Board Monitoring and Industry Homogeneity

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ABSTRACT

This paper provides new evidence on the behavior of boards in the ratification of management investment proposals by examining changes in total assets, acquisitions, and write-offs following the CEO turnover event with respect to industry classification. Using Parrino's (1997) measure of industry homogeneity the study finds evidence to support the notion boards in homogeneous industries are better able to provide value in evaluating management investment proposals. This study reports that homogeneous industry member firms make fewer acquisitions, fewer write-offs, experience smaller cumulative abnormal announcement returns, and less equity volatility following CEO turnover.

Keywords: Corporate Governance, Board Compositions, Mergers and Acquisitions, Write-offs, Board Monitoring, Compensation and Divestiture

INTRODUCTION

The board of directors of Mattel approved the acquisition of The Learning Company, a children's software company, in late 1998 on the recommendation of CEO Jill Barad. In February of 2000, after an emergency session, the board announced the resignation of Ms. Barad and proceeded to search for a replacement CEO. In October of the same year, new CEO Robert Eckert announced the sale of the Learning Company for no cash, only a percentage of any new profits. The board was clearly able to evaluate the incumbent CEO's investment policy and make a replacement decision. It is not clear however, why the board of Mattel choose to approve the investment policy of the departed CEO.

Board monitoring of CEOs can be more effective when boards have an available benchmark to measure CEO performance. Parrino (1997) finds boards in industries where member firms are similar are better able to discern managerial ability. Parrino notes greater frequency of forced turnover announcements in these homogeneous industries. The implication of Parrino (1997) is the availability of a

reliable benchmark enables boards to provide more effective monitoring of firm performance. However, boards do not exist solely to discipline poorly performing managers. The board also has a role in ratifying firm policies (e.g. operational, financial, and investment) proposed by the CEO (Fama, 1980; Fama & Jensen, 1983). If board members act to protect the interest of shareholders, then board members will only endorse firm policies likely to increase shareholder value. Of course, it is not always clear which policy changes will increase shareholder value. The likelihood of a particular investment project succeeding in increasing firm value cannot be known with certainty. Characteristics of the investment project may contribute to the amount of uncertainty regarding its future prospects. These characteristics include size of the project, the degree of leverage the firm must undertake to accept the project, and whether the project increases firm diversification.

Dittmar and Shivdasni (2003) find that firms altering their organizational structure by divesting a business segment experience a reduction in the well known diversification discount[1]. Lang, Poulson, and Stulz (1994) argue assets sales are a method of providing capital for investment when firms face constraints on access to external funds. Asset sales ease these constraints and provide capital to invest in what the firm perceives to be valuable projects. The effectiveness of the board in evaluating the investment policies proposed by managers is a function of the board's expertise in evaluating similar projects. Investment projects undertaken in the same industry segment as the firm should experience less uncertainty regarding future performance than diversifying projects.

Shleifer and Vishney (1990) and Schlingemann, Stulz, and Walkling (2002) suggest the nature of the firm's industry will affect the level of uncertainty regarding the outcomes of any proposed changes in the firm's strategic policies. The expected cash flows associated with a given project may be estimated with less uncertainty in industries that are more homogeneous as firms within a homogeneous industry utilize similar production technologies and similar product markets. The accuracy of the estimated cash flows may be a function of the degree of industry homogeneity. Therefore, the firm's directors should be better able to assess proposed investment changes as the degree of industry homogeneity increases. Kovenock and Phillips (1997) report product market characteristics play an important role in capital structure decisions, suggesting industry homogeneity affects a firm's financing decisions.

The board may have increased monitoring ability in homogeneous industries but the increased ability does not necessary imply a willingness to effectively monitor

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[1]See, for example, Berger and Ofek (1995), Denis and Thothadri (1999), Lamont and Polk (2002) and others.

the firms strategic policies. Boards may be effectively captured by the CEO and serve primarily to rubber stamp the CEO's projects (Lipton & Lorsch, 1992). CEO turnover represents a natural laboratory to examine board monitoring as firms experience an operational shift in investment and financing policies surrounding the turnover event (Clayton, Hartzell, & Rosenberg, 2003). The investment policy changes surrounding the CEO turnover event provide an opportunity to evaluate board effectiveness in assessing firm investment policy. This paper investigates whether boards of firms in homogeneous industries are better able to limit reductions in shareholder value due to poor investment and financing decisions than are their counterparts in more heterogeneous industries. The paper examines changes in financing and investment policy surrounding the CEO turnover event to evaluate board behavior utilizing a sample consisting of CEO turnover events between 1995 and 2001.

The paper is organized as follows. Section 2 discusses CEO investment preferences and the relationship between board monitoring, CEO turnover, asset sales, and industry homogeneity. The data are described in Section 3 and the evidence is presented in Section 4. Conclusions are presented in Section 5.

BOARD MONITORING AND CEO INVESTMENT PREFERENCES

The board of directors of the firm selects the CEO to manage the daily operations of the firm and to implement investment strategies designed to increase firm value. If the board is not satisfied with the firm's performance it is likely to take actions such as asset and debt restructurings. If the board decides that the current CEO is unable to implement the desired changes then a new CEO will be appointed (assuming the board is not effectively captured by the CEO). Clayton, Hartzell, and Rosenberg (2003) present a model where the board does not believe the current CEO has the ability to manage and implement the desired strategic changes. The underperforming CEO is replaced by a CEO more likely to implement the desired changes. Forced turnover and replacement by a CEO from outside the firm are indications the board seeks strategic business policy changes.

If the board serves to monitor CEO performance in the interest of shareholders, then CEOs have an incentive to pursue strategic policies desired by the board. The CEO may have other compelling reasons not to behave in a manner consistent with board preferences. It may be that CEOs simply enjoy managing some projects better than others (Demsetz, 1983). Another possibility is that managers honestly over-estimate their ability to monitor certain types of projects and subsequently over invest in those projects (Roll, 1986). The CEOs may

be unwilling to divest of these under-performing projects for fear that doing so would send a negative signal concerning their ability (Bushman, Kanodia, & Dickhaut, 1989; Boot 1992).

Personal wealth concerns may also lead CEOs to pursue strategies not consistent with shareholder interests. CEOs may seek investments, even those with negative NPVs, in an effort to increase firm size and consequently CEO compensation (Jensen, 1986). CEOs may also choose projects that complement their own skill set, thereby increasing their bargaining power with the board. This increased bargaining power can be used to increase their compensation (Shleifer & Vishny, 1989). CEOs may also be reluctant to pursue risky investments since their personal wealth is highly concentrated in the firm and this risk cannot be easily diversified away. Parrino, Poteshman, and Weisbach (2003) present a model where risk adverse managers may prefer less risky projects with negative NPVs to more risky projects with positive NPVs. In this model, equity compensated CEOs rationally fear projects with increased risk that may increase the likelihood of insolvency, whereby the CEOs' shares become worthless and the firm's creditors take over the firm.

Increased Divestiture Following CEO Turnover

Increased asset divestiture subsequent to the CEO turnover event is consistent with the board seeking a new CEO to implement desired strategic business policies. The board's desire for different investment policies result in asset restructuring (Clayton et al., 2003). Increased asset restructuring following the CEO turnover event is also consistent with Demsetz (1983) since the new CEO may enjoy managing projects that are different from those enjoyed by the departing CEO. If Roll (1986) holds, where managers overestimate their ability to manage certain types of projects, then an increase in asset sales following CEO turnover would be expected. The new CEO is unlikely to have the same estimate of their own ability to manage the firm's existing projects as the departed CEO.

Shleifer and Vishny (1990) also predict increased divestiture following the CEO succession event. The new CEOs will attempt to select projects based on their specific skill set and their skill set may not correlate perfectly with that of the departing CEO, thereby increasing asset sales. The incoming CEO will likely have lower equity based compensation levels than the outgoing CEO, as higher levels of equity based compensation are associated with longer tenure (Anderson, Mansi, & Reeb, 2003). This lower equity compensation level may lead new CEOs to be less risk adverse, whereby Parrino et al.'s (2003) model predicts increased selection of risky, positive NPV projects and a divestiture of less risky, negative NPV projects.

Another possible explanation for asset sales around CEO turnover events is related to the 'earnings bath' hypothesis.[2] The earnings bath hypothesis states that new CEOs whose direct compensation is related to increases in earnings, has an incentive to generate losses in the current period. Future earnings are likely to increase when compared to the written down period, and the new CEO's direct compensation in the form of performance bonuses will increase. The new CEO will seek to generate short term losses even to the point of making value reducing decisions.

Weisbach (1995) reports increased asset divestitures following the CEO turnover event. Denis and Denis (1995) also report increased asset sales, resulting in smaller firm size, in the aftermath of CEO turnover with the greatest amount of divestitures where the existing CEO is forcibly removed and the successor is chosen from outside the firm. Ravenscraft and Scherer (1987) examine line of business data and find firms are more likely to sell-off a line of business after a management change. Kaplan and Weisbach (1992) report diversifying acquisitions are more likely to be subsequently divested than more focused acquisitions, indicating boards are better able to ex ante evaluate investment proposals within their industry.

CEO Turnover and Industry Homogeneity

When the board determines the current CEO is underperforming it may seek to replace the CEO if the cost of doing so is less than the cost of retention. The board must first decide whether the current CEO is underperforming. Parrino (1997) presents evidence that boards in homogeneous industries are better able to determine CEO performance than boards of firms in heterogeneous industries. Boards in more homogenous industries can more readily compare the performance of their CEO with CEOs of other firms in the industry. Parrino finds this improved monitoring allows boards to replace poorly performing CEOs more frequently. The improved corporate governance of firms in homogeneous industries serves to aid in limiting the erosion of firm value by underperforming CEOs. Kaplan and Weisbach (1992) report that the majority of acquisitions in which the acquirer and target do not have the same two digit SIC code are subsequently divested. They further report that the divestiture rate falls as SIC codes between the acquirer and target become more similar.

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[2]A partial list of studies investigating this hypothesis include Elliot and Shaw (1988), DeAngelo (1988), Murphy and Zimmerman (1993), and Pourciau (1993).

If boards in more homogenous industries are better able to monitor the performance of CEOs as Parrino (1997) suggests, then it would seem reasonable to hypothesize that these boards can more easily identify less than optimal CEO investment preferences. The directors in these more homogeneous industries, with increased monitoring ability, should be better able to prevent the selection of value reducing projects than boards in more heterogeneous industries.

This paper seeks to investigate the hypothesis that asset sales subsequent to the CEO turnover event are negatively related to industry homogeneity. If boards of firms in homogeneous industries are better able to monitor CEOs than heterogeneous industry firms, then this negative relationship should be greater with forced turnovers. Forced turnovers are an indication the board seeks a change in the firm's strategic policies, but these changes should be of lesser magnitude than those occurring in heterogeneous industry firms. Outside succession events in homogeneous industries should also experience smaller subsequent asset sales than firms in heterogeneous industries.

DATA COLLECTION AND SUMMARY

Industry Homogeneity Proxy

The present study follows the methodology of Parrino (1997) in calculating a proxy for industry homogeneity. This measure is based on the correlation in changes in stock price returns within two-digit SIC codes. A firm's stock price represents the present value of its residual cash flows. If firms in a particular industry employ the same methods of production and compete in the same types of product markets, new information concerning economic conditions or technological innovations should be similarly reflected in their stock prices.

The correlation measures are obtained by first creating an equally weighted return index for each industry using monthly returns on the CRSP files from January 1980 to December 1995. The monthly return for each firm in each index is then regressed against an equally weighted market return index and the industry return index. The partial correlation coefficient for the industry return index in the regression is averaged for all firms within each industry. This mean partial correlation coefficient is calculated for a maximum of 50 firms in each two digit SIC code. If the industry contains more than 50 firms, a random selection process is used to select 50 representative firms. This limit on the number of firms within industry is required because there is a negative relation between the number of firms used in the calculation of the return index and the partial correlation coefficient

estimate. Likewise, industries with fewer than 35 firms are excluded from all analysis using this homogeneity measure. The parameters of this measure are by their nature arbitrary. As such, the evidence provided using this proxy is a joint test of how well it measures industry homogeneity and the predicted cross-sectional relations.

Table I shows the industry homogeneity proxy for the sample period of 1995 to early 2001. It also shows a mean and median proxy of 0.3208 and 0.2997 respectively. Parrino (1997) reports mean and median scores of 0.2974 and 0.2823 for a sample period between 1970 and 1988. Agerwal, Knoeber, and Tsoulouhas (2000) report mean and median values of 0.312 and 0.325 respectively for the years 1974 to 1995. The study designates industries as homogeneous as those with partial correlations greater than the median of all industries. A casual analysis of the relative rankings of industries for the sample period indicates that rankings are similar to those of earlier studies.

CEO Turnover Sample

CEO successions for the 1995 to early 2001 period are examined in this study. The study uses a methodology similar to Borokhovich, Parrino, and Trapani (1996). CEO succession events included in the study are obtained by identifying those CEOs listed in the Forbes annual compensation survey who have held their position for one year or less. This list of new CEOs yields 262 observations that meet the following requirements:
1) Daily return data is available in the CRSP data set for the preceding two years.
2) The firm must not be under any takeover pressure during the preceding 6 months.
3) The turnover announcement must be in either Wall Street Journal or via Lexis-Nexis.
4) The turnover must not be related to any merger or spin-off.

The CEOs age, tenure with the firm, and tenure in office are obtained from the Forbes surveys. The accuracy of the Forbes surveys is then checked against information contained in the Wall Street Journal announcements, various national and regional newspapers accessed via Lexis-Nexis, and proxy statements. The Wall Street Journal or Lexis-Nexis are used to obtain the announcement date of the turnover event and to gather information concerning the circumstances of the event. In the event the announcement data differs from the earliest Lexis-Nexis reference to the Wall Street Journal, the reference with the earliest dateline is used. In the approximately 70% of the instances where the event is reported by both sources, the Lexis-Nexis dateline is one day earlier. However, in a few instances the Wall Street Journal reference is several days older than the Lexis-Nexis reference.

Succession events are deemed to be forced under the following criteria; 1) the announcement in the Wall Street Journal explicitly states the turnover event as forced or the incumbent CEO is departing for unspecified policy differences; 2) in the case of the incumbent CEO departing is 60 years of age or less, the Wall Street Journal announcements are reviewed and the turnover event is deemed forced if a) no mention of death, poor health, or the acceptance of another position, or b) stated reason for turnover is retirement but no prior retirement announcement at least 6 months prior to the turnover event is observed. The study also reviews any corporate news indicating any accounting impropriety or SEC investigation and classify those turnover events as forced regardless of company statement.

A CEO is considered an outsider if he or she has been with the firm less than 1 year prior to the announcement date. The Wall Street Journal announcement concerning the tenure and previous position is confirmed using various Marquis Who's Who publications, Dun and Bradstreet's Book of Corporate Management, or proxy statements. It seems reasonable that executives who acquire the CEO position after only one year with the firm were hired to eventually take the top post. Borokhovich et al. (1996) use three year tenure with the firm to designate outsiders using the same rationale, noting that hiring an executive prior to the succession allows the board opportunity to measure the abilities of the candidate. Furtado and Rozeff (1987) only classify a successor as an outsider if the new CEO is not employed by the firm at the announcement date.

The authors also gather information on the incumbent CEO's tenure, as it has been documented that higher levels of divestiture are associated with CEO tenure (Berry, Bizjak, Lemmon, & Naveen, 2000). For comparative purposes they also gather information on the age of the new CEO. Table II shows homogeneous industry incumbent CEOs are slightly older on the turnover date than heterogeneous industry CEOs, 61.000 years and 59.5 years respectively, however the difference is not robust to the median two sample test (p=0.351). The successor CEOs of homogeneous industries are also somewhat older than their heterogeneous counterparts, 54.000 years versus 51.000 years respectively, and the difference is significant (p=0.020). Table II reports the median tenure of incumbent CEOs in homogeneous industries is 7.575 years, while heterogeneous incumbent CEO median tenure is 7.000, the differences in median tenures is not significant (p=0.568).

Measuring Strategic Policy Changes

The authors again gather firm and industry information from the Standard and Poor's Compustat database for the 1995 to early 2001 sample of firms with a change

in CEO. Since they measure changes in investment and financing policies for two years before and after the CEO turnover event, we remove 26 firms that Compustat does not report data for all five years. Due to the nature of firm performance and investment, the paper discusses only median values although mean values are also presented.

Firms in homogeneous industries tend to be larger than heterogeneous industry member firms. As shown in Table II, homogeneous industry firms have a median total assets value of $5,373.400 that is significantly larger than heterogeneous industry firms' value of $3,705.943 (p=0.031). Likewise, the median total debt of $1,200.900 for homogeneous industry firms is significantly larger than the $502.813 median total debt reported for heterogeneous industry firms (p=0.024), although there is no significant difference in firm leverage (p=0.242). In the year of the CEO succession event, heterogeneous firms experience a higher mean ROA (0.046 for heterogeneous firms and 0.035 for homogeneous firms), however the difference in median ROA is not significant.

The study measures new investment as the total acquisitions as reported in the Compustat data base (Data item number A129). This measure of acquisitions is obtained from the Statement of Cash flows and includes goodwill, long term debt assumed, the net assets of the business acquired, as well as the property, plant, and equipment of acquired companies. This data is not available for banks, and as such the article reports acquisitions for 185 firms. Then it scales the acquisitions of by the total assets of the firm in order to account for differing investment opportunities related to firm size. Table II shows homogeneous industry firms experience a greater level of acquisitions than do heterogeneous industry firms after scaling by total assets. The median ratio of acquisitions to total assets for homogeneous firms is 0.000; indicating homogenous firms often make no acquisitions during the CEO turnover year. Table II reports heterogeneous firms make on average more acquisitions, a median ratio value of 0.003. The difference is significant with a p value of 0.017 using the two sample median test.

The measure of asset sales is the sale of property, plant and equipment (Compustat data item A107) as in Clayton et al. (2003). This measure represents the gross proceeds from the sale of operating assets. This data is not available for banks, utilities, and casualty companies and as such the study reports the sale of PP&E for 138 firms. The study then scales the proceeds by total assets. Table II reports the median scaled sale of PP&E is 0.000 for homogeneous firms and 0.001 for heterogeneous firms, the difference not being significant (p=0.607).

The authors also evaluate changes in strategic policies by evaluating the level of capital expenditures (Compustat data item A128) between the two industry classifications. Capital expenditures represent the cash flows used for investment

in additional property, plant and equipment. After scaling capital expenditure by total assets, Table II shows no difference by industry classification in the median ratio of capital expenditures to total assets, although homogeneous firms have a greater variance in capital expenditures.

To investigate changes in financing policies surrounding the CEO turnover event the study also examines the issuance of new long-term debt (Compustat data item A111). This item represents the amount of funds generated from the issuance of long-term debt and includes long-term debt assumed in acquisitions. As with other variables measuring the change in strategic policies around the CEO succession event, the new long-term debt is scaled by total assets. Table II does not show any significant difference in the issuance of long term debt between the two classifications of industry homogeneity. Table II also reports the reduction of long term debt (Compustat data item A114). This item represents a reduction in long-term debt caused by long-term debt maturing (being classified as a current maturity), payments of long-term debt and the conversion of debt to stock. This variable is also scaled by the firm's total assets. Consistent with our other measures of strategic policy, there is no significant difference in the reduction of long-term debt between homogeneous and heterogeneous firms (p=0.777). Heterogeneous firms do not appear to reduce the level of debt any more than homogeneous firms.

Finally, firms may write-off or write-down the value of certain operational assets. If these events are considered unusual and/or non-recurring they may be classified as extraordinary. Table II reports the changes in special items (Compustat data item A17). The item represents unusual and/or nonrecurring items and includes results of discontinued operations, non-recurring profit or loss on the sale of assets, write-offs, and write-downs. While Compustat data item A17 covers many events and may misstate the true value of extraordinary items related to operational assets, the study cannot a priori anticipate these errors to be systematically biased between homogenous and heterogeneous firms. Heterogeneous firms have higher levels of special items than homogeneous firms, median ratio of special items to total assets of -0.006 and 0.000. The differences are marginally significant (p=0.065). Table II presents weak evidence that homogeneous firms are better able to avoid write-offs associated with poor investment decisions.

EVIDENCE OF BOARD MONITORING

Changes in Investment and Financing

Results of a univariate analysis of the changes in investment and financing byindustry homogeneity are presented in table III. If boards in more homogeneous

industries are better able to avoid sub-optimal investment and financing preferences of CEOs than boards in industries whose product markets are more diverse, then the researchers would expect less change in observable investment and financing policies. While both mean and median values for the variables of interest are presented, the paper restricts its discussion to median values since a few very large or small observations could influence the means in this relatively small sample. Likewise, the reported p values in table III are computed from the median two sample test.

Table III begins with an investigation as to whether changes in firm size, measured by the book value of total assets, around CEO turnover differ by industry homogeneity classification. Consistent with the notion that boards in homogeneous industries are better able to monitor the investment activities than heterogeneous industry boards, we report significantly less change in total assets for homogeneous firms following CEO turnover for the full sample. Total assets increase by about 32 percent during the five year period beginning two years prior to the turnover event for homogenous firms as compared to an approximate 62.9 percent change for heterogeneous firms, results that are marginally significant (p=0.059). The results for forced and outside turnover events are similar although not significant. Another interpretation may be simply that homogenous firms tend to be larger prior to the CEO turnover event and face less growth opportunities. Table III also reports the change in long term debt around CEO turnover. While the reported changes are less for homogeneous firms, consistent with the hypothesis that those boards have better monitoring ability and any resulting financing policy changes will be relatively small, the results are not significant for the full, forced replacement, or outside replacement samples.

The sum of total acquisitions, as reported by Compustat, for the three year period beginning the year of the reported turnover event is scaled by the previous year's total assets. If homogeneous industry member firms are better able to achieve an optimal investment policy, then successor CEOs should be less inclined to recommend significant changes. Additionally, if better monitoring is available for homogeneous industry boards then they should be able to more easily identify sub optimal investment initiatives of successor CEOs. The median reported level of scaled acquisitions for homogeneous industry firms is 0.000 for all sample segments, while heterogeneous firms experience mean scaled acquisitions of about 0.024, 0.057, and 0.032 for the full, forced, and outside samples respectively. Furthermore, these differences between homogeneity classifications are all highly significant (p values of less than 0.01), results consistent with the prediction of better board monitoring in homogeneous industries.

Table III next reports the changes in the purchase (capital expenditures) and sale of property, plant, and equipment by industry classification. The analysis reveals no significant difference between industry classifications, indeed the median values are similar for both measures, indicating the recurring investment and sale of certain operational assets is not affected by industry homogeneity. Next consideration is given to special events relating to changes in investment policy subsequent to CEO turnover. If the successor CEO acts to correct the failed investment policies of her predecessors by selling assets at a loss, discontinuing operations, writing down the value of assets, etc., these actions may be consideration is given nonrecurring and unusual. The paper refers to these actions collectively as write-offs. If boards in homogeneous industries are better able to prevent the erosion of firm value due to poor incumbent CEO investment decisions than are their heterogeneous industry counterparts, the study is likely to expect write-offs to be less in homogeneous industries following CEO turnover. Table III reports homogeneous firms have a median sum of scaled write-offs in the three year period subsequent to CEO turnover of 0.000, while heterogeneous firms write-offs during the same period total approximately 2.2 percent of total assets, a difference that is again marginally significant (p=0.065). The difference for the forced sub sample is economically more significant, median values of approximately 0.000 and 9.3 percent for homogeneous and heterogeneous firms respectively. Again, the differences are marginally significant statistically with a report p value of 0.053. Although write-offs for the outside replacement sample are less important economically for homogeneous firms than for heterogeneous firms, median values of about 0.7 and 4.4 percent respectively, the differences are not significant (p=0.200).

Overall, table III presents evidence that boards in homogeneous industries experience less change in investment and financing policies subsequent to CEO turnover. This evidence is consistent with the notion of better monitoring ability for boards in homogeneous industries. However, the results may be influenced by firm size as homogeneous firms tend to be larger. The study thereafter tests the robustness of the findings in table III by testing the effects of industry homogeneity on investment decisions in the cross section while controlling for firm size, performance, and incumbent CEO tenure.

Cross Sectional Analysis of Investment Decisions and Homogeneity

Table IV presents the results from cross sectional analysis of firm investment decisions with respect to industry homogeneity while controlling for firm size, accounting performance, and incumbent CEO tenure. The change in total assets, the sum of acquisitions, and the sum of write-offs, are computed as in table II.

Panel A of table IV investigates the notion that changes in firm size subsequent to CEO turnover are related to industry homogeneity. Industry homogeneity is not significant in explaining the change in total assets in the overall, forced, voluntary, and outside turnover samples. However, industry homogeneity is negatively related (coefficient of about -1.706) and significant (p=0.046) to changes in firm size for the inside turnover sample. Inside replacement candidates in homogeneous firms appear to be associated with lower incidences in firm growth in total assets, consistent with the hypothesis homogeneous firms operate near an optimal investment set. Closely related to changes in firm size is the ratio of acquisitions to total assets presented in Panel B of table IV. Industry homogeneity is negatively and significantly related to acquisitions for the overall, voluntary, and inside replacement samples with coefficients of -0.023, -0.026, and -0.033 respectively and p values of 0.016, 0.034, and 0.012.

Panel C of table IV reports results for relationship between write-offs subsequent to CEO turnover and industry homogeneity. The forced turnover sample reports write-offs, recorded as a negative value, are negatively related (coefficient of 0.042) to industry homogeneity, results that are significant (p=0.010). The insider replacement sample similarly shows industry homogeneity to be negatively related to subsequent write-offs with a coefficient of 0.043, results that are significant at the five percent level (p=0.018).

Overall, table IV supports the notion that industry homogeneity is related to lower levels of investment error and managerial rent seeking behavior. However, the results do not hold for all sample segmentations and all variables. One possible explanation is the peculiarities of accounting rules and opinions as how to best account for acquisitions and write-offs. Another possible explanation is volatility in asset levels increases through our sample period, which will be discussed later in the paper.

Abnormal Stock Returns on the Announcement of CEO Turnover

Table V presents abnormal stock returns by industry classification and nature of the turnover event to examine whether board monitoring ability differs by industry homogeneity. If boards in homogeneous industry member firms are better able to obtain optimal investment and operational policies, then the market reaction to CEO turnover should be of less magnitude than heterogeneous industry firms. That is, the change in the present value of cash flows of homogeneous industry firms should be less than the associated change for heterogeneous firms if superior monitoring ability exists in homogeneous firms.

Table V reports smaller mean and median cumulative abnormal returns for homogeneous industry firms and that the median results are significantly different from heterogeneous firms (p=0.0205) while the difference in mean results have a p value of 0.1097. However, only the heterogeneous industry firms have mean and median cumulative abnormal returns that are significant. Outside replacement announcements likewise show considerably smaller and an economically significant difference in market reaction for homogeneous industry firms, although the differences are not significant. The mean and median cumulative abnormal returns for both types of firms are significant, with heterogeneous firms having higher significance levels. The inside replacement sample segmentation reveals little difference by homogeneity classification.

The market reactions to both forced and voluntary events are less for homogeneous firms. The mean cumulative abnormal return for heterogeneous firms is more than twice that reported for homogeneous firms and is marginally significant, although the difference between the two classifications is not. Voluntary turnover is both economically and significantly different between homogeneous and heterogeneous firms (p=0.0436 for median results). The median cumulative abnormal return for voluntary heterogeneous turnover is about 1.4 percent while homogeneous firms experience an economically insignificant - 0.1 percent median cumulative abnormal return. Likewise, only heterogeneous member firms experience significant mean cumulative abnormal returns (at the 5 percent level).

The findings reported in table V are consistent with homogeneous industry boards have better monitoring ability due the similarity of product technologies and markets. Market participants appear to have lower expectations of changes in firm value for homogeneous firms as investment and financing policies are, on average, more optimal than for heterogeneous industry member firms.

Market Uncertainty around CEO Turnover and Industry Homogeneity

If homogeneous and heterogeneous industry member firms indeed behave differently around CEO turnover events and changes in investment policies exist we might also expect differences in equity volatility. If boards in homogeneous industries are better able to monitor investment policies and are therefore closer to some optimal investment set, then any investment policy changes subsequent to the CEO turnover event may be relatively small. The smaller changes in investment policies may be associated with lower asset volatility. Merton (1974) predicts a positive correlation between equity volatility and asset volatility. Clayton et al. (2003) note increased equity volatility changes around CEO turnover for forced

relative to voluntary and outside relative to inside replacements for a sample consisting of turnover from 1979 to 1995. The notion being greater uncertainty for forced and outside turnover events with respect to changes in the firm's strategic policies (investment, financial, and operational) will result in increases equity volatility. The paper reports its findings using methodology similar to Clayton et al. in table VI.

Table VI reports the median pre-turnover annualized standard deviation of firm returns, as measured from 500 days prior to the CEO turnover announcement to one day before. Homogeneous industry member firms experience much lower volatility for the full sample than heterogeneous industry member firms, about 30.27 percent and 40.86 percent respectively. The differences are highly significant (p<0.001), indicating less uncertainty regarding future cash flows for homogeneous firms prior to the CEO succession announcement. Similar results are obtained for the forced and outside sample segmentations. The post turnover annualized standard deviations are also presented in table VI. The overall level of volatility relative to the pre-event level is higher for both homogeneous and heterogeneous industry firms. However, heterogeneous firms in the post turnover event period report significantly higher median annualized standard deviations than their homogenous counterparts for the full sample (p<0.001). As with the pre-event volatility, post event forced and outside replacements volatility levels are significantly different for homogeneous and heterogeneous firms.

Table VI also reports the change in equity volatility from before and after the CEO turnover announcement. This change is measured as the natural log of the ratio of post turnover volatility to pre turnover volatility. Interestingly, homogeneous firms experience greater change in volatility than do heterogeneous firms, median values of 24.53 percent and 18.38 percent respectively, and the results are significant at the five percent level. This higher volatility for homogeneous firms holds for outside and forced turnover events as well, although the difference is not significant (p values of 0.4190 and 0.5724 respectively). The results could simply relate to the much lower pre and post levels of volatility for homogeneous firms, alternatively heterogeneous firms experience such high volatility that the effects of CEO turnover are more difficult to ascertain.

Another interesting phenomenon presented in table VI is the lower changes in volatility for forced and outside replacement decisions in both homogeneous and heterogeneous firms. This is somewhat disquieting as it would suggest the market views voluntary and inside turnover as representing more change in uncertainty subsequent to the turnover announcement than do forced and outside replacements. One possible explanation for the apparent anomaly is the increased market wide volatility during the sample period. Campbell, Lettau, Malkiel, and

Xu (2001) note increasing market volatility in the 1995 to 1998 time period. Figure 1 depicts post turnover volatility for homogeneous and heterogeneous firms as well as for the CRSP value weighted index. To account for turnover events throughout any given year, the reported market level volatility is computed by taking the mean annualized daily standard deviations for the period 250 after the turnover event. Figure 1 graphically shows all three measures of volatility increased substantially during the sample period. Therefore, it is possible that the implied anomaly observed in table VI regarding increased changes in firm volatility for inside and voluntary turnover events is a function of increasing volatility throughout the sample period.

CONCLUSION

In this paper, the authors have examined the effects of industry homogeneity on changes in investment and financial decisions around the time of CEO turnover. Previous literature has studied CEO turnover and industry homogeneity with a focus on board decision to discipline poorly performing managers (Parrino, 1997). There is also an extensive literature surrounding CEO turnover and its implications for firm performance and asset restructuring. The paper attempts to address the question as to whether industry characteristics, in this case homogeneity, can provide boards with tools to prevent errant investment behavior by CEOs. Of course, the ability to better monitor investment policies does not mean boards necessarily have the will to provide better monitoring. As such, the results represent the net effects of improved monitoring ability by industry homogeneity and board willingness to effectively monitor.

The study finds support for the notion of improved board monitoring of investment decisions in homogeneous industries. During the sample period, homogeneous firms increased in size less than did their heterogeneous counterparts, accordingly fewer acquisitions are made by homogeneous firms. Homogeneous firms also experience fewer write-offs subsequent to CEO turnover. The combined reduction in growth and subsequent write-offs suggests boards in more homogeneous industries are better able to restrain CEOs from making value reducing investment decisions. These findings are robust to control measures such as firm size, accounting performance, and CEO tenure.

Additionally the study finds smaller market reaction to turnover for homogenous firms relative to heterogeneous firms. Full sample and segmentations based on the nature of event (forced or voluntary) as well as the origin or the successor (chosen from inside or outside the firm) all indicate market reaction to

CEO turnover is less important both economically and statistically for homogeneous firms. The market reaction to CEO turnover is consistent with the notion that investors perceive less change in the value of their residual claim in homogeneous firm as homogeneous firms are more apt to consistently make value enhancing investment decisions and as such anticipate little gains from CEO turnover.

Finally, the authors investigate the idea that better monitoring by boards should result in lower equity volatility both before and after the CEO turnover event. They borrow from Clayton et al. (2003) and assume increased equity volatility is associated with increased asset volatility as in Merton (1974). Homogeneous industry member firms in the sample experience considerably less volatility than do firms in less similar industries. However, they find that the change in volatility following CEO turnover tends to be greater for homogeneous firms. In addition, they report lower changes before and after volatility for forced and outside replacements than for voluntary and inside replacement decisions. Increasing market volatility during the sample period may explain these findings. As such, the evidence in support of hypothesis of decreased uncertainty regarding investment policies following CEO turnover in homogeneous industries is mixed.

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APPENDIX

Industry Homogeneity Proxy Values

The industry homogeneity proxy is calculated as in Parrino (1997) for the years 1995 to 2001. The mean correlation proxy is calculated as the partial correlation coefficient for each 2 digit SIC code in a two factor model which also includes a market return index.

Table I. Industry Homogeneity Proxy Values

SIC	Industry	Industry Homogeneity Proxy
49	Electric, gas & sanitary Services	0.5488
13	Oil & gas extraction	0.4734

49	Electric, gas & sanitary Services	0.5488
13	Oil & gas extraction	0.4734
10	Metal mining	0.4682
45	Air transportation	0.4378
26	Paper & allied products	0.4344
60	Depository institutions	0.4229
63	Life insurance	0.4138
61	Non-depository credit institutions	0.4029
37	Transportation equipment	0.3973
33	Primary metals industry	0.3941
20	Food & kindred products	0.3898
56	Apparel & accessory stores	0.3851
42	Wholesale trade, durable & nondurable goods	0.3665
15	Building construction – general	0.3622
27	Printing, publishing & allied	0.3380
67	Finance, insurance, real estate holding companies	0.3194
23	Apparel	0.3076
28	Chemicals & allied products	0.2997
58	Eating & drinking places	0.2947
62	Security & commodity brokers, etc.	0.2824
34	Fabricated metal products	0.2819
65	Real estate	0.2792
36	Electronic & other electrical equipment	0.2653
59	Miscellaneous retail	0.2543
79	Amusement & recreation services	0.2522
48	Communication	0.2476
87	Engineering, accounting research, management services	0.2458
50	Wholesale trade – durable goods	0.2457
30	Rubber & miscellaneous plastic products	0.2212
73	Business services	0.2146
38	Measuring, analyzing & controlling instruments	0.2132
80	Health services	0.2038
39	Miscellaneous manufacturing	0.1931
35	Industrial & commercial mach. & computers	0.1869
51	Wholesale trade – nondurable goods	0.1839
	Mean	0.3208
	Median	0.2997
	Standard Deviation	0.0952

Descriptive Statistics of CEO Succession Events by Industry Homogeneity

CEO succession events identified by the change in CEO in the Forbes annual compensation survey from 1995 to 2001. Total Assets, Sales, and the Debt are for the fiscal year end during which the CEO turnover announcement occurred and is obtained from Standard and Poor's Computstat database. ROA is defined as the ratio of net income to total assets. Acquisitions represents cash outflow related to acquisition of a company including additional investments and assumed long-term debt. Sale of PP&E represents cash inflows from the sale of property, plant and equipment. Capital expenditures represents cash inflows from the purchase of property, plant and equipment. Reductions in Long-Term Debt represents a reduction in long-term debt caused by long-term debt maturing (being classified

Table II. Descriptive Statistics of CEO Succession Events by Industry Homogeneity

	Homogeneous Industries			Heterogeneous Industries			
	Mean	Median	Std Dev	Mean	Median	Std Dev	P value for difference
Panel A: CEO Characteristics							
Incumbent CEO Age	60.144 n=146	61.000	6.276	58.369 n=84	59.500	7.921	0.351 (0.081)
Successor CEO Age	54.320 n=150	54.000	6.205	51.093 n=86	51.000	6.141	0.020 (0.000)
Incumbent CEO Tenure	9.010 n=75	7.575	6.487	8.232 n=43	7.000	3.670	0.568 (0.485)
Panel B: Firm Characteristics							
Total Assets (Millions)	18,351.848 n=150	5,373.400	37,393.558	9,940.203 n=86	3,705.943	24,330.527	0.031 (0.038)
Long-term debt	2,968.771 n=150	1,200.900	6,826.115	1,716.353 n=85	502.813	3,172.975	0.024 (0.057)
ROA	0.034 n=149	0.035	0.096	0.041 n=86	0.046	0.085	0.749 (0.527)
Leverage	0.213 n=150	0.189	0.151	0.185 n=85	0.160	0.158	0.242 (0.186)
Acquisitions	0.012 n=113	0.000	0.025	0.023 n=72	0.003	0.050	0.017 (0.087)
Sale of PP&E	0.008 n=79	0.000	0.026	0.004 n=59	0.001	0.007	0.607 (0.127)
Capital Expenditures	0.143 n=127	0.054	0.922	0.062 n=86	0.056	0.045	0.955 (0.328)
New Long-term Debt	0.082 n=123	0.310	0.248	0.101 n=80	0.023	0.240	0.818 (0.591)
Reductions in Long-term Debt	0.071 n=122	0.022	0.242	0.074 n=84	0.130	0.244	0.777 (0.929)
Special Items	-0.011 n=123	0.000	0.058	-0.016 n=68	-0.006	0.075	0.065 (0.641)

as a current maturity), payments of long-term debt and the conversion of debt to stock. New long-term debt represents the amount of funds generated from issuance of long-term debt and debt taken on from an acquisition. Special Items represents unusual or nonrecurring items including write-downs and discontinued operations. Acquisitions, Sale of PP&E, Capital Expenditures, New Long-Term Debt, Reductions in Long-Term Debt and Special Items are scaled by total assets. The p value reported is derived using two sample median test.

Changes in Investment and Financing Policy by Industry Homogeneity

CEO succession events are identified by the change of CEO in the Forbes' annual compensation survey from 1995 to 2001. All variables represent the industry adjusted changes for the period two years after the CEO turnover event. Total assets represents total assets two years after the CEO turnover date minus total assets two years before divided by total assets two years before the turnover date. Similarly, long-term debt represents total long-term debt assets two years after the CEO turnover date minus total long-term debt two years before divided by total long-term debt two years before the turnover date. Acquisitions represents cash outflow related to acquisition of a company including additional investments and assumed long-term debt. Dispositions represent cash inflows from the sale of property, plant and equipment. Capital expenditures represents cash inflows from the purchase of property, plant and equipment. Special items represents unusual or nonrecurring items including write-downs and discontinued operations. Acquisitions, dispositions, capital expenditures and special items are the sum of the item the year of the CEO turnover event plus the item one and two years after the event divided by total assets the year before the CEO turnover event. The p value reported is derived using a two sample median test.

Table III. Changes in Investment and Financing Policy by Industry Homogeneity

	Homogeneous Industries			Heterogeneous Industries			P value for difference
	Mean	Median	Std Dev	Mean	Median	Std Dev	
Total Assets							
All Turnover Events	0.855 n=150	0.320	3.418	45.957 n=86	0.629	413.727	0.059
Forced Turnover Events	1.680 n=35	0.067	6.883	0.594 n=20	0.256	0.936	0.511
Outside Turnover Events	0.438 n=41	0.073	0.997	104.792 n=37	0.505	630.782	0.115
Long-term Debt							
All Turnover events	4.968 n=143	0.322	5.872	486.086 n=78	0.443	4,156.425	0.741

Forced Turnover Events	2.005 n=33	0.126	4.738	14.209 n=18	0.160	53.855	0.918
Outside Turnover Events Acquisitions	2.302 n=37	0.009	9.624	5.714 n=30	0.130	21.103	0.278
All Turnover Events Forced Turnover	0.045 n=149	0.000	0.101	0.071 n=86	0.024	0.107	0.001
Events Outside Turnover	0.025 n=34	0.000	0.054	0.084 n=20	0.057	0.095	0.005
Events Capital Expenditures	0.054 n=40	0.000	0.132	0.091 n=37	0.032	0.136	0.009
All Turnover Events	0.150 n=149	0.124	0.195	0.164 n=86	0.130	0.166	0.961
Forced Turnover Events	0.180 n=34	0.133	0.310	0.145 n=20	0.130	0.081	0.999
Outside Turnover Events Dispositions	0.133 n=40	0.122	0.116	0.137 n=37	0.120	0.094	0.906
All Turnover Events	0.008 n=150	0.000	0.022	0.0065 n=86	0.000	0.013	0.117
Forced Turnover Events	0.010 n=35	0.000	0.026	0.004 n=20	0.000	0.009	0.919
Outside Turnover Events Special items	0.012 n=47	0.000	0.030	0.008 n=37	0.000	0.013	0.278
All Turnover Events	-0.028 n=123	0.000	0.128	-0.012 n=68	-0.022	0.483	0.065
Forced Turnover Events	-0.038 n=27	0.000	0.147	-0.099 n=16	-0.093	0.145	0.053
Outside Turnover Events	-0.083 n=31-	-0.007	0.227	0.030 n=29	-0.044	0.740	0.200

Changes in Firm Around Turnover by Turnover Type

Total assets represents total assets two years after the CEO turnover date minus total assets two years before divided by total assets two years before the turnover date. Acquisitions represents cash outflow related to acquisition of a company including additional investments and assumed long-term debt. Special items represents unusual or nonrecurring items including write-downs and discontinued operations. Acquisitions and special items are the sum of the item the year of the CEO turnover event plus the item one and two years after the event divided by total assets the year before the CEO turnover event. The p value reported is derived using a two sample median test.

Table IV. Changes in Firm Around Turnover by Turnover Type

PANEL A:

Dependent Variable: Change in Total Assets

Model	Intercept	Homo	LagROA	LnTA	OldTen	N	Adj R^2
Overall	535.716	-53.522	576.724	-54.838	-3.316	118	0.057
	(0.005)	(0.429)	(0.172)	(0.015)	(0.539)		
Forced	-0.103	-0.036	1.249	0.094	-0.025	22	-0.161
	(0.940)	(0.939)	(0.568)	(0.602)	(0.706)		
Voluntary	728.262	-57.224	540.180	-72.852	-5.749	96	0.075
	(0.007)	(0.499)	(0.410)	(0.015)	(0.365)		
Outside	1,073.998	-81.315	1,209.680	-115.582	-4.772	44	0.086
	(0.038)	(0.642)	(0.333)	(0.059)	(0.760)		
Inside	5.033	-1.706	2.174	-0.278	-0.051	74	0.041
	(0.031)	(0.046)	(0.653)	(0.291)	(0.395)		

PANEL B:

Dependent Variable: Scaled Acquisitions

Model	Intercept	Homo	LagROA	LnTA	OldTen	N	Adj R^2
Overall	0.060	-0.023	0.051	-0.004	0.001	96	0.062
	(0.026)	(0.016)	(0.389)	(0.211)	(0.231)		
Forced	0.065	-0.020	0.074	-0.006	0.001	22	0.065
	(0.057)	(0.103)	(0.166)	(0.190)	(0.643)		
Voluntary	0.070	-0.026	0.002	-0.004	0.001	74	0.041
	(0.081)	(0.034)	(0.988)	(0.337)	(0.385)		
Outside	0.013	-0.021	0.106	0.001	0.001	37	-0.036
	(0.789)	(0.203)	(0.420)	(0.889)	(0.651)		
Inside	0.101	-0.033	0.029	-0.007	0.001	59	0.123
	(0.004)	(0.012)	(0.673)	(0.063)	(0.261)		

PANEL C:

Dependent Variable: Scaled Special Items

Model	Intercept	Homo	LagROA	LnTA	OldTen	N	Adj R^2
Overall	0.123	-0.056	0.390	-0.013	-0.000	98	-0.0278
	(0.623)	(0.530)	(0.478)	(0.668)	(0.953)		
Forced	-0.072	0.042	-0.070	-0.005	0.012	19	0.289
	0.280)	(0.010)	(0.500)	(0.590)	(0.022)		
Voluntary	0.103	-0.068	0.725	-0.010	-0.002	79	-0.030
	(0.777)	(0.549)	(0.428)	(0.428)	(0.811)		
Outside	0.256	-0.201	1.326	-0.027	0.005	34	-0.073
	(0.728)	(0.429)	(0.469)	(0.756)	(0.828)		
Inside	-0.127	0.043	0.023	0.010	-0.001	64	0.094
	(0.012)	(0.018)	(0.817)	(0.091)	(0.329)		

Abnormal Stock Returns on the CEO Succession Announcement

Abnormal stock returns on 230 CEO succession announcements from 1995 to 2001. Mean cumulative abnormal returns are for the (0, 1) two day event window using standard market adjusted event study methodology. Parameters are estimated from −31 to −255 days relative to the CEO succession announcement. P values for mean cumulative abnormal returns are computed from simple t tests, while tests for median cumulative abnormal returns are computed from the sign rank test. P values are in parentheses, and one, two, and three asterisks indicate significance at the 0.10, 0.05, and 0.01 levels, respectively. Tests for differences in the median cumulative abnormal returns are reported in parenthesis and are from the median two sample test. The p values for the differences in the mean cumulative abnormal returns are from the 2 sample t test assuming unequal variances.

Table V. Abnormal Stock Returns on the CEO Succession Announcement

	Homogeneous Firms			Heterogeneous Firms			
	Mean CAR	Median CAR	Std Dev	Mean CAR	Median CAR	Std Dev	P value of Difference
Full Sample	0.0072 n=145	0.0004 (0.722)	0.0648	0.0226*** n=85	0.0148***	0.0732	0.1097 (0.0205)
Outside Replacement	0.0326* n=39	0.0140**	0.1098	0.0554*** n=36	0.0321***	0.0891	0.4964 (0.1368)
Inside Replacement	-0.0022 n=106	-0.0032	0.0328	-0.0014 n=49	0.0095	0.0470	0.3759 (0.0513)
Forced Replacement	0.0189 n=32	0.0006	0.1063	0.0397* n=20	0.0170	0.1003	0.8322 (0.2588)
Voluntary Replacement	0.0015 n=113	-0.0012	0.0457	0.0174** n=65	0.0140**	0.0627	0.0539 (0.0436)

CHANGES IN RETURN VOLATILITY BY INDUSTRY HOMOGENEITY

CEO succession events identified by the change in CEO in the Forbes annual compensation survey from 1995 to 2001. Standard deviations are annualized by multiplying the daily volatility by the square root of 250 and are presented for the 2 years before and 2 years after the CEO turnover event. An event year is defined as 250 trading days. The p value reported is derived using the two sample median test.

Table VI. CHANGES IN RETURN VOLATILITY BY INDUSTRY HOMOGENEITY

		Homogeneous Firms			Heterogeneous Firms			P value of the Difference
		Mean	Median	Std Dev	Mean	Median	Std Dev	
Pre-Turnover Standard Deviation of Firm Returns (Annualized) [t-500 days,t-1 day]								
All Events	Turnover	0.3027	0.2694	0.1366	0.4633	0.4086	0.2008	0.0001
Forced Events	Turnover	0.3627	0.3045	0.1891	0.5002	0.5023	0.1323	0.0001
Outside Events	Turnover	0.3702	0.3104	0.1726	0.5329	0.5023	0.2035	0.0009
Post-Turnover Standard Deviation of Firm Returns (Annualized) [t+1 days,t+500 days]								
All events	Turnover	0.3897	0.3493	0.1790	0.5751	0.4872	0.2453	0.0001
Forced Events	Turnover	0.4678	0.3756	0.2753	0.5955	0.5512	0.2122	0.0003
Outside Events	Turnover	0.4487	0.3747	0.2120	0.6534	0.5750	0.2535	0.0001
Change in Standard Deviation of Firm Returns (Annualized) [Natural log of Variance Ratio]								
All events	Turnover	0.2539	0.2453	0.2920	0.2095	0.1838	0.2362	0.0409
Forced Events	Turnover	0.2396	0.1864	0.4536	0.1486	0.1454	0.2108	0.5724
Outside Events	Turnover	0.2057	0.1922	0.3119	0.1857	0.1454	0.2638	0.4190