serv, Entertainment, Finance, zero otherwise.
Year Dummy	Dummy = 1 for the year of the announcement over 1993-2018.

Table 3.2- Bidder Cumulative Abnormal Returns Event Study – Univariate Tests

Table 2 presents the results of our event studies.

We performed an event study methodology to test the cumulative abnormal announcement returns CAR of our sample of M&A deals. The CAR is estimated over four windows surrounding the announcement of an M&A deal (where 0 is the announcement day). CAR estimation is carried out with daily returns estimation window using the market model over 200 trading days till 11 days before the announcement. We present univariate results over the full sample as well as subsamples divided by High / Low CSR. Moreover, we divided our sample into two time frames 1993-2007 and 2008-2018 and displayed the results again. CSR rating is the net corporate and social responsibility rating as gathered from ESG STATS (KLD formerly) calculated as the sum(strengths) – sum(concerns) and adjusted by the number of relative available ratings per firm-year. We sort all ESG STATS firms based on net CSR score and then assign dummy High and Low CSR as above or below median CSR by industry and year. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

Bidder CAR% (p-value)

	Full Sample 1993-2018 (n=1,272)		High CSR subsample (n=616)		Low CSR subsample (n=656)	
	Mean	*Median*	Mean	*Median*	Mean	*Median*
CAR(-1,1)	-0.68 ** (0.0397)	*-0.38%*	-0.63 * (0.0739)	*-0.39*	-0.73 (0.4675)	*-0.37*
CAR(-2,2)	-0.75 *** (0.0040)	*-0.47%*	-0.71 ** (0.0121)	*-0.50*	-0.82 (0.1540)	*-0.44*
CAR(-5,5)	-0.81 * (0.0783)	*-0.55%*	-0.91 * (0.0384)	*-0.68*	-0.86 (0.2399)	*-0.49*
CAR(0,1250)	-25.24 *** (<.0001)	*-21.63%*	-19.49 *** (<.0001)	*-14.23*	-30.35 (0.1733)	*-18.9*
	Subsample 1993-2007 (n=817)		High CSR subsample (364)		Low CSR subsample (n=453)	
	Mean	*Median*	Mean	*Median*	Mean	*Median*
CAR(-1,1)	-1.23 * (0.0650)	*-0.97*	-1.09 0.1654	*-0.79*	-1.34 (0.1227)	*-1.13*
CAR(-2,2)	-1.16 ** (0.0225)	*-0.95*	-1.00 0.2553	*-0.72*	-1.28 ** (0.0178)	*-1.15*
CAR(-5,5)	-1.34 ** (0.0134)	*-1.18*	-1.16 0.1406	*-0.90*	-1.49 ** (0.0223)	*-1.41*
CAR(0,1250)	-30.43 *** (0.0009)	*-19.43*	-26.51 *** 0.0021	*-16.2*	-33.57 * (0.0514)	*-21.97*
	Subsample 2008-2018 (n=455)		High CSR subsample (252)		Low CSR subsample (n=203)	
	Mean	*Median*	Mean	*Median*	Mean	*Median*
CAR(-1,1)	0.34 (0.3279)	*0.56*	0.11 (0.2043)	*0.15*	0.63 * (0.0561)	*1.15*
CAR(-2,2)	0.02 (0.4165)	*0.33*	-0.15 * (0.0726)	*-0.10*	0.23 * (0.0955)	*0.95*
CAR(-5,5)	-0.01 (0.3279)	*0.34*	-0.46 (0.1704)	*-0.36*	0.54 ** (0.0419)	*1.34*
CAR(0,1250)	-17.91 (0.2789)	*-13.65*	-13.68 (0.0726)	*-14.08*	-23.16 (0.2279)	*-13.05*

Table 3.3- Regressions of Bidder Cumulative Abnormal returns (CAR) with CSR and VEGA

Table 3.3 presents the results of the OLS regression on our full Sample of 1,280 bids. We test variants of the following equation:

$$CAR_{(-1,1)i} = a + a_1 * CSRrating_i + a_2 * Vega_i + a_3 * Delta_i + a_4 * BidderVol_i + a_5 * RelativeDealSize_i + a_6 * Size_i + a_7 * MarketToBook_i + a_8 * Premium_i + a_9 * Leverage_i + a_{10} * Tenure_i + a_{11} * Cash_{Only_i} + a_{12} * Stock_{only_i} + a_{13} * Hostile_i + a_{14} * TenderDummy_i + a_{14} * Horizontal_i + a_{14} * HighLeverage_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is CAR(-1,1) and is the cumulative abnormal announcement returns estimated over the three days window surrounding the announcement of an M&A deal (where 0 is the announcement date). CAR estimation is carried out over the daily returns estimation window using the market model over 200 trading days till 11 days before the announcement. CSR rating is the net corporate and social responsibility rating as gathered from ESG STATS (KLD formerly) calculated as the sum(strengths) − sum(concerns) and adjusted by the number of relative available ratings per firm-year. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA (sensitivity of CEO wealth to stock return volatility) and DELTA (sensitivity of CEO wealth to stock price). VEGA and DELTA are reported in \$1,000. Cash only and stock only refer to the method of payment for the offer. Relative deal size is calculated as the SDC value of the transaction dollar divided by market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC and TenderDummy shows if the offer was a tender offer. Premium is calculated as the price per share at the offer divided by the target price 42 days before the announcement. The non-diversifying deal is represented by a Horizontal dummy, which equals one if the target and bidder fall under the same industry SIC code. EDELTA is the orthogonalized residual of the regression of DELTA on VEGA. Leverage is the debt divided by shares outstanding, while HighLeverage is a dummy for leverage above median COMPUSTAT leverage over the relevant year and industry. Industry dummy is the dummy over the Fama-French five industry model as denoted by the SIC codes on CRSP. The year dummy is a dummy for the year the offer is announced over 1993-2018. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

Dependant variable CAR(-1,1)
(t-value)

	CSR Rating	VEGA and DELTA	Bidder Volatility	Relative Deal Size	Size	Market to Book	Cash only and Stock only	Tender Dummy / Horizontal / Hostile	Premium	Leverage	EDELTA	High Leverage	Industry	Year
Intercept	-0.0068*** (-3.81)	-0.0063*** (-2.92)	0.0103** (2.15)	0.0124** (2.53)	0.1264*** (4.04)	0.1316*** (4.18)	0.1058*** (3.38)	0.1021*** (3.19)	0.1019*** (2.92)	0.1345*** (2.67)	0.1346*** (2.68)	0.1317*** (2.61)	0.1033*** (3.18)	0.0908** (2.33)
CSR Rating	0.0146 (0.55)	0.01429 (0.52)	0.0042 (0.15)	0.0004 (0.01)	0.0225 (0.81)	0.0205 (0.4640)	0.0122 (0.44)	0.0109 (0.39)	0.0005 (0.02)	-0.0292 (-0.67)	-0.0292 (-0.67)	-0.0349 (-0.8)	0.0169 (0.59)	-0.0434 (-1.42)
VEGA		8.89E-7 (0.18)	-0.0001 (-0.46)	-0.0001 (-0.64)	0.0001 (0.68)	0.0001 (0.74)	0.0000 (0.34)	0.0001 (0.24)	0.0001 (0.25)	0.000 (1.09)	0.000 (-0.47)	0.000 (1.09)	0.000 (0.3)	0.000 (1.11)
DELTA		-0.0000 (-1.19)	-0.0000 (-0.54)	-0.0000 (-0.61)	-0.0000 (-0.30)	-0.0000 (-0.36)	-0.0000 (-0.4)	-0.0000 (-0.41)	-0.0000 (-0.67)	-0.0000*** (-2.65)		-0.0000*** (-2.63)	0.000 (-0.28)	0.000 (-0.37)
Bidder Volatility			-0.7125*** (-3.91)	-0.6920*** (-3.79)	-0.8487*** (-4.55)	-0.8566*** (-4.59)	-0.6997*** (-3.71)	-0.7068*** (-3.72)	-0.7818*** (-3.74)	-0.6900** (-2.29)	-0.69** (-2.29)	-0.6785** (-2.25)	-0.6404*** (-3.26)	-0.3121 (-1.22)
Relative Deal Size				-0.0074** (-2.03)	-0.0112*** (-2.96)	-0.0118*** (-3.11)	-0.0065** (-1.65)	-0.0065 (-1.63)	-0.0082** (-2.00)	-0.0075 (-1.37)	0.0075 (-1.37)	0.0075 (-1.36)	0.0066* (-1.67)	-0.0091** (-2.3)
Size					-0.0049*** (-3.69)	-0.0051*** (-3.84)	-0.0046*** (-3.48)	-0.0045*** (-3.34)	-0.0046*** (-3.12)	-0.0061*** (-2.86)	0.0061*** (-2.86)	0.0060*** (-2.81)	0.0044*** (-3.21)	-0.0035** (-2.37)
Market to Book						0.0002 (1.36)	0.0002 (1.46)	0.0002 (1.45)	0.0002 (1.54)	0.0001 (0.31)	0.0001 (0.31)	0.0001 (0.34)	0.0002 (1.51)	0.0001 (0.86)
Cash only							0.0189*** (4.46)	0.0198*** (4.47)	0.0174*** (3.61)	0.014** (2.05)	0.014** (2.05)	0.0143** (2.09)	0.02*** (4.48)	0.0195*** (4.3)
Stock only							-0.0005 (-0.08)	-0.0008 (-0.15)	-0.0025 (-0.43)	-0.0106 (-1.28)	-0.0106 (-1.28)	-0.0102 (-1.24)	-0.0008 (-0.15)	-0.0015 (-0.27)
Tender Dummy								-0.0022 (-0.51)	-0.0027 (-0.59)	-0.0018 (-0.26)	-0.0018 (-0.26)	0.0019 (-0.28)	-0.0024 (-0.54)	-0.0015 (-0.35)
Horizontal								0.0029 (0.78)	0.0022 (0.55)	0.0062 (1.1)	0.0062 (1.1)	0.0059 (1.04)	0.0028 (0.74)	0.0006 (0.17)
Hostile								-0.0083 (-0.83)	-0.0083 (-0.81)	-0.0178 (-1.18)	-0.0178 (-1.18)	-0.0177 (-1.17)	-0.0091 (-0.91)	-0.0077 (-0.77)
Premium									0.0042 (1.10)	0.0054 (0.94)	0.0054 (0.94)	0.0054 (0.93)		
Leverage										0.0002 (1.15)	0.0002 (1.15)			
EDELTA											0.000*** (-2.65)			
High Leverage												0.0006 (0.1)		
Industry Dummy													Yes	
Year Dummy														Yes
N	1,280	1,280	1,280	1,280	1,280	1,280	1,280	1,280	1,093	571	571	571	1,280	1,280
Adj. R²	0.0002	-0.0008	0.0102	0.0126	0.0223	0.0230	0.0411	0.0402	0.0395	0.0522	0.0522	0.0500	0.0398	0.0891

Table 3.4- Regressions of Subsamples based on Announcement Year and High or Low CSR

Table 3.4 presents the results of the OLS regression on our full sample of 1,280 bids, then divides the sample into subsample by announcement year (before 2007 or after) and high or low CSR. We tested variants of the following equation:

$$CAR_{(-1,1)i} = a + a_1 * CSrating_i + a_2 * Vega_i + a_3 * Delta_i + a_4 * BidderVol_i + a_5 * RelativeDealSize_i + a_6 * Size_i + a_7 * MarketToBook_i + a_8 * Premium_i + a_9 * Leverage_i + a_{10} * Tenure_i + a_{11} * Cash_{Only_i} + a_{12} * Stock_{only_i} + a_{13} * Hostile_i + a_{14} * TenderDummy_i + a_{14} * Horizontal_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is CAR(-1,1) and is the cumulative abnormal announcement returns estimated over the three days window surrounding the announcement of an M&A deal (where 0 is the announcement date). CAR estimation is carried over the daily returns estimation window using the market model over 200 trading days till 11 days before the announcement. CSR rating is the net corporate and social responsibility rating as gathered from ESG STATS (KLD formerly) and calculated as the sum(strengths) − sum(concerns) and adjusted by the number of relative available ratings per firm-year. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA (sensitivity of CEO wealth to stock return volatility) and DELTA (sensitivity of CEO wealth to stock price). VEGA and DELTA are reported in $1,000. Cash only and stock only refer to the method of payment for the offer. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC and TenderDummy shows if the offer was a tender offer. The non-diversifying deal is represented by a Horizontal dummy, which equals one if the target and bidder fall under the same industry SIC code. Industry dummy is the dummy over the Fama-French five industry model as denoted by the SIC codes on CRSP. The year dummy is a dummy for the year the offer is announced over 1993-2018. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

Dependant variable CAR(-1,1)
 (t-value)

	1993-2018			1993-2007			2008-2018		
	All Sample	HighCSR	LowCSR	All Sample	High CSR	Low CSR	All Sample	High CSR	Low CSR
Intercept	0.0871**	0.1324	0.0609	0.0735	0.1147	0.0594	0.1471 *	0.1616	0.0594
	(2.13)	** (2.26)	(1)	(1.58)	(1.62)	(0.88)	(1.91)	(1.65)	(0.88)
CSR Rating	-0.0407	0.0154	-0.0753	0.0409	0.1651 *	-0.0359	-0.0518	0.0255	-0.0359
	(-1.33)	(0.32)	(-0.77)	(0.9)	(1.7)	(-0.36)	(-1.15)	(0.43)	(-0.36)
VEGA	0.000	0.0001	0.0001	0.0001 *	0.0001	0.0001*	0.0001	0.0001	0.0001 *
	(0.89)	(-0.01)	(1.05)	(1.68)	(0.43)	(1.87)	(-1.55)	(-1.23)	(1.87)
DELTA	0.000	0.000	0.000	0.000	0.000	0 .000	0.000	0.000	0.000
	(-0.3)	(0.22)	(-0.78)	(-0.94)	(-0.17)	(-1.27)	(1.16)	(0.63)	(-1.27)
Market to Book	0.0001	0.0001	0.0006	0.0001	-0.0001	0.0004	0.0001	0.0001	0.0004
	(0.91)	(1.11)	(1.35)	(0.38)	(-0.24)	(0.73)	(0.33)	(0.8)	(0.73)
Size	-0.0033**	-0.0034 *	-0.0038	-0.0028	-0.0032	-0.0037	-0.0049 *	-0.0066 *	-0.0037
	(-2.22)	(-1.67)	(-1.57)	(-1.55)	(-1.2)	(-1.33)	(-1.72)	(-1.79)	(-1.33)
Bidder Volatility	-0.2723	-0.3607	0.1276	-0.0204	-0.2418	0.3983	-1.3146 ***	-1.3484 *	0.3983
	(-1.05)	(-1)	(0.34)	(-0.07)	(-0.54)	(0.91)	(-2.59)	(-1.94)	(0.91)
Relative Deal Size	-0.01**	-0.0141 **	-0.0075	-0.0247 ***	-0.0255 ***	-0.0231 ***	0.0078	0.0013	-0.0231 ***
	(-2.5)	(-1.98)	(-1.49)	(-4.65)	(-2.69)	(-3.42)	(1.23)	(0.11)	(-3.42)
Tenure	0.0003	0.0003	0.0004	0.0002	0.0005	0.0002	0.0009	0.0008	0.0002
	(1.23)	(0.81)	(1.09)	(0.76)	(0.89)	(0.46)	(1.56)	(1.15)	(0.46)
Cash only	0.0198***	0.0168*** (2.6)	0.0212 ***	0.0173 ***	0.0182 **	0.0181**	0.022***	0.0201*	0.0181**
	(4.31)		(-3.14)	(3.07)	(2.15)	(2.23)	(2.79)	(1.9)	(2.23)
Stock only	-0.002	-0.0033	0.0016	-0.0072	-0.0045	-0.0097	0.0138	0.0022	-0.0097
	(-0.35)	(-0.4)	(-0.2)	(-1.17)	(-0.46)	(-1.13)	(0.98)	(0.11)	(-1.13)
Tender Dummy	-0.0009	-0.0083	0.0046	-0.0029	-0.0128	0.0034	0.0027	-0.0001	0.0034
	(-0.2)	(-1.36)	(0.66)	(-0.52)	(-1.53)	(0.43)	(0.35)	(-0.01)	(0.43)
Hostile	-0.0071	-0.0107	-0.0066	-0.0058	-0.011	-0.0048	0.0049	-0.0115	-0.0048
	(-0.71)	(-0.7)	(-0.49)	(-0.56)	(-0.66)	(-0.34)	(0.19)	(-0.31)	(-0.34)
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1,280	620	660	781	351	430	458	255	203
Adj. R^2	0.0886	0.0399	0.149	0.085	0.0321	0.1004	0.1141	0.0421	0.1694

Table 3.5- Regressions of Bidder Cumulative Abnormal returns (CAR) with Low CSR, High CSR, Low VEGA, and High VEGA dummies

Table 3.5 presents the results of the OLS regression on our full Sample of 1,280 bids and over subsamples divided by announcement date over 1993-2007 and 2008-2018 using dummy variables for CSR and VEGA as Low or High. We test variants of the following equation:

$$CAR_{(-1,1)i} = a + a_1 * CSR_i + a_2 * Vega_i + a_3 * LowCSR_i * LowVega_i + a_4 * HighCSR_i * LowVega_i + a_5 * HighCSR_i * HighVega_i + a_6 * Delta_i + a_7 * BidderVol_i + a_8 * RelativeDealSize_i + a_9 * Size_i + a_{10} * MarketToBook_i + a_{11} * Premium_i + a_{12} * Leverage_i + a_{13} * Tenure_i + a_{14} * CashOnly_i + a_{15} * StockOnly_i + a_{16} * Hostile_i + a_{17} * TenderDummy_i + a_{18} * Horizontal_i + a_{19} * HighLeverage_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is CAR(-1,1) and is the cumulative abnormal announcement returns estimated over the three days window surrounding the announcement of an M&A deal (where 0 is the announcement date). CAR estimation is carried out over the daily returns estimation window using the market model over 200 trading days till 11 days before the announcement. CSR rating is the net corporate and social responsibility rating as gathered from ESG STATS (KLD formerly) calculated as the sum(strengths) – sum(concerns) and adjusted by the number of relative available ratings per firm-year. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA (sensitivity of CEO wealth to stock return volatility) and DELTA (sensitivity of CEO wealth to stock price). VEGA and DELTA are reported in $1,000. Cash only and stock only refer to the method of payment for the offer. Relative deal size is calculated as the SDC value of the transaction dollar divided by market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the run-up period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC and TenderDummy shows if the offer was a tender offer. Premium is calculated as the price per share at the offer divided by the target price 42 days before the announcement. The non-diversifying deal is represented by a Horizontal dummy, which equals one if the target and bidder fall under the same industry SIC code. EDELTA is the orthogonalized residual of the regression of DELTA on VEGA. Leverage is the debt divided by shares outstanding, while HighLeverage is a dummy for leverage above median COMPUSTAT leverage over the relevant year and industry. Industry dummy is the dummy over the Fama-French five industry model as denoted by the SIC codes on CRSP. The year dummy is a dummy for the year the offer is announced over 1993-2018. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

Dependant variable CAR(-1,1)
 (t-value)

	All deals			with High Leverage Dummy		
	1993-2018	1993-2007	2008-2018	1993-2018	1993-2007	2008-2018
Intercept	0.0984**	0.0828*	0.1632**	0.1411**	0.1339**	0.1488
	(2.33)	(1.72)	(2.08)	(2.29)	(2.06)	(1.29)
CSR	-0.0583	0.0698	-0.0763	-0.0959*	0.0482	-0.1171
	(-1.59)	(1.18)	(-1.47)	(-1.74)	(0.63)	(-1.33)
VEGA	0.0000	0.0000	0.0000 **	0.0000	0.0000***	-0.0001**
	(0.59)	(1.55)	(-2.08)	(1.19)	(2.66)	(-2.37)
LowCSR× LowVEGA	0.0012	0.0087	-0.0057	0.0111	0.0287*	-0.0075
	(0.14)	(0.74)	(-0.45)	(0.88)	(1.82)	(-0.36)
LowCSR× HighVEGA	0.0037	0.0105*	0.0032	0.0055	0.0164**	-0.0053
	(0.7)	(1.8)	(0.27)	(0.69)	(1.99)	(-0.26)
HighCSR× HighVEGA	0.0079	0.0039	0.0154	0.0122	0.0113	0.0163
	(1.39)	(0.59)	(1.38)	(1.48)	(1.21)	(0.98)
HighCSR× LowVEGA	0.0199*	0.0436***	-0.01	0.0135	0.0258	-0.0278
	(1.88)	(2.93)	(-0.64)	(0.85)	(1.31)	(-1.03)
DELTA	0.0000	0.0000	0.0000	0.0000	0.0000**	0.0000
	(-0.2)	(-0.91)	(1.39)	(-1.15)	(-2.45)	(1.15)
Market to Book	0.0001	0.0001	0.0001	0.0000	0.0002	-0.0001
	(1.03)	(0.45)	(0.37)	(0.09)	(0.44)	(-0.21)
Size	-0.0039**	-0.0035*	-0.0058*	-0.0067***	-0.0066***	-0.006
	(-2.5)	(-1.81)	(-1.96)	(-2.92)	(-2.59)	(-1.27)
Bidder Volatility	-0.3083	-0.1172	-1.2838**	-0.3639	-0.1422	-1.2503
	(-1.19)	(-0.39)	(-2.51)	(-0.92)	(-0.32)	(-1.52)
Relative Deal Size	-0.0096**	-0.0233***	0.0072	-0.0111**	-0.0271***	0.0037
	(-2.39)	(-4.39)	(1.14)	(-2.04)	(-3.56)	(0.44)
Tenure	0.0003	0.0002	0.0008	0.0002	0.0003	0.0003
	(1.18)	(0.66)	(1.53)	(0.46)	(0.77)	(0.37)
Cash only	0.02***	0.0188***	0.0212***	0.0244***	0.0204***	0.0273**
	(4.35)	(3.33)	(2.69)	(3.74)	(2.64)	(2.32)
Stock only	-0.0022	-0.007	0.0135	-0.0117	-0.0144*	0.0266
	(-0.39)	(-1.14)	(0.96)	(-1.4)	(-1.66)	(1.13)
Tender Dummy	-0.001	-0.0031	0.0025	-0.0046	-0.0024	-0.0021
	(-0.22)	(-0.56)	(0.33)	(-0.7)	(-0.32)	(-0.17)
Hostile	-0.0083	-0.0079	0.0088	-0.0133	-0.0167	0.0125
	(-0.83)	(-0.76)	(0.34)	(-0.85)	(-1.11)	(0.24)
High Leverage				0.1411**	-0.0065	0.0067
				(2.29)	(-1.19)	(0.67)
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes

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	1,280	822	440	628	415	213
Adj. R^2	0.0892	0.0937	0.1115	0.0969	0.1538	0.1052

Table 3.6- Regressions of Long Term Buy and Hold Bidder Return

Table 3.6 presents the results of the OLS regression of our sample with Excess_BHR. We test the following:

$$Excess\_BHR_{it} = a + a_1 * CSRrating_i + a_2 * Vega_i + a_3 * Delta_i + a_4 * BidderVol_i + a_5 * RelativeDealSize_i + a_6 * Size_i + a_7 * MarketToBook_i + a_8 * Premium_i + a_9 * Leverage_i + a_{10} * Tenure_i + a_{11} * CashOnly_i + a_{12} * StockOnly_i + a_{13} * Hostile_i + a_{14} * TenderDummy_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

Excess_BHR is the dependant variable and defined per deal as the buy-hold return of the bidder minus the buy-hold return of the portfolio of peers; where:

$$\text{Buy-and-Hold Return} = BHRit = \prod_{t=-42}^{1,250}(1 + r_{it}) - 1$$

We create for each bidder firm a portfolio of benchmark long-term performance of non-bidding firms consisting of the closest three peer's year, industry, size, and market to book. Long-term buy-and-hold return is calculated from day -42 to 5 years after (1,250 days) the deal announcement. We assume the portfolio of peers is reweighted by the surviving peers for up to 3 years.
CSR rating is the net corporate and social responsibility rating as gathered from ESG STATS (KLD formerly) and calculated as the sum(strengths) – sum(concerns) and adjusted by the number of relative available ratings per firm-year. Compensation variables are gathered from Execucomp database, mainly to estimate VEGA (sensitivity of CEO wealth to stock return volatility) and DELTA (sensitivity of CEO wealth to stock price). VEGA and DELTA are reported in $1,000. Cash only and stock only refer to the method of payment for the offer. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. Vol is the volatility of the stock estimated as the standard deviation of the daily CRSP stock return over one year before the run-up period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC and TenderDummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama-French five industry model as denoted by the SIC codes on CRSP. EDELTA is the orthogonalized residual of the regression of DELTA on VEGA. The year dummy is a dummy for the year the offer is announced over 1993-2018. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

Dependant variable Excess_BHR (t-value)

	1993-2015	eDELTA	1993-2007	eDELTA	2008-2015	eDELTA
Intercept	1.4886	1.4882	2.8695	2.8695	0.3141	0.31
	(0.86)	(0.86)	(1.22)	(1.22)	(0.12)	(0.12)
CSR Rating	-0.7191	-0.7191	0.5289	0.5289	-1.771	-1.771
	(-0.5)	(-0.5)	(0.19)	(0.19)	(-1.05)	(-1.05)
VEGA	0.0001	0.0001	0.0002	0.0002	-0.0001	0.0008*
	(0)	(0.28)	(0.4)	(0.46)	(-0.22)	(1.68)
DELTA	0.0000		0.0000		0.0002**	
	(0.59)		(0.02)		(2.55)	
Market to Book	-0.0038	-0.0038	-0.0052	-0.0052	-0.0041	-0.0041
	(-1.19)	(-1.19)	(-0.45)	(-0.45)	(-1.36)	(-1.36)
Size	-0.0757	-0.0757	-0.1427	-0.1427	-0.0295	-0.0295
	(-1.11)	(-1.11)	(-1.46)	(-1.46)	(-0.29)	(-0.29)
Bidder Volatility	-1.3116	-1.3116	-11.385	-11.385	11.737	11.737
	(-0.13)	(-0.13)	(-0.77)	(-0.77)	(0.79)	(0.79)
Relative Deal Size	-0.0449	-0.0449	-0.133	-0.133	0.1496	0.1496
	(-0.26)	(-0.26)	(-0.53)	(-0.53)	(0.63)	(0.63)
Tenure	-0.0225*	-0.0225*	-0.0308**	-0.0308**	-0.0191	-0.0191
	(-1.96)	(-1.96)	(-2.03)	(-2.03)	(-0.98)	(-0.98)
Cash only	0.1704	0.1704	0.0715	0.0715	0.0725	0.0725
	(0.86)	(0.86)	(0.24)	(0.24)	(0.27)	(0.27)
Stock only	0.1988	0.1988	0.1386	0.1386	-0.0478	-0.0478
	(0.83)	(0.83)	(0.42)	(0.42)	(-0.13)	(-0.13)
Tender Dummy	-0.0953	-0.0953	-0.1037	-0.1037	-0.0308	-0.0308
	(-0.47)	(-0.47)	(-0.34)	(-0.34)	(-0.12)	(-0.12)
Hostile	0.15	0.15	-0.1666	-0.1666	1.7071**	1.7071**
	(0.32)	(0.32)	(-0.28)	(-0.28)	(2.11)	(2.11)
eDELTA		0.0000		0.0000		0.0002**
		(0.59)		(0.02)		(2.55)
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes
N	425	425	253	253	172	172
Adj. R²	0.0108	0.0184	0.0107	0.0107	0.0199	0.0199

Table 3.7- Regressions of Long Term Buy and Hold Bidder Return with Low CSR, High CSR, Low VEGA, and High VEGA dummies

Table 3.7 presents the results of the OLS regression of our sample with Excess_BHR. We test the following:

$$Excess\_BHR_{it} = a + a_1 * CSR_i + a_2 * VEGA_i + a_3 * LowCSR_i * LowVega_i + a_4 * HighCSR_i * LowVega_i + a_5 * HighCSR_i * HighVega_i + a_6 * Delta_i + a_7 * BidderVol_i + a_8 * RelativeDealSize_i + a_9 * Size_i + a_{10} * MarketToBook_i + a_{10} * Tenure_i + a_{11} * CashOnly_i + a_{12} * StockOnly_i + a_{13} * Hostile_i + a_{14} * TenderDummy_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

Excess_BHR is the dependant variable and defined per deal as the buy-hold return of the bidder minus the buy-hold return of the portfolio of peers;

where:Buy-and-Hold Return = BHRit = $\prod_{t=-42}^{1,250}(1 + r_{it}) - 1$

We create for each bidder firm a portfolio of benchmark long-term performance of non-bidding firms consisting of the closest three peer's year, industry, size, and market to book. Long-term buy-and-hold return is calculated from day -42 to 5 years after (1,250 days) the deal announcement. We assume the portfolio of peers is reweighted by the surviving peers up to 3 years.

CSR rating is the net corporate and social responsibility rating as gathered from ESG STATS (KLD formerly) and calculated as the sum(strengths) – sum(concerns) and adjusted by the number of relative available ratings per firm-year. We sort all ESG STATS firms based on net CSR score and then assign dummy High and Low CSR as above or below median CSR by industry and year. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA (sensitivity of CEO wealth to stock return volatility) and DELTA (sensitivity of CEO wealth to stock price). We take the lowest quartile and highest quartile sort by industry and year to assign the dummy High or Low VEGA. Cash only and stock only refer to the method of payment for the offer. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. Vol is the volatility of the stock estimated as the standard deviation of the daily CRSP stock return over one year before the run-up period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC and TenderDummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama-French five industry model as denoted by the SIC codes on CRSP. EDELTA is the orthogonalized residual of the regression of DELTA on VEGA. The year dummy is a dummy for the year the offer is announced over 1993-2018. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

Dependant variable Excess_BHR (t-value)	1993-2015	1993-2007	2008-2015
Intercept	1.2313	2.5971	0.5088
	(0.69)	(1.07)	(0.2)
CSR	-1.2679	-1.8586	-0.9226
	(-0.72)	(-0.52)	(-0.46)
VEGA	0.0001	0.0004	-0.0007
	(0.31)	(0.81)	(-0.93)
LowCSR× LowVEGA	0.3398	0.1897	0.5429
	(1.11)	(0.4)	(1.44)
LowCsr× HighVEGA	-0.0766	-0.2497	0.7553*
	(-0.35)	(-0.87)	(1.93)
HighCSR× HighVEGA	0.0854	0.0431	0.3112
	(0.33)	(0.12)	(0.82)
HighCSR× LowVEGA	0.5734	1.2907*	-0.2564
	(1.35)	(1.9)	(-0.48)
DELTA	0.0000	0.0000	0.0002***
	(0.46)	(-0.02)	(2.74)
Market to Book	-0.0034	-0.0054	-0.0038
	(-1.07)	(-0.47)	(-1.24)
Size	-0.0707	-0.1325	-0.0572
	(-0.99)	(-1.3)	(-0.55)
Bidder Volatility	-2.0518	-14.2764	11.2681
	(-0.2)	(-0.95)	(0.76)
Relative Deal Size	-0.0275	-0.0499	0.1879
	(-0.16)	(-0.19)	(0.79)
Tenure	-0.0224*	-0.0301**	-0.0253
	(-1.94)	(-1.98)	(-1.27)
Cash only	0.1889	0.1509	0.1293
	(0.95)	(0.5)	(0.49)
Stock only	0.1874	0.1512	-0.1238
	(0.78)	(0.46)	(-0.32)
Tender Dummy	-0.0783	-0.0692	-0.0267
	(-0.39)	(-0.22)	(-0.1)
Hostile	0.1241	-0.3404	1.581*
	(0.27)	(-0.56)	(1.95)
Industry and Year Dummy	Yes	Yes	Yes
N	425	253	172
Adj. R²	0.0163	0.0146	0.0318

Table 3.8- Regression of Bidder Cumulative Abnormal returns (CAR) with value-weighted sample of Both Bidder and Target explanatory variables

Table 3.8 presents the results of the OLS regression on a sample of 407 bids where both bidder and target information is available. We test variants of the following equation:

$$TotalCAR_{(-1,1)i} = a + a_1 * BidderCSR_i + a_2 * TargetCSR_i + a_3 * BidderVega + a_4 * TargetVega_i + a_5 * BidderDelta_i + a_6 * TargetDelta_i + a_7 * RelativeVol_i + a_8 * RelativeDealSize_i + a_8 * BidderSize_i + a_9 * TargetSize_i + a_{10} * BidderMarketToBook_i + a_{11} * TargetMarketToBook_i + a_{12} * CashOnly_i + a_{12} * StockOnly_i + a_{13} * Hostile_i + a_{14} * TenderDummy_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is TotalCAR : Bidder and Target value-weighted CAR(-1,1). TotalCAR is both the bidder and target cumulative abnormal announcement returns estimated over the three days window surrounding the announcement of an M&A deal (where 0 is the announcement date) weighted by corresponding market capitalization of bidder and target. CAR estimation is carried over the daily returns estimation window using the market model over 200 trading days till 11 days before the announcement. CSR rating is the net corporate and social responsibility rating as gathered from ESG STATS (KLD formerly) calculated as the sum(strengths) – sum(concerns) and adjusted by the number of relative available ratings per firm-year. We sort all ESG STATS firms based on the net CSR score and then assigned dummy High and Low CSR as above or below median CSR by industry and year. Compensation variables are gathered from the Execucomp database, mainly to estimate VEGA (sensitivity of CEO wealth to stock return volatility) and DELTA (sensitivity of CEO wealth to stock price). VEGA and DELTA are reported in $1,000. We take the lowest quartile and highest quartile sort by industry and year to assign the dummy High or Low VEGA. Cash only and stock only refer to the method of payment for the offer. Relative size is the size of the target divided by the size of the bidder. Relative deal size is calculated as the SDC value of the transaction dollar divided by the market capitalization 40 days before the announcement of the deal of both target and bidder. Market to book is the absolute value of the price 40days before the deal announcement divided by the book value per share as stated by COMPUSTAT. Vol is the volatility of the stock estimated as the standard deviation of the daily CRSP stock return over one year before the run-up period. Relative Vol is the volatility of the target divided by the volatility of the bidder. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC and TenderDummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama-French five industry model as denoted by the SIC codes on CRSP. The year dummy is a dummy for the year the offer is announced over 1993-2018. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

Dependant variable TotalCAR(-1,1)

	CSR Rating		Dummy High Low CSR and VEGA	
Intercept	-0.0158	0.1697	-0.0094	0.1767
	(-0.11)	(0.97)	(-0.06)	(0.99)
Bidder CSR Rating	-0.1067*	-0.1959***	-0.0592	-0.1699**
	(-1.77)	(-2.88)	(-0.76)	(-1.99)
Target CSR Rating	0.1269	0.0391	0.102	-0.0463
	(1.47)	(0.4)	(0.93)	(-0.34)
BidderHighCSR× TargetHighCSR			-0.0074	0.0057
			(-0.49)	(0.33)
BidderLowCSR× TargetHighCSR			0.0036	0.0123
			(0.26)	(0.88)
BidderHighCSR× TargetLowCSR			-0.0104	-0.0042
			(-0.78)	(-0.32)
Bidder VEGA	0.0000	0.0000	0.0000	0.0000
	(-0.88)	(-0.94)	(-0.75)	(0.10)
TargetVEGA	0.0000	0.0000	0.0000	0.0000
	(-1.11)	(-0.44)	(-0.99)	(-0.82)
Bidder DELTA	0.0000	0.0000	0.0000	0.0000
	(0.01)	(0.71)	(-0.03)	(-0.32)
TargetDELTA	0.0000	0.0000	0.0000	0.0000
	(-0.57)	(-0.81)	(-0.52)	(0.69)
Bidder Market to Book	-0.0008	-0.0013**	-0.0008	0.0000
	(-1.37)	(-2.25)	(-1.42)	(-0.79)
Target Market to Book	0.0005	0.0007	0.0003	-0.0013**
	(0.47)	(0.65)	(0.33)	(-2.23)
Relative Size	0.0499	-0.1435	0.0475	0.0006
	(0.32)	(-0.91)	(0.3)	(0.54)
Relative Vol	-0.0097	-0.0183	-0.0103	-0.1467
	(-0.85)	(-1.53)	(-0.89)	(-0.92)
Relative Deal Size	0.0336***	0.0386***	0.0328***	-0.0197
	(2.95)	(3.39)	(2.84)	(-1.62)
Cash_Only	0.0208**	0.0165	0.0199*	0.0381***
	(2.01)	(1.51)	(1.92)	(3.31)
Stock_Only	-0.0322	-0.028**	-0.0314***	0.0158
	(-2.69)	(-2.34)	(-2.6)	(1.43)
Tender Dummy	0.0015	-0.0056	0.0003	-0.0272**
	(0.13)	(-0.5)	(0.03)	(-2.25)
Hostile	0.0197	0.0202	0.0204	-0.0051
	(1.23)	(1.21)	(1.27)	(-0.44)
Industry Dummy		Yes		Yes
Year Dummy		Yes		Yes
N	407	407	407	407
Adj. R²	0.1453	0.2120	0.1393	0.2193

Table 4.1.A – Number of Deals per Year and Distribution by Industry

This table provides the number of deals per year from our 599 bids over 1993 till 2018, then the distribution over the five Fama-French industries. The sample construction is based on availability of data of firms and their CEOs from five different sources: CRSP, COMPUSTAT, EXECUCOMP, SDC, and ESG STATS.

Year	Number of Observations
1993	1
1994	5
1995	6
1996	14
1997	17
1998	23
1999	24
2000	15
2001	6
2002	5
2003	10
2004	24
2005	25
2006	24
2007	34
2008	28
2009	21
2010	17
2011	17
2012	16
2013	16
2014	24
2015	25
2016	23
2017	14
2018	2
Industry	Number of Observations
1- Cnsmr : Consumer Durables, NonDurables, Wholesale, Retail, and Some Services (Laundries, Repair Shops)	81
2- Manuf : Manufacturing, Energy, and Utilities	96
3- HiTec : Business Equipment, Telephone and Television Transmission	141
4- Hlth : Healthcare, Medical Equipment, and Drugs	59
5- Other : Other – Mines, Constr, BldMt, Trans, Hotels, Business Services, and Entertainment	59

Table 4.1.B – Summary statistics

Panel A displays summary descriptive statistics for our sample of targets. Our sampling procedure yields 599 deals from SDC over 1993-2018. The deals have public targets and public bidders, both from US nation. Compensation variables are gathered from Execucomp, while other financial variables come from Compustat and CRSP. DELTA and VEGA are presented in $1,000 and have been winsorized at the 1st and 99th percentile. Volatility is calculated as the standard deviation of daily CRSP returns over one year before the runup period. Market to book is absolute value of stock price 40 days before the deal announcement divided by the book value per share, we winsorize market to book at the 1st and 99th percentile sorted by industry and year; we also remove observation where COMPUSTAT reports missing book value or negative figures. Firm size is the natural logarithm of the market capitalization 40 days before the announcement. Premium is measured as value_of_transaction_dollar divided by the market capitalization 40 days before deal and accounts for premium. Panel B reports the correlation matrix of the main time-series-regression independent variables.

A. Descriptive statistics of main variables

	Full Sample			
	Mean	Median	Max	Min
CSR Rating	0.0009	-0.0024	0.2733	-0.1471
CSR Strength Rating	0.0298	0.0140	0.3056	0
CSR Concern Rating	0.0288	0.0172	0.1587	0
Target VEGA ($1,000)	136.7577	67.8106	1,230.6334	0.0003
Target DELTA ($1,000)	528.7105	202.8066	12,577.7911	2.1265
Target Firm Size	21.4738	21.2962	25.3317	17.7189
Target Market to Book	2.6962	2.4458	142.9809	-279.7468
Target Volatility	0.0247	0.0230	0.0969	0.0096
Premium	1.5275	1.4236	5.4096	0.0221
Target CAR(-2,+2)	0.2210	0.2022	1.6652	-0.2331
Target Runup CAR (-42,-2)	0.0379	0.0374	0.7965	-0.9686
Target Markup CAR (-1,+1)	0.2135	0.1903	1.5296	-0.1967
Number of Observations				
Cash only	195	(45%)		
Stock only	75	(17%)		
Mixed	166	(38%)		
Hostile	34	(8%)		
Tender Offer	83	(19%)		
Completed	436	(100%)		
Form of the Deal is Merger	436	(100%)		
Total	436			

(cont'd)

	CSR_Rating	CSR_concern	CSR_strength	DELTA	VEGA	Bidder Volatility	Relative Deal Size	Size	Market to Book
B. Correlation matrix – This panel presents the correlations between our main independent variables. (values in bold indicate correlation levels above 0.3)									
CSR_Rating	1								
CSR_concern	**-0.521**	1							
CSR_strength	**0.808**	0.081	1						
DELTA	0.068	0.028	0.099	1					
VEGA	0.211	0.174	**0.366**	**0.356**	1				
Target Volatility	-0.173	0.023	-0.186	-0.071	-0.116	1			
Premium	-0.096	0.023	-0.096	-0.095	-0.13	0.25	1		
Size	0.255	0.236	**0.461**	**0.404**	**0.574**	**-0.392**	-0.227	1	
Market to Book	-0.095	0.011	-0.103	0.054	0.017	0.011	0.024	0.104	1

Table 4.1.C – Descriptive Statistics High CSR versus Low CSR samples

This table displays summary descriptive statistics High CSR sample versus Low CSR sample. Our sampling procedure defines above (below) median CSR rating firms as High CSR (Low CSR) firms based on a sort by industry and year of the rating over the full ESG STATS observations from 1992-2018. Then we link the CSR ratings to SDC to gather M&A related data. The deals in our sample have public targets and public bidders, both from US nation. Compensation variables are gathered from Execucomp, while other financial variables come from Compustat and CRSP. DELTA and VEGA are presented in $1,000 and have been winsorized at the 1st and 99th percentile. Volatility is calculated as the standard deviation of daily CRSP returns over one year before the runup period. Market to book is absolute value of stock price 40 days before the deal announcement divided by the book value per share, we winsorize market to book at the 1st and 99th percentile sorted by industry and year; we also remove observation where COMPUSTAT reports missing book value or negative figures. Firm size is the natural logarithm of the market capitalization 40 days before the announcement. Premium is measured as value_of_transaction_dollar divided by market capitalization 40 days before deal. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

A. Descriptive statistics of main variables

	High CSR (n=181)		Low CSR (n=255)		*Test* of Mean Difference (t-value)
	Mean	*Median*	Mean	*Median*	
CSR Rating	0.0403	*0.0228*	-0.0270	*-0.0189*	*0.0674**** *(17.27)*
Target VEGA ($1,000)	157.3030	*77.3878*	122.1745	*63.4249*	*35.1285*** *(1.98)*
Target DELTA ($1,000)	543.4538	*193.6263*	518.2457	*207.0062*	*25.2081* *(0.23)*
Target Firm Size	21.6627	*21.4570*	21.3398	*21.1640*	*0.3230*** *(2.41)*
Target Market to Book	1.5100	*2.5346*	3.5383	*2.3554*	*-2.0287* *(-1.24)*
Target Volatility	0.0245	*0.0216*	0.0249	*0.0236*	*-0.0005* *(-0.48)*
Premium	1.4978	*1.3922*	1.5486	*1.4509*	*-0.0507* *(-1.06)*
Target Markup CAR (-1,+1)	0.2136	*0.1753*	0.2134	*0.1993*	*0.0002* *(0.01)*

Table 4.1.D – Descriptive Statistics 1993-2007 versus 2008-2018 Sub-samples

This table displays summary descriptive statistics for 1993-2007 and 2008-2018 sub-samples.
We divide our sample of deals from 1993-2018 into two subsamples based on the year of deal announcement: 1993-2007 and 2008-2018. Our samples have CSR ratings linked to M&A related data. The deals in our samples have public targets and public bidders, both from US nation. Compensation variables are gathered from Execucomp, while other financial variables come from Compustat and CRSP. DELTA and VEGA are presented in $1,000 and have been winsorized at the 1st and 99th percentile. Volatility is calculated as the standard deviation of daily CRSP returns over one year before the runup period. Market to book is absolute value of stock price 40 days before the deal announcement divided by the book value per share, we winsorize market to book at the 1st and 99th percentile sorted by industry and year; we also remove observation where COMPUSTAT reports missing book value or negative figures. Firm size is the natural logarithm of the market capitalization 40 days before the announcement. Premium is measured as value of transaction in dollar divided by market capitalization 40 days before deal. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

A. Descriptive statistics of main variables

	1993-2007 Sub-sample (n=233)		2008-2018 Sub-sample (n=203)		*Test of Mean Difference (t-value)*
	Mean	*Median*	Mean	*Median*	
CSR Rating	-0.0098	*-0.0061*	0.0133	*0*	*-0.0231*** (-4.72)*
Target VEGA ($1,000)	126.2623	*65.7023*	148.8040	*71.0123*	*-22.5417 (-1.28)*
Target DELTA ($1,000)	545.3285	*211.4719*	509.6366	*183.1160*	*35.6919 (0.33)*
Target Firm Size	21.5564	*21.4127*	21.3791	*21.2311*	*0.1773 (1.34)*
Target Market to Book	3.6352	*2.60178*	1.6184	*2.1936*	*2.0169 (1.25)*
Target Volatility	0.0241	*0.0221*	0.0255	*0.0235*	*-0.0015 (-1.46)*
Premium	1.5753	*1.4509*	1.4727	*1.4076*	*0.0842*** (29.09)*
Target Markup CAR (-1,+1)	0.1909	*0.1533*	0.2395	*0.2257*	*-0.0486*** (-2.72)*
Target Runup CAR (-42,-2)	0.0232	*0.0185*	0.0548	*0.0449*	*-0.0316* (-1.84)*

Table 4.1.E – Variable Definitions	
This table details the construction and definitions of main variables appearing in our tests.	
Variable	Definition
CSR Rating	Net score of CSR standing (total strengths minus total concerns) scaled by number of dimensions rated for each firm calculated at the most recent year from the deal announcement date.
CSR Concerns Rating	The sum of all CSR concerns scores per firm as rated on ESG-STATS database (KLD).
CSR Strength Rating	The sum of all CSR strengths scores per firm as rated on ESG-STATS database (KLD).
CSR Rating Lag	One year lagged net score of CSR standing.
Target VEGA	Dollar change in the value of CEO's annual equity-based compensation associated with a 1% change in the annualized standard deviation of the stock returns. VEGA is presented in $1,000 and have been winsorized at the 1st and 99th percentile.
Target DELTA	Dollar change in the value of CEO's annual equity-based compensation for a 0.01 change in the stock price. DELTA is presented in $1,000 and have been winsorized at the 1st and 99th percentile.
Total Compensation	Salary + Bonus + Other Annual + Restricted Stock Grants + LTIP Payouts + All Other + Value of Option Grants. Total compensation is presented in $1,000 and have been winsorized at the 1st and 99th percentile.
Target Firm Size	The natural logarithm of the market capitalization 40 days before the announcement = log [abs(price)*abs(shares outstanding)*1000].
Target Market to Book	Abs (price 40 days before announcement) / book value per share, we winsorize market to book at the 1st and 99th percentile sorted by industry and year.
Target Volatility	The standard deviation of daily CRSP returns over one year before the runup period.
Premium	Figure calculated as dollar value of transaction divided by market capitalization of target 40 days before the deal.
Target CAR(-2,+2)	Cumulative abnormal return of the target over the 5 day window (from 2 days before the deal announcement to 2 days after) calculated using the market model.
Target Runup CAR (-42,-2)	Cumulative abnormal return of the target from -42 days before the deal announcement to -2 days after calculated using the market model.
Target Markup CAR (-1,+1)	Cumulative abnormal return of the target from 1 days before the deal announcement to 1 days after calculated using the market model.
Tender	Dummy = 1 if the deal is a tender offer, zero otherwise.
Stock only	Dummy = 1 if the method of payment is stock only, zero otherwise.
Cash only	Dummy = 1 if the method of payment is cash only, zero otherwise.
Mixed	Dummy = 1 if the method of payment is a combination of cash and stock, zero otherwise.
Hostile	Dummy = 1 if the bid is hostile, zero otherwise.
Low_CSR	Dummy = 1 if a firm's CSR rating is below the median industry-year sorted CSR rating of all CSR rated firms, zero otherwise.
High_CSR	Dummy = 1 if a firm's CSR rating is above the median industry-year sorted net CSR rating of all CSR rated firms on ESG STATs, zero otherwise.
Low_VEGA	Dummy = 1 if a firm's estimated VEGA is in the low 75% quantile as compared to all firms with available Execucomp data, zero otherwise.
High_VEGA	Dummy = 1 if a firm's estimated VEGA is in the top 75% quantile as compared to all firms with available Execucomp data, zero otherwise.
Completed	Dummy = 1 if the deal is completed successfully, zero otherwise.
Industry Dummy	Dummy = 1 for each industry for Fama-French five industry groups given by: 1- Cnsmr Consumer Durables, NonDurables, Wholesale, Retail, and Some Services (Laundries, Repair Shops) ; 2- Manuf Manufacturing, Energy, and Utilities ; 3- HiTec Business Equipment, Telephone and Television Transmission ; 4- Hlth Healthcare, Medical Equipment, and Drugs ; 5- Other Other -- Mines, Constr, BldMt, Trans, Hotels, Bus Serv, Entertainment, Finance, zero otherwise.
Year Dummy	Dummy = 1 for the year of the announcement over 1993-2018.

Table 4.2- Target Cumulative Abnormal Returns Event Study – Univariate Tests

Table 4.2 presents the results of our event studies.

We perform event study methodology to test the cumulative abnormal announcement returns CAR of our sample of M&A deals. The CAR is estimated over three windows surrounding the announcement of a M&A deal (where 0 is the announcement day). CAR estimation is carried on with daily returns estimation window using the market model over 200 trading days till 11 days before the announcement. We present univariate results over the full sample as well as subsamples divided by High / Low CSR. Moreover, we divide our sample into two time frames 1993-2007 and 2008-2018 and display the results again. CSR rating is the net corporate and social responsibility rating as gathered from ESG STATS (KLD formerly) calculated as the sum(strengths) – sum(concerns) and adjusted by the number of relative available ratings per firm-year. We sort all ESG STATS firms based on net CSR score and then assign dummy High and Low CSR as above or below median CSR by industry and year. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

Bidder CAR% (p-value)

	Full Sample 1993-2018 (n=436)		High CSR subsample (n=181)		Low CSR subsample (n=255)	
	Mean	Median	Mean	Median	Mean	Median
CAR(-1,1)	21.29 *** (<0.0001)	20.77	21.33*** (<0.0001)	21.09	21.26*** (<0.0001)	20.53
CAR(-2,2)	22.00 *** (<0.0001)	21.51	22.45*** (<0.0001)	22.22	21.68*** (<0.0001)	20.98
CAR(-5,5)	22.67 *** (<0.0001)	22.11	23.03*** (<0.0001)	22.76	22.42*** (<0.0001)	21.62
CAR(-42,-2)	3.16 *** (<0.0001)	3.25	2.76*** (<0.0001)	2.43	3.45*** (<0.0001)	3.87

	Subsample 1993-2007 (n=233)		High CSR subsample (n=89)		Low CSR subsample (n=144)	
	Mean	Median	Mean	Median	Mean	Median
CAR(-1,1)	19.10*** (<0.0001)	19.24	19.50*** (<0.0001)	20.43	18.85*** (<0.0001)	18.48
CAR(-2,2)	19.82*** (<0.0001)	19.88	20.99*** (<0.0001)	21.61	19.10*** (<0.0001)	18.79
CAR(-5,5)	20.02*** (<0.0001)	19.87	20.97*** (<0.0001)	21.50	19.43*** (<0.0001)	18.84
CAR(-42,-2)	1.74 *** (<0.0001)	1.99	-0.44	-0.68	3.09*** (<0.0001)	3.65

	Subsample 2008-2018 (n=203)		High CSR subsample (n=92)		Low CSR subsample (n=111)	
	Mean	Median	Mean	Median	Mean	Median
CAR(-1,1)	23.81*** (<0.0001)	22.44	23.10*** (<0.0001)	21.66	24.39*** (<0.0001)	23.15
CAR(-2,2)	24.50*** (<0.0001)	23.28	23.85*** (<0.0001)	22.75	25.04*** (<0.0001)	23.77
CAR(-5,5)	25.72*** (<0.0001)	24.54	25.01*** (<0.0001)	23.86	26.30*** (<0.0001)	25.16
CAR(-42,-2)	4.78 *** (<0.0001)	4.58	5.86*** (<0.0001)	5.06	3.88*** (<0.0001)	4.15

Table 4.3- Regressions of Target Cumulative Abnormal returns (CAR) with CSR and VEGA

Table 4.3 presents the results of the OLS regression on our full Sample of 599 bids. We test variants of the following equation:

$$CAR_{(-1,1)i} = a + a_1 * CSRrating_i + a_2 * Vega_i + a_3 * Delta_i + a_4 * TargetVol_i + a_5 * Premium_i + a_6 * Size_i + a_7 * MarketToBook_i + a_8 * Cash_{Only_i} + a_9 * Stock_{only_i} + a_{10} * Hostile_i + a_{11} * TenderDummy_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is CAR(-1,1) is the cumulative abnormal announcement returns estimated over the three days window surrounding the announcement of a M&A deal (where 0 is the announcement date). CAR estimation is carried over daily returns estimation window using the market model over 200 trading days till 11 days before the announcement. CSR rating is the net corporate and social responsibility rating as gathered from ESG STATS (KLD formerly) calculated as the sum(strengths) – sum(concerns) and adjusted by the number of relative available ratings per firm-year. Compensation variables are gathered from Execucomp database, mainly to estimate VEGA (sensitivity of CEO wealth to stock return volatility) and DELTA (sensitivity of CEO wealth to stock price). VEGA and DELTA are reported in $1,000. Cash only and stock only refer to the method of payment for the offer. Premium is calculated as the SDC value of transaction dollar divided market capitalization 40 days before the announcement of the deal. Market to book is absolute value of the price 40days before the deal announcement divided by book value per share as stated by COMPUSTAT. Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the runup period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC and TenderDummy shows if the offer was a tender offer. EDELTA is orthogonalized residual of the regression of DELTA on VEGA. Industry dummy is the dummy over the Fama-French five industry model as denoted by the SIC codes on CRSP. Year dummy is a dummy for the year the offer is announced over 1993-2018. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

Dependant variable CAR(-1,1)
(t-value)

	CSR Rating	VEGA and DELTA	Target Volatility	Relative Deal Size	Size	Market to Book	Cash only and Stock only	Tender Dummy / Hostile	EDELTA	Industry	Year
Intercept	0.2137 *** (23.82)	0.2346 *** (20.65)	0.1615 *** (6.62)	0.0257 (0.78)	0.8422 *** (4.45)	0.8731 *** (4.58)	0.4940 ** (2.53)	0.4903 ** (2.51)	0.4926 ** (2.52)	0.4599 ** (2.33)	0.3995 (1.40)
CSR Rating	-0.2083 (-1.21)	-0.1012 (-0.58)	-0.0106 (-0.06)	0.0250 (0.15)	0.1143 (0.69)	0.1377 (0.82)	0.0939 (0.58)	0.1323 (0.82)	0.1323 (0.82)	0.1686 (1.03)	0.2260 (1.21)
VEGA		-0.0001 *** (-2.54)	-0.0001 *** (-2.35)	-0.0001 ** (-2.00)	0.0000 (0.35)	0.0000 (0.41)	-0.0000 (-0.04)	0.0000 (0.04)	0.0000 (0.44)	-0.0000 (-0.13)	0.0000 (0.10)
DELTA		-0.0000 (-0.55)	-0.0000 (-0.44)	-0.0000 (-0.18)	0.0000 (1.01)	0.0000 (0.99)	0.0000 (1.28)	0.0000 (1.27)		0.0000 (1.34)	0.0000 (1.57)
Target Volatility			2.8643 *** (3.37)	1.7444 ** (2.07)	0.3236 (0.37)	0.2751 (0.31)	1.2650 (1.45)	1.3997 (1.61)	1.3997 (1.61)	1.6832 * (1.93)	0.5019 (0.47)
Premium				0.1043 *** (5.80)	0.0972 *** (5.50)	0.0965 *** (5.46)	0.0921 *** (5.24)	0.0873 *** (4.96)	0.0873 *** (4.96)	0.0887 *** (5.04)	0.0946 *** (4.99)
Size					-0.0369 *** (-4.38)	-0.0383 *** (-4.51)	-0.0231 *** (-2.69)	-0.0230 *** (-2.69)	-0.0230 *** (-2.69)	-0.0230 *** (-2.67)	-0.0286 *** (-3.08)
Market to Book						0.0006 (1.21)	0.0005 (0.97)	0.0005 (1.08)	0.0005 (1.08)	0.0005 (1.01)	0.0007 (1.33)
Cash only							0.0925 *** (<.0001)	0.0814 *** (4.24)	0.0814 *** (4.24)	0.0857 *** (4.46)	0.0825 *** (4.14)
Stock only							-0.0283 (-1.17)	-0.0266 (-1.11)	-0.0266 (-1.11)	-0.0233 (-0.970)	-0.0206 (-0.82)
Tender Dummy								0.0436 * (1.89)	0.0436 * (1.89)	0.0428 * (1.85)	0.0366 (1.56)
Hostile								0.0281 (0.88)	0.0281 (0.88)	0.0272 (0.85)	0.0383 (1.13)
EDELTA									0.0000 (1.27)		
Industry Dummy										Yes	Yes
Year Dummy											Yes
N	436	436	436	436	436	436	436	436	436	436	436
Adj. R²	0.0011	0.0165	0.0396	0.1073	0.1436	0.1445	0.2076	0.2152	0.2152	0.2209	0.2491

Table 4.4- Regressions of Subsamples based on Announcement Year and High or Low CSR

Table 4.4 presents the results of the OLS regression on our full Sample of 599 bids, then divides the sample into subsample by announcement year (before 2007 or after) and high or low CSR. We test variants of the following equation:

$$CAR_{(-1,1)i} = a + a_1 * CSRrating_i + a_2 * Vega_i + a_3 * Delta_i + a_4 * TargetVol_i + a_5 * Premium_i + a_6 * Size_i + a_7 * MarketToBook_i + a_8 * Cash_{only_i} + a_9 * Stock_{only_i} + a_{10} * Hostile_i + a_{11} * TenderDummy_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is CAR(-1,1) is the cumulative abnormal announcement returns estimated over the three days window surrounding the announcement of a M&A deal (where 0 is the announcement date). CAR estimation is carried over daily returns estimation window using the market model over 200 trading days till 11 days before the announcement. CSR rating is the net corporate and social responsibility rating as gathered from ESG STATS (KLD formerly) calculated as the sum(strengths) – sum(concerns) and adjusted by the number of relative available ratings per firm-year. Compensation variables are gathered from Execucomp database, mainly to estimate VEGA (sensitivity of CEO wealth to stock return volatility) and DELTA (sensitivity of CEO wealth to stock price). VEGA and DELTA are reported in $1,000. Cash only and stock only refer to the method of payment for the offer. Premium is calculated as the SDC value of transaction dollar divided market capitalization 40 days before the announcement of the deal. Market to book is absolute value of the price 40days before the deal announcement divided by book value per share as stated by COMPUSTAT. Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the runup period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC and TenderDummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama-French five industry model as denoted by the SIC codes on CRSP. Year dummy is a dummy for the year the offer is announced over 1993-2018. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

Dependant variable CAR(-1,1)
(t-value)

	1993-2018			1993-2007			2008-2018		
	All Sample	HighCSR	LowCSR	All Sample	High CSR	Low CSR	All Sample	High CSR	Low CSR
Intercept	0.3995 (1.4)	0.6082 (1.61)	0.5181 (1.44)	0.5115 (1.43)	0.8776 (1.62)	0.3316 (0.78)	0.61130 * (1.76)	0.1801 (0.35)	0.7523 (1.56)
CSR Rating	0.2256 (1.21)	0.0335 (0.08)	-0.9059 * (-1.76)	0.4710 (1.44)	0.1491 (0.11)	-0.4684 (-0.78)	0.1029 (0.42)	0.0193 (0.04)	-1.9870 * (-1.93)
VEGA	0.0000 (0.1)	-0.0001 (-0.74)	0.0000 (0.27)	-0.0000 (-0.27)	-0.0002 (-0.94)	-0.0001 (-0.65)	0.0001 (0.83)	0.0000 (0.22)	0.0001 (0.62)
DELTA	0.0000 (1.57)	0.0000 ** (2.34)	0.0000 (-0.31)	0.0000 (0.77)	0.0000 (0.01)	0.0000 (0.4)	0.0000 ** (2.08)	0.0000 *** (2.72)	0.0000 (0.22)
Market to Book	0.0007 (1.33)	0.0007 (1.13)	0.0001 (0.12)	-0.0030 (-1.44)	-0.0015 (-0.45)	-0.0039 (-1.1)	0.0008 (1.5)	0.0008 (1.43)	0.0007 (0.55)
Size	-0.0286 *** (-3.08)	-0.0244 (-1.6)	-0.0280 ** (-2.19)	-0.0290 ** (-2.27)	-0.0300 (-1.26)	-0.0241 (-1.55)	-0.0295 ** (-2.09)	-0.0174 (-0.82)	-0.0344 (-1.62)
Target Volatility	0.5019 (0.47)	-3.9492 ** (-2.26)	2.3395 (1.53)	0.0289 (0.02)	-7.5876 ** (-2.45)	3.6197 ** (1.99)	0.1677 (0.11)	-1.2336 (-0.58)	-0.8774 (-0.32)
Premium	0.0946 *** (4.99)	0.1374 *** (4.51)	0.0451 * (1.75)	0.0642 *** (2.78)	0.0882 ** (2.15)	0.0497 * (1.66)	0.1645 *** (5.03)	0.2810 *** (5.6)	0.0750 (1.57)
Cash only	0.0825 *** (4.14)	0.0762 ** (2.37)	0.0751 *** (2.87)	0.0541 * (1.9)	0.0346 (0.64)	0.0346 (1.05)	0.1230 *** (4.38)	0.1015 ** (2.5)	0.1283 *** (3.07)
Stock only	-0.0206 (-0.82)	-0.0253 (-0.61)	-0.0311 (-0.96)	-0.0150 (-0.5)	-0.0040 (-0.07)	-0.0395 (-1.13)	-0.0015 (-0.03)	-0.0555 (-0.83)	-0.003 (-0.04)
Tender Dummy	0.0366 (1.56)	0.0833 * (1.94)	0.0240 (0.83)	0.0364 (1.13)	0.1255 (1.52)	0.0044 (0.12)	0.0422 (1.26)	0.01169 (0.23)	0.0626 (1.31)
Hostile	0.0383 (1.13)	0.0212 (0.28)	0.0365 (0.92)	0.0705 * (1.9)	0.1166 (1.16)	0.0646 (1.62)	-0.0938 (-1.18)	0.0176 (0.14)	-0.0749 (-0.63)
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	436	181	255	233	89	144	203	92	111
Adj. R²	0.2491	0.3775	0.1767	0.2406	0.3370	0.2370	0.2886	0.4941	0.1467

Table 4.5- Markup Period Regressions of Target Cumulative Abnormal returns (CAR) with Low CSR, High CSR, Low VEGA, and High VEGA dummies

Table 4.5 presents the results of the OLS regression on our full Sample of 599 bids and over subsamples divided by announcement date over 1993-2007 and 2008-2018 using dummy variables for CSR and VEGA as Low or High. We test variants of the following equation:

$$CAR_{(-1,1)i} = a + a_1 * CSRrating_i + a_2 * Vega_i + a_3 * LowCSR_i * LowVega_i + a_4 * HighCSR_i * LowVega_i + a_5 * HighCSR_i * HighVega_i + a_6 * HighCSR_i * HighVega_i + a_7 * Delta_i + a_8 * TargetVol_i + a_9 * Premium_i + a_{10} * Size_i + a_{11} * MarketToBook_i + a_{12} * CashOnly_i + a_{13} * StockOnly_i + a_{14} * Hostile_i + a_{15} * TenderDummy_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is CAR(-1,1) is the cumulative abnormal announcement returns estimated over the three days window surrounding the announcement of a M&A deal (where 0 is the announcement date). CAR estimation is carried over daily returns estimation window using the market model over 200 trading days till 11 days before the announcement. CSR rating is the net corporate and social responsibility rating as gathered from ESG STATS (KLD formerly) calculated as the sum(strengths) – sum(concerns) and adjusted by the number of relative available ratings per firm-year. We sort all ESG STATS firms based on net CSR score and then assign dummy High and Low CSR as above or below median CSR by industry and year. Compensation variables are gathered from Execucomp database, mainly to estimate VEGA (sensitivity of CEO wealth to stock return volatility) and DELTA (sensitivity of CEO wealth to stock price). We take the lowest quartile and highest quartile sort by industry and year to assign the dummy High or Low VEGA. Cash only and stock only refer to the method of payment for the offer. Premium is calculated as the SDC value of transaction dollar divided market capitalization 40 days before the announcement of the deal. Market to book is absolute value of the price 40days before the deal announcement divided by book value per share as stated by COMPUSTAT. Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the runup period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC and TenderDummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama-French five industry model as denoted by the SIC codes on CRSP. Year dummy is a dummy for the year the offer is announced over 1993-2018. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

Dependant variable CAR(-1,1)
(t-value)

	All deals		
	1993-2018	1993-2007	2008-2018
Intercept	0.4532	0.5808	0.6403 *
	(1.57)	(1.61)	(1.78)
CSR Rating	0.1748	0.4223	0.0448
	(0.78)	(1.02)	(0.16)
VEGA	-0.0001	-0.0006	0.0000
	(-0.79)	(-1.31)	(0.39)
LowCSR×LowVEGA	-0.0180	-0.0739 *	0.0112
	(-0.62)	(-1.7)	(0.28)
LowCSR×HighVEGA	0.0405	0.0672 *	0.0097
	(1.3)	(1.7)	(0.18)
HighCSR×HighVEGA	0.0406	0.0505	0.0341
	(1.17)	(1.03)	(0.66)
HighCSR×LowVEGA	0.0191	0.0329	-0.0001
	(0.59)	(0.77)	(0)
DELTA	0.00001 *	0.00001	0.00002 **
	(1.64)	(0.6)	(2.1)
Market to Book	0.0007	-0.00204	0.0008
	(1.33)	(-0.96)	(1.43)
Size	-0.0306 ***	-0.0308 **	-0.0304 **
	(-3.23)	(-2.4)	(-2.07)
Target Volatility	0.4069	-0.1231	0.1859
	(0.38)	(-0.08)	(0.12)
Premium	0.0937 ***	0.0639 ***	0.1644 ***
	(4.93)	(2.77)	(4.97)
Cash only	0.0839 ***	0.0578 **	0.1225 ***
	(4.19)	(2.04)	(4.29)
Stock only	-0.0222	-0.0140	-0.0031
	(-0.88)	(-0.46)	(-0.07)
Tender Dummy	0.0368	0.0445	0.0420
	(1.56)	(1.38)	(1.23)
Hostile	0.0356	0.0636 *	-0.0894
	(1.04)	(1.71)	(-1.11)
Industry Dummy	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes
N	436	233	203
Adj R²	0.2473	0.2512	0.2744

Table 4.6- Markup Period Regressions of Subsamples based on Announcement Year and High or Low CSR (Orthogonalized DELTA)

Table 4.6 presents the results of the OLS regression on our full Sample of 599 bids, then divides the sample into subsample by announcement year (before 2007 or after) and high or low CSR. We test variants of the following equation:

$$CAR_{(-1,1)i} = a + a_1 * CSRrating_i + a_2 * Vega_i + a_3 * EDelta_i + a_4 * TargetVol_i + a_5 * Premium_i + a_6 * Size_i + a_7 * MarketToBook_i + a_8 * Cash_{Only_i} + a_9 * Stock_{only_i} + a_{10} * Hostile_i + a_{11} * TenderDummy_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is CAR(-1,1) is the cumulative abnormal announcement returns estimated over the three days window surrounding the announcement of a M&A deal (where 0 is the announcement date). CAR estimation is carried over daily returns estimation window using the market model over 200 trading days till 11 days before the announcement. CSR rating is the net corporate and social responsibility rating as gathered from ESG STATS (KLD formerly) calculated as the $sum(strengths) - sum(concerns)$ and adjusted by the number of relative available ratings per firm-year. Compensation variables are gathered from Execucomp database, mainly to estimate VEGA (sensitivity of CEO wealth to stock return volatility) and DELTA (sensitivity of CEO wealth to stock price). VEGA and DELTA are reported in $1,000. EDELTA is orthogonalized residual of the regression of DELTA on VEGA. Cash only and stock only refer to the method of payment for the offer. Premium is calculated as the SDC value of transaction dollar divided market capitalization 40 days before the announcement of the deal. Market to book is absolute value of the price 40days before the deal announcement divided by book value per share as stated by COMPUSTAT. Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the runup period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC and TenderDummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama-French five industry model as denoted by the SIC codes on CRSP. Year dummy is a dummy for the year the offer is announced over 1993-2018. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

Dependant variable CAR(-1,1)
(t-value)

	1993-2018			1993-2007			2008-2018		
	All Sample	HighCSR	LowCSR	All Sample	High CSR	Low CSR	All Sample	High CSR	Low CSR
Intercept	0.4025 (1.41)	0.6159 (1.63)	0.5174 (1.43)	0.5133 (1.44)	0.8777 (1.62)	0.3323 (0.78)	0.6172 * (1.78)	0.1897 (0.37)	0.7534 (1.56)
CSR Rating	0.2260 (1.21)	0.0335 (0.08)	-0.9059 * (-1.76)	0.4710 (1.44)	0.1491 (0.11)	-0.4684 (-0.78)	0.1029 (0.42)	0.0193 (0.04)	-1.9870 * (-1.93)
VEGA	0.0000 (0.59)	-0.0000 (-0.17)	0.0000 (0.15)	0.0000 (0.05)	-0.0002 (-0.93)	-0.0001 (-0.47)	0.0001 (1.34)	0.0001 (0.87)	0.0001 (0.67)
EDELTA	0.0000 (1.57)	0.0000 ** (2.34)	0.0000 (-0.31)	0.0000 (0.77)	0.0000 (0.01)	0.0000 (0.4)	0.0000 ** (2.08)	0.0000 *** (2.72)	0.0000 (0.22)
Market to Book	0.0007 (1.33)	0.0007 (1.13)	0.0001 (0.12)	-0.0030 (-1.44)	-0.0015 (-0.45)	-0.0039 (-1.1)	0.0008 (1.5)	0.0008 (1.43)	0.0007 (0.55)
Size	-0.0286 *** (-3.08)	-0.0244 (-1.6)	-0.0280 ** (-2.19)	-0.0287 ** (-2.27)	-0.0300 (-1.26)	-0.0243 (-1.55)	-0.0295 ** (-2.09)	-0.0174 (-0.82)	-0.0344 (-1.62)
Target Volatility	0.5019 (0.47)	-3.9492 ** (-2.26)	2.3395 (1.53)	0.0289 (0.02)	-7.5876 ** (-2.45)	3.6197 ** (1.99)	0.1677 (0.11)	-1.2336 (-0.58)	-0.8774 (-0.32)
Premium	0.0946 *** (4.99)	0.1374 *** (4.51)	0.0451 * (1.75)	0.0642 *** (2.78)	0.0882 ** (2.15)	0.0500 * (1.66)	0.1645 *** (5.03)	0.2810 *** (5.6)	0.0750 (1.57)
Cash only	0.0825 *** (4.14)	0.0762 ** (2.37)	0.0751 *** (2.87)	0.0541 * (1.9)	0.0346 (0.64)	0.0346 (1.05)	0.1230 *** (4.38)	0.1015 ** (2.5)	0.1283 *** (3.07)
Stock only	-0.0206 (-0.82)	-0.0253 (-0.61)	-0.0311 (-0.96)	-0.0150 (-0.5)	-0.0040 (-0.07)	-0.03951 (-1.13)	-0.0015 (-0.03)	-0.0555 (-0.83)	-0.003 (-0.04)
Tender Dummy	0.0366 (1.56)	0.0833 * (1.94)	0.0240 (0.83)	0.0364 (1.13)	0.1255 (1.52)	0.0044 (0.12)	0.0422 (1.26)	0.0117 (0.23)	0.0626 (1.31)
Hostile	0.0383 (1.13)	0.0212 (0.28)	0.0365 (0.92)	0.0705 * (1.9)	0.1166 (1.16)	0.0646 (1.62)	-0.0938 (-1.18)	0.0176 (0.14)	-0.0749 (-0.63)
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	436	181	255	233	89	144	203	92	111
Adj. R²	0.2491	0.3775	0.1767	0.2406	0.3370	0.2374	0.2886	0.4941	0.1467

Table 4.7- Markup Period Regressions of Target Cumulative Abnormal returns (CAR) with Low CSR, High CSR, Low VEGA, and High VEGA dummies (Orthogonalized DELTA)

Table 4.7 presents the results of the OLS regression on our full Sample of 599 bids and over subsamples divided by announcement date over 1993-2007 and 2008-2018 using dummy variables for CSR and VEGA as Low or High. We test variants of the following equation:

$$CAR_{(-1,1)i} = a + a_1 * CSRrating_i + a_2 * Vega_i + a_3 * LowCSR_i * LowVega_i + a_4 * HighCSR_i * LowVega_i + a_5 * HighCSR_i * HighVega_i + a_6 * HighCSR_i * HighVega_i + a_7 * EDelta_i + a_8 * TargetVol_i + a_9 * Premium_i + a_{10} * Size_i + a_{11} * MarketToBook_i + a_{12} * CashOnly_i + a_{13} * StockOnly_i + a_{14} * Hostile_i + a_{15} * TenderDummy_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is CAR(-1,1) is the cumulative abnormal announcement returns estimated over the three days window surrounding the announcement of a M&A deal (where 0 is the announcement date). CAR estimation is carried over daily returns estimation window using the market model over 200 trading days till 11 days before the announcement. CSR rating is the net corporate and social responsibility rating as gathered from ESG STATS (KLD formerly) calculated as the sum(strengths) − sum(concerns) and adjusted by the number of relative available ratings per firm-year. We sort all ESG STATS firms based on net CSR score and then assign dummy High and Low CSR as above or below median CSR by industry and year. Compensation variables are gathered from Execucomp database, mainly to estimate VEGA (sensitivity of CEO wealth to stock return volatility) and DELTA (sensitivity of CEO wealth to stock price). EDELTA is orthogonalized residual of the regression of DELTA on VEGA. We take the lowest quartile and highest quartile sort by industry and year to assign the dummy High or Low VEGA. Cash only and stock only refer to the method of payment for the offer. Premium is calculated as the SDC value of transaction dollar divided market capitalization 40 days before the announcement of the deal. Market to book is absolute value of the price 40days before the deal announcement divided by book value per share as stated by COMPUSTAT. Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the runup period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC and TenderDummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama-French five industry model as denoted by the SIC codes on CRSP. Year dummy is a dummy for the year the offer is announced over 1993-2018. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

Dependant variable CAR(-1,1)
(t-value)

	All deals		
	1993-2018	1993-2007	2008-2018
Intercept	0.4564 (1.58)	0.5822 (1.61)	0.6464 * (1.79)
CSR Rating	0.1748 (0.78)	0.4223 (1.02)	0.0448 (0.16)
VEGA	-0.0000 (-0.38)	-0.0001 (-1.12)	0.0001 (0.83)
LowCSR×LowVEGA	-0.0180 (-0.62)	-0.0739 * (-1.7)	0.0112 (0.28)
LowCSR×HighVEGA	0.0405 (1.3)	0.0672 * (1.7)	0.0097 (0.18)
HighCSR×HighVEGA	0.0406 (1.17)	0.0505 (1.03)	0.0341 (0.66)
HighCSR×LowVEGA	0.0191 (0.59)	0.0329 (0.77)	-0.0001 (0)
EDELTA	0.0000 (1.63)	0.0000 (0.6)	0.0000 ** (2.1)
Market to Book	0.0007 (1.33)	-0.0020 (-0.96)	0.00078 (1.43)
Size	-0.0306 *** (-3.23)	-0.0308 ** (-2.4)	-0.0304 ** (-2.07)
Target Volatility	0.4069 (0.38)	-0.1231 (-0.08)	0.1859 (0.12)
Premium	0.0937 *** (4.93)	0.0639 *** (2.77)	0.1644 *** (4.97)
Cash only	0.0839 *** (4.19)	0.0578 ** (2.04)	0.1225 *** (4.29)
Stock only	-0.0222 (-0.88)	-0.0140 (-0.46)	-0.0031 (-0.07)
Tender Dummy	0.0368 (1.56)	0.0445 (1.38)	0.0420 (1.23)
Hostile	0.0356 (1.04)	0.0636 * (1.71)	-0.0894 (-1.11)
Industry Dummy	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes
N	436	233	203
Adj R²	0.2473	0.2512	0.2744

Table 4.8- Runup Period Regressions of Subsamples based on Announcement Year and High or Low CSR (Orthogonalized DELTA)

Table 4.8 presents the results of the OLS regression on our full Sample of 599 bids, then divides the sample into subsample by announcement year (before 2007 or after) and high or low CSR. We test variants of the following equation:

$$CAR_{(-42,-2)i} = a + a_1 * CSRrating_i + a_2 * Vega_i + a_3 * EDelta_i + a_4 * TargetVol_i + a_5 * Premium_i + a_6 * Size_i + a_7 * MarketToBook_i + a_8 * Cash_{only_i} + a_9 * Stock_{only_i} + a_{10} * Hostile_i + a_{11} * TenderDummy_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is CAR(-1,1) is the cumulative abnormal announcement returns estimated over the three days window surrounding the announcement of a M&A deal (where 0 is the announcement date). CAR estimation is carried over daily returns estimation window using the market model over 200 trading days till 11 days before the announcement. CSR rating is the net corporate and social responsibility rating as gathered from ESG STATS (KLD formerly) calculated as the sum(strengths) – sum(concerns) and adjusted by the number of relative available ratings per firm-year. Compensation variables are gathered from Execucomp database, mainly to estimate VEGA (sensitivity of CEO wealth to stock return volatility) and DELTA (sensitivity of CEO wealth to stock price). VEGA and DELTA are reported in $1,000. EDELTA is orthogonalized residual of the regression of DELTA on VEGA. Cash only and stock only refer to the method of payment for the offer. Premium is calculated as the SDC value of transaction dollar divided market capitalization 40 days before the announcement of the deal. Market to book is absolute value of the price 40days before the deal announcement divided by book value per share as stated by COMPUSTAT. Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the runup period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC and TenderDummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama-French five industry model as denoted by the SIC codes on CRSP. Year dummy is a dummy for the year the offer is announced over 1993-2018. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

Dependant variable CAR(-42,-2)
(t-value)

	1993-2018			1993-2007			2008-2018		
	All Sample	HighCSR	LowCSR	All Sample	High CSR	Low CSR	All Sample	High CSR	Low CSR
Intercept	0.1426 (0.5)	0.3214 (0.83)	0.3878 (1.12)	0.2796 (0.68)	0.2185 (0.4)	0.1486 (0.29)	0.2508 (0.81)	0.2238 (0.39)	0.6921 ** (2.1)
CSR Rating	-0.2917 (-1.55)	0.2749 (0.66)	-0.1954 (-0.4)	-0.9315 ** (-2.5)	3.2267 ** (2.44)	-0.9189 (-1.27)	0.0183 (0.08)	0.0609 (0.13)	1.6524 ** (2.35)
VEGA	0.0001 (0.91)	0.0000 (0.45)	0.0002 ** (2.55)	0.0000 (0.09)	-0.0001 (-0.62)	0.0002 (1.21)	0.0001 (1.13)	0.0001 (0.75)	0.00025 ** (2.53)
EDELTA	-0.0000 ** (-2.52)	-0.0000 *** (-3.01)	0.0000 (-0.1)	-0.0000 *** (-2.87)	-0.0001 *** (-3.68)	-0.0000 (-0.95)	0.0000 (-0.29)	-0.0000 (-1.12)	0.0000 (1.2)
Market to Book	-0.0010 ** (-2.03)	-0.0001 (-0.15)	-0.0027 ** (-2.58)	0.0020 (0.85)	0.0040 (1.23)	0.0038 (0.88)	-0.0010 ** (-2.22)	-0.0003 (-0.49)	-0.0029 *** (-3.31)
Size	-0.0129 (-1.38)	-0.0205 (-1.3)	-0.0265 ** (-2.16)	-0.0152 (-1.05)	-0.0221 (-0.93)	-0.0154 (-0.81)	-0.0186 (-1.48)	-0.0160 (-0.68)	-0.0376 ** (-2.6)
Target Volatility	-0.4668 (-0.43)	1.6912 (0.94)	-2.9825 ** (-2.04)	-0.6229 (-0.36)	1.1384 (0.37)	-2.4870 (-1.13)	-0.4915 (-0.36)	0.6262 (0.27)	-3.2144 * (-1.71)
Premium	0.1168 *** (6.11)	0.0960 *** (3.07)	0.1286 *** (5.21)	0.1113 *** (4.22)	0.1009 ** (2.46)	0.1266 *** (3.51)	0.1200 *** (4.12)	0.1145 ** (2.05)	0.1174 *** (3.61)
Cash only	0.0346 * (1.72)	0.0219 (0.66)	0.0525 ** (2.1)	0.0627 * (1.93)	0.0647 (1.2)	0.1047 *** (2.64)	0.0214 (0.86)	0.0415 (0.92)	0.0075 (0.27)
Stock only	0.0476 * (1.88)	0.0123 (0.29)	0.0610 * (1.97)	0.0395 (1.14)	-0.0019 (-0.03)	0.0663 (1.57)	0.08718 ** (2.17)	0.0949 (1.28)	0.0574 (1.21)
Tender Dummy	0.0101 (0.43)	-0.0760 * (-1.72)	0.0334 (1.21)	-0.0082 (-0.22)	-0.2007 ** (-2.43)	0.0545 (1.27)	0.01771 (0.59)	-0.0127 (-0.22)	-0.0202 (-0.62)
Hostile	-0.0488 (-1.42)	-0.1273 (-1.64)	-0.0563 (-1.48)	-0.0643 (-1.52)	-0.0583 (-0.58)	-0.0841 * (-1.74)	-0.0335 (-0.47)	-0.1605 (-1.15)	-0.0023 (-0.03)
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	436	181	255	233	89	144	203	92	111
Adj. R²	0.1601	0.2428	0.2028	0.1872	0.3379	0.2112	0.1076	0.0938	0.3011

Table 4.9- Runup Period Regressions of Target Cumulative Abnormal returns (CAR) with Low CSR, High CSR, Low VEGA, and High VEGA dummies (Orthogonalized DELTA)

Table 4.9 presents the results of the OLS regression on our full Sample of 599 bids and over subsamples divided by announcement date over 1993-2007 and 2008-2018 using dummy variables for CSR and VEGA as Low or High. We test variants of the following equation:

$$CAR_{(-42,-2)i} = a + a_1 * CSRrating_i + a_2 * Vega_i + a_3 * LowCSR_i * LowVega_i + a_4 * HighCSR_i * LowVega_i + a_5 * HighCSR_i * HighVega_i + a_6 * HighCSR_i * HighVega_i + a_7 * EDelta_i + a_8 * TargetVol_i + a_9 * Premium_i + a_{10} * Size_i + a_{11} * MarketToBook_i + a_{12} * CashOnly_i + a_{13} * StockOnly_i + a_{14} * Hostile_i + a_{15} * TenderDummy_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is CAR(-1,1) is the cumulative abnormal announcement returns estimated over the three days window surrounding the announcement of a M&A deal (where 0 is the announcement date). CAR estimation is carried over daily returns estimation window using the market model over 200 trading days till 11 days before the announcement. CSR rating is the net corporate and social responsibility rating as gathered from ESG STATS (KLD formerly) calculated as the sum(strengths) – sum(concerns) and adjusted by the number of relative available ratings per firm-year. We sort all ESG STATS firms based on net CSR score and then assign dummy High and Low CSR as above or below median CSR by industry and year. Compensation variables are gathered from Execucomp database, mainly to estimate VEGA (sensitivity of CEO wealth to stock return volatility) and DELTA (sensitivity of CEO wealth to stock price). EDELTA is orthogonalized residual of the regression of DELTA on VEGA. We take the lowest quartile and highest quartile sort by industry and year to assign the dummy High or Low VEGA. Cash only and stock only refer to the method of payment for the offer. Premium is calculated as the SDC value of transaction dollar divided market capitalization 40 days before the announcement of the deal. Market to book is absolute value of the price 40days before the deal announcement divided by book value per share as stated by COMPUSTAT. Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the runup period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC and TenderDummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama-French five industry model as denoted by the SIC codes on CRSP. Year dummy is a dummy for the year the offer is announced over 1993-2018. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

Dependant variable CAR(-42,-2)
(t-value)

	All deals		
	1993-2018	1993-2007	2008-2018
Intercept	0.2171	0.3374	0.3424
	(0.75)	(0.82)	(1.08)
CSR Rating	-0.0481	-0.2809	0.0454
	(-0.21)	(-0.6)	(0.18)
VEGA	-0.0000	-0.0000	0.0000
	(-0.1)	(-0.74)	(0.11)
LowCSR×LowVEGA	0.0329	0.0383	0.0409
	(1.12)	(0.77)	(1.17)
LowCSR×HighVEGA	0.0747 **	0.1087 **	0.0701
	(2.39)	(2.41)	(1.48)
HighCSR×HighVEGA	0.0100	-0.0191	0.0635
	(0.29)	(-0.34)	(1.4)
HighCSR×LowVEGA	-0.0242	-0.0317	-0.0032
	(-0.75)	(-0.65)	(-0.08)
EDELTA	-0.0000 **	-0.0000 ***	0.0000
	(-2.46)	(-3.05)	(0.02)
Market to Book	-0.0009 *	0.0033	-0.0011 **
	(-1.84)	(1.4)	(-2.26)
Size	-0.0160 *	-0.0169	-0.0224 *
	(-1.68)	(-1.15)	(-1.73)
Target Volatility	-0.6140	-0.9728	-0.5506
	(-0.57)	(-0.56)	(-0.39)
Premium	0.1184 ***	0.1163 ***	0.1220 ***
	(6.21)	(4.43)	(4.19)
Cash only	0.0329	0.0600 *	0.0218
	(1.64)	(1.86)	(0.87)
Stock only	0.0415	0.0313	0.0860 **
	(1.64)	(0.9)	(2.13)
Tender Dummy	0.0048	-0.0094	0.0117
	(0.2)	(-0.26)	(0.39)
Hostile	-0.0451	-0.0544	-0.0258
	(-1.32)	(-1.28)	(-0.36)
Industry Dummy	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes
N	436	233	203
Adj R²	0.1681	0.2036	0.1079

Table 4.10- Regressions of Target Cumulative Abnormal returns (CAR) over the 3 day announcement window accounting for runup period returns, with Low CSR, High CSR, Low VEGA, and High VEGA dummies (Orthogonalized DELTA)

Table 4.10 presents the results of the OLS regression on our full Sample of 599 bids and over subsamples divided by announcement date over 1993-2007 and 2008-2018 using dummy variables for CSR and VEGA as Low or High. We test variants of the following equation:

$$CAR_{(-1,1)i} = a + a_1 * CSRrating_i + a_2 * Vega_i + a_3 * LowCSR_i * LowVega_i + a_4 * HighCSR_i * LowVega_i + a_5 * HighCSR_i * HighVega_i + a_6 * HighCSR_i * HighVega_i + a_7 * Delta_i + a_8 * TargetVol_i + a_9 * RunupCAR_{(-42,-2)i} + a_{10} * Size_i + a_{11} * MarketToBook_i + a_{12} * CashOnly_i + a_{13} * StockOnly_i + a_{14} * Hostile_i + a_{15} * TenderDummy_i + b * Industrydummy_i + c * Yeardummy_i + e_i$$

The dependent variable is CAR(-1,1) is the cumulative abnormal announcement returns estimated over the three days window surrounding the announcement of a M&A deal (where 0 is the announcement date). CAR estimation is carried over daily returns estimation window using the market model over 200 trading days till 11 days before the announcement. CSR rating is the net corporate and social responsibility rating as gathered from ESG STATS (KLD formerly) calculated as the sum(strengths) − sum(concerns) and adjusted by the number of relative available ratings per firm-year. We sort all ESG STATS firms based on net CSR score and then assign dummy High and Low CSR as above or below median CSR by industry and year. Compensation variables are gathered from Execucomp database, mainly to estimate VEGA (sensitivity of CEO wealth to stock return volatility) and DELTA (sensitivity of CEO wealth to stock price). EDELTA is orthogonalized residual of the regression of DELTA on VEGA. We take the lowest quartile and highest quartile sort by industry and year to assign the dummy High or Low VEGA. Cash only and stock only refer to the method of payment for the offer. Runup period abnormal returns are measured similarly to markup period returns but over window (-42,-2). Market to book is absolute value of the price 40days before the deal announcement divided by book value per share as stated by COMPUSTAT. Vol is the volatility of the stock estimated as the standard deviation of daily CRSP stock return over one year before the runup period. Hostile is a dummy where the attitude of the deal is reported as hostile on SDC and TenderDummy shows if the offer was a tender offer. Industry dummy is the dummy over the Fama-French five industry model as denoted by the SIC codes on CRSP. Year dummy is a dummy for the year the offer is announced over 1993-2018. The ***, **, and * denote significance at 1%, 5%, and 10% confidence levels.

Dependant variable CAR(-1,1)
(t-value)

	All deals		
	1993-2018	1993-2007	2008-2018
Intercept	1.1045 *** (4.02)	1.2333 *** (3.75)	1.2117 *** (3.26)
CSR Rating	0.1096 (0.49)	0.1323 (0.33)	0.0773 (0.26)
VEGA	-0.0000 (-0.29)	-0.0001 (-0.95)	0.00005 (0.49)
LowCSR×LowVEGA	-0.0123 (-0.42)	-0.0623 (-1.48)	0.0159 (0.38)
LowCSR×HighVEGA	0.0584 * (1.87)	0.0911 ** (2.35)	0.0098 (0.17)
HighCSR×HighVEGA	0.0490 (1.42)	0.0560 (1.18)	0.0483 (0.89)
HighCSR×LowVEGA	0.0220 (0.68)	0.0369 (0.9)	-0.0027 (-0.05)
EDELTA	0.0000 (0.73)	-0.0000 (-0.44)	0.0000 (1.52)
Market to Book	0.0005 (1.05)	-0.0020 (-0.99)	0.0007 (1.2)
Size	-0.0454 *** (-4.84)	-0.0478 *** (-3.92)	-0.0431 *** (-2.78)
Target Volatility	1.0553 (0.99)	-0.0989 (-0.07)	1.7465 (1.07)
Runup CAR(-42,-2)	-0.2562 *** (-5.35)	-0.2706 *** (-4.72)	-0.2319 *** (-2.69)
Cash only	0.0889 *** (4.46)	0.0743 *** (2.69)	0.1127 *** (3.78)
Stock only	-0.0570 ** (-2.36)	-0.0400 (-1.41)	-0.0557 (-1.2)
Tender Dummy	0.0454 * (1.94)	0.0417 (1.34)	0.0651 * (1.82)
Hostile	0.0157 (0.46)	0.0438 (1.21)	-0.1433 * (-1.7)
Industry Dummy	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes
N	436	233	203
Adj R²	0.2552	0.3005	0.2043