ESSAYS IN EXECUTIVE INCENTIVES AND LABOR MARKETS

By

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ABSTRACT

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This dissertation is composed of a set of studies that examine the incentives of senior executives and the matching between executives and firms. In one essay, I examine the incentives of different managers to strategically time their disclosure of insider trades. I find evidence consistent with the hypothesis that insiders choose the timing of their disclosures to minimize any negative information signals that may be conveyed by their trading decisions. In a second essay, I consider the matching process between a firms real assets and its managerial human capital. I find that certain types of CEO educational profiles are highly correlated with firm and industry characteristics. This evidence indicates that educational backgrounds capture important managerial characteristics that have a significant impact on the optimal matching process between CEOs and firms. In a final essay, I examine the role of a firms ownership structure on the types of senior managers that the firm is able to attract. I find that the presence of certain types of block owners leads to a substantive constraint in the set of candidates that are willing to consider leading a firm, thus suggesting a substantial human capital cost to certain firm ownership structures.

Dedicated to my wife Ali, and to my parents Philip and Kathi Brooks

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1.1 Introduction

Under Section 16 of the Securities Exchange Act of 1934 (henceforth known as "the Act"), firm insiders (which include directors, officers, and beneficial owners of 10% or more of a class of equity) must report their trading activities in the firm's stock to the Securities and Exchange Commission (SEC). In the case of restricted shares, insiders must file a Form 144 for authorization prior to trading. This filing makes public the intended trading activity, as the insider must report the expected direction of the trade (buy or sell) and the number of shares, while the associated authorization expires after 90 days. However, this is the exception.

All insider trades (including the actual transaction involving the authorized restricted shares) are reported after the fact. Insiders must file three forms: the Form 3, which is due within 10 days of the insider becoming a reporting person and reports any pre-existing transactions; a Form 4, which is due by the end of the second business day after almost all types of transactions; and a Form 5, which is an annual report of the person's holdings in the firm. Together, these forms can recreate an insider's complete trading history for the firm's stock.

There has been no scholarship or inquiry to my knowledge that explores the efficacy of these regulations. Section 21 of the Act enumerates penalties for violations of specific sections and laws. While insider trading is among these, Section 16 compliance is not listed or mentioned. Thus, it falls under the purview of the civil remedies in Section 21(a)(3). The SEC is able to pursue violations both of the Act itself

and procedural or administrative violations (e.g., failure to comply with document requests and no shows for SEC hearings) in court. The penalties for a "natural person" begin at $5,000 for a first tier offense, rising to $50,000 for the second tier and $100,000 for the third tier. In all cases, the penalty is the greater of the given amount or the gross amount of pecuniary gain accruing from the violation.

The extent to which the SEC chooses to or can enforce this statute in the context of Section 16 is unclear. In fact, the only obvious penalty for Section 16 non-compliance is that the firm must disclose the delinquency in its 10-K. Prior to 2003, a 10-K acknowledging a reporting person's delinquent reporting was given a special designation: 10-K405. However, this was dropped, as firms applied the label inconsistently. The relative obscurity of this punishment, combined with its reliance on the firm (over which the reporting person likely holds significant influence) as the monitor of first resort suggests that it would likely be an insufficient deterrent. Certainly, one might argue that repeated violations of Section 16 might provide probable cause for an insider trading investigation, but the level at which this becomes a concern is unclear.

This is especially a concern in the last decade. Section 403 of the Sarbanes-Oxley Act of 2002 required that the SEC move to electronic filing and posting of insider trading documents. In Release 33-8230, the SEC issued a final rule that all Forms 3, 4, and 5 must be filed via EDGAR. No other means were to be accepted, and no hardship exemption was to be available. This rule took effect on June 30, 2003. A major benefit of the transition was that the time between the filing and the public dissemination of a report was all but eliminated. EDGAR submissions are generally available to investors less than an hour after their submission. One can immediately see the efficiency gain: submission of magnetic tapes would require time for shipping, as well as require time for SEC officials to review and process the data, while electronic submissions to EDGAR are transmitted much faster and can

be quickly reviewed algorithmically. This implies that any delays in reporting are very likely to be intentional, as much of the noise in the process has been eliminated.

Section 16 also prohibits two less innocuous activities. First, it establishes the regulatory basis for disgorgement of short-run profits on the presumption of inside information. Shareholders, and the firm itself, are eligible to sue for profits made by a reporting person deriving from a buy and sale combination within a six month period. This implies that the relevant holding period for an insider is six months. Second, it prohibits shorting by insiders. This means that while insiders can avoid losses, they cannot capture profits from downturns via trading activity. These aspects will help inform my analysis.

1.2 Literature Review and Motivation

To my knowledge, no research has examined the lateness of trading disclosures. A body of research has built on the implications of these filings, though. Huddart, Hughes, and Levine (2001) incorporate the Form 4 requirement into the equilibrium from Kyle (1985). The informed trader is substituted for an insider who now must report their trades immediately after the market clears. This results in accelerated price discovery and lower profits for the insider. This framework provides a lens into two effects of mandatory reporting: it acts to simultaneously increase market efficiency and decrease incentives for insider trading. However, in the equilibrium, insiders are able to protect some of their profits by adopting a dissimulation strategy and adding a noisy, random component to their trading strategy. This helps to ensure that the price discovery process remains accelerated by preserving the insider's ability to reap profits.

Of course, the insider is assumed to be profit-maximizing. However, this is narrowly defined to be strictly in the context of his or her insider trading activity. Suppose that one starts with the Huddart, Hughes, and Levine (2001) model. Suppose

that this insider is not just a reporting person, but a corporate officer. For the sake of exposition, I will assume the insider is a CEO, but the discussion should be generalizable to a lower ranked executive (albeit not as strongly). Now, endow this CEO with a wage, w, that is paid each period after the market clears. Further, suppose that there exists some probability that he or she will be terminated, τ_t, which is a function of the stock price:

$$\tau_t(p_t) = \tau_{t-1} + \eta p_t + \psi_t$$

Here, ψ represents the portion of their performance evaluation that is orthogonal to the stock price (e.g., board preferences for managerial style). One can see that this would result in a different objective function. The manager's single period profit function would now be:

$$\begin{aligned}\pi_t &= x_t(v - p_t) - w(\tau_t - \tau_{t-1}) \\ &= x_t(v - p_t) - w\eta p_t - w(\psi_t - \psi_{t-1})\end{aligned}$$

Notice that $w\eta p_t$ is the expected loss in salary from the CEO's trading activity, while $w(\psi_t - \psi_{t-1})$ is the expected loss in salary from other sources (which would be irrelevant to the CEO's trading strategy). This would lend the CEO different incentives than they had previously. That is, all else equal, the CEO has an incentive to buy and place upward pressure on the price. So, one can see how pure trading profit might not be the only objective for a corporate officer in the Huddart, Hughes, and Levine (2001) framework. Rather, trading could also serve as a form of employment insurance for the executive. Consider that if the CEO is able to acquire some form of insurance through trading, it would likely alter their effort allocation.

While there has been no theoretical work in this area, empirical studies have established the stock price as a driver for CEO turnover. Weisbach (1988) finds that

poor stock performance can be used as a predictor of CEO resignations, especially in the case of an outsider-dominated board. Likewise, positive returns correspond to resignation announcements. Dikolli, Mayew, and Nanda (2012) also find an association between firm performance and CEO survival. While this relationship weakens over the course of the CEO's tenure, it can be quite strong early in the executive's time with the firm. An alternative channel is discussed by Martin and McConnell (1991), who finds that CEOs of tender offer takeover targets are subject to a high turnover rate after completion of the takeover, and that these target firms were consistent underperformers. So, poor stock performance can both lead the board to oust the CEO or induce a takeover which removes the CEO. In both cases, the CEO has an incentive to raise the stock price in order to protect his or her job.

Of course, there is no room in the model for a consistent bluff in any version of the Kyle model. At some point, the insider must profit. Even with my proposed extension, it seems unlikely that driving the price significantly above true value would be an ideal strategy. Scholarship has shown, however, that such a bluff can actually be value-increasing. Khanna and Sonti (2004) show that, in a situation in which multiple informed investors are able to sequentially place their orders, it is optimal for the third insider to herd under certain conditions. Specifically, theses traders' signals need to be non-worthless and they must possess inventory levels above a derived minimum in order to support this herding equilibrium. Most importantly, they argue that this equilibrium can lead to value creation, as the higher stock prices can alleviate financial constraints on the firm and allow for new profitable investments.

Given that reporting persons tend to be exactly those traders with relatively large inventories of shares in the firm (beneficial owners by definition, and officers typically through compensation packages), it is easy to apply this model to my context. Incorporating the job effect here would be even more direct: herding would not only produce a more valuable company, but it would also decrease their likelihood of ter-

mination. Hence, even if the traders are not particularly profitable, the insider might still profit on their portfolio (consisting of both the trading profits and the expected wage profits). In order to take advantage of the herding, though, insiders would need some manner in which to keep constant positive pressure on the price so that the bubble forms. One way might be to incorporate the ability of the insider to late file.

Consider the effect of allowing a late filing in the Huddart, Hughes, and Levine (2001) context. That is, rather than the insider's trades being guaranteed to be reported, the CEO has the option to strategically delay filing by one period (so they would be incorporated after the next auction, rather than the one in which the trades took place).For example, any trades from time $t = 1$ would not be incorporated until after trading concludes at $t = 2$. One realizes that this makes the two period model problematic, as it would almost surely be optimal for insiders to delay reporting all trades. In this situation, the model collapses to that of Kyle (1985). A model with at least three periods would be needed in order to model this appropriately. However, I can make conjectures again based on the single period model. Recall that the CEO is optimizing over reaping trading profits and minimizing the loss in expected wage. With a singular focus on trading profits, the decision is trivial: obviously, the CEO should delay all reporting. However, if the loss in expected wage is sufficiently high, one could envision the CEO disclosing on time in order to apply some positive price pressure.

However, the Huddart, Hughes, and Levine (2001) model is based on a crucial assumption: the insider must immediately and consistently report their trades prior to any further trading. While this assumption is certainly in the spirit of Section 16, and robust at large time scales, it can be distortionary in the face of some short-term observations. Proper regulation of insider trading seems to be important for capital market efficiency. Bhattacharya and Daouk (2002) find that insider trading laws have little effect on face. However, the cost of equity financing falls significantly

after a nation's first prosecution for insider trading. This suggests that the market is reluctant to invest in equity without some sign that the government is willing enforce its laws restricting insiders' activities. This adds significance to my study, as indications that the SEC is abdicating its enforcement role might reverse this effect.

One channel where this has been observed is through corporate filings. A significant body of research has documented the propensity of firms to file their Forms 10-K and 10-Q late. Alford, Jones, and Zmijewski (1994) were the first to present such evidence, as they found that 20% of 10-Ks were filed after the due date. In this context, the SEC provides for an automatic 15 day extension via a Form 12b-25 filing. However, the authors found that less than one third of these late filing firms had actually filed for the extension. The authors find evidence that most firms missing the deadline are simply unable to meet the deadline for various financial reasons. This finding is significant, as the authors point out that, at least to that point, the SEC was incapable of levying any direct financial penalties on firms. Rather, penalties ranged from a suspension of a firm's shelf registration to a suspension of trading in the firm's stock.

These can be dire costs for a firm, as the SEC could potentially all but eliminate the firm's ability to raise external funds. However, firms do not seem to go out of their way to avoid these penalties. Cao, Calderon, Chandra, and Wang (2010) revisit this result by examining the reasons given for the delay on the Form 12b-25 (extension) filing. They create measures of accounting and information system control quality and use these to predict the market's reaction to the extension. These are found to be strong drivers, while financial distress falls away. This suggests that firms perhaps could have avoided these filings, but due to institutional choices failed to do so.

Rather than a group of insiders, though, I am typically considering the case of a single insider signaling the entire external market. In this manner, I must consider the psychological effect of the disclosures on market participants. Shefrin and Stat-

man (1985) extend Kahneman and Tversky's (1979) prospect theory to elaborate a framework which is consistent with the behavior of investors in selling winners too soon and holding losers too long. A significant part of this extension comes in the form of regret avoidance and self-control (or lack thereof): investors lack the self-control to force themselves to realize a loss, instead preferring to hang on and hope to eventually turn a profit. By analogy, one can apply this to the reporting decision: I could expect to see insiders being quick to report a good trading decision ("winner") and slow to report a bad trading decision ("loser").

One could suppose that insiders might even suffer from a more public version of the same shame avoidance as the investors Shefrin and Statman (1985) discuss. Whereas those traders needed only consider potential recriminations from their own ego, reporting persons face public scrutiny. Now, all egos in the market are brought to bear on their decisions. One could envision that these other market participants employ some form of mental accounting in which poor trading returns from sophisticated traders generates a pseudo-wealth effect. That is, the uninformed feel wealthier when the informed traders' profits match or fall below their own. With this in mind, whether the insider decides to buy or sell, they might be hesitant to reveal that choice for as long as it can possibly be delayed without provoking regulatory action.

1.3 The Sample

I use data on insider stock transactions from the Thomson Reuters Insider Filing Data Feed. Specifically, I focus my attention on the non-derivative transaction table (Table 1). This contains data on Form 3, 4, and 5 entries ranging from January 1, 1986, to March 25, 2014.

The data exists at the person-company-trade level. Each trade is assigned a code (reported by the insider on the filing) summarizing its nature. I select those codes that that are inherently discretionary (P, S, V, I, and J). So, things such as gifts or required

distributions are excluded, while open market purchases or sales are included. My assumption is that while these transactions might impact the insider's discretionary trading strategy, they should not affect the reporting of the insider's discretionary trades.

Since reporting requirements are at the daily level, there is little that can be done below that frequency (e.g., one can only attempt to guess the time at which the trade took place during the reported day). So, I aggregate the data at the person-company-day level. I retain only those observations in which all trades were able to be verified or cleansed by Thomson (coded as R, H, and L). Next, I drop any person-company-days in which a SEC receipt date is reported as prior to the transaction date. These two steps should remove the majority of any erroneous data from the sample.

Next, I exclude any observations with trades that were reported on a form besides Form 4 (e.g., Forms 3 and 5). This allows for the most comparability of the data: the deadline for a Form 5 would be significantly different from that of a Form 4, and it is not necessarily clear that all transactions on a Form 5 should have been reported there (e.g., select transactions are exempt from Form 4 requirements, but delinquent Form 4 transactions are also supposed to be reported on a Form 5). Given the EDGAR standardization effort, I discard all trading prior to the June 30, 2003, effective date. This allows me to strictly focus on the insider's propensity to delay what should be a fairly instantaneous process.

Finally, I merge the insider data with daily pricing data from the Center for Research in Security Prices (CRSP) in order to fill in some missing price data. This implicitly assumes that the insider bought or sold at the closing price, which should bias against any results. Finally, I drop any observations which were filled with a negative price from CRSP. It is not clear that the estimated price from the closing bid-ask spread is a good estimate for the price at which the insider traded.

Finally, I remove any insider-company-day combinations that generate more than

one filing. That is, I keep only those reporting all activity on the same form. This is done to ensure that accidental misreporting does not influence my results. This should bias against any findings.

This process yields a sample of 928,302 insider-company-day combinations. These range from July 1, 2003, to March 25, 2014. Further, the sample includes observations from 100,005 distinct insiders and 11,829 unique firms. Summary statistics for several measures are presented in Table 1.

Table 1.1 Summary Statistics

Variable	**Mean**	**Std. Dev.**	**N Observed**
Size in:			
Shares	-36337.184	2777063.122	928,302
Value	-1073949.829	59156797.159	928,302
Buy by:			
Shares	0.358	0.479	332,533
Value	0.354	0.478	328,915
Jobs:			
CEO	0.129	0.335	119,634
CFO	0.063	0.243	58.474
CIO	0.002	0.041	1,543
COO	0.025	0.157	23,520
CTO	0.013	0.113	11,935
President	0.095	0.293	88,121
EVP	0.066	0.248	61,248
GC	0.026	0.16	24,483
Controller	0.011	0.106	10,583

1.4 Stylized Facts

In my sample, I see that the two business day deadline can result in a range of anywhere from two to five calendar days. For example, if an insider places a trade on the Friday preceding Martin Luther King, Jr. Day (which is always recognized as the third Monday in January), their deadline would be that Wednesday (no filings are allowed on SEC holidays), while a trade placed on the Tuesday immediately after Martin Luther King, Jr. Day would have a reporting deadline on that Thursday.

While the amount of trading time is largely unchanged, one could envision that some short-lived information might never be disseminated to the market. Alternatively, the additional calendar time could allow more time for other insiders to discover and subsequently trade on the information before it is reflected in the price. My assumption is that this could lead to some overheating, as the trading pressures the price to move, and then the signal from the filing adds "new" pressure in the same direction.

More importantly, the Huddart, Hughes, and Levine (2001) framework implicitly assumes perfect enforcement. That is, the forms are always filed correctly and on-time, allowing the market maker to incorporate their information content into prices before the next auction. My sample shows that this is not necessarily the case: approximately 8% of the sample is filed at least one day late, with half of those at least 14 days late, and 2% of the sample being at least 67 days late. Among the exclusions were 2,496,679 Form 4s and 5s that reported holdings with no corresponding trade reported. This represented approximately 20.11% of the total data set prior to cleaning. Thomson flags 1,395,418 records for irregularities, totaling approximately 10.71% of the total data. This implies that approximately 29.41% of these SEC filings are missing information or incorrect to some degree. One could argue, of course, that this is a data aggregation problem. That is, the study's ahistorical perspective removes any soft information it might have carried that would have substituted for the hard information it should provide. This is not an explanation I can rule out.

My focus, then, is on the timeliness of filings and consistency in filing. Table 2 presents summary statistics for the number of filings and filing dates associated with each insider-company-day prior to the culling of multiple filing insider-company-days. My sample contains 41,107 insider-company-day combinations with more than one associated filing. This corresponds to approximately 4.24% of the sample. I further observe 23,547 insider-company-day combinations, approximately 2.71% of

the sample, with more than one filing date. Given the nature of the transactions in this study, and the nature of the investors in the sample, even these relatively modest numbers seem too high to be explained by human error.

Table 1.2 Summary Statistics for Reporting

Variable	Mean	Std. Dev.	Min.	Max.	N
Size of sales by:					
Shares	-34767.666	2813310.394	-1523960704	519750112	969,409
Value	-1096116.995	59423898.711	-25983528960	26511536128	969,409
Filings	1.055	0.409	1	85	969,409
Filing Dates	1.025	0.16	1	6	969,409

1.5 Empirical Analysis

1.5.1 Hypotheses

As discussed above, there is theoretical justification to believe that investors vary their reporting depending on whether the transaction is a buy or sell. In accordance with this analysis, I claim that insiders should not be overly profitable in their trading. Recall the result from Bhattacharya and Daouk (2002): costs of equity decrease when insider trading laws are enforced. This suggests that investors have an aversion to insiders profiting on their private information. Primarily, I would expect this effect to manifest itself in the sell case, as there could be some presumption of insiders intentionally harming the company (and shareholders by extension) in order to profit.

Along similar lines, I would expect to see insiders disclose sooner when they expect the news to be good for the firm. Insiders should know what the market reaction will be to their disclosure. Recall that they are trading on some private information. They alone know this information, so they should be able to predict the reaction to their trading.

1.5.2 Reporting Spread

I consider the number of days it takes to disclose a buy versus the number of days to disclose a sell at the person-company-day level. This distribution is significantly skewed, so I use a log transformation on the number of days. In order to preserve the data through the transformation, I add one (six) to the number of days in the absolute (net) case, so that the minimum in each is equal to one. Summary statistics for the reporting spread given this calculation are reported in Panel A of Table 3. I perform a similar operation by winsorizing the tails of the distribution of the number of days at the 1% level. The summary statistics for this calculation are reported in Panel B of Table 3.

Table 1.3 Summary Statistics for Reporting by Net Transaction Direction

Panel A: Log Transform						
Variable	**Mean**	**Median**	**Std. Dev.**	**Min.**	**Max.**	**N**
Overall:						
Absolute	1.177	1.099	1.041	0	8.055	928,302
Net	1.767	1.609	0.827	0	8.055	928,302
Buy Days:						
Absolute	1.385	1.099	1.293	0	8.055	332,533
Net	1.928	1.792	1.047	0	8.055	332,533
Sell Days:						
Absolute	1.061	1.099	0.848	0	7.997	595,769
Net	1.677	1.609	0.657	0	7.998	595,769
Panel B: Winsorized						
Variable	**Mean**	**Median**	**Std. Dev.**	**Min.**	**Max.**	**N**
Overall:						
Absolute	7.487	2	25.7	0	174	928,302
Net	4.605	-1	25.565	-4	170	928,302
Buy Days:						
Absolute	12.089	2	33.827	0	174	332,533
Net	9.129	0	33.661	-4	170	332,533
Sell Days:						
Absolute	4.919	2	19.288	0	174	595,769
Net	2.081	-1	19.188	-4	170	595,769

I see that there appears to be a tendency toward reporting buys late versus sells. At the mean, the difference seems to be near seven days, or about a week. Obviously,

this can be explained to some degree by a fat upper tail, but even the median shows some difference in the net reporting time case. This relationship appears consistent across the two approaches.

1.5.3 Opportunity for Multiple Trades

If one begins with the assumption that insiders possess actionable private information and trade on that information with the intention of making trading profits, the most obvious reason one might consider for explaining delays in reporting is that insiders intend to make another trade on the information while it remains profitable. Hence, I would expect to see longer delays in cases where a second trade occurs. However, one also wonders whether insiders might actually engage in this strategy. Consider that the SEC might be more likely to investigate persons who appear to be manipulating the delay period for profit. While there is evidence that the SEC is lax in enforcing reporting requirements, one should not carelessly overreach. I estimate the following regression in order to test for this behavior:

$$Delay_t = \beta_0 + \beta_1 ST + \beta_2 SD + \beta_3 ST * SD + \gamma \mathbf{v} + u$$

Here, ST is an indicator for a second trade before the filing, and SD is an indicator for the person's next trade being in the same direction (buy or sell). v is a vector of fixed effects. Table 4 reports the results of this estimation.

A few things are apparent from the results in Table 4. First, there does seem to be a delay in reporting if the insider plans on making a second trade. However, the estimated delay is reduced by approximately two-thirds in the case that the insider makes another trade in the same direction (e.g., a buy following a buy). This suggests that insiders might realize that continuing to trade in the same direction after a delay could raise SEC suspicions.

Table 1.4 Multiple Trades as a Determinant of Reporting Delay

Panel A: Log Transform						
	(1)	(2)	(3)	(4)	(5)	(6)
	Netdelay	Netdelay	Netdelay	Netdelay	Netdelay	Netdelay
2nd	2.235***	2.103***	2.419***	1.741***	1.481***	1.876***
	(106.95)	(83.63)	(64.76)	(85.04)	(57.81)	(51.97)
Direction	-0.142***	-0.147***	-0.118***	-0.0758***	-0.0785***	-0.0484***
	(-76.51)	(-45.02)	(-55.48)	(-39.24)	(-21.98)	(-22.55)
2nd & Dir	-1.244***	-0.633***	-1.715***	-0.967***	-0.381***	-1.346***
	(-58.71)	(-24.33)	(-45.73)	(-46.93)	(-14.69)	(-37.22)
Intercept	1.715***	1.780***	1.661***	1.742***	1.921***	1.649***
	(980.87)	(597.27)	(818.67)	(457.15)	(216.23)	(431.13)
N	928302	332533	595769	926438	331515	594923
R^2	0.222	0.292	0.184	0.423	0.537	0.405
adj. R^2	0.222	0.292	0.184	0.415	0.521	0.395
Job Effects	No	No	No	Yes	Yes	Yes
Firm Effects	No	No	No	Yes	Yes	Yes
Year Effects	No	No	No	Yes	Yes	Yes
Panel B: Winsorized						
	(1)	(2)	(3)	(4)	(5)	(6)
	Netdelay	Netdelay	Netdelay	Netdelay	Netdelay	Netdelay
2nd	67.84***	62.34***	76.77***	52.28***	43.81***	58.81***
	(72.67)	(55.53)	(46.26)	(59.20)	(40.29)	(37.34)
Direction	-3.096***	-3.631***	-2.317***	-1.405***	-1.433***	-0.704***
	(-62.11)	(-41.02)	(-41.39)	(-25.86)	(-13.49)	(-12.30)
2nd & Dir	-43.42***	-20.79***	-62.53***	-33.97***	-12.98***	-49.38***
	(-46.04)	(-18.01)	(-37.56)	(-38.23)	(-11.75)	(-31.32)
Intercept	2.913***	4.522***	1.611***	3.906***	8.401***	1.732***
	(60.05)	(53.70)	(29.32)	(33.22)	(28.47)	(16.30)
N	928302	332533	595769	926438	331515	594923
R^2	0.154	0.229	0.117	0.372	0.478	0.396
adj. R^2	0.154	0.229	0.117	0.364	0.461	0.386
Job Effects	No	No	No	Yes	Yes	Yes
Firm Effects	No	No	No	Yes	Yes	Yes
Year Effects	No	No	No	Yes	Yes	Yes

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

It is important to note, however, that one cannot rely too heavily on the magnitudes of the estimates presented in the table. It seems almost certain that these estimates are influenced by the extreme upper tail of the distribution (at some point, it seems likely that the insider will make another trade, even if it is based on information unrelated to the prior trade).

1.5.4 Profitability of Insider Trading

That insiders delay in order to trade again easily reconciles with the notion that they are trading to maximize trading profits. Since their reporting is due so quickly after trade execution, one might surmise that they choose to engage in trades with a focus on long-term, durable information. This would imply lower immediate profits that would inevitably seem less suspicious to SEC investigators. I use this conjecture to form a test of Hypothesis 1, as I wish to identify the short run abnormal profitability of trades. To do so, I supplement the data with return data from CRSP and Fama French factor data from the Kenneth French Data Library. I estimate the three day cumulative abnormal return (CAR) for a trade on day t as the sum of the following three days' abnormal returns as estimated via the three factor model established in Fama and French (1993):

$$CAR_t = \sum_{i=1}^{3} (\widehat{abnormal\ return}_{t+i})$$

These CARs are always calculated in long terms. Recall that insiders cannot short their firm's equity, so referring to their personal CAR after a sell is counterfactual. Rather, I speak in terms of the firm's CAR. The summary statistics for these CARs are presented in Table 5. I also report CARs winsorized on both tails at the 1% level.

Recall that these estimates are for a three day holding period. This is obviously not the holding period that insiders focus on, as disgorgement rules prohibit reaping

Table 1.5 Summary Statistics for CAR After Transaction Date

Variable	Mean	Median	Std. Dev.	Min.	Max.	N
Overall:						
CAR	.000729	-0.000433	0.06123	-0.86023	5.6647	765,781
Winsorized CAR	0.000358	-0.000433	0.0519	-0.154263	0.1765	765,781
Buy Days:						
CAR	0.000405	-0.001076	0.06786	-0.86023	5.6647	243,631
Winsorized CAR	-0.000195	-0.00108	0.05443	-0.154263	0.176487	243,631
Sell Days:						
CAR	0.00088	-0.000162	0.0579	-0.82443	2.4237	522,150
Winsorized CAR	0.000617	-0.000162	0.05067	-0.154263	0.1765	522,150

such short term profits (with rent-seeking shareholders as an effective means of enforcement). However, these would be indicative of the abnormal returns that insiders have earned prior to or during their reporting decision period. In particular, removing outliers leads to negative mean CARs on days that insiders buy, while positive mean CARs remain on days that insiders sell. Now, I wish to determine the explanatory power these CARs hold for the reporting spread. This is modeled by the regression model:

$$ReportingSpread_{i,j,t} = \beta_0 + \beta_1 CAR_{j,t} + \gamma \mathbf{v} + u$$

Here, i identifies a particular insider, j represents a particular company, and t defines a particular trading date. Note that $CAR_{j,t}$ is a company-date level variable, as it is invariant to the choice of insider. $\mathbf{v}$ represents a vector of control variables. I employ fixed effects along all three vectors: a job effect that proxies for the person's characteristics (e.g., CEO, CFO, COO, etc.), a company effect, and a year effect. The results of this estimation are presented in Table 6 for the absolute reporting spread measure and Table 7 for the net reporting spread measures.

Table 6 shows little to no relationship in the first three specifications. I find a negative relationship in the net sell case of Panel B, but this relationship is non-existent in the log specification. However, the inclusion of fixed effects yields a significant positive relationship. I see this especially in the net buy case (Equation (5)), while it

Table 1.6 Absolute Reporting Delay as Determined by Post-Trading CAR

Panel A: Log Transform						
	(1)	(2)	(3)	(4)	(5)	(6)
	Absolute	Absolute	Absolute	Absolute	Absolute	Absolute
CAR	-0.00130	0.0340	-0.00879	0.0429***	0.101***	-0.00523
	(-0.07)	(0.93)	(-0.46)	(2.64)	(3.28)	(-0.31)
Intercept	1.115***	1.345***	1.008***	1.161***	1.481***	1.025***
	(1020.24)	(529.56)	(962.44)	(245.22)	(114.06)	(226.60)
N	765781	243631	522150	765781	243631	522150
R^2	0.000	0.000	0.000	0.238	0.389	0.195
adj. R^2	-0.000	-0.000	-0.000	0.230	0.371	0.183
Job Effects	No	No	No	Yes	Yes	Yes
Firm Effects	No	No	No	Yes	Yes	Yes
Year Effects	No	No	No	Yes	Yes	Yes
Panel B: Winsorized						
	(1)	(2)	(3)	(4)	(5)	(6)
	Absolute	Absolute	Absolute	Absolute	Absolute	Absolute
CAR	-0.606	0.483	-0.974**	0.815**	2.014***	-0.376
	(-1.35)	(0.51)	(-2.35)	(2.11)	(2.62)	(-1.07)
Intercept	6.226***	11.24***	3.885***	7.243***	14.39***	4.368***
	(238.92)	(171.26)	(175.62)	(65.08)	(41.27)	(48.16)
N	765806	243642	522164	765806	243642	522164
R^2	0.000	0.000	0.000	0.228	0.354	0.220
adj. R^2	0.000	-0.000	0.000	0.220	0.335	0.209
Firm Effects	No	No	No	Yes	Yes	Yes
Year Effects	No	No	No	Yes	Yes	Yes

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

fades away in the net sell case (Equation (6)). This suggests there is some tendency to delay buy reporting as the profitability of the net buy trade increases. However, one must acknowledge that the three day CARs being used here are small, which will lead to an economically miniscule effect (equivalent to a few minutes).

Table 1.7 Net Reporting Delay as Determined by Post-Trading CAR

Panel A: Log Transform						
	(1)	(2)	(3)	(4)	(5)	(6)
	Net	Net	Net	Net	Net	Net
CAR	-0.00641	0.0319	-0.0193	0.0282**	0.0828***	-0.0176
	(-0.44)	(1.09)	(-1.33)	(2.21)	(3.43)	(-1.37)
Intercept	1.719***	1.895***	1.637***	1.751***	1.998***	1.647***
	(2000.94)	(926.00)	(2053.99)	(466.93)	(188.44)	(473.64)
N	765781	243631	522150	765781	243631	522150
R^2	0.000	0.000	0.000	0.237	0.388	0.194
adj. R^2	-0.000	0.000	0.000	0.229	0.369	0.183
Job Effects	No	No	No	Yes	Yes	Yes
Firm Effects	No	No	No	Yes	Yes	Yes
Year Effects	No	No	No	Yes	Yes	Yes
Panel B: Winsorized						
	(1)	(2)	(3)	(4)	(5)	(6)
	Net	Net	Net	Net	Net	Net
CAR	-0.592	0.491	-0.962**	0.798**	2.008***	-0.403
	(-1.33)	(0.53)	(-2.33)	(2.08)	(2.63)	(-1.15)
Intercept	3.352***	8.276***	1.054***	4.340***	11.37***	1.514***
	(129.34)	(126.71)	(47.93)	(39.18)	(32.75)	(16.77)
N	765806	243642	522164	765806	243642	522164
R^2	0.000	0.000	0.000	0.228	0.354	0.220
adj. R^2	0.000	-0.000	0.000	0.220	0.334	0.209
Job Effects	No	No	No	Yes	Yes	Yes
Firm Effects	No	No	No	Yes	Yes	Yes
Year Effects	No	No	No	Yes	Yes	Yes

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7 strengthens this notion by focusing on the net reporting spread. Recall that this measure removes the noise introduced by holidays and weekends in the absolute measure. Hence, it appears that the relationship found in Table 6 is not simply a spurious artifact of calendar noise. The overall trend represented by the

intercept shows a strong tendency to delay reporting buys versus sells, and the effect of the CAR seems to build on this. Notice, however, that the CAR will represent a small portion of the overall estimate. Thus, it appears that the apparent return is not a primary driver of the reporting spread.

1.5.5 Insider Profitability

If insiders are not incorporating their reporting in a trading profit strategy, one might wonder whether they are engaging in a profit-making strategy at all. That is, do insiders make profits on their investments? Insiders have been documented to earn excess returns on their trading strategies. Given my focus, however, I wish to restrict attention to those insiders who are officers in the firm. Recall that the minimum holding period to be able to profit is six months (given disgorgement rules). If insiders are trading on reliable private information and seeking a trading profit, they should have a positive holding period CAR defined as:

$$HPCAR_{i,j,t} = \sum_{i=1}^{126} (\widehat{abnormal\ return}_{j,t})$$

This is especially true in the net buy case. Consider that officers are disproportionately invested in the firm. This means their tendency should be to divest their portfolio and diversify their risk. We see that in the number of buys versus the number of sells. However, this means that the buys should be especially profitable. Table 8 shows the result of a set of regressions of holding period CAR on a set of job indicators.

Equations (1) and (3) represent the net buy case, while Equations (2) and (4) display the net sell results. Equations (2) and (4) include firm and year fixed effects. I see that most insiders are able to reap a positive HPCAR on their buys before including fixed effects. This squares with the typical findings in the literature. Oddly,

Table 1.8 Holding Period CAR by Job

	(1) HPCAR	(2) HPCAR	(3) HPCAR	(4) HPCAR
CEO	0.0270***	0.0147***	0.00503	-0.00136
	(5.35)	(5.94)	(1.09)	(-0.63)
CFO	0.0238***	0.0313***	0.00208	-0.000388
	(4.64)	(11.05)	(0.46)	(-0.17)
CIO	0.244***	0.0292	-0.00298	-0.0120
	(11.43)	(1.62)	(-0.17)	(-1.05)
COO	0.0217***	0.0110**	0.00307	-0.00947***
	(2.64)	(2.56)	(0.43)	(-2.66)
CTO	-0.00626	0.0802***	-0.00182	-0.00687
	(-0.37)	(13.47)	(-0.14)	(-1.42)
President	0.00281	0.00725**	-0.00505	0.00242
	(0.50)	(2.48)	(-1.02)	(0.96)
EVP	-0.0168***	-0.0172***	0.000902	-0.00121
	(-3.95)	(-7.17)	(0.23)	(-0.56)
GC	0.0208***	0.0332***	0.00614	-0.000474
	(2.71)	(9.28)	(0.92)	(-0.16)
Controller	-0.0000266	-0.0253***	0.00260	0.000742
	(-0.00)	(-5.46)	(0.33)	(0.18)
Intercept	-0.00878***	0.0225***	-0.0167***	0.0174***
	(-7.12)	(26.69)	(-3.62)	(7.19)
N	215078	462532	215078	462532
R^2	0.001	0.001	0.342	0.371
adj. R^2	0.001	0.001	0.321	0.362
Firm Effects	No	No	Yes	Yes
Year Effects	No	No	Yes	Yes

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

CIOs' trading seems especially profitable in this specification. However, Equation (2) suggests that they are less successful at timing their sells. Only controllers manage to sell ahead of a negative HPCAR (recall that HPCAR is from the firm's perspective, so a positive HPCAR following a sale is a "bad" sale). All others sell prior to positive HPCARs. Including fixed effects essentially wipes out job significance. I am left only with a significant negative intercept in the net buy case. COOs time their sell decisions slightly better than their peers, but they still sell ahead of a positive HPCAR. This suggests that at least one of the three essential assumptions is wrong: either insiders do not have reliable private information, they do not trade on private information they possess (perhaps for fear of prosecution), or they have non-trading profit motivations.

One wonders whether insiders vary their reporting based on their holding period returns. Due to the length of the time period, this seems unlikely. In any case, Table 9 reports the results of regressing the absolute reporting spread on the HPCAR. Table 10 substitutes the net reporting spread as the dependent variable.

Table 9 suggests that there is little effect when including the vector of fixed effects. Before these are included, I find highly significant relationships, with the delay decreasing in HPCAR overall. So, the better the firm does over the six month holding period, the faster one would expect the insider to report. This is especially true in the net buy case, but it also holds in the net sell case. Again, due to how HPCARs are calculated, this implies an opposing relationship. That is, "good" buys are reported faster, but "bad" sales are reported faster. However, this relationship fails when incorporating the fixed effects, as only Equation (4) of Panel B remains significant. In that case, we see a similar but smaller effect to that of Equation (1).

Table 10 produces results highly similar to that of Table 9 in the non-fixed effects specifications. However, now I actually do find some significance in the overall fixed effect specification, suggesting a slightly more robust relationship.

Table 1.9 Absolute Reporting Delay as Determined by Holding Period CAR

Panel A: Log Transform						
	(1)	(2)	(3)	(4)	(5)	(6)
	Absolute	Absolute	Absolute	Absolute	Absolute	Absolute
HPCAR	-0.0302***	-0.0486***	-0.00417*	-0.00416	-0.00675	0.000325
	(-12.14)	(-9.14)	(-1.67)	(-1.53)	(-1.28)	(0.12)
Intercept	1.118***	1.353***	1.008***	1.157***	1.478***	1.022***
	(957.15)	(498.57)	(902.41)	(235.50)	(109.59)	(216.74)
N	677610	215078	462532	677610	215078	462532
R^2	0.000	0.000	0.000	0.237	0.388	0.191
adj. R^2	0.000	0.000	0.000	0.228	0.368	0.179
Job Effects	No	No	No	Yes	Yes	Yes
Firm Effects	No	No	No	Yes	Yes	Yes
Year Effects	No	No	No	Yes	Yes	Yes
Panel B: Winsorized						
	(1)	(2)	(3)	(4)	(5)	(6)
	Absolute	Absolute	Absolute	Absolute	Absolute	Absolute
HPCAR	-0.859***	-1.192***	-0.328***	-0.127*	-0.143	-0.0400
	(-14.34)	(-8.69)	(-6.12)	(-1.94)	(-1.03)	(-0.68)
Intercept	6.265***	11.36***	3.882***	7.026***	14.06***	4.254***
	(224.84)	(162.02)	(164.39)	(61.60)	(39.43)	(45.14)
N	677634	215093	462541	677634	215093	462541
R^2	0.000	0.000	0.000	0.224	0.349	0.216
adj. R^2	0.000	0.000	0.000	0.216	0.328	0.204
Job Effects	No	No	No	Yes	Yes	Yes
Firm Effects	No	No	No	Yes	Yes	Yes
Year Effects	No	No	No	Yes	Yes	Yes

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.10 Net Reporting Delay as Determined by Holding Period CAR

Panel A: Log Transform						
	(1)	(2)	(3)	(4)	(5)	(6)
	Net	Net	Net	Net	Net	Net
HPCAR	-0.0254***	-0.0367***	-0.00693***	-0.00599***	-0.00356	-0.00491**
	(-12.96)	(-8.56)	(-3.65)	(-2.80)	(-0.83)	(-2.32)
Intercept	1.720***	1.900***	1.635***	1.746***	1.996***	1.643***
	(1872.66)	(868.81)	(1922.98)	(450.33)	(182.13)	(453.90)
N	677610	215078	462532	677610	215078	462532
R^2	0.000	0.000	0.000	0.235	0.385	0.190
adj. R^2	0.000	0.000	0.000	0.227	0.366	0.178
Job Effects	No	No	No	Yes	Yes	Yes
Firm Effects	No	No	No	Yes	Yes	Yes
Year Effects	No	No	No	Yes	Yes	Yes
Panel B: Winsorized						
	(1)	(2)	(3)	(4)	(5)	(6)
	Net	Net	Net	Net	Net	Net
HPCAR	-0.851***	-1.178***	-0.329***	-0.137**	-0.131	-0.0628
	(-14.28)	(-8.63)	(-6.18)	(-2.09)	(-0.95)	(-1.07)
Intercept	3.388***	8.387***	1.048***	4.123***	11.05***	1.397***
	(122.25)	(120.23)	(44.64)	(36.33)	(31.11)	(14.89)
N	677634	215093	462541	677634	215093	462541
R^2	0.000	0.000	0.000	0.224	0.348	0.216
adj. R^2	0.000	0.000	0.000	0.215	0.328	0.204
Job Effects	No	No	No	Yes	Yes	Yes
Firm Effects	No	No	No	Yes	Yes	Yes
Year Effects	No	No	No	Yes	Yes	Yes

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

1.5.6 Informativeness of Insider Trading

A key empirical question is also that of the informativeness of insider disclosures. That is, does the stock price react to the news of an insider transaction? I postulate in Hypothesis 2 that the insider should anticipate any reaction and alter his or her disclosure behavior accordingly. Now, based on the stylized facts enumerated in Section 5, I hypothesize that there is a reaction. I adopt a very similar approach to the profitability analysis above. I calculate CARs for the three days following the SEC receipt date. In order to simplify the analysis, I restrict attention to insider-company-date combinations that correspond to a single SEC filing date. This represents the vast majority of the sample (approximately 95.67%). The summary statistics for these CARs are presented in Table 11.

Table 1.11 Summary Statistics for CAR After Report Date

Variable	Mean	Median	Std. Dev.	Min.	Max.	N
Overall:						
CAR	0.000707	-0.0004	0.06138	-0.84892	3.09614	764,085
Winsorized CAR	0.000308	-0.0004	0.05196	-0.15545	0.17609	764,085
Buy Days:						
CAR	-0.000237	-0.001441	0.0659	-0.8201	3.09614	243,943
Winsorized CAR	-0.000824	-0.001441	0.05422	-0.15545	0.17609	243,943
Sell Days:						
CAR	0.00115	0.000059	0.05914	-0.84892	2.42366	520,142
Winsorized CAR	0.000839	0.000059	0.05086	-0.15545	0.17609	520,142

Again, I see that winsorizing reduces the mean return, especially in the net buy state. Again, the expected return makes it seem unlikely that insiders are trading under pure trading profit maximization.

Table 12 presents the results for the absolute reporting spread, while Table 13 presents the results for the net reporting spread.

Table 12 shows a differential arising between buys and sells. In this case, I see that "bad" buys and sales are reported faster. However, including the vector of fixed effects seems to reverse the relationship. In Panel A, almost all significance falls away,

Table 1.12 Absolute Reporting Delay as Determined by Post-Disclosure CAR

Panel A: Log Transform						
	(1)	(2)	(3)	(4)	(5)	(6)
	Absolute	Absolute	Absolute	Absolute	Absolute	Absolute
CAR	-0.0180	0.0954**	-0.0418**	-0.0148	0.00513	-0.0298*
	(-0.89)	(2.22)	(-2.18)	(-0.89)	(0.16)	(-1.73)
Intercept	1.112***	1.338***	1.005***	1.168***	1.485***	1.028***
	(1023.64)	(532.09)	(964.43)	(247.65)	(114.92)	(227.61)
N	764085	243943	520142	764085	243943	520142
R^2	0.000	0.000	0.000	0.235	0.384	0.188
adj. R^2	0.000	0.000	0.000	0.227	0.366	0.177
Job Effects	No	No	No	Yes	Yes	Yes
Firm Effects	No	No	No	Yes	Yes	Yes
Year Effects	No	No	No	Yes	Yes	Yes
Panel B: Winsorized						
	(1)	(2)	(3)	(4)	(5)	(6)
	Absolute	Absolute	Absolute	Absolute	Absolute	Absolute
CAR	-0.524	3.917***	-2.192***	-0.988**	-1.673*	-1.293***
	(-0.95)	(3.04)	(-5.25)	(-2.47)	(-1.88)	(-3.65)
Intercept	6.134***	11.05***	3.829***	7.398***	14.46***	4.412***
	(238.22)	(170.61)	(175.33)	(66.89)	(41.68)	(48.96)
N	764107	243952	520155	764107	243952	520155
R^2	0.000	0.000	0.000	0.222	0.345	0.208
adj. R^2	0.000	0.000	0.000	0.214	0.325	0.197
Job Effects	No	No	No	Yes	Yes	Yes
Firm Effects	No	No	No	Yes	Yes	Yes
Year Effects	No	No	No	Yes	Yes	Yes

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

but in the winsorized mean specification, I see a negative relationship between the CAR and the delay in both cases. This suggests that the insider reports a "good" buy faster when controlling for the various fixed effects, while they still report "bad" sales faster. If the CAR is indeed determined by the quality of the information being disseminated, it would appear that sales are disclosed sooner the less value-negative the information the insider is privy to. Evidence on buys seems a bit too mixed.

Table 1.13 Net Reporting Delay as Determined by Post-Disclosure CAR

Panel A: Log Transform						
	(1)	(2)	(3)	(4)	(5)	(6)
	Net	Net	Net	Net	Net	Net
CAR	-0.0245	0.0727**	-0.0488***	-0.0266**	-0.0273	-0.0322**
	(-1.52)	(2.06)	(-3.34)	(-2.05)	(-1.04)	(-2.46)
Intercept	1.716***	1.889***	1.635***	1.756***	2.001***	1.649***
	(2015.22)	(934.04)	(2066.49)	(470.87)	(189.69)	(475.66)
N	764085	243943	520142	764085	243943	520142
R^2	0.000	0.000	0.000	0.232	0.381	0.185
adj. R^2	0.000	0.000	0.000	0.224	0.363	0.174
Job Effects	No	No	No	Yes	Yes	Yes
Firm Effects	No	No	No	Yes	Yes	Yes
Year Effects	No	No	No	Yes	Yes	Yes
Panel B: Winsorized						
	(1)	(2)	(3)	(4)	(5)	(6)
	Net	Net	Net	Net	Net	Net
CAR	-0.529	3.821***	-2.160***	-1.016**	-1.773**	-1.281***
	(-0.96)	(2.98)	(-5.20)	(-2.55)	(-2.00)	(-3.64)
Intercept	3.262***	8.090***	1.000***	4.496***	11.45***	1.556***
	(127.38)	(125.50)	(46.04)	(40.85)	(33.14)	(17.35)
N	764107	243952	520155	764107	243952	520155
R^2	0.000	0.000	0.000	0.222	0.345	0.208
adj. R^2	0.000	0.000	0.000	0.214	0.325	0.197
Job Effects	No	No	No	Yes	Yes	Yes
Firm Effects	No	No	No	Yes	Yes	Yes
Year Effects	No	No	No	Yes	Yes	Yes

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 13 produces essentially the same outcome as in Table 12 (with the obvious adjustment to the intercepts). Thus, the decrease in buy reporting time in the net

buy case appears robust to the exclusion of the deadline period. The same holds true for the sell reporting acceleration in the net sell case. Taken together, this adds credence to the claim that insiders report "good" buys and "bad" sells faster.

1.6 Conclusions

In this paper, I establish a context in which traders are able to strategically manipulate the reporting of their trades in order to achieve non-trading profit maximizing objectives. In a theoretical context, I suggest that an executive's career concerns can alter his or her expected profit function sufficiently enough to result in different trading behavior. Applying these aspects to existing models appears it would result in a convergence of predictions, in that informed herding functions near-equivalently to a competitive market maker. I leave the proof of these suppositions for future research.

Empirically, I show that insiders in fact do vary their trade reporting based on their net daily trading. I calculate CARs in an attempt to separate the insider's trading profit motive versus other incentives. I find that the net reporting delay for buys is increasing in CAR for the three days following the trade. This suggests that buys are reported more slowly as the insider's expectation of profit increases. I find that the net reporting delay is decreasing in CAR for the three days following the disclosure. I argue that this suggests insiders expedite reporting of buys when they expect the market reaction to be more positive, which supports a career incentive in trading behavior. I believe this is the first paper to provide evidence of other motivations for insider trading. I leave the implications of this to future research.

CHAPTER II

Matching CEO Educations to Firm Characteristics

2.1 Introduction

CEOs come from a variety of different backgrounds. Many are classically trained, with undergraduate business degrees and MBAs. However, this is hardly the only path: CEOs can have training as engineers, doctors, lawyers, or myriad other professions. Matters are further complicated by the variations among the educations of even those having the same training. Both public and private schools are represented at the highest echelons.

The "obvious" path, which has been implicitly suggested by the existing literature, would be to hire the CEO with the "best" education. This could serve one of two purposes: either the CEO's education is inherently better, making her a superior manager, or the CEO's ability to follow an "elite" educational pathway serves as a signal of their inherent quality. In either case, one should see that firms which are able to attract these ideal executives should benefit greatly by doing so. The problem with this thinking is that it necessarily implies that a firm varying from this ideal path must necessarily be choosing some sort of managerial discount. Further, it overlooks recent evidence regarding CEO hiring and firm performance. We attempt to reconcile these issues.

2.2 Literature Review and Motivation

2.2.1 Hiring Market Observations

There is a vast literature on the education of executives. Baruch (2009) finds that more than half of the CEOs of large international firms hold an MBA. They note that firms often attempt to recruit MBAs for management positions or encourage their lower-ranking employees to pursue MBAs as a gating mechanism for promotion. However, it appears that the market might be moving away from the MBA, as Datar et al. (2010) document two countervailing trends: not only are consulting firms increasingly recruiting non-MBAs, but enrollments in MBA programs have precipitously fallen, especially for lower-ranked programs.

This calls into question the simple relationship of background driving performance for several reasons. First, one must wonder why–if an MBA really is the ideal manager–the remainder of large international firms choose not to imitate this choice. The large international firms Baruch (2009) focuses on should not be constrained in hiring or recruiting, which suggests that they must be making an intentional choice. Second, if the MBA is ideal, why is this secular trend away from managers possessing one occurring? One might suggest a more likely alternative: the market is adjusting to a new optimal education credential. While it resolves the issue of sub-optimality, it raises the question of why optimal managerial education is time-varying. That is, why was the MBA optimal, and why is it no longer optimal? These are difficult questions, and they raise doubts about existing interpretations.

Perhaps even more motivating for this study is the notion that the market seems to act in a largely monolithic manner in CEO hiring. That is, the market was heavily invested in MBAs as CEOs, but firms have chosen by and large to begin moving away from MBAs. This suggests that there must be some driving forces behind the decisions. That is, perhaps rather than firms attempting to hire uniquely talented

CEOs to increase their value, perhaps the firms are attempting to hire the CEOs with an educational background tailored to their financial circumstances. Alternatively, perhaps these firms are choosing what they believe to be the "best" educational profile, regardless of the performance implications. That is, board members may choose to rely on more tangible factors when choosing a new CEO. Either explanation is consistent with the overall trends previous studies have highlighted.

2.2.2 Effects of Background on Performance

Much academic research has focused on predicting either salary or performance based on the CEO's background. One way in which the CEO's educational background can manifest itself is through the CEO's expertise. Early studies found that R&D is influenced by the type of education the CEO received. Some of these studies included Tyler and Steensma (1998), Finkelstein and Hambrick (1996), and Barker and Mueller (2002). All find similar results, showing that CEOs with technical degrees invested more heavily on R&D than their peers with law or business backgrounds. Likewise, other studies, such as Graham and Harvey (2001,2002) and Graham, Harvey, and Rajgopal (2005), have argued that executives with a business education likely hold an advantage over their non-business degree peers based on their knowledge of financial decision-making techniques such as net present value and the capital asset pricing model.

Mian (2001) points out that these specialization effects might not hold true for CEOs as much as CFOs, as the CEO position is unique in the extent to which its responsibilities are broad and wide-ranging, while other executives can focus on their specific area. Iqbal (2015) reinforces this notion, finding that CEOs with business degrees actually hedged less than those with industry specific degrees in the oil industry. However, he finds that the firms' CFOs almost unanimously hold business degrees, with no difference in educational focus or quality between those in firms that

hedge and those that do not.

Other studies focused on an educational quality hypothesis: perhaps CEOs from better schools make better CEOs than those from more poorly-regarded schools. In fact, Burt (1992) and Belliveau, O'Reilly, and Wade (1996) found that graduates from more selective schools benefit from the networking these schools provide. The authors then found some evidence that these ties could improve firm performance. Deary (2004) and Frey and Detterman (2004) pose the question as one of innate ability. The authors argue that more intelligent CEOs, based on attending schools with higher average entrance exam scores, perform better than their peers. Regardless of the mechanism, subsequent studies have provided further evidence for education quality driving performance, as Perez-Gonzalez (2006) finds CEOs with Ivy League degrees have improved performance, while Maxam et al. (2006) find that hedge fund managers with degrees from highly ranked schools outperform their peers.

The evidence is not unanimous, though. Gottesman and Morey (2010) use Tobin's Q to measure firm performance, and they find no relationship between performance and the CEO's education. Not only is there no benefit to holding an MBA versus a non-business degree, but the authors find no benefit to holding a graduate degree versus only an undergraduate degree. Likewise, Bhagat et al. (2011) shows no effect of the CEO's school on a firm's long-term performance. It is not simply a question of whether a positive relationship exists, though. In fact, Jalbert et al. (2002) establishes a negative correlation between the CEO's education and a firm's return on assets. Further, Barker and Mueller (2002) argue that MBAs tend to be more risk averse, preventing them from taking the correct–albeit risky–actions.

Other studies have found similarly mixed results. Jalbert et al. (2011) attempt to create a ranking system for universities based on the number of CEOs they have placed in the Forbes 500 (now converted to the Forbes Global 2000). In doing so, they see that a select group of elite universities dominate the CEO hiring market.

Unexpectedly, the authors find that these rankings have little correlation with the appointed CEOs' salaries. This seems to be an odd result if they are actually adding value, as the earlier studies suggested. Gottesman and Morey (2010) focus on the firm's performance. Using a sample of all NYSE firms whose CEO has at least a bachelor's degree, they find no relationship between the CEO's educational characteristics and the firm's performance. Given the systematic nature with which firms seem to hire, this raises questions.

Lindorff and Jonson (2013) approach the issue of financial education and results more directly. They attempt to isolate the relationship between a CEO's financial education and the firm's performance. They find essentially no relationship between the two. That is, the business education of a manager neither helped nor harmed the firm's performance. This was true regardless of whether the manager held an MBA or a different business degree. As the authors point out, this could illustrate the substitutability of business education. That is, rather than pushing employees to attend a traditional MBA program or hiring managers who already have an MBA degree, an employer might arrange for executive education courses or other means of leadership development. O'Leonard (2014) illustrates this, as the publication documents that approximately one-quarter of training dollars spent by U.S. firms were spent on leadership development.

2.2.3 Managerial Style

If the evidence is mixed regarding the CEO's education, perhaps we could build on the notion from Barker and Mueller (2002): a CEO's education might instead instill in them a particular style of management that affects firm value. There is an extensive literature on managerial style that can be exploited for this purpose.

Early studies in this area discussed the ways in which different managerial incentives and attitudes could manifest in CEO decisions. Shleifer and Vishny (1989),

as well as Morck, Shleifer, and Vishny (1990) were among the first to suggest that differences in managerial ability could dictate the investment behavior of managers. Later studies expanded this analysis to the manager's utility function. These studies included Rotemberg and Saloner (1993, 1994, 2000) and Aggarwal and Samwick (2003, 2006), who focused on the manager's risk aversion coefficient.

Murphy and Zimmerman (1993) focus on investment behavior, finding some evidence but concluding that it is mostly due to firm underperformance prior to the change. This is reinforced by Denis and Denis (1995), who find that dismissals precede increased profitability. They, along with Weisbach (1995) and Bennedsen, Perez-Gonzalez, and Wolfenzon (2007), find that firms generally reduce investment following certain types of CEO turnovers. These effects are also evident in various other firm decisions that CEOs would be at least nominally in charge of, as illustrated in Adams, Almeida, and Ferreira (2005), Bamber, Jiang, and Wang (2010), Dyreng, Hanlon, and Maydew (2010), Frank and Goyal (2007), and Graham, Li, and Qiu (2009).

Bertrand and Schoar (2003) find that managerial fixed effects transfer between companies, implying that managers carry decision-making biases with them between employers. This is significant, as it suggests that managerial biases must pre-date their current employment. One place where this might present itself is in the manager's education.

One managerial characteristic that has been well-documented is overconfidence. Malmendier and Tate (2005, 2005, 2008), as well as Goel and Thakor (2008) and others, have documented the effect that managerial overconfidence can have on a firm. The effects have ranged across essentially all managerial decisions, from investments to financing, and it even extends to acquisitions. It is not unrealistic to believe that a manager's education might either create or signal their overconfidence.

Fee, Hadlock, and Pierce (2013) find mixed evidence of CEO style. When CEOs

leave exogenously, there appears to be no significant change in firm policy. However, when CEOs leave for endogenous reasons, there does seem to be a change in policy. Moreover, the manager's style does not seem to carryover between employers. This suggests that the board hires a manager to fit the style they wish, rather than managers imposing their style on the firm. Translating this result to the CEO education space, we would expect that a CEO's education matters, but that firms are specifically choosing the particular educational characteristics they are looking for. This is especially relevant with respect to behavioral implications in the literature.

2.3 Study Motivation

As mentioned, much academic inquiry has been focused on the effect of a newly appointed director or officer's background on the firm's subsequent performance. These studies take background as a measure of quality or expertise. This is problematic, as there is mixed evidence on whether the "better" manager actually benefits the firm's performance in any meaningful way. Likewise, it is unclear that there is an "ideal" educational path for the market as a whole.

Even if one were to assume that this is the case, we are only able to observe it through multiple filters. First, some particular background needs to exhibit outperformance. Boards need to observe this and accurately attribute it to the CEO's educational background. Then, they need to hire accordingly. Prospective CEOs also need to observe the outperformance and accurately assess their own value entering negotiations. Then, the two need to be matched together. We would only be able to see the appropriate effects when all of these occur. Alternatively, we propose a slightly different mechanism, where there is no single outperformer, but rather particular skills profit particular situations more than others. If we assume that educational backgrounds can proxy for the presence of these skills or attitudes, this is consistent with the prior literature.

2.4 The Sample

This study relies on a novel data set in the CEO background literature. There are several components of this data set that will be described separately below.

2.4.1 Compustat

We first identify executives using the Compustat Research Insight CDs from 1990 through 2007. These discs list the four highest ranking executives, as derived from the firm's filings with the United States Securities and Exchange Commission. The names in these files are then trimmed of all extraneous spaces, and all letters are converted to upper case. From here, we merge the data with Compustat by GVKEY. We eventually wish to merge with Boardex, so we will need identifiers that translate reliably. So, we convert the firm's CUSIP to the six digit form. This eliminates the final three digits, which consist of a two digit identifier for a particular security issue and a check digit, leaving only the first six digits, which are unique to the firm itself. This should be uniform across data providers.

2.4.2 Boardex Company Records

We import the Company Characteristics file from Boardex. This file has basic identifying information regarding a firm that can be used to merge with external data sources. These include the ticker and the ISIN. The ticker is directly comparable. However, Compustat lacks an ISIN observation, so we must convert the ISIN to a CUSIP. Typical ISINs are 12 digits, where the first two digits are a country identifier, the next nine are the CUSIP, and the final digit is a check digit. As with the Compustat data, we wish to eliminate any mistakes from mismatching securities, so generate the six digit CUSIP (the third through the eighth digit of the ISIN).

2.4.3 Boardex Person Records

We begin by importing the Officer Characteristics file from Boardex. This file contains several points of information about each corporate officer, such as her position in the firm and the date she began or ended the role. All information is presented as reported by the firm. In order to ensure compatibility, the data is cleaned to be consistent. The string beginning and ending dates are parsed for years, months, and days. Those values that are present are retained. Otherwise, we assume the broadest possible date range in order to ensure the data is available for merging later. Hence, missing beginning years are assumed to be 1990, missing beginning months are assumed to be January, and missing beginning days are assumed to be the first of the month. Conversely, missing ending years are assumed to be 2013, missing ending months are assumed to be December, and missing ending days are assumed to be the lesser of 31 or the appropriate number of days in a month. This means that an unknown month is assigned an ending day value of 31, while April would be assigned an ending day value of 30. Once the missing values are filled in, the dates are reconstructed to form proper beginning and ending reference points. Next, we generate annual observations for every year between the reported beginning and ending date. Our Boardex data begins in 1989, so this results in up to 25 observations for each officer, spanning between the later of 1989 and their reported start date and the earlier of 2013 and their reported end date.

At the same time, we import the Director Characteristics file from Boardex. This data contains basic information on directors, as of the firm's annual report date. As before, we clean these reported date observations when necessary. When values of "Current" are reported, we replace them with January 1, 2011, to correspond with the end of the data set. Next, any observations that are missing day values are assigned a day value of 1. The dates are then reconstructed. Finally, we create observations for the two years prior to the annual report date. So, a director as of August 1, 2010,

would have observations for 2008, 2009, and 2010. This is done in order to ensure that an observation does not fall through the cracks due to mistiming the director's actual presence at the firm.

From here, we append the Officer Characteristics data to the Director Characteristics file. Now, we attempt to clean the names of the officers and directors. Names in Boardex commonly have superlatives or other titles in them that lead to difficulties in matching with other data sources. We attempt to parse the majority of these out. First, we convert all names to upper case for consistency. Next, we add a space to the beginning and the ending of the string. This seemingly extraneous step allows us to ensure that accidently matching is kept to a minimum. For example, one of the titles being cleaned is "DOCTOR" (other forms, such as "DR" or "DR.", are also cleaned). If we simply look for the word "DOCTOR" in the name, it is possible that we could eliminate at least part of the person's name. Consider if a CEO happens to have the name "JUAN DOCTORE"–after removing the simple string, we would be left with "JUAN E" (an incorrect parsing). Adding the spaces allows us to search for " DOCTOR " in " JUAN DOCTORE " and prevent such errors from occurring. Once this cleaning procedure is complete, any extraneous spacing is removed, and the data is ready to be merged into the main data set.

2.4.4 Boardex Education Records

We import the Director Educations file from Boardex. This file contains educational background information on a significant portion of the Boardex universe. For each degree or other educational event (professional organizations are also included) for a person, there is an observation. Hence, each manager might have multiple entries. In fact, some have numerous affiliations reported, with the maximum being 27 (mostly honorary degrees). In order to keep the data at a manageable size when merging, we compress each person's observations into a single observation. So, we

generate 27 of each school variable (a unique identifier for the school, the school's name, the degree the person received, the year the person received the degree, etc.). Then, we keep the first observation for each person.

2.4.5 Combining the Data

We resume using the Compustat data. Now, we wish to merge it with the Boardex person data. However, even having cleaned the Boardex data, this is difficult to do directly, so it will involve several steps. First, we join the Compustat data to the Boardex person data using the officer's name. This creates all possible matches on names. From here, we merge in the Boardex company data using the Boardex company identifiers. Now, we check to see that the companies are correct: we keep the observation if the tickers and CUSIPs match. Otherwise, we discard them. Next, we drop any duplicate firm-person-year observations. The remaining observations are labeled as direct matches.

Next, we resume with the Compustat data. We merge on the firm-year level with the direct matches, keeping only those that do not merge. We take these leftover observations and merge them by CUSIP with the Boardex company data. We save all the successfully merged observations as a first pass. Then, we retain all the observations that failed to merge. We attempt to merge these by ticker using the Boardex company data. We drop those observations that do not merge before appending the first pass observations. Finally, we merge this data set by firm-year with the Boardex person data, using the Boardex firm identifiers. Now, we have properly matched firms, but not necessarily properly matched people. From here, we keep only those observations that are manager observations between the start and end date or director observations where the Compustat data date is more than 300 days away from the Boardex annual report date. Next, we trim any excess spaces out of the data. At this point, we note how many words are in each name. Then, we add spaces to the begin-

ning and end of the Boardex name. We search for each word in the Research Insight name in the Boardex name string. If a word is found, we count a success, remove it from the Boardex name, and continue until we have searched for all the words in the Research Insight name. Finally, we keep those observations with a success total greater than 50

Finally, we append the direct and indirect matches together. Next, we merge them with the Boardex education data using Boardex person identifiers. From here, we create 27 copies of each observation. Doing so allows us to replace the 27 versions of each variable with a single educational item per observation. Finally, we sort by year on the firm-person level, keeping only the first observation. We presume that the earliest observation represents the first year in which the person served as CEO of the firm. This allows us to interpret the data as a cross section.

2.4.6 Education Quality

In order to increase the comparability of the education data, we compile a list of the various types of degrees listed in the data. Doing so allows us to classify each degree type into an appropriate category. For example, a BA or BS degree is a bachelor's degree, while an AA or AS is an associate's degree. Ultimately, we classify 330 degree types into eight categories. For our purposes going forward, the most important are Undergraduate (a combination of Bachelor's and Associate's, with preference to the Bachelor's), Master's, MBA, Law, and Doctor. We carefully parse the reported degrees, giving precedence to earlier reported degrees (in order to deal with the possibility of honorary degrees, along with other data contaminations) and positively-identified degree titles. Within MBAs, we report the Business Week rankings in order to later assess quality. Next, since some school names are missing, we assume that a person attended the same school for undergraduate and graduate study, by replacing the empty school name for the undergraduate institution with the

person's graduate institution.

Additionally, we recognize that the Boardex data is inconsistent with school names. For example, we observe that "U of M," "University of Michigan," "Michigan," and "Stephen Ross College of Business" are all given unique identifiers, despite ostensibly referring to the same university. This poses a problem, so we assign a code to as many of the school names as can be positively identified (meaning all of the University of Michigan monikers above would have the same identifier). In doing so, we drop observations from professional organizations, governmental organizations, high schools, and other non-higher education institutions.

Next, we make the assumption that the average CEO is approximately 50 years old (roughly equal to the mean in our data). Thus, we incorporate hand-collected data from Hawes (1978) on colleges and universities. This data gives wide-ranging information on various colleges, yielding information on school quality, enrollment, selectivity, cost, affiliation, and more. We believe that this data is more appropriate than current college rankings, as it should be more accurate regarding the college's particular situation at the time the CEO attended. We assign the corresponding code from our previous classification of Boardex entries to the corresponding observation from the book's data. For any schools missing selectivity data, we assume they are simply not very selective. We perform similar operations for all variables where doing so makes sense.

Finally, we assign quality dummies to the data. We create two measures of prestige based on Hawes's reported admission difficulty and selectivity. If admission difficulty is a 1 (the highest level), and selectivity is rated greater than 85, we define prestige1 to be 1. Likewise, if admission difficulty is a 2 and selectivity is rated greater than 90, we define prestige1 to be a 1. Otherwise, it is zero. We define prestige2 in a similar, but slightly stricter, manner, increasing the selectivity rating by 5 for each conditional. We say that the person attended graduate school if they have an identified master's,

MBA, law, or doctoral degree. We define a prestigious MBA to be one in the top 350 in the country, while an elite MBA is considered to be in the top 10 using the *Business Week* rankings.

In addition, we define a rich school as those with a 75th percentile or higher predicted total cost, when regressing cost on faculty salaries, total enrollment, a dummy for the school being private, and its admission difficulty. Next, we define a high class school as one with a 75th percentile or higher predicted ratio of alumni on the *Social Register* to total enrollment when regressing on its cost, its admission difficulty, and a dummy for the school being private. Last, a school is elite if its values for rich and prestige2 are both 1.

2.5 Empirical Analysis

Having constructed the sample, we turn to an analysis of the factors surrounding a firm's choice of CEO. We focus on six key variables, in both a univariate and multivariate context, using both simple regression and logit techniques. These variables focus on three primary aspects of the firm. First, the log-transform of total assets serves as a proxy for the firm's size. Second, we control for the financial characteristics of the firm. In order to do so, we incorporate intangible assets as a share of total assets, liabilities as a share of total assets, and R&D expense as a percentage of revenue. Finally, we consider the firm's financial performance. Our proxies for this aspect are the lagged profit margin, the lagged return on assets, and the lagged Tobin's Q. These independent variables are used to predict a variety of educational variables. These dependent variables include dummies for the type of degree, the prestige of the school, and the quality of the school. All t-statistics are based on robust standard errors. Summary statistics for our variables are presented in Table 1. Panel A summarizes the dependent variables, while Panel B summarizes the independent variables. We can see that most of the dependent variable values are relatively

close to zero, due to the relatively low number of yesses.

2.5.1 Regression Framework

We use a multivariate regression analysis to test the hypotheses in our study. We perform these analyses using three basic models. The first model strictly includes the dependent variables of interest. The second incorporates industry and year fixed effects. The third replaces the variables and industry fixed effects with the respective industry means and the firm-level deviations from the mean.

$$\widehat{Dependent\,Variable} = \widehat{\beta_0} + \widehat{\beta_1} Independent\,Variables$$

$$\widehat{Dependent\,Variable} = \widehat{\beta_0} + \widehat{\beta_1} Independent\,Variable + \widehat{\gamma_1} Industry\,FE + \widehat{\gamma_2} Year\,FE$$

$$\widehat{Dependent\,Variable} = \widehat{\beta_0} + \widehat{\beta_1} Deviation + \widehat{\gamma_1} Industry\,Means + \widehat{\gamma_2} Year\,FE$$

Each model is repeated using a logit functional form. The logit models are run using the closest equivalent functional form. The industry fixed effects and mean calculations are aggregated at the 2-digit SIC level, and the mean calculations are performed on an annual basis. This approach allows us to parse out the raw effect of the variables and any non-linearity that exists in the various relationships. While we cannot fully resolve the endogeneity present in the model, we hope that this sufficiently isolates the particular relationships in question.

2.5.2 Degree Type

We first consider the degree held by the manager. Specifically, we consider whether the manager might hold a law degree, an MBA, a master's degree of any kind, a doctoral degree, or a graduate degree of any kind.

The first specialized degree that one might surmise provides specialized and necessary skills is a law degree. Table 2 presents the results of regressions of law degree

Table 2.1 Summary Statistics

Panel A: Dependent Variables					
Variable	**Mean**	**Std. Dev.**	**Min.**	**Max.**	**N**
law	0.075	0.263	0	1	6314
doctor	0.096	0.295	0	1	6314
mba	0.352	0.478	0	1	6314
master	0.193	0.394	0	1	6314
gradschool	0.603	0.489	0	1	6314
private	0.436	0.496	0	1	6314
religious	0.142	0.349	0	1	6314
foreign	0.065	0.247	0	1	6314
prestige1	0.281	0.45	0	1	6314
prestige2	0.237	0.425	0	1	6314
prestigiousmba	0.186	0.389	0	1	6314
elitemba	0.134	0.341	0	1	6314
rich	0.22	0.414	0	1	6314
highclass	0.237	0.426	0	1	6314
elite	0.175	0.38	0	1	6314
Panel B: Independent Variables					
Variable	**Mean**	**Std. Dev.**	**Min.**	**Max.**	**N**
Firm Level					
logassets	5.762	1.953	-1.262	13.42	6313
pctintan	0.149	0.184	0	0.941	5674
pctliab	0.52	0.414	0	11.35	6296
pctrndrev	4.097	57.601	-2.263	1927.182	4010
lagpm	-4.67	130.707	-9468	111.958	6164
lagroa	-0.093	0.575	-26.931	6.821	6279
lagtobinq	2.242	4.605	0.002	169.071	3590
Industry Means					
indlogassets	5.762	1.007	2.177	12.068	6313
indpctintan	0.149	0.096	0	0.709	5674
indpctliab	0.52	0.165	0.032	2.721	6296
indpctrndrev	4.097	11.339	0	62.659	4010
indlagpm	-4.67	16.725	-332	18.438	6164
indlagroa	-0.093	0.218	-5.315	2.225	6279
indlagtobinq	2.242	2.007	0.053	60.452	3590
Deviation from Industry Mean					
devlogassets	0	1.674	-6.413	6.846	6313
devpctintan	0	0.157	-0.483	0.751	5674
devpctliab	0	0.379	-1.808	9.284	6296
devpctrndrev	0	56.474	-62.659	1864.523	4010
devlagpm	0	129.632	-9340.201	128.682	6164
devlagroa	0	0.532	-26.21	4.596	6279
devlagtobinq	0	4.144	-59.538	164.577	3590

Table 2.2 Determinants of the CEO Holding a Law Degree

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
logassets	0.00511	0.0824	0.00463	0.0732		
	(1.64)	(1.72)*	(1.46)	(1.42)		
pctintan	0.0131	0.226	0.0277	0.524		
	(0.42)	(0.42)	(0.87)	(0.92)		
pctliab	0.0274	0.430	0.0197	0.348		
	(1.50)	(2.23)**	(1.08)	(1.49)		
pctrndrev	-0.0000536	-0.0126	-0.0000521	-0.0111		
	(-2.01)**	(-1.26)	(-1.97)**	(-1.15)		
lagpm	-0.0000991	-0.00133	-0.0000981	-0.000980		
	(-18.15)***	(-0.70)	(-14.75)***	(-3.35)***		
lagroa	0.00569	0.102	0.00414	0.0550		
	(0.86)	(0.62)	(0.63)	(0.31)		
lagtobinq	-0.000806	-0.0124	0.000536	0.0107		
	(-0.29)	(-0.20)	(0.18)	(0.16)		
devlogassets					0.00498	0.0812
					(1.54)	(1.62)
devpctintan					0.0264	0.492
					(0.79)	(0.85)
devpctliab					0.0192	0.324
					(1.03)	(1.48)
devpctrndrev					-0.0000523	-0.0116
					(-1.92)*	(-1.05)
devlagpm					-0.000102	-0.00156
					(-18.16)***	(-0.48)
devlagroa					0.00212	0.0240
					(0.29)	(0.14)
devlagtobinq					-0.0000355	0.00295
					(-0.01)	(0.05)
Intercept	0.0193	-3.424	-0.142	-2.988	-0.0791	-3.306
	(0.98)	(-9.38)***	(-3.13)***	(-2.61)***	(-1.37)	(-3.31)***
Industry Effects	None	None	FE	FE	Mean	Mean
Year Effects	None	None	FE	FE	FE	FE
N	2175	2175	2175	2059	2175	2174
R^2	0.0119		0.0632		0.0198	

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

dummy on our set of independent variables. We see little evidence of a systematic tendency toward hiring a CEO with a law degree based on the firm's size. However, we find a strong negative relationship on the profit margin in the year prior to the CEO's hiring. One possible interpretation is that unprofitable firms tend to hire lawyers as CEO in order to use their expertise to artificially strengthen the firm's income statement, as it is likely that a reorganization of the firm's books would likely result in a much faster turnaround than a more strategic focus.

We also see a moderate negative relationship between the firm's R&D expense and the CEO having a law degree. While the relationship disappears in the logit specifications, this still suggests a weak tendency toward hiring a lawyer as CEO. The most likely explanation would be to use their legal training to better protect the firm's intellectual property.

Doctoral degrees present another opportunity for firms to harness specialized skills. Table 3 presents the results of our models using a doctoral degree dummy as the dependent variable. There is no effect from size, but we see significant effects along both the characteristics and profitability vectors. We see significantly negative effects for both intangibility and liabilities.

The profitability effects we see on lagged ROA and lagged Tobin's Q are weaker, but still largely significant. We see that the effect of ROA is negative, suggesting that firms tend to have suppressed profitability in the year prior to the CEO turnover event. However, Tobin's Q exhibits a positive–albeit weaker–relationship to the presence of a doctoral degree. Since the market does not appear to have a negative outlook on the firm corresponding to its lower ROA, we can conclude that the firm has some future earning potential. Given their analytical training, a doctoral degree-holder might be the key to unlocking that potential in the eyes of the firm.

An MBA-holder, on the other hand, is a much more common choice. Table 4 presents the results of our regressions using an MBA dummy as the dependent vari-

Table 2.3 Determinants of the CEO Holding a Doctoral Degree

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
logassets	-0.00323	-0.0359	0.00127	0.0272		
	(-0.87)	(-0.82)	(0.33)	(0.63)		
pctintan	-0.118	-1.254	-0.0847	-0.932		
	(-3.31)***	(-2.98)***	(-2.20)**	(-2.11)**		
pctliab	-0.0664	-0.880	-0.0593	-0.828		
	(-5.03)***	(-3.29)***	(-4.40)***	(-3.26)***		
pctrndrev	0.000161	0.000658	0.0000468	-0.0000248		
	(0.79)	(0.76)	(0.27)	(-0.04)		
lagpm	-0.00000436	-0.0000240	-0.0000120	-0.000114		
	(-0.17)	(-0.17)	(-0.52)	(-0.82)		
lagroa	-0.0538	-0.370	-0.0407	-0.310		
	(-2.53)**	(-2.23)**	(-2.11)**	(-1.96)*		
lagtobinq	0.00685	0.0463	0.00327	0.0257		
	(2.29)**	(2.60)***	(1.04)	(1.21)		
devlogassets					0.000652	0.0123
					(0.16)	(0.27)
devpctintan					-0.110	-1.148
					(-2.74)***	(-2.49)**
devpctliab					-0.0573	-0.791
					(-4.36)***	(-3.03)***
devpctrndrev					0.0000399	-0.0000666
					(0.22)	(-0.09)
devlagpm					-0.0000147	-0.000112
					(-0.58)	(-0.75)
devlagroa					-0.0410	-0.289
					(-1.90)*	(-1.65)*
devlagtobinq					0.00280	0.0165
					(0.82)	(0.71)
Intercept	0.164	-1.429	0.0163	-0.965	0.155	-1.643
	(6.26)***	(-5.84)***	(0.34)	(-1.85)*	(3.13)***	(-2.25)**
Industry Effects	None	None	FE	FE	Mean	Mean
Year Effects	None	None	FE	FE	FE	FE
N	2175	2175	2175	1950	2175	2174
R^2	0.0285		0.0926		0.0630	

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

Table 2.4 Determinants of the CEO Holding an MBA Degree

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
logassets	0.0105	0.0428	0.0129	0.0544		
	(1.85)*	(1.76)*	(2.11)**	(2.05)**		
pctintan	-0.0557	-0.242	-0.0943	-0.420		
	(-0.97)	(-0.96)	(-1.52)	(-1.53)		
pctliab	0.0179	0.0815	0.0243	0.110		
	(0.68)	(0.72)	(0.92)	(0.95)		
pctrndrev	0.0000704	0.000324	0.0000521	0.000252		
	(0.37)	(0.41)	(0.25)	(0.29)		
lagpm	0.0000274	0.000193	0.0000254	0.000182		
	(2.24)**	(1.14)	(1.89)*	(1.07)		
lagroa	0.0333	0.171	0.0377	0.197		
	(2.17)**	(1.79)*	(2.43)**	(1.99)**		
lagtobinq	-0.00137	-0.00575	-0.00237	-0.0105		
	(-0.41)	(-0.38)	(-0.70)	(-0.67)		
devlogassets					0.0134	0.0550
					(2.12)**	(2.00)**
devpctintan					-0.0799	-0.346
					(-1.26)	(-1.24)
devpctliab					0.0293	0.133
					(1.09)	(1.15)
devpctrndrev					0.0000395	0.000202
					(0.19)	(0.24)
devlagpm					0.0000328	0.000234
					(2.47)**	(1.28)
devlagroa					0.0375	0.203
					(2.27)**	(1.87)*
devlagtobinq					-0.00183	-0.00784
					(-0.50)	(-0.47)
Intercept	0.320	-0.734	-0.261	-1.468	-0.0599	-0.677
	(8.78)***	(-4.61)***	(-1.12)	(-1.24)	(-0.63)	(-1.41)
Industry Effects	None	None	FE	FE	Mean	Mean
Year Effects	None	None	FE	FE	FE	FE
N	2175	2175	2175	2156	2175	2174
R^2	0.0047		0.0336		0.0111	

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

able. We see a positive effect for the firm's size. This would suggest that firms choose more business-oriented CEOs as they become larger and more mature. This could be the result of increasing specialization of executive functions in an expanding bureaucracy or a need for business expertise in a mature firm.

The second explanation becomes more difficult to embrace when one considers the positive relationships exhibited by the lagged profitability variables, though. The significant coefficients on lagged ROA and mildly significant coefficients on lagged profit margin suggest that the firms are already in good health when the turnover event takes place. This suggests that the business expertise might not be strictly necessary, lending credence to the bureaucratic explanation.

Suppose, however, that we broaden our net to those with any kind of master's degree. Table 5 presents the regression coefficients in this context. We see that the size effects go away. Further, we see that the profitability effects have weakened, with lagged profit margin remaining significant only in the OLS specifications. This remains consistent with the MBA story, as firms in good health target new CEOs with more advanced or specialized skills. Since we are no longer focusing on any particular specialization, it makes sense that the effect of specialization is weakened.

More interesting, however, is the weakly negative effect observed on liabilities as a percentage of assets. Thus, firms with lower leverage tend to be more likely to have a CEO with a master's degree. One might surmise that advanced training leads to less risk-taking. Alternatively, CEOs with master's degrees might be a sign of more rigid promotion structure, suggesting a more conservative corporate environment.

Of course, these same arguments could be used in the more general context of having any graduate degree. Table 6 illustrates the outcome of our regressions using a generic graduate school dummy as the dependent variable. We see a positive size effect, again suggesting that larger firms prefer their CEOs possess some form of advanced training. One also sees a negative relationship between intangibility and

Table 2.5 Determinants of the CEO Holding a Master's Degree

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
logassets	-0.00368	-0.0215	0.0000755	-0.000914		
	(-0.79)	(-0.75)	(0.02)	(-0.03)		
pctintan	-0.0147	-0.0924	-0.0270	-0.160		
	(-0.30)	(-0.31)	(-0.50)	(-0.50)		
pctliab	-0.0445	-0.301	-0.0350	-0.218		
	(-2.18)**	(-1.74)*	(-1.65)*	(-1.39)		
pctrndrev	0.0000987	0.000505	0.000146	0.000769		
	(0.51)	(0.61)	(0.72)	(0.87)		
lagpm	0.0000307	0.000910	0.0000291	0.000750		
	(3.71)***	(0.45)	(3.01)***	(0.42)		
lagroa	-0.0178	-0.105	-0.00778	-0.0444		
	(-0.97)	(-1.09)	(-0.42)	(-0.48)		
lagtobinq	0.00232	0.0129	0.00277	0.0165		
	(0.71)	(0.76)	(0.84)	(1.00)		
devlogassets					0.00141	0.00868
					(0.27)	(0.28)
devpctintan					-0.0453	-0.275
					(-0.83)	(-0.85)
devpctliab					-0.0290	-0.191
					(-1.38)	(-1.16)
devpctrndrev					0.000138	0.000727
					(0.72)	(0.89)
devlagpm					0.0000334	0.000793
					(3.08)***	(0.45)
devlagroa					-0.00671	-0.0433
					(-0.36)	(-0.45)
devlagtobinq					0.00217	0.0122
					(0.58)	(0.62)
Intercept	0.252	-1.058	0.0655	-1.080	0.154	-0.947
	(8.01)***	(-5.73)***	(0.27)	(-0.85)	(1.97)**	(-1.68)*
Industry Effects	None	None	FE	FE	Mean	Mean
Year Effects	None	None	FE	FE	FE	FE
N	2175	2175	2175	2094	2175	2174
R^2	0.0040		0.0452		0.0139	

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

Table 2.6 Determinants of the CEO Holding a Graduate Degree

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
logassets	0.0102	0.0461	0.0185	0.0861		
	(1.79)*	(1.85)*	(3.05)***	(3.09)***		
pctintan	-0.141	-0.575	-0.151	-0.652		
	(-2.42)**	(-2.34)**	(-2.43)**	(-2.40)**		
pctliab	-0.0279	-0.139	-0.0174	-0.0926		
	(-1.10)	(-1.23)	(-0.67)	(-0.77)		
pctrndrev	0.000286	0.00481	0.000236	0.00324		
	(3.57)***	(0.93)	(3.75)***	(0.87)		
lagpm	-0.0000492	-0.00249	-0.0000569	-0.00212		
	(-3.56)***	(-1.24)	(-4.95)***	(-1.10)		
lagroa	-0.00896	-0.00912	0.00764	0.0594		
	(-0.37)	(-0.09)	(0.33)	(0.62)		
lagtobinq	0.00274	0.00965	0.000300	-0.000610		
	(0.75)	(0.57)	(0.08)	(-0.04)		
devlogassets					0.0188	0.0846
					(2.96)***	(2.98)***
devpctintan					-0.159	-0.673
					(-2.49)**	(-2.45)**
devpctliab					-0.00719	-0.0478
					(-0.28)	(-0.40)
devpctrndrev					0.000224	0.00295
					(3.23)***	(0.78)
devlagpm					-0.0000525	-0.00270
					(-3.59)***	(-1.45)
devlagroa					0.00504	0.0541
					(0.21)	(0.53)
devlagtobinq					-0.000496	-0.00445
					(-0.12)	(-0.24)
Intercept	0.602	0.404	-0.493	-1.853	0.0940	0.617
	(16.30)***	(2.51)**	(-2.08)**	(-1.50)	(0.99)	(1.24)
Industry Effects	None	None	FE	FE	Mean	Mean
Year Effects	None	None	FE	FE	FE	FE
N	2175	2175	2175	2156	2175	2174
R^2	0.0059		0.0578		0.0256	

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

the presence of a graduate degree. Conversely, there is a positive relationship with the firm's R&D expense. One surmises that graduate degrees are beneficial for firms with highly capital intensive research. That is, firms which are focused on research but require a large amount of equipment in order to perform this research. This could be a means through which firms attempt to mitigate agency issues and protect their capital investments.

The inconsistently significant negative effect of lagged profit margin suggests that firms in relatively poor health are more likely to choose a CEO with an advanced degree. This is likely due to a belief that the advanced training could aid the firm in improving its profitability. Given that the firm's debt ratio seems to have no effect, it appears there could be some truth in this belief.

Taken together, we see evidence that firms systematically choose CEOs with particular training or skills. It appears that graduate degrees are one way in which firms are able to select a CEO possessing their desired skill set. Moreover, it appears that this is not strictly limited to the "obvious" MBA, but it stretches to all graduate degrees.

2.5.3 School Characteristics

Of course, the degree itself is not the only filter through which firms select their CEO. Companies also discriminate based on the characteristics of the CEO's education. There are several such characteristics. While these have no direct, quantitative link to the CEO's knowledge or skills, they are nonetheless highly visible aspects of the education the CEO received. This makes them ripe for filtering by prospective employers.

The most immediately obvious characteristic of a school is whether it is private. In Table 7, we present the results of our regression models using a dummy for the school being private. Surprisingly, we see little effect on any vector in these specifications. In

Table 2.7 Determinants of the CEO Graduating from a Private School

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
logassets	-0.00284	-0.0113	-0.00153	-0.00579		
	(-0.49)	(-0.47)	(-0.24)	(-0.22)		
pctintan	0.0890	0.382	0.0671	0.290		
	(1.49)	(1.56)	(1.05)	(1.11)		
pctliab	-0.000994	-0.0220	-0.00546	-0.0415		
	(-0.04)	(-0.20)	(-0.20)	(-0.37)		
pctrndrev	0.0000868	0.000104	0.0000527	-0.0000107		
	(0.43)	(0.13)	(0.25)	(-0.01)		
lagpm	-0.0000708	-0.00211	-0.0000744	-0.00196		
	(-4.77)***	(-1.49)	(-5.05)***	(-1.41)		
lagroa	-0.00757	-0.00910	-0.0111	-0.0264		
	(-0.36)	(-0.10)	(-0.51)	(-0.29)		
lagtobinq	-0.000893	-0.00532	-0.000547	-0.00377		
	(-0.25)	(-0.36)	(-0.15)	(-0.24)		
devlogassets					0.000992	0.00506
					(0.15)	(0.19)
devpctintan					0.0655	0.287
					(1.01)	(1.08)
devpctliab					-0.00998	-0.0618
					(-0.36)	(-0.54)
devpctrndrev					0.0000524	-0.0000353
					(0.24)	(-0.04)
devlagpm					-0.0000754	-0.00217
					(-4.47)***	(-1.51)
devlagroa					-0.0174	-0.0497
					(-0.79)	(-0.53)
devlagtobinq					-0.0000318	-0.00175
					(-0.01)	(-0.11)
Intercept	0.411	-0.358	-0.149	-0.961	0.135	0.413
	(11.02)***	(-2.31)**	(-0.63)	(-0.81)	(1.44)	(0.87)
Industry Effects	None	None	FE	FE	Mean	Mean
Year Effects	None	None	FE	FE	FE	FE
N	2175	2175	2175	2161	2175	2174
R^2	0.0023		0.0305		0.0078	

t statistics in parentheses
* $p < .10$, ** $p < .05$, *** $p < .01$

the OLS specifications, there is a strongly significant but small negative relationship on the lagged profit margin. As in the degree type regressions, we see underperforming firms have some preference for privately educated CEOs. This could be interpreted as a flight to quality, although the private category is far too broad for this to be convincing.

Another visible aspect of a school's educational environment is the wealth of its student body. Presumably, these "richer" schools should provide students with a wider array of opportunities and superior offerings than less wealthy schools could. Table 8 is inspired by this presumption. However, much like the previous table, we see little real effect. There is a moderately significant positive size effect when including the industry and year effects. It is likely that corporations believe that these benefits might be real, especially as the firm becomes larger.

Table 9 takes this intuition a step further. A school that is primarily attended by upper class students would likely offer the best networking opportunities. We find weak evidence of this, as there is a positive size effect. Larger firms are likely to have more alumni connections to these schools, making them more likely to recruit their graduates. We can find some potential corroboration for this idea in the moderately positive coefficient on the lagged profit margin. Better performing firms are hiring these candidates, allowing some presumption that the hiring is not made purely for need but through contacts.

Table 10 illustrates a particularly unique case of a school's characteristics: if it has a religious affiliation. This unique trait appears to demonstrate some of the strongest–yet least consistent–relationships that we find. The lagged profit margin has a strongly significant negative relationship in the OLS specifications, but it is not significant in the logit models. This inconsistency is likely related to the low percentage of affirmatives in the values of the *religious* dummy variable, as it is a strict subset of the set of private schools. There is also a weakly significant positive

Table 2.8 Determinants of the CEO Graduating from a Rich School

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
logassets	0.00591	0.0358	0.0104	0.0654		
	(1.24)	(1.24)	(2.01)**	(2.07)**		
pctintan	0.00398	0.0227	-0.0343	-0.220		
	(0.08)	(0.07)	(-0.64)	(-0.66)		
pctliab	-0.00334	-0.0203	0.000299	-0.00183		
	(-0.13)	(-0.13)	(0.01)	(-0.01)		
pctrndrev	0.0000399	0.000227	0.0000514	0.000295		
	(0.31)	(0.34)	(0.37)	(0.43)		
lagpm	0.00000754	0.0000539	0.0000104	0.0000684		
	(0.48)	(0.39)	(0.62)	(0.48)		
lagroa	-0.0135	-0.0776	-0.00813	-0.0434		
	(-0.80)	(-0.86)	(-0.45)	(-0.46)		
lagtobinq	0.00290	0.0164	0.00107	0.00577		
	(0.96)	(1.03)	(0.34)	(0.34)		
devlogassets					0.0111	0.0687
					(2.09)**	(2.12)**
devpctintan					-0.0244	-0.157
					(-0.44)	(-0.46)
devpctliab					-0.00208	-0.0147
					(-0.08)	(-0.08)
devpctrndrev					0.0000405	0.000227
					(0.30)	(0.33)
devlagpm					0.0000128	0.0000787
					(0.71)	(0.56)
devlagroa					-0.0114	-0.0644
					(-0.63)	(-0.67)
devlagtobinq					0.00367	0.0217
					(1.10)	(1.19)
Intercept	0.161	-1.619	-0.277	-2.398	0.135	-0.300
	(5.28)***	(-8.65)***	(-3.81)***	(-2.35)**	(1.68)*	(-0.50)
Industry Effects	None	None	FE	FE	Mean	Mean
Year Effects	None	None	FE	FE	FE	FE
N	2175	2175	2175	2122	2175	2174
R^2	0.0013		0.0350		0.0096	

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

Table 2.9 Determinants of the CEO Graduating from a High Class School

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
logassets	0.00520	0.0290	0.00992	0.0573		
	(1.03)	(1.02)	(1.81)*	(1.86)*		
pctintan	-0.0256	-0.150	-0.0692	-0.399		
	(-0.50)	(-0.50)	(-1.26)	(-1.26)		
pctliab	-0.00701	-0.0396	-0.00243	-0.0188		
	(-0.31)	(-0.29)	(-0.10)	(-0.13)		
pctrndrev	-0.0000185	-0.0000849	-0.00000264	0.00000232		
	(-0.17)	(-0.13)	(-0.02)	(0.00)		
lagpm	0.0000197	0.000211	0.0000202	0.000195		
	(2.97)***	(1.19)	(2.51)**	(1.23)		
lagroa	-0.0135	-0.0729	-0.00650	-0.0343		
	(-0.75)	(-0.81)	(-0.35)	(-0.37)		
lagtobinq	0.00374	0.0196	0.00280	0.0146		
	(1.16)	(1.25)	(0.83)	(0.88)		
devlogassets					0.0111	0.0631
					(1.96)**	(1.98)**
devpctintan					-0.0614	-0.357
					(-1.09)	(-1.10)
devpctliab					-0.00100	-0.00545
					(-0.04)	(-0.04)
devpctrndrev					0.00000354	0.0000403
					(0.03)	(0.06)
devlagpm					0.0000216	0.000214
					(2.31)**	(1.23)
devlagroa					-0.0135	-0.0724
					(-0.70)	(-0.75)
devlagtobinq					0.00415	0.0220
					(1.16)	(1.23)
Intercept	0.195	-1.402	-0.311	-1.286	0.125	-0.313
	(6.12)***	(-7.82)***	(-4.35)***	(-1.54)	(1.54)	(-0.55)
Industry Effects	None	None	FE	FE	Mean	Mean
Year Effects	None	None	FE	FE	FE	FE
N	2175	2175	2175	2133	2175	2174
R^2	0.0014		0.0263		0.0067	

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

Table 2.10 Determinants of the CEO Graduating from a Religious School

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
logassets	-0.00651	-0.0643	-0.00597	-0.0635		
	(-1.61)	(-1.78)*	(-1.36)	(-1.58)		
pctintan	0.0536	0.430	0.0601	0.496		
	(1.28)	(1.27)	(1.36)	(1.36)		
pctliab	0.0163	0.170	0.0148	0.172		
	(0.98)	(1.28)	(0.88)	(1.25)		
pctrndrev	-0.000124	-0.0161	-0.000138	-0.0205		
	(-2.73)***	(-1.66)*	(-2.80)***	(-1.65)*		
lagpm	-0.0000907	-0.00275	-0.0000931	-0.00374		
	(-13.77)***	(-1.04)	(-12.90)***	(-1.31)		
lagroa	0.0243	0.278	0.0226	0.295		
	(2.12)**	(1.48)	(1.88)*	(1.35)		
lagtobinq	-0.00203	-0.0162	-0.000916	-0.00801		
	(-0.91)	(-0.65)	(-0.39)	(-0.28)		
devlogassets					-0.00397	-0.0432
					(-0.88)	(-1.08)
devpctintan					0.0521	0.422
					(1.12)	(1.10)
devpctliab					0.0183	0.195
					(1.07)	(1.45)
devpctrndrev					-0.000138	-0.0181
					(-2.77)***	(-1.67)*
devlagpm					-0.0000937	-0.00302
					(-11.74)***	(-1.14)
devlagroa					0.0235	0.288
					(1.91)*	(1.36)
devlagtobinq					-0.00157	-0.0139
					(-0.63)	(-0.47)
Intercept	0.164	-1.567	0.143	-0.690	0.0566	-1.049
	(6.39)***	(-6.89)***	(0.62)	(-0.55)	(0.90)	(-1.49)
Industry Effects	None	None	FE	FE	Mean	Mean
Year Effects	None	None	FE	FE	FE	FE
N	2175	2175	2175	2108	2175	2174
R^2	0.0061		0.0382		0.0093	

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

effect on lagged ROA, however, which makes the profitability implications difficult to interpret. Finally, there is a moderately significant negative coefficient on the firm's R&D expense. This relationship to reduced R&D is likely due to a presumption that religious persons are anti-scientific, leading highly research-oriented firms to shy away.

Another unique trait that a CEO's education could possess is that it did not occur in the United States. As we saw in Table 1, there are very few CEOs in the sample who pursued their education at a foreign institution. Table 11 shows the results of our regression models being applied to this distinction. We see weak significance in several variables. Size is weakly positive, suggesting perhaps an inevitability that large firms, which are often multinational, will have a foreign-trained CEO. We see that the coefficient on the firm's R&D activity is positive in the logit model. A cynical interpretation might be that foreign educational institutions are superior to their American counterparts in analytical fields, but it would more likely be the simple result of foreign-born employees working their way up the firm hierarchy. The evidence on firm profitability is mixed, though, as there is a positive and significant coefficient on lagged profit margin in the OLS specifications, while the logit specifications show a negative and significant relationship with lagged ROA. This is difficult to disentangle, and it is likely the result of the small number of affirmatives in our sample.

We see that the characteristics of a CEO's education–despite being highly visible and quantifiable–are not easily predictable based on the firm's size, financial characteristics, or profitability. While we are able to make some broad interpretations, there is little precision we can bring to bear.

2.5.4 School Quality

The school's characteristics are easily quantifiable, but we cannot accurately assess their effect on the CEO's training. The school's quality, however, is more difficult to quantify, but its effect is much easier to discern. We approach this aspect from two

Table 2.11 Determinants of the CEO Graduating from a Foreign School

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
logassets	0.00372	0.0383	0.00590	0.0705		
	(1.10)	(0.92)	(1.65)*	(1.64)*		
pctintan	-0.000597	-0.0151	-0.00362	-0.0486		
	(-0.02)	(-0.04)	(-0.10)	(-0.11)		
pctliab	-0.00773	-0.0732	0.00117	0.0378		
	(-0.47)	(-0.34)	(0.07)	(0.22)		
pctrndrev	0.000247	0.00143	0.000234	0.00138		
	(1.54)	(2.15)**	(1.41)	(2.04)**		
lagpm	0.0000139	0.000252	0.0000169	0.000515		
	(2.40)**	(0.74)	(2.43)**	(0.47)		
lagroa	-0.0288	-0.244	-0.0210	-0.188		
	(-1.82)*	(-2.08)**	(-1.35)	(-1.66)*		
lagtobinq	0.00116	0.0143	-0.000322	-0.00224		
	(0.49)	(0.63)	(-0.13)	(-0.08)		
devlogassets					0.00640	0.0780
					(1.72)*	(1.71)*
devpctintan					-0.0255	-0.334
					(-0.69)	(-0.71)
devpctliab					0.00572	0.0870
					(0.34)	(0.44)
devpctrndrev					0.000252	0.00149
					(1.51)	(2.09)**
devlagpm					0.0000224	0.000412
					(2.65)***	(0.63)
devlagroa					-0.0166	-0.142
					(-1.02)	(-1.22)
devlagtobinq					-0.000476	-0.00456
					(-0.19)	(-0.17)
Intercept	0.0615	-2.622	0.392	-0.583	-0.0486	-3.933
	(2.80)***	(-9.73)***	(1.53)	(-0.54)	(-0.87)	(-4.77)***
Industry Effects	None	None	FE	FE	Mean	Mean
Year Effects	None	None	FE	FE	FE	FE
N	2175	2175	2175	1987	2175	2174
R^2	0.0058		0.0347		0.0180	

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

directions. First, we examine the selectivity and admissions difficulty of the school. Then, we move on to the quality of the school's programs as assessed by *Business Week*. These measures are workable, allowing us to interact with the school's quality without dwelling too long on our ability to estimate quality.

Table 2.12 Determinants of the CEO Graduating from a Prestigious School

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
logassets	0.00306	0.0152	0.00970	0.0506		
	(0.59)	(0.58)	(1.73)*	(1.77)*		
pctintan	0.0102	0.0484	-0.0548	-0.283		
	(0.19)	(0.18)	(-0.96)	(-0.97)		
pctliab	0.0116	0.0562	0.0194	0.0971		
	(0.45)	(0.46)	(0.73)	(0.76)		
pctrndrev	-0.0000229	-0.000100	0.00000925	0.0000674		
	(-0.19)	(-0.16)	(0.07)	(0.10)		
lagpm	0.0000192	0.000139	0.0000222	0.000147		
	(1.62)	(0.98)	(1.65)*	(1.03)		
lagroa	-0.00825	-0.0405	0.000832	0.00400		
	(-0.44)	(-0.46)	(0.04)	(0.05)		
lagtobinq	0.00871	0.0399	0.00690	0.0310		
	(2.35)**	(2.36)**	(1.73)*	(1.72)*		
devlogassets					0.0109	0.0561
					(1.86)*	(1.89)*
devpctintan					-0.0515	-0.273
					(-0.89)	(-0.91)
devpctliab					0.0143	0.0694
					(0.52)	(0.53)
devpctrndrev					0.000000193	0.0000124
					(0.00)	(0.02)
devlagpm					0.0000240	0.000152
					(1.63)	(1.07)
devlagroa					-0.00223	-0.0115
					(-0.11)	(-0.13)
devlagtobinq					0.0103	0.0487
					(2.58)***	(2.56)**
Intercept	0.223	-1.222	-0.377	-1.484	0.178	0.163
	(6.57)***	(-7.09)***	(-4.83)***	(-1.80)*	(2.10)**	(0.30)
Industry Effects	None	None	FE	FE	Mean	Mean
Year Effects	None	None	FE	FE	FE	FE
N	2175	2175	2175	2133	2175	2174
R^2	0.0035		0.0382		0.0177	

t statistics in parentheses
* $p < .10$, ** $p < .05$, *** $p < .01$

Tables 12 and 13 present the results of our regression models when they are applied to our two measures of school prestige. In both, we see a positive size effect when

Table 2.13 Determinants of the CEO Graduating from a Top School

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
logassets	0.00404	0.0222	0.0104	0.0606		
	(0.82)	(0.79)	(1.97)**	(2.01)**		
pctintan	-0.0431	-0.256	-0.0854	-0.500		
	(-0.86)	(-0.86)	(-1.57)	(-1.55)		
pctliab	0.000684	0.00329	0.00885	0.0504		
	(0.03)	(0.03)	(0.36)	(0.37)		
pctrndrev	0.0000137	0.0000857	0.0000421	0.000243		
	(0.11)	(0.13)	(0.31)	(0.37)		
lagpm	0.0000144	0.000111	0.0000175	0.000119		
	(1.17)	(0.77)	(1.25)	(0.83)		
lagroa	-0.0182	-0.0938	-0.00781	-0.0382		
	(-0.97)	(-1.04)	(-0.41)	(-0.42)		
lagtobinq	0.00656	0.0329	0.00541	0.0267		
	(1.83)*	(1.95)*	(1.45)	(1.53)		
devlogassets					0.0116	0.0673
					(2.12)**	(2.15)**
devpctintan					-0.0775	-0.466
					(-1.40)	(-1.41)
devpctliab					0.00197	0.0103
					(0.08)	(0.07)
devpctrndrev					0.0000442	0.000254
					(0.32)	(0.38)
devlagpm					0.0000174	0.000117
					(1.17)	(0.82)
devlagroa					-0.0121	-0.0615
					(-0.61)	(-0.64)
devlagtobinq					0.00778	0.0398
					(1.96)**	(2.05)**
Intercept	0.191	-1.416	-0.347	-1.475	0.178	0.193
	(5.92)***	(-7.78)***	(-4.69)***	(-1.78)*	(2.25)**	(0.34)
Industry Effects	None	None	FE	FE	Mean	Mean
Year Effects	None	None	FE	FE	FE	FE
N	2175	2175	2175	2128	2175	2174
R^2	0.0031		0.0358		0.0150	

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

including industry and year effects along with a positive relationship to the lagged Tobin's Q when excluding these effects. The size effect strengthens when we apply the stricter definition of prestige, while the profitability effect weakens when applying the stricter definition. One could suggest that a CEO from a prestigious school is likely a luxury item for a board. As the firm grows larger, the board is able to acquire such luxuries more easily. Likewise, the CEO's school being supremely prestigious is less well predicted by the lagged Tobin's Q than if it is simply prestigious. At minimum, this suggests that the CEO's college is intended to engender respectability.

As the most common degree held by CEOs, we might want to see the direct impact of the prestige of the CEO's MBA granting school. We explore this in Table 14, where we use the dummy indicating the CEO holds a prestigious MBA as the dependent variable in our models. We see a significant and positive effect of size, suggesting that large firms are more likely to hire a CEO that holds a prestigious MBA than their smaller peers. This can be seen as a mutually beneficial relationship, as the firm has greater resources with which to hire a CEO and a prospective CEO wishes to maximize her earning potential. In the OLS specifications, we see a positive and significant coefficient on the firm's lagged profit margin, suggesting that profitable firms are more likely to hire a CEO with a prestigious MBA. This corroborates the notion that the choice of CEO is more a matter of opportunity or ability rather than need.

Table 15 extends this notion by focusing further onto those CEOs who hold degrees from elite MBA institutions. We see that the significance of the size effect weakens. Much like the general case of our prestige variables, we see that the more rarified subset is not sought after as urgently as the full set. One could interpret this as the market's recognition that there is little additional benefit to hiring these elite candidates, especially when considering the likely labor cost differences.

We also see that the lagged profit margin effect is more consistent, as it occurs in

Table 2.14 Determinants of the CEO Holding an MBA from an Elite Program

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
logassets	0.0120	0.0761	0.0156	0.101		
	(2.62)***	(2.65)***	(3.09)***	(3.16)***		
pctintan	-0.0262	-0.186	-0.0702	-0.482		
	(-0.56)	(-0.59)	(-1.37)	(-1.38)		
pctliab	0.0208	0.151	0.0253	0.179		
	(0.92)	(1.10)	(1.11)	(1.26)		
pctrndrev	0.000155	0.00101	0.000155	0.00102		
	(0.87)	(1.34)	(0.82)	(1.30)		
lagpm	0.0000250	0.00249	0.0000251	0.00260		
	(2.37)**	(0.88)	(2.20)**	(0.90)		
lagroa	0.00113	-0.0140	0.00793	0.0307		
	(0.08)	(-0.14)	(0.60)	(0.31)		
lagtobinq	0.000683	0.00643	-0.000186	0.000437		
	(0.27)	(0.39)	(-0.07)	(0.03)		
devlogassets					0.0157	0.100
					(3.01)***	(3.01)***
devpctintan					-0.0603	-0.420
					(-1.15)	(-1.19)
devpctliab					0.0253	0.184
					(1.05)	(1.28)
devpctrndrev					0.000142	0.000963
					(0.78)	(1.29)
devlagpm					0.0000381	0.00282
					(2.92)***	(1.01)
devlagroa					0.0102	0.0490
					(0.74)	(0.43)
devlagtobinq					0.00241	0.0183
					(0.81)	(0.96)
Intercept	0.112	-1.958	-0.355	-2.488	-0.0302	-1.301
	(3.86)***	(-10.17)***	(-5.13)***	(-2.61)***	(-0.40)	(-2.27)**
Industry Effects	None	None	FE	FE	Mean	Mean
Year Effects	None	None	FE	FE	FE	FE
N	2175	2175	2175	2132	2175	2174
R^2	0.0048		0.0326		0.0161	

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

Table 2.15 Determinants of the CEO Holding an MBA from a Top Program

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
logassets	0.00762	0.0634	0.00851	0.0712		
	(1.94)*	(1.91)*	(1.94)*	(1.94)*		
pctintan	-0.00445	-0.0890	-0.0478	-0.462		
	(-0.11)	(-0.24)	(-1.07)	(-1.14)		
pctliab	0.0118	0.117	0.0127	0.115		
	(0.64)	(0.75)	(0.68)	(0.70)		
pctrndrev	0.000187	0.00159	0.000190	0.00159		
	(1.07)	(2.11)**	(1.06)	(2.06)**		
lagpm	0.0000241	0.0118	0.0000269	0.0122		
	(2.14)**	(2.05)**	(2.26)**	(2.08)**		
lagroa	0.00151	-0.0607	0.00798	-0.00419		
	(0.13)	(-0.54)	(0.69)	(-0.04)		
lagtobinq	0.00179	0.0192	0.00161	0.0172		
	(0.75)	(1.08)	(0.65)	(0.92)		
devlogassets					0.0102	0.0876
					(2.24)**	(2.23)**
devpctintan					-0.0442	-0.443
					(-0.96)	(-1.07)
devpctliab					0.00961	0.0984
					(0.50)	(0.58)
devpctrndrev					0.000188	0.00157
					(1.07)	(2.10)**
devlagpm					0.0000346	0.0118
					(2.62)***	(2.04)**
devlagroa					0.00991	0.0128
					(0.84)	(0.10)
devlagtobinq					0.00404	0.0388
					(1.53)	(1.89)*
Intercept	0.0762	-2.356	-0.225	-2.247	-0.0115	-1.710
	(3.01)***	(-10.40)***	(-3.84)***	(-2.24)**	(-0.18)	(-2.54)**
Industry Effects	None	None	FE	FE	Mean	Mean
Year Effects	None	None	FE	FE	FE	FE
N	2175	2175	2175	2114	2175	2174
R^2	0.0034		0.0259		0.0114	

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

both the OLS and logit specifications. This adds to the notion that these elite MBA holders are viewed as luxuries, as we now have a more solid relationship between positive financial results prior to the turnover event and the new CEO's degree. Also of interest is the positive and significant effect of the firm's R&D activity in the logit specifications. This implies that perhaps firms do believe to some degree that these elite MBA holders are better equipped to handle more sophisticated issues that might arise with heavy research investment.

Finally, Table 16 presents the results of our models using a dummy representing whether the school is considered an "elite" educational institution. Recall that this means that the school satisfies both our *rich* dummy as well as our *prestige2* dummy. Here, we see essentially no effects except for firm size, which exhibits a positive relationship. There are two possible interpretations of this finding. First, one might assume that larger firms simply have the requisite resources to attract the students of these institutions. In an open market, they are simply able to bid higher than their smaller counterparts. However, one might also suggest that these firms are simply chasing the prestige that hiring such candidates can bring. The firm's board might believe that the company, based on its size, must aim "higher" when hiring executives. It is difficult to separate the two scenarios.

Hence, we see that there are some consistent relationships in the realm of CEO school quality. Largely, it appears that there is a definite desire for some level of quality in the CEO's training. Beyond this point, though, this training seems to be viewed as a nicety rather than a necessity.

2.6 Conclusions

We see that a firm's choice of executive seems to be motivated by its own financial characteristics. This questions the currently established literature, which tacitly assumes an overall ideal CEO education for all firms. Based on its analysis of de-

Table 2.16 Determinants of the CEO Graduating from an Elite School

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
logassets	0.00408	0.0293	0.00893	0.0684		
	(0.93)	(0.91)	(1.88)*	(1.97)**		
pctintan	-0.0260	-0.204	-0.0660	-0.504		
	(-0.57)	(-0.58)	(-1.33)	(-1.33)		
pctliab	-0.00441	-0.0331	0.00379	0.0270		
	(-0.19)	(-0.19)	(0.16)	(0.15)		
pctrndrev	0.0000603	0.000360	0.0000806	0.000505		
	(0.45)	(0.53)	(0.58)	(0.73)		
lagpm	0.00000399	0.0000280	0.00000671	0.0000416		
	(0.26)	(0.20)	(0.39)	(0.30)		
lagroa	-0.0108	-0.0731	-0.00356	-0.0206		
	(-0.75)	(-0.82)	(-0.24)	(-0.22)		
lagtobinq	0.00473	0.0295	0.00277	0.0162		
	(1.59)	(1.79)*	(0.88)	(0.92)		
devlogassets					0.00970	0.0728
					(1.99)**	(2.02)**
devpctintan					-0.0640	-0.496
					(-1.27)	(-1.28)
devpctliab					0.00224	0.0137
					(0.09)	(0.08)
devpctrndrev					0.0000656	0.000397
					(0.49)	(0.57)
devlagpm					0.0000117	0.0000728
					(0.68)	(0.52)
devlagroa					-0.00661	-0.0473
					(-0.43)	(-0.50)
devlagtobinq					0.00507	0.0325
					(1.55)	(1.70)*
Intercept	0.130	-1.863	-0.233	-2.401	0.136	-0.483
	(4.62)***	(-9.07)***	(-3.44)***	(-2.36)**	(1.87)*	(-0.73)
Industry Effects	None	None	FE	FE	Mean	Mean
Year Effects	None	None	FE	FE	FE	FE
N	2175	2175	2175	2120	2175	2174
R^2	0.0021		0.0324		0.0135	

t statistics in parentheses
* $p < .10$, ** $p < .05$, *** $p < .01$

gree, school characteristics, and school quality on a vector of firm size, firm financial characteristics, and firm profitability, we are able to tease out some novel results. Thus, we claim that this study's manner of inquiry is much more appropriate to the empirical reality of the executive hiring market. This study should serve as an initial inquiry into this phenomenon, allowing future studies to expand focus to more firm characteristics, as well as addressing the performance of firms that follow (vary from) "normal" hiring practices.

CHAPTER III

The Role of Ownership in Executive Labor Markets

3.1 Introduction

The CEO labor market represents a confluence of multiple influences. Numerous studies have approached issues ranging from the determination of wages to job-hopping. In general, though, this scholarship has largely focused on the demand side of the contracting relationship, as it is generally easier to conceptualize the issues that the firm faces when attempting to recruit executive talent.

This study attempts to reverse the typical paradigm, however, by approaching the issue from the supply side. That is, we approach the hiring market from the perspective of the potential CEO. In doing so, we hope to provoke new lines of inquiry in future scholarship that will further enrich our understanding of the bilateral executive contracting environment.

To provide this, we assemble a novel data set, combining a varied set of data sources in order to discuss changes in the potential CEO's educational background. Specifically, we broach the issue of blockholders, and we examine the impact that they might have in the firm's ability to recruit a CEO with a particular background. We find sufficient evidence to argue that potential executives do appear to be impacted by the presence or absence of a blockholder, as well as the particular types of blockholders that a firm might have.

3.2 Literature Review and Motivation

There are large literatures on both executive educational backgrounds and executive labor markets. However, it appears that there is little interaction between the two lines of scholarship. We hope to illustrate a case in which the two actually do interact.

3.2.1 CEO Backgrounds

The literature on the education of executives largely focuses on the impact of their background on their decision-making. Thus, many studies have focused on what degrees the executives possess. Baruch (2009) notes that MBAs dominate management positions for large international firms, as individuals with an MBA hold over half the CEO positions at these firms. Further, Baruch documents that this is largely due to these firms actively seeking MBA-holders for management positions or using the possession of an MBA as a promotion gating mechanism. This relationship might be changing, however. Datar et al. (2010) find that firms are increasingly recruiting non-MBAs. Not only are firms turning away from MBAs, but the authors document a dramatic fall in MBA enrollments, especially at lesser programs.

The question, of course, becomes what practical effect the degree held by the CEO has on the firm's activities. Several studies have investigated this point. Finkelstein and Hambrick (1996), Tyler and Steensma (1998), and Barker and Mueller (2002) find evidence that firms invest more heavily in R&D when their CEO has a technical degree versus a business or law degree. Subsequent studies document benefits for CEOs holding a business degree, citing their understanding of more sophisticate financial models, such as the capital asset pricing model and the net present value. These studies included Graham and Harvey (2001,2002) as well as Graham, Harvey, and Rajgopal (2005).

However, these specialization benefits might be overstated. Mian (2001) argues that these effects are more acute for the CFO position, as the CEO has a much broader range of responsibilities and activities. Meanwhile, Iqbal (2015) examines the oil industry, and he finds that CEOs with business degrees hedged less than their peers with industry-specific degrees. Iqbal does find, though, that there is little to no difference in educational quality or focus for CFOs between those who hedge and those who do not hedge. This is likely because almost all the CFOs in the study hold business degrees.

Another point of focus is the quality of the CEO's degree. Burt (1992) and Belliveau, O'Reilly, and Wade (1996) find that school selectivity provides networking benefits to graduates, which can filter through to firm performance. Other studies change the hypothesis slightly, supposing that the school's quality is a signal of the CEO's innate ability. These studies include Frey and Detterman (2004) and Deary (2004). More general studies have found benefits from quality of education, as Perez-Gonzalez (2006) documents improved performance related to the CEOs having an Ivy League degree and Maxam et al. (2006) find that educational quality can drive hedge fund manager performance.

There are contrarian studies, though. Gottesman and Morey (2010) and Bhagat et al. (2011) find no relationship between firm performance and the CEO's education. Lindorff and Jonson (2013) take a more specific look at the CEO's financial education, and they also find no effect on firm performance. This could be explained by the findings of O'Leonard (2014) that firms spent approximately one-quarter of their training dollars on leadership development. Moreover, Jalbert et al. (2002) actually finds a negative impact of the CEO's educational background and the firm's return on assets. More concretely, Barker and Mueller (2002) demonstrate that MBAs are sub-optimally risk averse.

Regardless of the effects, though, we see that there is great interest in the educa-

tional background of the manager. It is reasonable to assume that a firm considers the prospective CEO's educational background when making hiring decisions. This means that recruits will be able to market their skills in the executive labor market, extracting a premium for their qualifications. This study attempts to tease out the job choices these individuals are making.

3.2.2 Executive Labor Market

Having established the importance of the CEO's education, we turn to the literature on CEO labor markets. The contracting literature often focuses on the situation in isolation, as in Edmans and Gabaix (2009). However, a line of research has incorporated the context of the executive labor market. These studies have included Frydman (2007) and Murphy and Zabojnik (2004,2007). This is difficult, though, as there is a great deal we do not know about the hiring process for these individuals. In fact, Oyer and Schaefer (2011) call it a black box.

However, research has highlighted some aspects of the contracting relationship. Abowd and Ashenfelter (1981) find that firms in industries with more job risk must pay more than those in industries without that risk. Kaplan (2008) further links dismissal risk with the executive's compensation, finding that higher dismissal risk leads to higher compensation. Kaplan and Minton (2012) follow this by documenting a decrease in CEO tenures, suggesting that CEOs are being paid more while holding their position for a shorter amount of time. Moreover, Fee and Hadlock (2004) find that these CEOs resurface at smaller firms and earn significantly less at their new job.

There are complications in this relationship, though, as Eisfeldt and Kuhnen (2013) and Peters and Wagner (2014) find that industry shocks can result in a CEO's characteristics no longer fitting at their current employer. For example, technology shocks can render a CEO's competencies largely obsolete. Hence, these studies de-

velop more sophisticated relationships between dismissal risk and compensation.

This relationship might not be limited to the CEO's skills, as it appears to extend to their attitudes and perceptions as well. Specifically, there appears to be some moderating effect in the selection of CEOs. Campbell et al. (2009) find that moderately optimistic CEOs are less likely to be forced out than highly optimistic or minimally optimistic CEOs. Hackbarth (2008) and Goel and Thakor (2008) predict similar equilibria for CEO overconfidence. Prospective executives should anticipate this effect, meaning that they would tend toward firms that provide space for their optimism. This could result in a tendency toward like-minded blockholders or away from blockholders at all.

We also see that a firm's industry has an effect on its position in the labor market. Deng and Gao (2013) and Cremers and Grinstein (2013) establish that managers have higher mobility in highly populated or highly homogenous industries. According to Gao et al. (2015), this mobility is positively associated with the pay raises won by "job hopping" CEOs.

How do we draw the two lines of scholarship together? Occasional studies have bridged the gap. Montgomery (1991) and Rees (1966) find that employees in the same firm generally share social ties, including friends and former colleagues. Moreover, employee referrals can aid in the hiring process. One could immediately connect this to the social networks created by a college environment.

Another line of inquiry in the managerial labor market regards the efforts of directors to manage their reputations. Levit (2012), Ruiz-Verdu and Singh (2014), Song and Thakor (2006) establish the incentives associated with directors' reputational concerns, while Bouvard and Levy (2013) and Bar-Isaac and Dep (2014) argue that directors are concerned with their reputation with two separate audiences, managers and shareholders. Levit and Malenko (2015) build on this by showing how building a certain type of reputation increases the market value of that reputation. It seems

clear that these directors might want to select a CEO with a particular educational background in order to satisfy these reputational concerns.

3.3 The Sample

We construct a novel sample from multiple data sources. At a glance, we merge ownership data from Factset with financial data from the CRSP/Compustat Merged database and then merge the resulting data with Boardex executive education data. We will describe the process involved in merging these data sources below.

3.3.1 Factset Active Companies

First, we collected data on the ownership of active firms using the Factset Ownership 2.0 interface. This allows us to gather data at an annual frequency regarding all the holders of any currently active firm. The data are obtained a firm level, so the separate files must be cleaned and merged. The data have several consistency issues that need to be resolved before the merge can take place. Primarily, the headers must be removed. Next, many variable labels are missing the relevant date. In order to use the data properly, we must backfill these dates using the date in the variable label immediately prior. Based on the data structure, this interpretation makes sense: for example, one sees the percentage ownership in May 2005, followed by the change in percentage ownership, followed by the percentage ownership in May 2006, followed by the change in percentage ownership. Thus, the first change variable is May 2005 and the second is May 2006.

Once other minor cleaning operations are completed, the data are ready to be "flattened" and merged. This is accomplished by translating each variable into a generic variable and moving its date component to a separate date variable. So, our prior example of percentage ownership in May 2006 becomes simply the percentage ownership with a date variable set to May 2006. Once the merge is completed, the

active firm data is ready to be merged with the remaining Factset data.

3.3.2 Factset Inactive Company Individuals

Next, we collect data on the ownership of inactive firms using the Factset Ownership 3.0 interface. Here, we are able to gather largely equivalent information as we have on all owners of the active firms at a quarterly level for individual blockholders. This means that a similar cleaning procedure must take place, with a few differences. In this case, the dates are consistent in the sense that they are either given for an entire set of holder-firm-date observation or they are missing. We are able, then, to impute what the next date should be based on the previous date and the knowledge that the data are quarterly. Hence, we are able to fill in a missing September 2005 date given that the prior date was May 2005.

Another problem that occurs in this data is duplication of variables. That is, we might have the same variable occur twice in a given file. We devise an algorithm to detect and drop any repeated variable labels prior to assigning variable names. Once this is accomplished, we are able to proceed as above. Then, the inactive firm individual blockholder data is ready to be merged.

3.3.3 Factset Inactive Company Institutions

We obtain the Factset Company Institutions file from WRDS. This file contains all institutional holdings, for both the active and the inactive firms. Since we already have the active firm observations, we must identify only those observations for the inactive firms. Importantly, this data contains unique identifiers for each firm in addition to the tickers and CUSIPs that occur in the previous data. Hence, we merge this dataset with the inactive individuals file on the two separate CUSIP variables and the firm's ticker. By doing so, we are able to generate a list of inactive firm identifiers. We merge this list back into the institutional data so that we are left with

only the inactive institutions. Finally, we attempt to generate the percentage owned for each observation, as this file is reported in terms of shares held. Unfortunately, the reported shares outstanding data is spotty at best. At this point, we set this data aside in order to proceed on.

3.3.4 Factset Inactive Company Funds

We perform a similar operation on the Factset Company Funds file from WRDS. This file contains all fund holdings that are not reported on a 13-F. We perform the same merge operation in order to limit our attention to only those holdings in inactive firms. Next, we merge in the Factset Fund Names file from WRDS which–in addition to containing the funds' names–also includes parent company identifiers for the funds. Having done so, we consolidate the observations by adding the shares held by each fund to calculate the parent's total holdings. Then, we keep only a single observation from each parent firm before attempting to calculate the percentage owned. As before, this is a largely futile effort due to the unreliable shares outstanding values Factset contains.

3.3.5 CRSP/Compustat Merged

We use the CRSP/Compustat Merged dataset on WRDS as our base for the various merge operations. We are able to obtain a measure of firm size from this data, and we also use the fully diluted shares outstanding values from this data in order to calculate the percent owned by the inactive institutions and funds from Factset. Moreover, this data provides a useful structure to facilitate the merge between two fairly unstructured datasets in Factset and Boardex.

3.3.6 Boardex Company Records

The first file we require from Boardex is the Company Characteristics file. This file contains the firm identifiers that are necessary to merge the data with an outside data source. Specifically, we rely on the ISINs reported in this file. ISINs are 12 digit company identifiers. While they are not present in CRSP/Compustat, they contain the firm's CUSIP. Specifically, the third through the eleventh digit represents the firm's CUSIP. So, we extract the third through the eighth digit in order to generate the firm's six digit CUSIP (the first six digits form the firm's unique identifier). At this point, we are ready to merge this data.

3.3.7 Boardex Person Records

Next, we work with the Officer Characteristics file from Boardex. Here, we find a significant amount of data regarding a corporate officer's position in the firm. This includes both the beginning and ending time of them holding that position. These dates are less than consistent, so we must clean this data. In doing so, we assume the broadest possible date range in the absence of information. So, any missing beginning years are assumed to be 1990. Likewise, missing beginning months are assumed to be January, while missing beginning days are assumed to be the first of the month. Conversely, missing ending years are assumed to be 2013, while missing ending months are assumed to be December, and missing ending days are assumed to be the appropriate number of days for the month given (e.g., December as an ending month would result in this value being 31). This done, the data are ready to be merged.

3.3.8 Boardex Education Records

We also use the Director Educations file from Boardex. Here, we find data on the educational background of the majority of the Boardex universe. It is important to

note, however, that this data is not exclusive to earned degrees: both professional organizations and honorary degrees are included. This data is organized at the person-degree level, meaning that there can be up to 27 observations corresponding to a single person. Hence, we compress each person's data into a single observation by creating 27 copies of each variable. At this point, it is ready to be merged.

3.3.9 Combining the Data

First, we append the four Factset datasets with this one in order to create a master Factset dataset. We also take this opportunity to consolidate the various variable names under single headings and back-fill any missing identifiers as best we can. Next, we construct "linktable" files from both Factset and CRSP/Compustat, retaining only a variable containing the observation number and the various company identifiers. We perform a Cartesian merge of the two linking files on four variables: two CUSIP variables, the firm's ticker, and the firm's ticker with any suffixes removed. Next, we append these files into a single large match file. This obviously has a great number of duplicates in it. In culling these duplicates, we prioritize any matches resulting from the CUSIP variables, followed by matches from the full ticker. However, we do retain any matches that result from the "no suffix" tickers if there was no match for that observation on a preferred variable.

Once this paring down is completed, we merge the master Factset file with the link file, giving each Factset observation a GVKEY. Now, we move toward completing the merge with the CRSP/Compustat data. In order to accomplish this, we generate three copies of each Factset observation, one with a fiscal year one year prior to the real year, one with a fiscal year equal to the calendar year, and one with a fiscal year one year ahead of the calendar year. So, a May 2005 observation would be duplicated with one being assigned a 2004 fiscal year, one being assigned a 2005 fiscal year, and one being assigned a 2006 fiscal year. This manipulation allows us to reasonably

perform a merge on a GVKEY-fiscal year basis while eliminating the possibility that a match might be discarded based on a timing issue.

Of course, our approach results in a large number of duplicate matches. In order to resolve this, we rely on the relationship of the Factset *report_date* with the CRSP/Compustat *datadate*. We calculate the number of days separating the two dates for each observation. Then, sorting by Factset observation numbers, we keep the observation with the smallest difference in the two. This should be the one with the most accurate fiscal year as well. This solves the duplication issue from the Factset side, but there is still duplication from the CRSP/Compustat side. Hence, we perform a similar sort on the GVKEY-fiscal year level, where we keep the observation with the smallest difference in the two dates. Finally, we calculate the percentage owned by each holder using the shares outstanding values from CRSP/Compustat. Now, we keep only those that have a value greater than 5%.

Finally, we prepare to merge the Factset-CRSP/Compustat data with the Boardex data. This requires several steps. First, we merge the Factset-CRSP/Compustat data with the Boardex company data on the CUSIP level. From here, we merge in the Boardex manager listings by *companyid*. We drop any observations that are outside the bounds set by the CEO's beginning and ending dates. Last, we merge our data with the Boardex education data on the *directorid* level. The result of this merge represents our sample.

3.3.10 Variable Definitions

We wish to quantify both the characteristics of the CEO's educational background and the firm's ownership structure. We see that the firm's ownership structure is a much simpler matter.

First, we create a dummy variable *hasblock* that simply captures whether the firm has a five percent blockholder at all. Next, we construct a set of dummies classify-

ing the types of blockholders the firm might have. We base these definitions on the *holder_type* variable supplied by Factset. The most common of these is *individual*, which indicates that Factset classifies this holder as an individual. Likewise, *investmentco* indicates that the firm has an investment company as a blockholder, defined as Factset classifying them as an investment advisor, wealth management firm, or a similar moniker. The dummy *financial* indicates a Factset classification as a more broad financial firm, such as an insurance company or bank, while *non-profit* indicates that Factset classified the holder as a non-profit organization, a government, or a charity. We also define *subordinate* to show that Factset has labeled the holder as a subsidiary, joint venture, or other non-parent entity. To round out our classifications, *genericfirm* connotes a Factset type of public company, private company, or a similarly generic label.

Finally, we define *numblockholders* to be the total number of blockholders that the firm has. We argue that this is equal or superior to the total percentage owned, as we believe that the mere presence of a blockholder is a major issue for a prospective CEO, regardless of how large the particular block might be. This completes our ownership variable construction.

Now, we move on to the education data. First, we wish to classify the type of degree that the CEO has. We tabulate a list of degree types in the Boardex data. We find that there are 330 degree types, which we classify into eight categories. For the purposes of this study, we further limit attention to a narrower range of categories, looking specifically at graduate degrees. These categories include *gradschool*, which simply proxies for the presence of a graduate degree, *masters*, which proxies for the presence of a master's degree, and *doctor*, which proxies for the presence of a doctoral degree. Also, within the master's degree category, we break out the specific degrees of an MBA (*mba*) and a law degree (*law*). In the event that a graduate degree is reported without a school name, we assume that the person attended their undergraduate

institution for both degrees.

We assume in this study that the average CEO is approximately 50 years old (which the data roughly confirms), leading us to hand-collect data from Hawes (1978) in order to tabulate various measures of school quality and school characteristics. The data from Hawes is wide-ranging, allowing us to gather information on the school's selectivity, cost, quality, and more. Moreover, we believe that it is more accurate for the CEOs in our sample, as it should better represent the status of the schools when the executives were actually attending them. We will generate several variables using this data.

First, we generate simple dummies, such as *private*, which is equal to 1 if the school is private. Likewise, *foreign* equals 1 when a school is not located in the United States. We also tabulate the variable *religious* to indicate if a school carries a religious affiliation. Otherwise, we define a *rich* school as one in the 75th or higher percentile in our data for total cost. Further, we use Hawes's unique measure of social prestige (the number of alumni in the *Social Register*) in order to derive a measure for social class. We convert this measure into a ratio, then we assign those in the 75th or higher percentiles a value of 1 for *highclass*.

Next, we move on to school prestige. We define two prestige measures based on Hawes's data on admissions difficulty and selectivity. If Hawes rates admissions difficulty as a 1 (the highest level) and selectivity greater than 85, we define *prestige1* to be 1. Alternatively, we allow admissions difficulty to drop to 2 if selectivity is greater than 90. We also define a stricter measure, *prestige2*, which toughens the standards of *prestige1* by 5 points in selectivity in each conditional. We also define *elite* to be a dummy taking the value of 1 if a school has affirmative values for both *rich* and *prestige2*. Finally, we move to more modern ratings, as we incorporate *Business Week*'s rankings of MBA programs in order to define what a prestigious MBA program is. We define a prestigious MBA program (denoted by *highmba*) as

one in the top 350 in the country, while we categorize a program as elite (denoted by *supermba*) if it is in the top 10.

3.4 Empirical Analysis

We wish to examine the means through which a firm's ownership structure can influence its ability to recruit CEO talent. We hypothesize that there are three primary channels through which these effects can be seen. First, we claim that the firm will be less likely to successfully recruit executives with advanced or specialized degrees. We examine this through the possession of a graduate degree. Second, we argue that the firm will have to recruit outside of typically preferred circles. That is, wealthy or socially elite candidates are likely to choose to go elsewhere. Third, we expect that the CEO's education as a whole will be of lower quality than their peers. We utilize quality measures from major college rankings for this analysis.

These three measures are likely to be influenced via several channels. First, we assume that the firm's size will drive its hiring success, as it is reasonable to assume that these larger firms are able to offer more attractive compensation packages than their smaller competitors. More to our focus, though, we use three measures of blockholding. First, we define a dummy for the presence of a blockholder, as we assume that potentially interventionist ownership is a negative aspect of a potential employer. Second, we form a set of dummy variables that control for the general type of blockholders that are present. We hypothesize that certain blockholders are likely to be more onerous than others, and we hope to isolate these effects using these variables. Finally, we look at the number of blockholders, with a hypothesis that more large holders present results in a less preferable environment for a particular CEO.

Table 1 presents the summary statistics for our variables. Panel A shows the statistics for our education quality measures that will be used as dependent variables,

Table 3.1 Summary Statistics

Panel A: Dependent Variables					
Variable	**Mean**	**Std. Dev.**	**Min.**	**Max.**	**N**
law	0.073	0.26	0	1	5908
doctor	0.097	0.296	0	1	5908
mba	0.352	0.478	0	1	5908
master	0.193	0.395	0	1	5908
private	0.435	0.496	0	1	5908
religious	0.141	0.348	0	1	5908
foreign	0.064	0.245	0	1	5908
prestige1	0.281	0.45	0	1	5908
prestige2	0.237	0.425	0	1	5908
gradschool	0.603	0.489	0	1	5908
highmba	0.186	0.389	0	1	5908
supermba	0.133	0.339	0	1	5908
rich	0.22	0.414	0	1	5908
snooty	0.237	0.425	0	1	5908
elite	0.176	0.381	0	1	5908
Panel B: Independent Variables					
Variable	**Mean**	**Std. Dev.**	**Min.**	**Max.**	**N**
hasblock	0.374	0.484	0	1	5908
individual	0.233	0.423	0	1	5908
investmentco	0.012	0.11	0	1	5908
financial	0.004	0.064	0	1	5908
non-profit	0.002	0.047	0	1	5908
subordinate	0.036	0.186	0	1	5908
genericfirm	0.089	0.285	0	1	5908
logassets	5.57	1.726	0.934	13.42	14500

while Panel B tabulates the statistics for our ownership measures and the firm size that we will use as independent variables. One can see that certain measures present some difficulty, as they do not possess a great deal of variability in the sample. However, we believe that these variables are still useful to highlight certain relationships.

3.4.1 Regression Framework

We wish to identify the effects of a firm's ownership structure on its ability to recruit executive talent. In order to do so, we make the assumption that the quality of a CEO's education can be quantified via the 15 variables we have defined. Having done so, we move on to a regression analysis. We will use a set of 3 separate OLS regressions to isolate the various ownership characteristics of the firm. First, we attempt to isolate the effect that the existence of a blockholder has on ownership. This requires a dummy indicating that a firm has a shareholder of greater than 5% in a given fiscal year. Second, we attempt to characterize the impact of different types of blockholders. To do so, we use a vector of dummies representing categories of blockholders. Finally, we regress on the number of blockholders as a means of teasing out the "size" of a firm's blockholding. Here, we include a variable counting the number of blockholders. This results in the following set of regressions:

$$Educational\,Characteristic = \widehat{\beta}_0 + \widehat{\beta}_1 Has\,Blockholder$$
$$Educational\,Characteristic = \widehat{\beta}_0 + \widehat{\beta}_1 Has\,Blockholder + \widehat{\gamma} Blockholder\,Type$$
$$Educational\,Characteristic = \widehat{\beta}_0 + \widehat{\beta}_1 Number\,of\,Blockholders$$

In all cases, we control for the size of the firm by including the log-transform of the firm's assets. Likewise, we control for industry effects by including a fixed effect at the two-digit SIC level. In addition, we control for any time effects by including

a year fixed effect. In order to better account for non-linearity that might arise in these models, we also report the results of equivalent logit models. We believe that these measures allow us to accurately assess the effects of ownership on executive recruitment.

3.4.2 Degree Type

The most discrete measure of an executive's qualifications is the presence of a degree. Bachelor's degrees are ubiquitous enough at the CEO level to be largely uninteresting for our purposes. Instead, we consider whether the CEO has a graduate degree. We isolate having a law degree or MBA. Then, we move on to more general categories, such as possessing a master's or doctoral degree. Finally, we examine the general category of all graduate degrees.

We first turn our attention to whether the executive has a law degree. We would expect that CEO candidates with legal training possess unique skills, as they have received significant specialized training. Other degrees, such as an MBA, could be at least partly substituted for by undergraduate courses or executive education sessions. Thus, a law degree is the most obvious place to see a particular skillset manifest its effects.

Table 2 shows the results of our analysis using *law* as the dependent variable. We see that the firm's size is the most consistently significant driver of the executive having a law degree throughout the six models. Given their earning potential in non-executive positions, we would assume that these recruits are likely drawn to the increased salaries that larger firms are likely to offer. However, the ownership type regression does show some other effects. Specifically, we see that the blockholder being a non-profit or a subordinate unit of a larger organization result in negative coefficients in the OLS specification. It is likely that any firms with large non-profit blockholders may have significant limitations placed on them by that relationship. Unfortunately,

Table 3.2 Determinants of the CEO Holding a Law Degree

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
hasblock	-0.00519	-0.104	-0.00107	-0.0182		
	(-0.64)	(-0.79)	(-0.11)	(-0.11)		
individual			-0.0121	-0.238		
			(-1.12)	(-1.27)		
investmentco			0.0146	0.231		
			(0.50)	(0.54)		
financial			0.0459	0.583		
			(0.73)	(0.89)		
non-profit			-0.0601	.		
			(-3.84)***	.		
subordinate			-0.0286	-0.594		
			(-1.99)**	(-1.58)		
genericfirm			0.0202	0.321		
			(1.60)	(1.49)		
numblockholders					-0.00177	-0.0383
					(-0.93)	(-1.09)
logassets	0.00350	0.0539	0.00346	0.0545	0.00353	0.0541
	(1.71)*	(1.82)*	(1.68)*	(1.82)*	(1.76)*	(1.86)*
Intercept	0.102	-2.394	0.0987	-2.449	0.101	-2.405
	(0.71)	(-1.61)	(0.69)	(-1.65)*	(0.70)	(-1.62)
N	5908	5810	5908	5796	5908	5810
R^2	0.0335		0.0346		0.0335	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

we do not have sufficient observations to confirm that this effect persists in the logit specification. The negative effect of being held by a subordinate entity likely speaks to a similar lack of autonomy, although we are able to see that this effect weakens in the logit model.

Table 3.3 Determinants of the CEO Holding an MBA Degree

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
hasblock	0.0111	0.0504	0.00367	0.0167		
	(0.73)	(0.74)	(0.19)	(0.19)		
individual			0.00830	0.0376		
			(0.38)	(0.39)		
investmentco			0.0149	0.0667		
			(0.26)	(0.26)		
financial			0.0989	0.420		
			(1.02)	(1.05)		
non-profit			0.0900	0.364		
			(0.70)	(0.68)		
subordinate			0.0694	0.303		
			(1.92)*	(1.98)**		
genericfirm			-0.0265	-0.119		
			(-1.07)	(-1.07)		
numblockholders					0.00562	0.0250
					(1.49)	(1.53)
logassets	0.00955	0.0428	0.00928	0.0416	0.00973	0.0436
	(2.65)***	(2.67)***	(2.56)**	(2.58)***	(2.74)***	(2.77)***
Intercept	0.244	-1.124	0.249	-1.101	0.245	-1.119
	(1.12)	(-1.17)	(1.15)	(-1.15)	(1.13)	(-1.17)
N	5908	5906	5908	5906	5908	5906
R^2	0.0256		0.0267		0.0259	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

An MBA degree, on the other hand, is a much more common type of degree in a business environment. In much the same way that we omit any discussion of bachelor's degrees, it would be surprising to find much of an effect, as so many CEOs possess an MBA degree. Table 3 essentially confirms this, as we see little significance. There is some significance to being held by a subordinate entity, which likely is a result of working one's way up the corporate ladder.

Otherwise, we see a strongly significant positive relationship with firm size. This

has a two-sided relationship with executive incentives. Primarily, one would believe that these larger firms simply have more resources with which to recruit CEO talent. That is, they can offer higher salaries or provide more perquisites than their competitors. However, one might also argue that larger firms are less likely to have a blockholder, suggesting that the firm's size might provide some protection against future blockholders. Given that these executives possess extensive business training, it would stand to reason that they would be most likely to desire to run the business without interference from large shareholders.

Table 3.4 Determinants of the CEO Holding a Master's Degree

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
hasblock	-0.00129	-0.00770	-0.00517	-0.0353		
	(-0.10)	(-0.09)	(-0.32)	(-0.34)		
individual			0.00560	0.0375		
			(0.31)	(0.32)		
investmentco			-0.0157	-0.112		
			(-0.33)	(-0.34)		
financial			-0.0314	-0.311		
			(-0.49)	(-0.49)		
non-profit			-0.0555	-0.415		
			(-0.58)	(-0.53)		
subordinate			-0.0200	-0.134		
			(-0.71)	(-0.70)		
genericfirm			0.0181	0.122		
			(0.86)	(0.94)		
numblockholders					-0.00197	-0.0131
					(-0.66)	(-0.64)
logassets	-0.00418	-0.0280	-0.00392	-0.0260	-0.00438	-0.0293
	(-1.42)	(-1.42)	(-1.32)	(-1.31)	(-1.51)	(-1.51)
Intercept	0.0655	-2.343	0.0635	-2.358	0.0656	-2.343
	(0.38)	(-1.65)*	(0.36)	(-1.66)*	(0.38)	(-1.65)*
N	5908	5848	5908	5848	5908	5848
R^2	0.0426		0.0429		0.0427	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Suppose that we widen our net, though, to all master's degrees. One would assume there would be some incentive on the employer side to hire candidates with master's degrees, as they are likely to have advanced training in some area that

would presumably improve their human capital. This should provide the potential employees with some flexibility in choosing their position.

However, our results do not bear this out. Instead, Table 4 demonstrates essentially no relationship between ownership and having a master's degree. We argue that this is due to the heterogeneity inherent in a "master's" category. For example, while an MBA degree holder might prefer autonomy, it is possible that someone with a non-business focused master's degree might prefer a more active voice from shareholders in order to provide them with a "business" viewpoint.

Table 3.5 Determinants of the CEO Holding a Doctoral Degree

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
hasblock	-0.0152	-0.171	-0.0195	-0.249		
	(-1.65)*	(-1.55)	(-1.69)*	(-1.71)*		
individual			-0.00361	-0.0205		
			(-0.28)	(-0.13)		
investmentco			0.0249	0.203		
			(0.66)	(0.57)		
financial			0.0794	0.928		
			(1.19)	(1.66)*		
non-profit			-0.0345	-0.535		
			(-0.46)	(-0.46)		
subordinate			-0.0215	-0.292		
			(-1.06)	(-1.13)		
genericfirm			0.0306	0.364		
			(1.97)**	(2.20)**		
numblockholders					-0.000313	-0.00134
					(-0.13)	(-0.05)
logassets	-0.00614	-0.0737	-0.00603	-0.0729	-0.00536	-0.0653
	(-2.80)***	(-2.80)***	(-2.73)***	(-2.74)***	(-2.47)**	(-2.50)**
Intercept	0.0166	-2.399	0.0145	-2.388	0.0137	-2.527
	(0.24)	(-2.26)**	(0.21)	(-2.24)**	(0.20)	(-2.37)**
N	5908	5405	5908	5405	5908	5405
R^2	0.0797		0.0809		0.0793	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Doctoral degrees present a more uniform form of degree, though, so one would believe that these potential CEOs might have more homogenous incentives. Table 5 illustrates exactly this. We see that firm size is a major, and negative, driver of

potential CEOs having a doctoral degree. We would suppose that this is because smaller firms are best able to utilize the doctoral degree holder's unique skillset. Once a firm grows larger, it becomes unwieldy for the CEO to be involved in day-to-day functions, making specialized research training significantly less useful. The most obvious reading of this would be that firms do not desire a CEO with a doctorate, but one might argue that the zeal with which doctoral degree holders approach research makes them wish to avoid insular bureaucratic environments like a mature firm often becomes.

More to our focus, though, we see some significance in the existence of a block. Specifically, we see that having a blockholder reduces the likelihood of the CEO having a doctorate. On the other hand, we see a positive and significant relationship to the block being a generic company. Likewise, we see a barely significant positive effect in the logit specification of having a financial company as a blockholder. One could envision that this is the result of doctorate holders working at smaller, research-oriented firms that receive either venture capital investments or large investments from end-user firms.

Now, we broaden our focus to simply having a degree beyond a bachelor's degree. That is, the CEO possesses any graduate degree. We could certainly argue that these potential CEOs have significant value over their bachelor's-holding peers. However, Table 6 does not show that they exercise the associated influence in any real way. We see no significant effects. As with the master's degree category, we argue that this is due to the large mix of backgrounds and their differing incentives.

Ultimately, we see very little effect of ownership when looking at broad categories. However, when we specify and look at particular degrees, such as an MBA or law degree, or a narrow range of degrees, like doctoral degrees, we do find some effects. This suggests that potential executives are exercising some of their bargaining power based on the firm's ownership structure, but it also supports the notion that degrees

Table 3.6 Determinants of the CEO Holding a Graduate Degree

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
hasblock	-0.0105	-0.0461	-0.0237	-0.103		
	(-0.67)	(-0.68)	(-1.19)	(-1.20)		
individual			0.00524	0.0225		
			(0.23)	(0.23)		
investmentco			0.0546	0.254		
			(0.95)	(0.93)		
financial			0.128	0.585		
			(1.37)	(1.28)		
non-profit			0.0489	0.239		
			(0.41)	(0.41)		
subordinate			0.000341	0.00275		
			(0.01)	(0.02)		
genericfirm			0.0306	0.134		
			(1.22)	(1.22)		
numblockholders					0.00101	0.00440
					(0.27)	(0.27)
logassets	0.00447	0.0197	0.00463	0.0206	0.00517	0.0228
	(1.23)	(1.24)	(1.27)	(1.28)	(1.44)	(1.45)
Intercept	0.270	-0.976	0.271	-0.974	0.268	-0.986
	(1.23)	(-1.07)	(1.23)	(-1.07)	(1.21)	(-1.08)
N	5908	5906	5908	5906	5908	5906
R^2	0.0421		0.0429		0.0421	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

are too wide-ranging in focus and aptitudes to develop any consistent biases.

3.4.3 School Characteristics

Another area in which the firm's ownership might affect its ability to draw CEO talent is based on the characteristics of the CEO's school. There are several of these that, while not directly related to the quality of the potential CEO's education, would undoubtedly affect her attitudes and perceptions about the world. Specifically, we investigate the firm's status as public or private, the wealth of its students, and the social status of its students, as well as whether it carries a religious affiliation or if it is a foreign school.

Table 3.7 Determinants of the CEO Graduating from a Private School

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
hasblock	0.00540	0.0231	0.0308	0.128		
	(0.34)	(0.35)	(1.52)	(1.53)		
individual			-0.0302	-0.125		
			(-1.34)	(-1.34)		
investmentco			-0.00558	-0.0233		
			(-0.09)	(-0.09)		
financial			-0.109	-0.484		
			(-1.19)	(-1.11)		
non-profit			-0.0538	-0.229		
			(-0.42)	(-0.40)		
subordinate			-0.0229	-0.0963		
			(-0.64)	(-0.63)		
genericfirm			-0.0226	-0.0935		
			(-0.88)	(-0.87)		
numblockholders					0.00272	0.0115
					(0.70)	(0.72)
logassets	0.00512	0.0214	0.00473	0.0198	0.00521	0.0218
	(1.37)	(1.39)	(1.26)	(1.28)	(1.42)	(1.43)
Intercept	0.199	-1.580	0.196	-1.592	0.199	-1.577
	(1.04)	(-1.30)	(1.03)	(-1.31)	(1.05)	(-1.29)
N	5908	5897	5908	5897	5908	5897
R^2	0.0267		0.0276		0.0267	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

One would assume that a graduate of a private school would act differently in

the hiring market than their public school-educated peers. Table 7, however, shows that this might not actually be the case. We see no significant effects in any of our models. As with the general degree categories above, we suppose that this is the result of heterogeneity in private schools. That is, there is a wide spectrum of private schools, greatly complicating the motivations of private school graduates in the executive talent market.

Table 3.8 Determinants of the CEO Graduating from a Rich School

	(1)	(2)	(3)	(4)	(5)	(6)
	OLS 1	Logit 1	OLS 2	Logit 2	OLS 3	Logit 3
hasblock	-0.00682	-0.0431	-0.00358	-0.0242		
	(-0.53)	(-0.54)	(-0.22)	(-0.24)		
individual			0.000472	0.00325		
			(0.03)	(0.03)		
investmentco			-0.0105	-0.0909		
			(-0.23)	(-0.29)		
financial			-0.0434	-0.308		
			(-0.59)	(-0.55)		
non-profit			-0.0417	-0.275		
			(-0.43)	(-0.35)		
subordinate			-0.0508	-0.347		
			(-1.91)*	(-1.75)*		
genericfirm			0.0107	0.0712		
			(0.52)	(0.55)		
numblockholders					0.000179	0.00145
					(0.06)	(0.07)
logassets	0.00822	0.0476	0.00838	0.0484	0.00862	0.0500
	(2.61)***	(2.60)***	(2.63)***	(2.62)***	(2.77)***	(2.76)***
Intercept	0.0134	-1.591	0.0114	-1.610	0.0121	-1.626
	(0.11)	(-2.59)***	(0.09)	(-2.62)***	(0.10)	(-2.66)***
N	5908	5853	5908	5853	5908	5853
R^2	0.0296		0.0301		0.0295	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Perhaps, then, we should focus on a slightly different aspect: how expensive the school is. We generally assume that wealthier students attend more expensive schools. One sees that this would roughly be correlated with the private versus public results, as private schools should be more expensive than their public counterparts. This would suggest that our earlier supposition still holds here, leading the results to wash

out.

In fact, Table 8 shows significant effects in two areas. First, we see positive and strongly significant coefficients on firm size. Moreover, we see a negative and significant effect on having a subordinate entity as a blockholder. We believe that this illustrates the increased salary and perquisites that large firms are able to offer compared to others. Perhaps more importantly, this suggests that these expensive schools are able to provide sufficient networking and training for their graduates to leapfrog into larger firms right away. That is, these potential executives are able to parlay their education into more lucrative positions.

Table 3.9 Determinants of the CEO Graduating from a High Class School

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
hasblock	-0.0143	-0.0858	-0.0138	-0.0815		
	(-1.07)	(-1.11)	(-0.80)	(-0.82)		
individual			0.00366	0.0194		
			(0.19)	(0.17)		
investmentco			-0.0587	-0.419		
			(-1.36)	(-1.24)		
financial			-0.0511	-0.349		
			(-0.68)	(-0.61)		
non-profit			-0.00547	-0.0146		
			(-0.05)	(-0.02)		
subordinate			-0.000424	-0.00276		
			(-0.01)	(-0.02)		
genericfirm			0.000473	0.00330		
			(0.02)	(0.03)		
numblockholders					-0.000469	-0.00271
					(-0.14)	(-0.14)
logassets	0.00775	0.0425	0.00780	0.0426	0.00845	0.0466
	(2.38)**	(2.37)**	(2.37)**	(2.37)**	(2.63)***	(2.62)***
Intercept	0.0271	-1.136	0.0263	-1.147	0.0244	-1.195
	(0.21)	(-1.97)**	(0.21)	(-1.98)**	(0.19)	(-2.08)**
N	5908	5883	5908	5883	5908	5883
R^2	0.0279		0.0282		0.0277	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Suppose, instead, that we turn our attention to the social "class" of a school. Table 9 reports the effects of our usual ownership variables on whether the CEO

attended a "high class" university. Ultimately, we see that there is little evidence of a relationship between ownership and a "high class" CEO. We would argue that this is due to two competing effects. First, it is reasonable to believe that blockholders are likely to circulate in the same circles as these CEOs, giving their firms an advantage in recruiting these candidates. A countervailing effect would be that these CEOs are likely to have alternative offers that would allow them to avoid dealing with potentially micro-managing shareholders, largely cancelling out the initial advantage that firms with blockholders might have. This is somewhat supported by the significance of the positive size effect, as these candidates appear to chase the increased opportunities that these firms can provide.

Table 3.10 Determinants of the CEO Graduating from a Religious School

	(1)	(2)	(3)	(4)	(5)	(6)
	OLS 1	Logit 1	OLS 2	Logit 2	OLS 3	Logit 3
hasblock	0.0124	0.103	0.0299	0.243		
	(1.11)	(1.11)	(2.08)**	(2.14)**		
individual			-0.0230	-0.186		
			(-1.44)	(-1.47)		
investmentco			-0.00923	-0.0738		
			(-0.22)	(-0.20)		
financial			-0.0725	-0.749		
			(-1.35)	(-1.01)		
non-profit			0.0108	0.0975		
			(0.11)	(0.12)		
subordinate			-0.00985	-0.0831		
			(-0.39)	(-0.38)		
genericfirm			-0.0135	-0.114		
			(-0.75)	(-0.75)		
numblockholders					0.00504	0.0405
					(1.70)*	(1.78)*
logassets	0.000692	0.00578	0.000388	0.00311	0.000721	0.00592
	(0.27)	(0.27)	(0.15)	(0.15)	(0.29)	(0.28)
Intercept	0.177	-1.570	0.176	-1.583	0.179	-1.555
	(1.04)	(-1.23)	(1.02)	(-1.24)	(1.05)	(-1.22)
N	5908	5857	5908	5857	5908	5857
R^2	0.0172		0.0180		0.0176	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Having attended a religious institution is another way in which a CEO's education

could impact their attitudes and perceptions. These institutions are likely to be quite different than their secular peers. Table 10 shows how this effect might manifest itself. In the second specification, we see that the existence of a blockholder results in a firm being more likely to recruit a CEO from a religious school. Moreover, we see that the number of blockholders is positively related with the executive holding a degree from a religious institution.

What draws these recruits to these firms? We might suggest that these CEOs prefer to work with more visible stakeholders. That is, some aspect of their experience while in school resulted in them being more comfortable with blockholders versus having a purely distributed ownership structure. Perhaps these candidates believe that they are able to work with these potentially troublesome shareholders. Alternatively, perhaps they believe these blockholders hold little power. Either way of thinking could conceivably derive from the culture of their educational institution.

Turning to the nationality of the CEO's university, we see a different effect. Table 11 illustrates a somewhat paradoxical effect. Specifically, we see that the presence of a block has a negative and significant effect in the blockholder type specifications. However, we have a slightly larger in magnitude positive effect from the presence of an individual blockholder. Hence, foreign-trained CEOs seem to be averse to the presence of a blockholder unless that blockholder is an individual. Specifically, we see that investment companies have a lightly significant negative effect, suggesting that they are doubly avoided.

How can we reconcile these effects? One might suggest that these foreign-trained CEOs desire the advisory voice that an individual blockholder can provide, whereas blockholder firms might typically be less aggressive in voicing their concerns. Alternatively, one could suggest that foreign-trained CEOs for any number of reasons might view individuals as less threatening than firm blockholders. Perhaps they might view individuals as unlikely to amass the votes necessary to threaten their position.

Table 3.11 Determinants of the CEO Graduating from a Foreign School

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
hasblock	-0.00738	-0.119	-0.0251	-0.406		
	(-0.88)	(-0.93)	(-2.53)**	(-2.42)**		
individual			0.0293	0.435		
			(2.55)**	(2.43)**		
investmentco			-0.0443	-0.770		
			(-1.79)*	(-1.27)		
financial			0.0185	0.317		
			(0.35)	(0.43)		
non-profit			-0.0152	-0.257		
			(-0.20)	(-0.22)		
subordinate			0.000780	-0.0112		
			(0.04)	(-0.04)		
genericfirm			0.0140	0.195		
			(0.97)	(1.04)		
numblockholders					-0.00201	-0.0312
					(-1.01)	(-1.00)
logassets	-0.000904	-0.0142	-0.000505	-0.00800	-0.000783	-0.0115
	(-0.49)	(-0.45)	(-0.28)	(-0.25)	(-0.44)	(-0.38)
Intercept	0.0816	-1.321	0.0829	-1.319	0.0805	-1.347
	(0.92)	(-1.67)*	(0.94)	(-1.69)*	(0.91)	(-1.72)*
N	5908	5508	5908	5508	5908	5508
R^2	0.0249		0.0268		0.0249	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Ultimately, we see that the characteristics of the potential CEO's educational institution have mixed effects. The characteristics that are most generally conflated with quality measures have little if any relationship with the firm's ownership structure. However, we do see some effects of the firm's ownership on the more independent characteristics of religious affiliation and nationality. We feel that this is largely indicative of countervailing influences on these graduates, though, rather than an absence of importance related to ownership.

3.4.4 School Quality

While their degree type and school characteristics can tell us a great deal regarding the attitudes and perceptions of a potential CEO, the quality of the school is likely the best indicator of their quality as a candidate. Of course, this information is difficult to quantify, but we can still approximate it using the rankings provided by *Business Week* and other publications. This allows us to apply our regression framework to their educational quality.

In Tables 12 and 13, we confront this issue directly by applying our usual specifications to our two measures of school prestige. Here, we see a consistently significant and positive size effect. However, this effect is clearly stronger in the first set than the latter set of regressions. Certainly, this is likely caused in part by the small number of affirmative values in our stricter *prestige2* variable. However, we could also suppose that this illustrates a discontinuity in the effects of having a prestigious degree. That is, perhaps those with prestigious degrees under our weaker definition do chase the benefits of working for a larger firm, but we might see those with extremely prestigious degrees being more strongly influenced by non-pecuniary aspects of their potential working environment.

More interestingly, we see a strongly significant and negative effect of having a financial firm as a blockholder in the OLS type specification. Coupled with the

Table 3.12 Determinants of the CEO Graduating from a Prestigious School

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
hasblock	-0.00555	-0.0290	0.00354	0.0187		
	(-0.39)	(-0.40)	(0.19)	(0.20)		
individual			-0.0215	-0.118		
			(-1.07)	(-1.11)		
investmentco			-0.0572	-0.351		
			(-1.24)	(-1.17)		
financial			-0.134	-0.963		
			(-2.01)**	(-1.53)		
non-profit			-0.106	-0.681		
			(-1.17)	(-0.92)		
subordinate			-0.0217	-0.111		
			(-0.70)	(-0.65)		
genericfirm			0.0405	0.214		
			(1.75)*	(1.81)*		
numblockholders					0.00279	0.0146
					(0.79)	(0.80)
logassets	0.00740	0.0371	0.00761	0.0382	0.00809	0.0407
	(2.19)**	(2.20)**	(2.23)**	(2.24)**	(2.42)**	(2.43)**
Intercept	0.180	-1.632	0.172	-1.672	0.179	-1.643
	(0.94)	(-1.26)	(0.90)	(-1.29)	(0.93)	(-1.26)
N	5908	5900	5908	5900	5908	5900
R^2	0.0293		0.0308		0.0294	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.13 Determinants of the CEO Graduating from a Top School

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
hasblock	-0.00444	-0.0262	0.00719	0.0417		
	(-0.33)	(-0.34)	(0.41)	(0.42)		
individual			-0.0246	-0.151		
			(-1.28)	(-1.33)		
investmentco			-0.0720	-0.533		
			(-1.76)*	(-1.55)		
financial			-0.127	-1.169		
			(-2.36)**	(-1.60)		
non-profit			-0.0656	-0.437		
			(-0.73)	(-0.59)		
subordinate			-0.0207	-0.120		
			(-0.71)	(-0.66)		
genericfirm			0.0366	0.219		
			(1.68)*	(1.75)*		
numblockholders					0.00321	0.0187
					(0.95)	(0.96)
logassets	0.00596	0.0330	0.00606	0.0336	0.00665	0.0369
	(1.85)*	(1.85)*	(1.86)*	(1.87)*	(2.09)**	(2.08)**
Intercept	0.0226	-1.385	0.0148	-1.418	0.0212	-1.447
	(0.19)	(-2.34)**	(0.13)	(-2.39)**	(0.18)	(-2.46)**
N	5908	5893	5908	5893	5908	5893
R^2	0.0251		0.0267		0.0253	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

negative effect of having an investment company as a blockholder in the *prestige2* specification, this again speaks to potential non-pecuniary motivations. That is, we would imagine that these types of shareholders are the most likely to promote "short-termism", at least suggesting that these executives are not chasing financial results. However, we do see a weakly significant and positive effect from having a generic company as a blockholder. We would argue that these are likely aberrant, perhaps representing the presence of these executives at smaller, more dynamic firms.

Table 3.14 Determinants of the CEO Holding an MBA from an Elite Program

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
hasblock	-0.00319	-0.0225	-0.000499	-0.000365		
	(-0.26)	(-0.27)	(-0.03)	(-0.00)		
individual			-0.0125	-0.0963		
			(-0.73)	(-0.81)		
investmentco			-0.0215	-0.180		
			(-0.51)	(-0.53)		
financial			0.0404	0.259		
			(0.48)	(0.53)		
non-profit			0.0823	0.455		
			(0.68)	(0.73)		
subordinate			0.0342	0.244		
			(1.18)	(1.27)		
genericfirm			0.00244	0.0144		
			(0.13)	(0.10)		
numblockholders					0.00208	0.0145
					(0.66)	(0.69)
logassets	0.0119	0.0784	0.0116	0.0767	0.0123	0.0818
	(4.04)***	(4.12)***	(3.93)***	(4.01)***	(4.25)***	(4.33)***
Intercept	0.226	-1.301	0.226	-1.300	0.225	-1.310
	(1.17)	(-1.24)	(1.17)	(-1.23)	(1.16)	(-1.24)
N	5908	5900	5908	5900	5908	5900
R^2	0.0271		0.0276		0.0272	

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Tables 14 and 15 narrow our view to the prestige of an executive's MBA program. This eliminates many of the conflicting motivations that the prestigious degree holders above likely hold. Instead, we see a much stronger effect of firm size here. These tables suggest that MBA degree holders are likely much more career-focused and

Table 3.15 Determinants of the CEO Holding an MBA from a Top Program

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
hasblock	-0.00468	-0.0461	-0.00263	-0.0212		
	(-0.44)	(-0.48)	(-0.19)	(-0.17)		
individual			-0.0146	-0.157		
			(-1.01)	(-1.13)		
investmentco			0.0102	0.0965		
			(0.26)	(0.26)		
financial			-0.0179	-0.152		
			(-0.27)	(-0.23)		
non-profit			-0.00939	-0.121		
			(-0.10)	(-0.15)		
subordinate			0.0412	0.384		
			(1.59)	(1.78)*		
genericfirm			0.00944	0.0914		
			(0.57)	(0.56)		
numblockholders					0.00145	0.0135
					(0.54)	(0.54)
logassets	0.00966	0.0829	0.00959	0.0825	0.0101	0.0874
	(3.72)***	(3.80)***	(3.68)***	(3.75)***	(3.94)***	(4.04)***
Intercept	-0.0154	-1.788	-0.0174	-1.782	-0.0165	-1.854
	(-0.14)	(-2.70)***	(-0.16)	(-2.68)***	(-0.15)	(-2.81)***
N	5908	5849	5908	5849	5908	5849
R^2	0.0269		0.0275		0.0269	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

are more likely to focus solely on the monetary benefits that a larger firm can offer. Whereas prestigious degrees can have a large number of focuses and motivations, MBA graduates are much more homogenous. However, we do see a weakly significant positive effect in the logit type specification for elite MBA-holders. This could be the result of a confluence of career issues. Perhaps these candidates are drawn to more dynamic firms, illustrating some non-pecuniary motivations, in a way similar to their larger, prestigious peer group.

Table 3.16 Determinants of the CEO Graduating from an Elite School

	(1) OLS 1	(2) Logit 1	(3) OLS 2	(4) Logit 2	(5) OLS 3	(6) Logit 3
hasblock	-0.0106	-0.0807	-0.00404	-0.0316		
	(-0.89)	(-0.92)	(-0.26)	(-0.28)		
individual			-0.00903	-0.0727		
			(-0.54)	(-0.57)		
investmentco			-0.0519	-0.525		
			(-1.47)	(-1.30)		
financial			-0.0703	-0.748		
			(-1.32)	(-1.02)		
non-profit			-0.00343	0.0344		
			(-0.04)	(0.04)		
subordinate			-0.0380	-0.315		
			(-1.57)	(-1.43)		
genericfirm			0.0200	0.157		
			(1.06)	(1.11)		
numblockholders					0.000583	0.00416
					(0.19)	(0.19)
logassets	0.00662	0.0448	0.00670	0.0453	0.00727	0.0494
	(2.26)**	(2.25)**	(2.27)**	(2.26)**	(2.52)**	(2.51)**
Intercept	0.0544	-1.552	0.0507	-1.582	0.0523	-1.621
	(0.46)	(-2.54)**	(0.43)	(-2.59)***	(0.45)	(-2.67)***
N	5908	5825	5908	5825	5908	5825
R^2	0.0274		0.0283		0.0273	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Finally, we turn to a composite measure, where the school has affirmative values for both our *rich* dummy and our *prestige2* dummy. This set should truly encompass the graduates of what are considered the "best" schools in the country. Table 16 reports the results of using this as the dependent variable in our regression framework. We

see a significant and positive size effect, suggesting that these candidates are able to capture the highest paying positions, such as those provided by large firms. However, we see little to no effect from our set of ownership variables.

Ultimately, these quality measures seem to illustrate the ability of candidates with higher quality educations to capture the most lucrative and prestigious positions offered by large firms. However, we do see some evidence of non-pecuniary incentives for our broader ranges of prestigious degree holders. This is illuminating, as we see these effects disappear when restricting attention to prestigious MBA degree holders.

3.5 Conclusions

This study establishes that there are legitimate effects of a firm's ownership on its ability to recruit talent in the executive labor market. These findings reverse the typical treatment in the literature, as we treat the CEO's education as the dependent variable, while most studies take this as a fixed input. This is a significant contribution, as the supply side of the labor market is largely ignored in the existing literature. We find that there is evidence that the presence of blockholders typically discourage more qualified candidates, while it might encourage others. These findings raise important questions about the motivations of potential executives. We hope to spur future research into this aspect of the market. Future studies may be able to refine this approach, allowing future scholarship to better control for the endogeneity inherent in such a marketplace.

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