Evidence on the Value of Director Monitoring: A Natural Experiment

by

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ABSTRACT

I examine the determinants and implications of the level of director monitoring. I use the distance between directors' domiciles and firm headquarters as a proxy for the level of monitoring and the introduction of a new airline route between director domicile and firm HQ as an exogenous shock to the level of monitoring. I find a strong relation between distance and both board meeting attendance and director membership on strategic versus monitoring committees. Increased monitoring, as measured by a reduction in effective distance, by way of addition of a direct flight, is associated with a 3% reduction in firm value. A reduction in effective distance is also associated with less risk-taking, lower stock return volatility, lower accounting return volatility, lower R&D spending, fewer acquisitions, and fewer patents.

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First, I would like to thank my parents, Frank and Joanne. This quote is not mine, but it is perfect: "Parents aren't the people you come from. They're the people you want to be when you grow up." My parents are my heroes. It is impossible to put into words the value they have added to my life. They are a perfect example on how to live life and treat people. Next, I would like to thank Genevieve Villegas for her endless support and loyalty along this often difficult journey. You are what I will remember most about this experience. I would also like to thank Jim West, who made this all possible and helped me get back up after being knocked down many times along the way.

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CHAPTER 1

INTRODUCTION

Directors assume several important roles on the corporate board, including advising and monitoring the management team Mace (1971). Generally, monitoring includes the overseeing of management, board selection, evaluating usage of the firm's resources, succession planning, reviewing financial performance, and ensuring compliance with the law (Lipton & Lorsch, 1992). Potential benefits to the firm include less perquisite consumption, appropriate pay, and better decisions pertaining to corporate control and financial distress. For example, conventional wisdom suggests that a greater level of director monitoring, as measured by board independence, improves managerial decisions and firm performance.[1] Nonetheless, directors are not meant to be operating managers (Lorsch and McIver (1989)). Too much oversight and interference may reduce innovation, risk-taking, maneuverability, speed, and thus firm value. Some studies suggest that this cost of "excessive" monitoring may be destructive rather than beneficial.[2] Monitoring requires collecting and processing of soft information by outside directors. This is much easier done locally than from afar. As such, distance and the cost/ease of travel to and from the firm headquarters (HQ) are important determinants of the monitoring a director can provide. In this context, I examine empirically the effect of an exogenous shock to the effective distance between a director and the firm. Specifically, my identification strategy uses the introduction of a new airline route between director domicile and firm HQ as a shock to the effective distance between the two. This shock reduces the cost of gathering hard and soft information and thus increases the level of monitoring.

In my analysis I investigate the effect of an increase in monitoring on firm value. I employ a proxy for a change in monitoring, specifically the addition of a new direct flight between the

[1] For example, several studies show that (non-management) directors on the board affect discrete tasks, including hiring and firing of the Chief Executive Officer (CEO) ((Borokhovich, Parrino, & Trapani, 1996; Weisbach, 1988)), adoption of antitakeover devices ((Brickley et al., 1994)), and negotiating takeover premiums ((Byrd & Hickman, 1992; Cotter, Shivdasani, & Zenner, 1997)).

[2] For example, see Adams & Ferreira (2007), Burkart, Gromb, & Panunzi (1997) and Faleye et al. (2011).

directors residence and the firm HQ. I use Tobin's Q, defined as the sum of book value of assets and market value of assets less shareholder equity scaled by the book value of assets, as my proxy for firm value/performance (following Berger and Ofek (1995)). Additionally, I control for the distance between directors and firm HQ, the reason being that distance has been shown to be related to firm value (Masulis, Wang, and Xie (2012)).

Distance, however, is likely to suffer from endogeneity concerns. For example, a firm with high growth opportunities is likely to have high Tobin's Q and also a relatively high demand for board advising relative to monitoring. If advising is a scarce input, then it is likely that firms will cast a wider net for advisory directors and distance will be higher. If the empirical design does not control fully for growth opportunities, the regression model can detect a spurious positive relation between Q and distance. As a second example, a firm with an entrenched management team could extract excessive compensation and perquisites, with low Q as a result. That same entrenched management team also might reduce board monitoring by selecting more-distant directors. This would induce a negative relation between Q and director distance. In either event, an exogenous shock to effective distance would avoid such endogeneity problem and permit cleaner identification of the effect of monitoring on firm performance, as measured by Tobin's Q.

My results demonstrate that an increase in monitoring, due to the addition of a direct flight, leads to a 3% reduction in Tobin's Q. This is equivalent to a reduction in firm value of $322M on average. This result is qualitatively consistent with Faleye, Hoitash, & Hoitash(2011). Both their result and mine, at first glance, can seem somewhat counterintuitive. Nonetheless, an exogenous shock to the level of monitoring, which had been determined optimally prior, is likely to lead to a suboptimal level of monitoring and, consequently, lower performance and value.

In addition to performance and value, a shock to the level of monitoring likely changes the incentives of executives to take risk. I expect this increase in monitoring to reduce the willingness and ability of executives to take risk and, thus, the volatility of stock and accounting performance will be lower. I investigate the portion of volatility associated with distance on future stock return,

return on assets (ROA) and sales growth. I find that the exogenous shock that increases monitoring is associated with a decrease in firm risk taking, as measured by the forward looking standard deviation of the previously mentioned variables.

I proceed by exploring the channels through which this decrease in firm risk-taking takes place. Following Faleye et al. (2011), I investigate the risk profile of the firm, specifically: as measured by the frequency of major acquisitions and research and development (R&D) spending. I find that a new direct flight is accompanied by a 0.1% decrease in R&D expenditures. I also find a significant relation between the addition of a new direct flight and a decrease in acquisitions. These findings are consistent with the belief that additional monitoring and oversight cause a decrease in risk taking.

Increased monitoring is likely to have an impact on the ability of firm executives to extract rents or lead the quiet life. Correspondingly, I investigate changes to CEO compensation and turnover as a result of the increase in monitoring. Previous studies have found that an increase in the level and quality of monitoring leads to stronger managerial incentives in compensation contracts and higher turnover performance sensitivity.[3] I do not find any evidence, however, that an exogenous increase in monitoring amplifies either wealth-performance sensitivity or the sensitivity of executive turnover to firm performance. This is weakly consistent with my hypothesis. My evidence does not support the hypothesis that increased monitoring is detrimental (as conventionally defined) to compensation contracts or turnover-performance sensitivity, but I can state that it is not beneficial to shareholders in either of these respects.

To ensure that there is a relationship between effective distance and the level of monitoring, I examine the effect of a new direct flight on board meeting attendance. The addition of a new flight results in a 75% decrease in "low" attendance.[4] This is consistent with the

[3] See Core, Holthausen, & Larcker (1999), Faleye et al., (2011), Weisbach (1988), and Yermack (1996).

[4] This refers to the 'low_attend' variable in RiskMetrics which equals 1 if a board member attends less than 75% of board meetings in a given year, and 0 otherwise.

hypothesis that there is a significant relation between a new direct flight and the level of monitoring.

My paper contributes to the existing literature in two ways. Although I am not the first to utilize distance, to my knowledge no prior work examines the association between firm value and/or risk-taking and the effective distance between directors and firm HQ. I also find that the level of director monitoring has significant effects on firm risk-taking.

Second, I use distance in a new way. By examining an exogenous shock to effective director distance, as measured by the addition or subtraction of a direct flight, I provide and exploit an identification mechanism for cleanly dealing with endogeneity in my empirical context.

The rest of this paper is organized as follows. Section 2 presents the identification strategy. Section 3 presents the main empirical results. Section 4 contains additional tests. Section 5 investigates CEO characteristics. Section 6 contains robustness checks and section 7 concludes.

CHAPTER 2

IDENTIFICATION AND DISCUSSION

There is ambiguity in the literature about the effect corporate governance has on firm value. For example, Popadak (2013), Brickley, Coles, and Terry (1994), Coles, Daniel, and Naveen (2008) find instances where governance is positively related to firm value in some cases and negatively related in others. Brickley, Coles, and Terry (1994) find that the stock-market reaction to announcements of poison pills is positive when the board has a majority of outside directors and negative when it does not. Further, Coles, Daniel, and Naveen (2008) find that optimal board size depends on the level of firm complexity, among other factors, which contradicts the earlier findings of Yermack (1996). More recently, Popadak (2013) finds a positive association between governance and value in the short term, but one that switches to a negative association in the long term. What these papers suggest is that the link between governance and value is ambiguous. One possible reason is the possibility that the prior experimental designs suffer from endogeneity problems, such as might arise from omitted variables or reverse causation. Thus, my general approach is to find a way to minimize such endogeneity concerns so as to better identify the estimated relation between monitoring and firm performance and risk.

Regarding endogeneity and empirics, regression design decisions that can help address endogeneity problems include the use of industry and firm fixed effects. Nonetheless, there can be significant variation within industries. Additionally, firm unobservables may affect firm performance (future projects, etc). Adding firm fixed effects is an improvement potentially can control better for firm variation within industries and firm unobservables. Similarly, director unobservables may affect firm performance (quality of education, year of experience, number of social connections, etc). Firm fixed effects, however, will not capture the director unobservables. Similarly, controlling for director fixed effects will fail to capture firm unobservables. But, using a firm-director (spell) approach controls for the combined influence of firm and director fixed effects and mitigates possible concerns about estimation bias. Using this method, neither the director nor the unobserved (time-invariant) firm characteristics vary for a given spell. Effectively, this uses only the differences between two consecutive observations so the identification in my experimental design comes from changes in the presence of a direct flight.

I do two things to address the standard endogeneity concerns. First, I control for firm-director interaction (spell) fixed effects. Second, my main identification variable, the introduction of a new direct flight between a director's residence and the firm HQ, is an exogenous shock. This new direct flight decreases the cost of travel for that director (fewer flight segments, fewer layovers, less time, lower cost). And using the firm-director fixed effects model allows the direct flight dummy to be estimated using the variation in the time series (for firm-directors who experience a change in the direct flight status), rather than from the cross section (firm-directors who never experience a change in the direct flight status). This holds all other independent variables approximately constant and isolates the effects of the new direct flight.

Other literature that uses geographical distance can be contaminated by endogeneity concerns through either omitted variables or reverse causality. For example, a firm could have low Tobin's Q because of fraud and perquisite taking. The entrenched CEO in that situation would want to select more-distant board members who are less able and inclined to monitor effectively and so that he/she could continue the excessive perquisite taking. Another example could be a firm with high growth opportunities and a high demand for advising directors (who potentially are in lower supply forcing the firm to search distantly) thus increasing distance of board members. An example of reverse causality is a director who refuses to serve on the board of misbehaving executives unless he is proximal because he knows the demand for monitoring and soft information[5] is very high.

[5] Petersen (2004) defines "soft" information as information that cannot be codified and transferred across geographic distance.

Previous literature examines the cost of excessive monitoring and finds similar results.[6] Unfortunately, the variables of interest in that literature are determined within the context of the model. Within their context, it is impossible to conclude whether the monitoring caused the reduction in firm value or the reduction in firm value caused the increase in monitoring. My paper resolves this issue with an exogenous shock to the variable of interest.

Although I control for firm-director fixed effects, there could be other potential alternative explanations. Direct flights could be added as a result of local market/economy improvements or the anticipation of such improvements. These improvements would cause an increase in business and leisure travel and correspondingly the airlines schedule new flights into the area. A positive shock to the business environment would cause an increase in Tobin's Q which would make my result weaker.

Alternatively, direct flights could be added as a result of surge in new business or improved revenue to the firm under consideration. New flights would therefore be added to service new customers or increases in transit from existing customers. These new flights would occur as the result of an increase in Tobin's Q. This effect would generate a positive association between Q and distance, and effect that would weaken my results.

It is possible that directors are taking business jets to travel to/from their board meetings. If this is the case, there should be no effect on Tobin's Q after the introduction of a new direct flight between the firm and the director's home residence, as directors would not be using a commercial carrier. It is possible, however, that the director would forego the business jet and fly commercial via the new direct flight, in which case there would be no change in attendance or the level of monitoring.

It is possible that directors change residences during the sample period. They could relocate from a city without a direct flight to one with a direct flight. This would result in the direct

[6] (Faleye et al., 2011b) find that firms with intense monitoring suffer lower acquisition returns and lower corporate innovation.

flight variable switching from zero to one. One possible reason for such a change could be the firm's business in the new city has increased or it has opened a new plant and wants more city-specific information from its board. I address this by limiting my sample to only board members who do not change residences throughout my sample period. Excluding those directors does not change the results.

CHAPTER 3

DATA AND SAMPLE DESCRIPTION

The data used in this study derive from the Compustat universe of firms merged with the RiskMetrics S&P1500 Directors Data and the ThomsonReuters Insiders Data for the period 2000–2011. The size of the sample is 116,658 director-firm years on 14,586 firms. Following the literature, I have removed all regulated industries (Finance and Utilities) from my database.

DISTANCE DATA

I calculate the distance that each member needs to travel to attend meetings between his home zip code and that of the firm. I construct this using zip codes from board member's SEC insider holding filings (Form 3 and 4) and from Firm Headquarters (Compustat variable 'ADDZIP'). I begin with all ownership data from 2000-2011 in the ThomsonReuters Form 3 and Form 4 database. I then match that with Riskmetrics SP1500 director data for the same period. Merging these databases gives me the zip codes of all directors and eliminates all inside owners who are not also directors. Next, I merge the zip codes of the directors (from ThomsonReuters and RiskMetrics) with firm HQ zip codes (from Compustat). I then convert the zip codes into latitudes and longitudes. Then I use the SAS command 'Geodist' to calculate geodetic distance between the two locations. This measure has very little noise as zip codes are sufficiently small (the average US zip code is 27 miles2 or 70 km2). This distance variable helps me proxy for board members cost of obtaining 'soft' information.

FLIGHT DATA

The data on airline routes are obtained from the T-100 Domestic Segment Database (for the period 1990 to 2011), which are compiled from Form 41 of the U.S. Department of Transportation (DOT). All airlines which operate flights in the U.S. are required by law to file Form 41 with the DOT and are subject to sanctions for misreporting. Strictly speaking, the T-100 files include all flights that have taken place between any two airports in the U.S. The T-100 contain monthly data for each airline and route (segment). The data include origin and destination airports, flight duration (ramp-to-ramp time), scheduled departures, departures performed, passengers enplaned, and aircraft type. For further explanation of these data see Giroud (2013).[7]

PATENT DATA

The patent data comes from the National Bureau of Economic Research (NBER) patent data project managed by Jim Bessen. The most recent updates to the site were made in August of 2013.

FIRM LEVEL DATA

All accounting data at the firm level come from Compustat, while stock return data come from CRSP. I also utilize geographical data from the United States Postal Service's website. Merger and Acquisition (M&A) data are obtained from SDC.

DIRECTOR AND EXECUTIVE DATA

I obtain director variables such as outside boards, age, etc., from RiskMetrics. I obtain CEO compensation data from Execucomp. The geographical director data come from the ThomsonReuters insider holdings (Forms 3 and 4) database within WRDS.

SUMMARY STATISTICS

Table 1 presents the summary results for the firm level and individual level data. The average firm assets are approximately $9B. You can see that the average board member lives 710 km from the board he sits on. There is a direct flight between 11% of directors and firms. That number fails to take into account the fact that approximately half of directors live within driving distance to the firm's headquarters. Of those non-local directors[8], for whom airline transportation is less costly, at least 16% have a direct flight between their home city and firm headquarters.

Table 2 presents the summary statistics broken out by whether the director is local or non-local. I define local as living within 100 km of the headquarters. Further, firm level data is broken

[7] I would like to thank Xavier Giroud for discussing the T-100 airline data with me.
[8] Non-local directors are defined as those whose residence is more than 100km from firm headquarters.

out by local versus non-local board.[9] To distinguish between local and non-local board I calculate average distance and then split the sample into two halves. The largest difference at the director level is that non-local board members tend to sit on far more other boards than local directors (0.75 compared to 1.19).

[9] Non-local boards are defined as those whose average board member distance between the firm and his/her residence is higher than the yearly median distance.

CHAPTER 4

RESULTS

In this section, I analyze the relationship between the level of monitoring and firm value. and discuss the results.

FIRM VALUE

Following the literature, I use (the natural logarithm of) Tobin's Q[10] as a proxy (and dependent variable) for firm performance. The controls in this regression follow Custódio and Metzger (2013). Table 3 presents findings of a panel regression of firm performance on director distance. The independent variables of special importance to my paper are those that measure the travel costs for a director to interact face to face with other board members and firm management. The two variables which measure this are distance (kilometers) and whether or not there is a direct flight between the director's residence and the firm HQ. Direct flight is a dummy variable set to 1 if a direct flight exists between the director's residence and the firm HQ.[11]

The identification in Table 3 arises from using year plus either firm or firm-director fixed effects. The estimated coefficient on the direct flight dummy is negative and significant in all specifications. This is evidence of a decrease in effective distance between the director's residence and the firm headquarters, a corresponding increase in board monitoring, and a negative effect on firm performance. The coefficient is significant in both statistical and economical terms. A 3.2% decline in Tobin's Q represents approximately a $288M decline in firm value (Specification 4).

Specification 3 finds distance to be negative and significant. This is in line with the findings of Masulis, Wang, and Xie (2012). To the contrary, the results of Specification 4, which utilizes improved identification and finds distance not significantly related to value, is evidence that specification 3 potentially suffers from endogeneity.

[10] My tests are robust to the use of Tobin's Q rather than the natural logarithm of Tobin's Q. My reason for using the natural logarithm in my tests is because there is evidence of the presence of skewness in the Tobin's Q variable.
[11] Direct flight is set to 1 for local directors. It is worth noting that my results are robust to removing local directors. But if I do so, I lose the majority of my observations.

Table 3 and 4 estimations are contemporaneous. The reason for this is that new routes are announced approximately 6-9 months before they begin service for large US airlines (American, Delta, and United). Additionally, meetings occur frequently (most boards meet between 4-6 times a year in my sample) and thus the new direct flight would affect the firm rather quickly. It is worth investigating the effect of an exogenous shock to effective distance over time. Figure 1 shows the persistence of this shock over time. The point estimates in the figure are the cumulative change in Tobin's Q in subsequent quarters for the sample of firm-director spells which experienced the addition of a new direct flight. This indicates that it takes the firm approximately 3 years to return to an optimal level of monitoring.

FIRMS MORE SENSITIVE TO INCREASED MONITORING

Some firms are likely to be more sensitive to increased monitoring than others. If firm management has a larger ability to take risks and affect/alter the operations and direction of the firm, it is likely that an increase in monitoring would hamper them more than if the management team had little discretion. Take, for instance, a trucking firm. The manager is unlikely to have substantial discretion to take risks in an advantageous way that would differentiate his firm from his competitors. The same trucks and technology are available to all trucking firms, the business environment is the same for all firms (laws, roads, speed limits, etc.), and firm costs tend to be very similar (employees, gasoline, etc.). Now, for a moment, imagine the manager of a motion picture firm. He or she has a much larger amount of freedom of choice. She can choose animated or traditional films, dramas, comedies or scary movies, and can choose among a wide spectrum of available actors, actresses, and directors. She can choose to film in New Mexico or New Zealand, where there are large tax benefits, or in a more traditional location, such as Los Angeles or New York City. These examples suggest that there are many possible decisions through which a manager of a motion picture firm can increase or decrease the risk of her firm. An increase in monitoring would likely have a larger impact on the motion picture CEO than it would the trucking firm CEO.

Table 4 looks at firms which should be more sensitive to an increase in the level of monitoring. I hypothesize that the estimated effect of a decrease in effective distances will be stronger than in firms where management has less latitude and discretion. Specification 1 examines firms with a higher than median Herfindahl index.[12] These firms are in more concentrated industries. Managers of these firms will have less competition and therefore have more leeway in changing the risk profile of the firm. An increase in monitoring would hamper the manager of a firm in a high-Herfindahl industry more than one in a less concentrated industry. In Specification 1, the parameter estimates indicate that there is a 3.9% decrease (though $p = 0.164$) in Tobin's Q of firms in high-Herfindahl industries after an exogenous decrease in effective distance.

The argument can be made the proportion of assets that are intangible is a proxy for industries or firms in which managers have a larger ability to affect the operations and future cash flows of their firms. A manager of a firm with a high portion of assets which are intangible operates with latitude and discretion that most managers do not have. Some of the most common intangibles on balance sheets are patents, trademarks, and copyrights. If a manager has many patents then he is free to do what he likes in the space where these patents apply, without any interference from anyone else in his industry. Google has $7.5B of intangibles on its balance sheet while McDonalds has zero. Google's management is free to innovate and pursue driver-less cars or glasses with a built in camera, risks that potentially give rise to new sources of future income. McDonalds on the other hand, is in the business of selling low-cost meals as efficiently as possible. There is no patent required for their $0.99 hamburger. Their goal is to cut costs wherever possible. I hypothesize that an increase in monitoring would have a larger effect on the managers of Google than it would on the managers of McDonalds. That is what the data show. I find a large and significant 8.8% reduction in Tobin's Q after a decrease in effective distance for those firms which have higher than median intangibles on their balance sheet (Specification 2).

[12] The Herfindahl–Hirschman Index (HHI) is calculated by squaring the market share of each firm competing in an industry and then summing the resulting numbers.

Lastly, I investigate the Hambrick and Abrahamson (1995) measure that quantifies the latitude of actions a manager is allowed. In their paper, they list seven factors that affect managerial discretion: product differentiability, market growth, industry structure, demand instability, quasi-legal constraints, powerful outside forces, and capital intensity. They found that computer programming firms had the highest discretion score while steel mills had the lowest. It is intuitive that the manager of a computer programming firm would have a larger degree of leeway in which to operate his firm than would the manager of a steel mill. Thus, an increase in monitoring would hurt the computer programming manager more than it would the manager of the steel mill. I report results consistent with this hypothesis in Specification 3. The firms with higher than median discretion scores experience an 8.7% decrease in Tobin's Q following a decrease in effective distance.

RISK TAKING

Brick and Chidambaran (2007) find a negative relationship between the level of board monitoring and firm risk taking. Likewise, though using a design that explicitly addresses identification concerns, I test whether an exogenous increase in monitoring changes the incentives of executives to take risk. If it does, I expect an increase in monitoring to reduce the volatility of stock and accounting performance. Following Guay (1999), I use the volatility of stock return as a proxy for firm risk taking. Additionally, I investigate the volatility of select accounting measures: sales growth, leverage, net income and earnings per share (EPS). I expect the volatility of these measures to decrease as a result of the increased monitoring.

I calculate the standard deviation of stock return using the next year's returns on a daily frequency, while the standard deviation of ROA and sales growth are computed using quarterly data over the future five year period. I include distance, firm size, leverage, prior volatility, and firm and year fixed effects as controls. Table 5 reports the results. I find a negative and significant relationship between predicted measures of firm risk taking and the presence of a direct flight between the board member's residence and the firm HQ.

RISK TAKING CHANNELS

Increased monitoring is consistent with a decrease in risk-taking and a more conservative investment policy. I now investigate whether firm investment policy is the channel by which the additional monitoring affects firm risk.

Various studies rely on the notion that expenditure on R&D is riskier than spending on hard assets, such as property, plant, and equipment (e.g., Coles, Daniel, and Naveen (2006)). The idea, in part, is that R&D intensity creates real options, while other capital expenditures represent exercised real options.

Patents are another measure of the creation of real options, an intangible asset. Patents increase the protective moat surrounding the firm's intellectual property. One useful way to quantify the output of R&D or innovation is through the number of patents granted to a firm (see Hirshleifer, Low, and Teoh, 2012). To investigate this channel I explore the potential relationship between patents and a decrease in effective distance.

Lipton and Lorsch (1992) note that directors have an active role in the formulation in the long term strategic, financial, and organizational goals of the corporation and approve plans to achieve these goals. Future strategic goals include deciding the mix of future cash flows, in part determined by mergers and acquisitions (M&A). Acquiring or merging with another firm is one potential way a firm can use investment to provide a shock to the level and volatility of a firm's cash flows and returns.[13]

The specifications in Table 6 investigate the effects of a decrease in effective distance on firm investment policy, specifically R&D expenditures, the number of patents, and mergers & acquisitions.[14] Specification 1 shows the effect of a decrease in the effective distance, by way of

[13] Additionally, directors have a higher fiduciary hurdle when it comes to M&A. (Lin, Officer, & Zou, 2011) state that M&A lawsuits are the principal litigation risk faced by directors in fiduciary duty suits.

[14] Additional monitoring is consistent with less risk taking and potentially a more conservative financial policy. Consistent with this, I investigated cash holdings and firm leverage. I found significant relationships with the addition of a new direct flight and both of these metrics. Cash holdings increased by 6% while leverage decreased by 4% when running the investment policy regressions found in Table 4B but substituting investment policy metrics (R&D, patents, large acquisitions) for financial ones (leverage and cash holdings).

the addition of a new direct flight, on R&D intensity. A decrease in effective distance results in a decrease in Research and Development expenditures of 3%. In dollar terms, this 3% equals a decrease of $261,000 per firm year.

Substantiating the notion that additional monitoring leads to less innovation is tested in Specification 2, which investigates the effect of a decrease in effective distance has on the number of patents granted to a firm. I find that patents decrease by 8 per firm year. The average number of patents per firm year is 32. This represents a 25% reduction in innovation, as represented by patents.

Lastly, I investigate the M&A activity of the firm using large acquisitions as my dependent variable (Specification 3). Large acquisitions are defined as any acquisition larger than the yearly median acquisition. One of the major ways firms can take risks, grow, and alter their future cash flows are through the purchase of another firm's existing cash flows and products. I find a negative shock to effective distance results in a decrease in acquisitions of a statistically and economically significant $725,000 per firm year.

DECREASED RISK TAKING AS A MECHANISM FOR LOWER FIRM VALUE

I now assess whether the reduction in risk-taking arising from increased monitoring is a potential explanation for the decline in firm value, as measured by Tobin's Q. In a first stage, as reported in Tables 5 and 6, I regress risk or investment policy measures on the direct flight indicator, distance, firm control variables, and fixed effects. I then calculate the predicted future values based on data aligned in time with Tobin's Q for each firm year. In the second stage, I use the predicted values of the risk measures as the main independent variable and investigate their effect on Tobin's Q.

As Table 7 indicates, there is a positive and significant relationship between the predicted forward looking firm risk proxies and firm value for all seven risk-taking measures. A decrease in effective distance has a negative effect on future firm risk-taking, as measured by the predicted values of the volatility of ROA, sales growth, and stock returns and levels of R&D intensity, scaled patents, and scaled acquisitions. It appears that the decrease in risk-taking, arising from an exogenous increase in monitoring, is a significant channel for the decline in Tobin's Q, as estimated and reported initially in Table 3.

CHAPTER 5

CEO COMPENSATION AND TURNOVER

CEO COMPENSATION

One of the board's monitoring functions is to provide managerial incentives through optimal compensation contracts. Bebchuk and Fried (2005) argue that this process is inefficient and management manipulates their compensation to the detriment of shareholders. As such, many existing papers focus on the relationship between compensation incentives and monitoring. Core, Holthausen, and Larcker (1999) conclude that better monitoring, consisting of CEO duality, less director independence, less busy boards, and a lower portion of the board over age of 69, leads to better compensation incentives. Additionally, Yermack (1996) finds that smaller boards set better compensation incentives.

Based on the above, the hypothesis is that more monitoring leads to "better" compensation contracts. This would appear empirically in terms of excess or residual compensation. I measure excess compensation using residuals from a baseline regression predicting normal compensation as a function of the economic determinants of executive pay. Standard economic theory implies that CEO compensation depends on the relative demand and supply of top executive talent. The baseline regression controls for firm size, market-to-book ratio, stock performance, accounting performance (ROA), and risk (stock volatility).

The excess compensation regressions include controls that proxy for board monitoring. If more monitoring adds value, it should decrease the excess/residual compensation net of other economic factors.

Table 8 presents the results. Contrary to what others have found in this setting, I do not find that more monitoring reduces residual executive compensation. The presence of a direct flight is insignificant for all forms of residual compensation: total, cash, and equity. On the other hand, note that I find no evidence that lower monitoring is associated with rent extraction by executives. An exogenous shock to monitoring has no significant association with residual pay. One advantage of my empirical design is that it is less likely to suffer from endogeneity concerns as do the other studies.

CEO TURNOVER

Hermalin (2005) argues that a board's most important role pertains to selection, monitoring, retention, and dismissal of the CEO and that the probability of CEO turnover increases with the level of monitoring. Yermack (1996) and Weisbach (1988) both find that independent boards are more likely to dismiss a CEO following a period of poor performance. Others find a decrease in performance sensitivity of turnover is generally related to weaker monitoring.

To test the relation between an increase in monitoring and CEO turnover I estimate logistic regressions using CEO turnover as the dependent variable. The variable of interest in these regressions is the interaction between abnormal return and the presence of a direct flight. I expect this variable to be negative and significant under the improved monitoring hypothesis. Additionally, I control for other factors known to affect CEO turnover, including board composition (Weisbach, 1988), board size (Yermack, 1996), and CEO duality (Goyal and Park, 2002).

Table 9 presents the results of this regression. I estimate the marginal effect of increased monitoring on turnover performance sensitivity to be insignificant. Thus, the CEO is no more likely to be terminated for poor performance following an increase in monitoring.

My results are consistent with the literature. Turnover is related to abnormal return.

CHAPTER 6

ROBUSTNESS

In this section, I corroborate that distance is a proxy for the level of monitoring. Additionally, I examine how the main results behave when the specification is modified. If the findings are robust and plausible, I will be better able to interpret the evidence as valid.

ATTENDANCE

Attendance is one of main places that the increased monitoring will show up in the data. It is important to note that monitoring consists of much more than board meeting attendance though. Monitoring happens outside of meetings at dinners with the CEO, lunches with mid level managers, walking around manufacturing plants, interacting with blue collar employees, talking to suppliers and customers to get feedback, surprise ad-hoc inspections, etc. One way to proxy for monitoring is through board meeting attendance. If a board member does not attend board meetings or visit firm headquarters it will be difficult for him to monitor.

The variable in consideration in Table 10 is 'low_attend' from RiskMetrics which is a binary variable set to 1 if the board member attends less than 75% of board meetings. This variable is noisy and imprecise. For example, if a director's attendance goes from 70% in year 1 to 76% in year 2, this variable will go from 1 to 0. A 6% change in attendance probably does not show up in the data very often, but if it did, it would cause a significant change in the 'low_attend' variable. I realize this is not optimal, but it is a limitation of the data.

Ease of travel, distance and effective distance affect a director's likelihood of attending board meetings. Table 10 confirms this. The first table shows that local board members have the highest board meeting attendance, followed by non-local directors with a direct flight, followed lastly by directors without a local flight. The second table is an event study. It examines at all directors from a firm over the sample period. For example, Apple has 5 directors and in 2003 one director gets a new direct flight added from his hometown to firm headquarters in Cupertino, CA. The top row ("Directors with no new flight added") will be the average low attendance for all directors who do not experience a change in their direct flight status over the sample period. In the "Pre" column will be their average low attendance prior to 2003 and in the "Post" column will be there average low attendance from 2003 onwards. The director with the new direct flight in 2003 will have his average low attendance in the bottom row ("Directors with new flight added"). The "Pre" column will have his low attendance average for all years prior to 2003 and the "Post" column will have his average low attendance for 2003 onwards. Thus if any shock within the firm (bankruptcy, hostile takeover, crisis, etc) causes an increase in board meeting attendance for all directors there will be a significant change for all directors, those with and without a new direct flight. This method will allow for the differentiation between the firm's monitoring demands causing an increase in board meeting attendance versus a decrease in effective distance causing an increase in board meeting attendance. The test for differences in means between attendance of directors with a new direct flight ("Pre" vs "Post") is significant at the 1% level. While the same test for directors who had no new direct flight added was insignificant.

If the local directors have low attendance 1.1% of the time while the distant directors with no direct flight have low attendance 1.9% of the time. In terms of economic significance, a non-local director is 70% more likely to have poor/low attendance if there is no direct flight.

Table 10 presents two logistic regressions and an odds ratio test using the low attendance variable as the dependent variable and direct flight and other controls as the independent variables. Direct flight is negatively and significantly related to low attendance. The negative sign on the direct flight variable indicates that low attendance decreases (or high attendance increases) as a direct flight is added. Additionally, for those directors farther than the median distance, the direct flight variable is more significant (Specification 2). Intuitively distance is also highly significant in predicting low attendance and goes in the expected direction (as distance increases, attendance decreases). This finding is consistent with the results of Masulis, Wang, and Xie (2011). Specification 3 shows an odds ratio test for board meeting attendance. The interpretation for the results of this test is that when a new direct flight is added the director is 28.5% less likely to have poor/low attendance.

The evidence that a new direct flight affects director attendance is strong. This is likely the mechanism by which the increased monitoring takes its form. Yermack (1996) provided the empirical result for the now conventional wisdom that smaller boards are better boards. My evidence is consistent with his findings. Perhaps attendance does not always create an environment that is most conducive to consensus, decisiveness, and efficiency of decision making. To the extent, that board monitoring is positively associated with board size, my evidence is consistent with that notion.

DIRECT FLIGHT REMOVED

Most of the changes in flight status occur when an airline wants to expand its services and add a new flight. But sometimes an airline will find that a particular flight is not profitable and will thus remove it. In the data, there are roughly 2 new flight routes added for every 1 eliminated. As a robustness check, it is useful to investigate only those observations where a direct flight is canceled to check to see if those observations are driving my main results.

Table 11 shows only cases where a direct flight was removed, thus exogenously increasing effective distance. There is a negative and insignificant effect on firm value.

DIRECTORS MOVING RESIDENCES

It is possible that my results are skewed due to directors moving residences at some point within my sample period. It is possible that by moving to a new house, a director decreases the distance between his domicile and the firm HQ or moved to a city offering a direct flight for reasons related to the firm, which would make the shock endogenous instead of exogenous.

To ensure that these instances are not driving my results in Table 12, Specification 1, I include only those directors which did not change domiciles within the sample period. The result for this subset of directors is stronger than they are for the entire sample (4.1% for directors who do not move versus 3.1% for all directors in the sample). For completeness, in Specification 2, I show the same regression for only those directors who change domiciles in my sample period. It may be worth noting that many directors changed domiciles in my sample period. This is not too surprising as many of these directors are very senior people, with many ties to many firms, and in very high demand. The utility of them moving may be higher than it is for the average person, especially if a move eliminates 10 or 20 costly, long distance trips per year to attend board meetings.

MONITORING COMMITTEES

The principal monitoring committees of a board are audit, compensation, and nominating (Adams and Ferreira, 2007). The audit committee oversees financial reporting and internal controls. The compensation committee administers all executive compensation schemes. The nominating committee evaluates candidates for board positions, reviews the performance of directors, and assesses the strength of the firm's governance structure. Following Faleye, Hoitash, and Hoitash (2011), I define a monitor as a director who sits on at least 2 of the 3 principal monitoring committees.[15]

If a decrease in distance results in an increase in monitoring then there should exist a relationship between distance and the likelihood of being on a monitoring committee. If this relationship exists, then it follows that monitoring is less specialized and in higher supply. To test this, I will check i) the average distance of monitors compared to that of advisors, ii) the proportion of local monitors versus the proportion of all local directors on the board, and iii) use distance as a regressor to predict a director being a monitor.

Table 13 shows there are more local monitors (59% of all monitors are local) than local directors (56% of all directors are local). Moreover, the average distance of independent monitors is significantly greater than that of independent advisors (results not shown). And lastly, in Table 10, Specification 1, the logistic regression indicates that distance is negatively related to the

[15] As a robustness check, I add an alternate, more restrictive definition in which I require that a monitor i) be on at least 2 of the 3 monitoring committee and ii) not be a member of any advisory committees (acquisitions, finance, investment, strategy, science & technology, and executive). My results do not change using this more restrictive definition.

likelihood that a director is a monitor. All evidence supports the hypothesis that monitors tend to be more local.

As a robustness check for my economic significance figures stated above ($322M change in firm value as a result of increased monitoring), Faleye, Hoitash, and Hoitash (2011) find a $650M change in a firm's market value if the firm suffers from intense monitoring.

CHAPTER 7

CONCLUSION

Considerable literature has focused on board monitoring and advising in isolation. The level of monitoring appears to be associated to firm characteristics, policy, and performance. I build on such previous literature to empirically examine the determinants and implications of director monitoring.

I use the distance between the director's home and the firm HQ as a proxy for this and the introduction of a new airline route as a source of exogenous variation in the level of monitoring. Corroborating that distance is related to the mix of monitoring and advising, I find a strong positive relation between distance and low board meeting attendance and director membership on monitoring committees.

I find that a reduction in the effective distance between director's residence and headquarters leads to a 3% reduction in the firms Tobin's Q. I also provide results suggesting that the reduction in effective distance increases the amount of monitoring by the director. Consequences of this increased monitoring include less risk taking, less R&D, fewer patents, and fewer large acquisitions by the firm.

My paper calls into question existing empirical results that distant directors decrease firm value. Moreover, my specification likely better represents part of the true relation between board structure and performance. The endogeneity and identification problem has been handled and the independent controls are more comprehensive (include a precise measure of distance as well as takes into account the existence of an available direct flight). Further work on this question is needed.

There is recent evidence that boards are increasing their proportion of monitoring versus advising. Heidrick and Struggles (2007) report that 84% of directors in its survey indicated that to at least some extent they are now spending more time on monitoring and less on strategy.‖ This new tendency towards increased monitoring is likely not optimal as Faleye, Faleye, Hoitash, and Hoitash (2011) find lower acquisition returns, lower patent quality, and lower firm value.‖

Given the importance of this tradeoff, firms may reevaluate the level of monitoring to investigate ways to introduce more advising into the mix on their boards. The possibilities for doing so are many. In an effort to find the right level of monitoring, Faleye, Hoitash, and Hoitash (2011) propose methods for firms to correct for this excessive monitoring including: (i) enlarging the board so the firm has more freedom in allocating committee assignments and individual independent directors are not overburdened with oversight/monitoring duties, (ii) increasing board independence so that there are more independent directors available for the monitoring committees thereby decreasing each independent directors monitoring responsibilities, and (iii) reducing the size of oversight committees. These potential solutions require further examination. Additionally, future research could examine the optimal mix of monitoring and advising, while taking into account other factors not previously considered, such as the demand for hard and soft information, foreign directors, and other technologies which affect a director's ability to monitor or advise (for example, Skype).

The results presented here highlight the importance of the tradeoff a firm faces when it chooses its level of monitoring. An exogenous shock to monitoring has a detrimental effect on firm value.

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APPENDIX A

DATA DEFINITIONS

Variable Name	**Variable Definition**
Firm Size	Natural logarithm of a firm's Total Assets.
Tobin's Q	Natural log of book value of long-term debt and debt in current liabilities plus the market capitalization of the firm divided by Total Assets.
Cash Flow/Assets	EBITDA divided by Total Assets.
Leverage	Long term debt and debt in current liabilities divided by the book value of debt and market capitalization of the firm.
R&D/Assets	R&D expenditures of the firm (XRD in Compustat) divided by Total Assets.
Advertising/Assets	Advertising Expenses of the firm (XAD in Compustat) divided by Total Assets.
Acquisitions/Assets	Acquisitions of the firm (AQC in Compustat) divided by Total Assets
Cash	Cash (CHE in Compustat) of the firm divided by Total Assets minus Cash.
CEO Total Compensation	TDC1 variable CEO in Execucomp
CEO Delta	The PPS of a CEO's equity pay during a fiscal year is the approximate change in value of granted equity that would correspond to a $1,000 change in total shareholder wealth.
CEO Vega	The PPS of a CEO's option pay during a fiscal year is the approximate change in value of granted options that would correspond to a $1,000 change in total shareholder wealth.
Board Size	Number of members on the board of directors.
Board Independence	Number of board members who are classified as independent directors divided by the number of total board members.
CEO Equity Pay	CEOs' Black-Scholes value of stock option grants (OPTION_AWARDS_BLK_VALUE), value of restricted stock grants (RSTKGRNT), LTIP payments (LTIP), and bonuses (BONUS), divided by total compensation (TDC1).

CEO Cash Pay	CEOs' bonus (BONUS) and LTIP payments (LTIP) divided by total compensation (TDC1) net of salary (SALARY).
ROA	Net income (NI in Compustat) divided by Total Assets.
Distance	Distance, in kilometers, between the directors home residence and the firm headquarters.

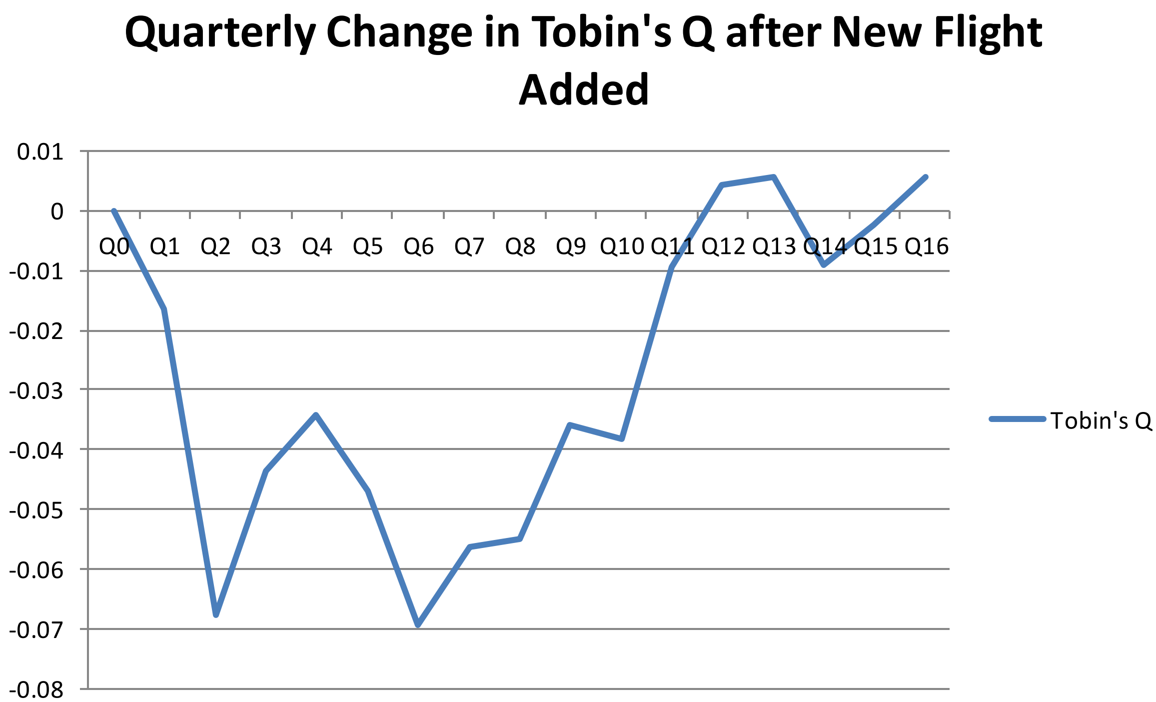

Figure 1. The Effect of New Airline Routes on Firm Value over Time. This table presents the cumulative percentage change in Tobin’s Q after the addition of a new direct flight between a director’s home residence and firm headquarters. It is calculated by taking the average change in Tobin’s Q in the subsequent quarters after a new flight was added for a director (only for those directors who had a new flight added). Of the entire sample of directors, 2068 directors had both a new flight added and quarterly data available.

Director Characteristics	Obs	Mean	Median	SD
Distance (km)	113630	710	14	1296
Other Boards	116661	0.92	0	1.21
Direct Flight	106990	0.11	0	0.31
Director Age	116658	60.2	61.0	8.7
MSA Distance (km)	110601	126	44	197
Direct Flight Added	3804			
Direct Flight Removed	2426			

CEO Characteristics	Obs	Mean	Median	SD
Total Compensation	8951	6180	4031	6623
Cash Compensation	8951	0.327	0.269	0.273
Equity Compensation	8951	0.725	0.775	0.266
Vega	8311	0.15	0.09	0.27
Delta	8311	0.01	0.01	0.01

Firm Characteristics	Obs	Mean	Median	SD
Assets	14586	8729	1791	33311
Capex/Assets	14529	0.05	0.04	0.05
Acquisitions/Assets	14529	0.03	0.19	0.23
RD/Assets	14529	0.03	0	0.06
Advertising/Assets	14529	0.01	0	0.04
Board Size	8939	9.7	9	2.4
Board Ind	8939	0.73	0.75	0.15
Tobin's Q	14504	1.69	1.28	1.55
ROA	14529	0.04	0.05	0.18
MSA Distance (km)	14345	132	52	179
Leverage	14449	0.21	0.16	0.20

Table 1
Summary Statistics
This table presents summary statistics for directors, CEOs and firm characteristics of SP1500 firms from 2000-2011. MSA distance is the distance between the director (or the firm) and the nearest metropolitan statistical area (MSA) measured in kilometers. Appendix A contains variable definitions. The unit of observation is director-firm year.

Director Characteristics	Local	Non-Local	P-Value (Diff in Mean)
Distance (km)	5	1731	0.0000
Other Boards	0.753	1.188	0.0000
Direct Flight	1.000	0.165	0.0000
Director Age	60.133	60.288	0.0028
MSA Dist (km)	124	129	0.0001
CEO Vega	0.151	0.138	0.0000
CEO Delta	0.011	0.010	0.0000
CEO Total Compensation	5871	6685	0.0000

CEO Characteristics	Local	Non-Local	P-Value (Diff in Mean)
CEO Total Compensation	5871	6685	0.0000
CEO Cash Compensation	0.329	0.324	0.0171
CEO Equity Compensation	0.718	0.736	0.0000

Firm Characteristics	Local	Non-Local	P-Value (Diff in Mean)
Assets	8495	9065	0.0344
Capex/Assets	0.052	0.053	0.0072
Acquisitions/Assets	0.028	0.029	0.5443
RD/Assets	0.032	0.027	0.0000
Advertising/Assets	0.014	0.013	0.0253
Board Size	9.5	9.93	0.0000
Board Ind	0.72	0.74	0.0000
Tobin's Q	1.719	1.651	0.0000
ROA	0.038	0.034	0.0026
MSA Distance (km)	125	142	0.0000
Leverage	0.196	0.219	0.0000

Table 2
Summary Statistics for Local versus Non-Local Directors
This table presents summary statistics and univariate tests for difference in means for local versus non-local directors of SP1500 firms from 2000-2011. A director is local if he resides within 50 km of the firm HQ. MSA distance is the distance between the director (or the firm) and the nearest metropolitan statistical area (MSA) measured in kilometers. Appendix A contains variable definitions. The unit of observation is director-firm year. The sample size can be found in Table 1.

VARIABLES	(1) Tobin's Q	(2) Tobin's Q	(3) Tobin's Q	(4) Tobin's Q
Direct Flight	-0.023***	-0.034**	-0.016*	-0.032*
	[-2.583]	[-1.993]	[-1.852]	[-1.768]
Distance			-0.002**	-0.001
			[-2.402]	[-0.385]
Assets	-0.057**	-0.075**	-0.050**	-0.065**
	[-2.423]	[-2.465]	[-2.012]	[-1.972]
Leverage	-1.575***	-1.616***	-1.576***	-1.623***
	[-24.858]	[-21.485]	[-21.520]	[-19.226]
Capex	0.953***	0.681***	0.855***	0.647***
	[4.824]	[3.134]	[3.968]	[2.679]
RD	-0.139	-0.144	0.042	0.200
	[-0.285]	[-0.292]	[0.081]	[0.341]
Cash	0.550***	0.526***	0.491***	0.461***
	[6.064]	[5.001]	[4.172]	[3.142]
Volatility	0.273***	0.316***	0.286***	0.327***
	[5.743]	[5.944]	[5.470]	[5.389]
Firm FE	Yes	No	Yes	No
Firm-Director FE	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	67,152	67,152	40,133	40,133
R-squared	0.836	0.897	0.846	0.902

Table 3

The Effect of New Airline Routes on Firm Value

This table presents estimates of OLS panel regressions of the Log of Tobin's Q on distance and presence of a direct flight between directors' home residence and firm headquarters and other firm level control variables. Firm-Director or firm and year fixed effects are included in all specifications. Observations are director-firm year. Appendix A contains variable definitions. Significance at the 1%, 5%, and 10% level is denoted by ***, **, and *, respectively. Standard errors are adjusted for clustering at the firm level.

VARIABLES	(1) Tobins Q	(2) Tobins Q	(3) Tobins Q
Direct Flight	-0.005	0.022	-0.008
	[-0.220]	[0.721]	[-0.250]
Herfindahl	-0.509		
	[-0.403]		
High Herfindahl * Direct Flight	-0.039		
	[-1.395]		
Intangibles		0	
		[-1.585]	
High Intagibles * Direct Flight		-0.088**	
		[-2.368]	
Discretion			0.023
			[1.050]
High Discretion * Direct Flight			-0.087*
			[-1.689]
Distance	-0.002	0	0.001
	[-0.466]	[0.104]	[0.152]
Assets	-0.067**	-0.136***	-0.117***
	[-2.033]	[-3.708]	[-2.935]
Leverage	-0.395***	-0.461***	-0.536***
	[-3.581]	[-4.502]	[-5.094]
Capex	0.710***	1.096***	1.113***
	[3.082]	[3.849]	[3.611]
RD	0.104	0.321	0.37
	[0.168]	[0.517]	[0.619]
Cash	0.604***	0.651***	0.731***
	[4.837]	[4.189]	[4.864]
Volatility	0.132**	0.242***	0.244***
	[2.188]	[3.477]	[3.281]
Firm-Director FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	34,899	40,135	33,780
R-squared	0.917	0.876	0.87

Table 4

The Effect of New Airline Routes on Firms which are More/Less Sensitive to Increased Monitoring

This table presents estimates of OLS panel regressions of the Log of Tobin's Q on the herfindahl index, intangibles scaled by total assets, discretion score, the interactions between herfindahl, intangibles, and discretions score and direct flight, the distance between directors' home residence and firm headquarters, the presence of a direct flight between same and other firm level control variables. Firm-Director and year fixed effects are included in all specifications. Observations are director-firm year. Appendix A contains variable definitions. The high herfindahl, intangibles, and discretion variables were set equal to 1 if a firm was above the annual median value and 0 otherwise. Discretion score is a score that proxies for management's ability to affect/alter the operations and the direction of the firm. For more on it, see Abrahmson and Hambrick (1995). Significance at the 1%, 5%, and 10% level is denoted by ***, **, and *, respectively. Standard errors are adjusted for clustering at the firm level.

VARIABLES	(1) R&D	(2) Patents	(3) Acquisitions
Direct Flight	-0.001*	-8.441**	-0.003*
	[-1.653]	[-2.131]	[-1.687]
Assets	-0.012***	9.808	0.025***
	[-7.534]	[1.365]	[3.506]
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	63,136	22,299	31,029
R-squared	0.948	0.907	0.427

Table 5

The Effect of New Airline Routes on Firm Risk-Taking

This table presents estimates of OLS panel regressions of the effects of firm risk-taking, using the standard deviation of stock return, sales growth, and return on assets (ROA) on the presence of a direct flight between directors' home residence and firm headquarters and the natural logarithm of total firm assets. The standard deviation of stock return is done using the previous year's returns on a daily frequency. The standard deviation of sales growth and ROA are computed using quarterly data over the previous five years. Industry and year fixed effects are included in all specifications. Observations are director-firm year. Appendix A contains variable definitions. Significance at the 1%, 5%, and 10% level is denoted by ***, **, and *, respectively. Standard errors are adjusted for clustering at the firm level.

VARIABLES	(1) SD ROA	(2) SD Sales Growth	(3) SD Stock Price
Direct Flight	-0.001	0.001	-0.002
	[-1.299]	[0.127]	[-0.321]
Assets	-0.003***	-0.012***	-0.034***
	[-9.678]	[-6.586]	[-16.414]
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	98,445	98,421	63,323
R-squared	0.099	0.144	0.458

Table 6

The Effect of New Airline Routes on Firm Risk-Taking Channels

This table presents estimates of OLS panel regressions of the effects of firm risk-taking, using R&D expenditures scaled by assets, the number of patents generated, acquisitions scaled by assets on the presence of a direct flight between directors' home residence and firm headquarters and the natural logarithm of total firm assets. Industry and year fixed effects are included in all specifications. Observations are director-firm year. Appendix A contains variable definitions. Significance at the 1%, 5%, and 10% level is denoted by ***, **, and *, respectively. Standard errors are adjusted for clustering at the firm level.

VARIABLES	(1) Tobin's Q	(2) Tobin's Q	(3) Tobin's Q	(4) Tobin's Q	(5) Tobin's Q	(6) Tobin's Q
Pred(Future RD)	43.644***					
	[51.681]					
Pred(Future Patents)		0.091***				
		[55.610]				
Pred(Future Acquisitions)			88.076***			
			[51.511]			
Pred(SD ROA)				2.043		
				[0.425]		
Pred(SD Sales Growth)					89.307***	
					[50.682]	
Pred(SD Stock Price)						19.511***
						[62.674]
Assets	0.120***	-2.336***	2.090***	7.247***	-0.462***	-0.139***
	[11.201]	[-53.081]	[50.166]	[77.046]	[-46.222]	[-34.013]
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	61,018	61,018	61,018	60,615	40,211	60,615
R-squared	0.939	0.935	0.937	0.804	0.878	0.862

Table 7

Decreased Risk-Taking as a Channel for the Negative Effect of Increased Monitoring on Firm Value (Tobin's Q)

This table presents estimates from 2nd-stage panel regressions of the effects of predicted future firm risk-taking on firm performance, as measured by Tobin's Q, while including control variables and fixed effects. The variables which serve as proxies for firm risk taking are the predicted values of the standard deviation (SD) of sales growth, ROA, and stock price, and the predicted levels of R&D, patents, and acquisition spending, all scaled by total assets, each predicted from a first stage regression reported in Table 4A or 4B. The standard deviation of stock return is calculated using the next year's returns on a daily frequency. The standard deviation of ROA and sales growth is computed using quarterly data over the future five year period. The R&D, patent, and acquisition variables are calculated using the next year's R&D, patents, and acquisitions scaled by total assets. Industry and year fixed effects are included in all specifications. Observations are director-firm year. Appendix A contains variable definitions. Significance at the 1%, 5%, and 10% level is denoted by ***, **, and *, respectively. Standard errors are adjusted for clustering at the firm level.

Panel A: Compensation

VARIABLES	(1) Total Compensation	(2) Cash Compensation	(3) Equity Compensation
Assets	0.460***	-0.013***	0.055***
	[31.330]	[-3.234]	[14.077]
Market-to-Book	0.000	-0.000***	-0.000*
	[-0.567]	[-3.125]	[-1.925]
Stock Volatility	0.231**	-0.105***	0.011
	[2.532]	[-3.621]	[0.408]
Stock Return	-0.019	0.007	-0.008
	[-0.706]	[0.822]	[-0.889]
ROA	0.900***	0.426***	0.233***
	[4.781]	[9.560]	[4.127]
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	64,590	65,129	65,449
R-squared	0.495	0.087	0.128

Panel B: Excess Compensation

VARIABLES	(1) Total Compensation	(2) Cash Compensation	(3) Equity Compensation
Direct Flight	0.01	0.003	0.001
	[0.723]	[0.530]	[0.199]
Distance	-0.003	0	0
	[-1.542]	[-0.365]	[-0.403]
CEO Duality	-0.06	0.009	-0.014
	[-0.885]	[0.399]	[-0.524]
Busy Board	0.118	-0.051	0.125
	[0.404]	[-0.439]	[1.369]
Directors > 69 yrs old	0.187	-0.076	-0.106
	[0.792]	[-0.957]	[-1.348]
Board Size	-0.018	0.005	-0.007
	[-0.786]	[0.639]	[-0.745]
Board Independence	0.429	0	0.048
	[1.235]	[-0.001]	[0.324]
Institutional Ownership	-0.415	-0.004	-0.116
	[-1.437]	[-0.028]	[-0.950]
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	12,009	11,945	12,013
R-squared	0.731	0.625	0.656

Table 8

The Effect of New Airline Routes on CEO Compensation

Panel A presents regressions predicting normal CEO compensation as a function of the economic determinants of executive pay during 2000-2011. Panel B presents regressions explaining excess compensation, defined as residuals from the respective Panel A regressions. Panel B control variables include the presence of a direct flight between directors' home residence and firm headquarters and other firm level monitoring control variables. Industry and year fixed effects are included in all specifications. Observations are director-firm year. Appendix A contains variable definitions. Significance at the 1%, 5%, and 10% level is denoted by ***, **, and *, respectively. Standard errors are adjusted for clustering at the firm level.

VARIABLES	(1) CEO Turnover	(2) CEO Turnover	(3) CEO Turnover
Direct Flight		-0.003	-0.275
		[-0.005]	[-0.305]
Abnormal Return	-1.785**	-1.574**	-1.268
	[-2.503]	[-2.172]	[-1.305]
Abn Return * Direct Flt		-1.868	-5.139
		[-0.623]	[-1.615]
Distance			-0.039
			[-0.497]
Busy Board			1.498
			[0.484]
CEO Duality			0.639
			[1.036]
Institutional Ownership			-0.666
			[-0.260]
Board Size			0.076
			[0.227]
Board Independence			-2.478
			[-0.630]
CEO Age			0.049
			[0.870]
Assets			-0.305
			[-0.755]
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Psuedo R-squared	0.074	0.257	0.257
Observations	6,183	6,183	1,316

Table 9

The Effect of New Airline Routes on CEO Turnover

This table presents estimates of logistic regressions of CEO turnover on the presence of a direct flight between the director and the firm HQ, the presence of that direct flight interacted with the abnormal return of the firm, and other board monitoring and firm control variables. Industry and year fixed effects are included in all specifications. Observations are director-firm year. Appendix A contains variable definitions. Significance at the 1%, 5%, and 10% level is denoted by ***, **, and *, respectively. Standard errors are adjusted for clustering at the firm level.

Low Attendance	Local	Non-Local	
	No Flight	Direct Flight	No Direct Flight
Mean	0.011	0.015	0.019

Low Attendance	Pre	Post	Difference in Means
Directors with no new flight added	0.0132	0.0131	0.0001
Directors with new flight added	0.0288	0.0256	0.0032***

VARIABLES	(1) Low Attendance	(2) Low Attendance	(3) Low Attendance
	All Non-Local	High Distance	Odds Ratio
Direct Flight	-0.005*	-0.006**	0.715*
	[-1.870]	[-2.120]	[-1.95]
Assets	0.000	0.000	1.011
	[0.320]	[0.330]	[0.27]
Leverage	0.004	0.009	1.295
	[0.652]	[1.361]	[0.79]
Capex	0.008	-0.008	1.562
	[0.326]	[-0.306]	[0.33]
R&D	0.021	0.013	3.291
	[0.774]	[0.444]	[0.78]
Volatility	0.011	0.008	1.733
	[1.544]	[1.023]	[1.49]
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	19,992	10,839	19,992
R-squared	0.007	0.007	

Table 10
Distance and its Effect on Attendance
This table presents summary statistics and univariate tests for difference in means between directors with a new flight added and those without a new flight added. This table also presents an OLS analysis of low board meeting attendance on distance between director's home residences and firm headquarters. Industry and year fixed effects are included in the regression. 'High Distance' includes only those directors who live farther than the mean distance. Significance at the 1%, 5%, and 10% level is denoted by ***, **, and *, respectively.

VARIABLES	(1) Tobin's Q
Direct Flight Removed	0.024
	[0.462]
Distance	0.021
	[0.578]
Assets	-0.144
	[-0.824]
Leverage	-1.172***
	[-2.789]
Capex	1.494
	[0.987]
RD	-4.987
	[-1.249]
Cash	0.340
	[0.293]
Volatility	0.804
	[1.506]
Firm-Director FE	Yes
Year FE	Yes
Observations	503
R-squared	0.979

Table 11

The Effect of an Eliminated Direct Flight on Firm Value

This table presents estimates of director-firm interacted fixed effects panel regressions of Tobin's q on the distance between directors' home residence and firm headquarters (kilometers and direct flight). Observations included are limited solely to those instances where a direct flight was eliminated. Firm-Director and year fixed effects are included. Appendix A contains variable definitions. Significance at the 1%, 5%, and 10% level is denoted by ***, **, and *, respectively. Standard errors are adjusted for clustering at the firm level.

VARIABLES	(1) Tobin's Q	(2) Tobin's Q
	Do Not Move	Move
Direct Flight	-0.041*	-0.024***
	[-1.848]	[-2.930]
Assets	-0.066**	-0.069***
	[-2.189]	[-3.253]
Leverage	-1.357***	-1.346***
	[-18.708]	[-21.841]
Capex	0.682***	0.828***
	[3.251]	[4.305]
R&D	0.752	0.887*
	[1.201]	[1.776]
Cash	0.604***	0.494***
	[5.919]	[5.562]
Volatility	0.369***	0.344***
	[6.201]	[7.432]
Firm-Director FE	Yes	Yes
Year FE	Yes	Yes
Observations	21,048	47,610
R-squared	0.848	0.850

Table 12

Direct Flight's Effect on Firm Value Considering Only Directors who do and do not Change Residence

This table presents estimates of executive-firm interacted fixed effects panel regressions of Tobin's Q on the distance between directors' home residence and firm headquarters (kilometers and direct flight). Observations in Specification 1 are limited solely to those instances where a director did not change residences throughout the sample period. Observations in Specification 2 are limited solely to those instances where a director did change residences within the sample period. Year fixed effects are included. Appendix A contains variable definitions. Significance at the 1%, 5%, and 10% level is denoted by ***, **, and *, respectively. Standard errors are adjusted for clustering at the firm level.

Type	Mean	t-stat (difference in means compared to Total)	P-Value
Monitor (Local)	0.586	6.70	0.0001
Total (Local)	0.555		

	(1)
VARIABLES	Monitor
Distance	-0.132**
	[-2.461]
Industry FE	Yes
Year FE	Yes
Observations	7,676

Table 13

Board Committee Composition – Monitoring

This table presents a t-test which determines if there is a significant difference between the fraction of local monitors and local outside directors in the full sample. The 'Total (Local)' bar serves as a baseline of comparison; it is the number of local versus nonlocal outside directors on all boards in the sample. Monitors are defined as directors who sit on at least 2 of the 3 principal monitoring committees (audit, compensation, and nominating). Local is defined as a director who lives within 50km of the firm's headquarters. Also presented is a logistic regression which includes distance as the independent variable and monitor as the dependent variable. The regression includes both industry and year fixed effects.