Corporate Strategy and Analyst Incentives: Do Capital Markets Encourage or Discourage Uniqueness?

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Abstract

Our paper focuses on how the relationship between corporate strategy and securities analyst activity may yield capital markets which discourage uniqueness in strategy. We argue that corporate strategy choices influence not only the expected cash flows of the firm, which form the fundamental basis for the firm’s valuation by capital markets, but also the amount of effort exerted by those who engage in such valuations. In particular, the effort of analysts and the willingness of investment banks to allocate analyst coverage are partly a function of the cost of that coverage, which in turn is a function of how difficult it is to analyze a corporation’s strategy. When analysis is particularly costly, investment banks may either choose to compromise on the quality of coverage or avoid coverage altogether, reducing the amount of information about the firm that is available to investors. Unique or complex corporate strategies are thus predicted to receive less coverage and correspondingly to be discounted by capital markets. We empirically test this proposition using a 10-year panel dataset linking approximately 14,000 firms from Compustat’s Industrial and Segment files between 1990 and 2000 with their corresponding analysts who appear in the I/B/E/S Detail History file.
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Introduction

Significant changes in managerial compensation and the market for corporate control have focused CEOs on strategies that they view as responsive to capital markets. One of the apparent drivers behind this shift is the substantial increase in the sensitivity of managerial compensation to stock price performance. Hall and Liebman (1998), for example, document a threefold increase in the elasticity of CEO compensation relative to shareholders’ wealth between 1980 and 1994. They attribute this change to an increase in the stock and stock options holdings of CEOs. An unprecedented level of takeover activity during the 1980s and 1990s (see Holmstrom and Kaplan 2001 and the literature cited there) also encouraged managers to restructure public corporations to increase shareholder value.

On the face of it, tightening the alignment between shareholder and managerial interests has significantly reduced agency problems that undermined effective corporate governance during the 1960s and 1970s. With the revised compensation structure and pressure from outsiders, CEOs now face much stronger incentives to pursue strategies that increase stock prices and, presumably, shareholder wealth. Since share prices are fundamentally perceptions of value, CEOs now also seek to influence these perceptions by effectively marketing their strategies to those possessing capital or those influencing its distribution. Indeed, CEOs of public corporations today devote an expanding portion of their time to this activity—meeting with institutional shareholders, large investors, and sell-side financial analysts, those employed by financial intermediaries to assess the value of equity shares of publicly traded firms. In the extreme, this new, perhaps unintended, incentive has led to CEO behavior that the courts of the United States may ultimately find to be criminally fraudulent.

Criminal or not, the need for CEOs to market their strategies may have unanticipated negative welfare consequences because strategies that sell well in equity markets need not be welfare maximizing, even when the product or service markets in which the firm operates are perfectly competitive. In particular, a strategy tailored to the tastes of financial analysts may reflect the incentives that the financial analyst faces within the investment banking community. These incentives need not be the same as
those that an omniscient social planner would impose, and as a result CEOs will not necessarily choose strategies that generate the largest economic surplus. Rather, it is possible that some CEOs must choose between a strategy that maximizes the discounted present value of the firm’s cash flows but does not attract a large analyst following, and one that analysts prefer but sacrifices the total wealth generated by the firm. For this reason, we think it is imperative that researchers carefully examine the role that financial analysts play in the formation of the firm’s strategy.

As strategy researchers, we are primarily interested in management’s response to the financial analysts. Ideally, we would like to directly test the following hypothesis: 

*Analysts’ capacity to influence stock prices induces managers to pursue strategies that analysts prefer rather than strategies that maximize long-term discounted cash flows.*

A direct test of this hypothesis would require observing the set of strategies considered by management, appraising the expected operating profitability of each and the likely reception they would receive among financial analysts, and then demonstrating that management picks a strategy that maximizes the firm’s stock price rather than the firm’s economic value. Ambitious? Absurdly so, of course, but we think it is useful to state what a direct test of the hypothesis would look like in order to make the case for our more modest and incremental approach.

Clearly, it is infeasible to objectively appraise either the economic value or the analyst community’s reaction to all strategies considered by a management team. Therefore, we propose to simply confirm that the necessary conditions hold for our hypothesis to be true. To wit, we confirm the existence of analysts’ preferences for some strategies, a necessary condition for management to face a constraint in its choice of strategies. We then assert, supported by economic theory, that these preferences are likely to constrain the manager’s choice of strategy to the degree that there is less strategy experimentation than is socially optimal.

To identify the existence of analyst preferences we specify a simple, conceptual model of the relationships between managers and analysts in which each player maximizes his or her individual utility. By assumption, a manager’s compensation is tied to the performance of the firm’s equity shares and, thus, managers choose strategies that maximize the performance of the firm’s equity shares rather than the performance of the business itself. We justify this assumption by pointing to the growing literature examining the evolution of CEO compensation and corporate governance over the last
twenty years, which shows a decided trend toward closer alignment between managers’
and shareholders’ interests.

Within this basic model, we argue that uncommon strategies have the potential to
yield different results in terms of stock performance and business performance.
Specifically, unfamiliar strategies—those rarely observed in the data—have the potential
to give the firm a monopoly over whatever cost or product performance benefits the
combined businesses impart to the firm, and hence to generate greater cash flows for the
firm. Our argument is in concordance with recent theoretical work (MacDonald and
Ryall 2002) that has identified relative rarity as a necessary condition for a strategy to
impair a competitive advantage on the firm.

Uncommon strategies are also, however, inherently unfamiliar, and hence more
difficult for investors and analysts to understand. Therefore, they require greater effort
by analysts to evaluate. We argue that, at the margin, some analysts will deem the extra
effort unattractive and elect not to cover the firm’s stock, reducing the amount of
information in the market about the firm and increasing uncertainty about the prospects
for its equity shares. Among risk-averse investors, this greater uncertainty yields a lower
willingness to pay for the firm’s stock and the potential for underperformance relative to
the stocks of firms with more familiar strategies even though these strategies yield
inferior results for the businesses. At the heart of our claim is the fact that investors’
preferences for equity securities are two-dimensional, encompassing return and risk. As
a result, if the forecasts for unfamiliar strategies are unavoidably noisier because they
attract fewer analysts, then firms with these strategies will trade at a discount relative to
their more familiar peers. This effect may actually be at the heart of the diversification
discount found in several studies (see, for example, Lang and Stulz 1994; Berger and
Ofek 1995). A manager seeking to maximize shareholder wealth may then find it
optimal to pursue more familiar strategies (and more focused strategies) with lower
expected returns because their stock market valuation is higher.

We look for analysts’ preferences for familiar strategies in a cross-sectional data
set containing information on the primary and secondary Standard Industrial
Classifications (SIC codes) for approximately 10,000 publicly traded firms in
Disclosure’s SEC Database. With this dataset, we develop simple measures of the
frequency of occurrence of particular strategies—defined as the fraction of firms that list
a given pair of SICs among their primary and secondary SICs. The familiarity of a
particular firm’s strategy is then measured as the fraction of firms with identical SIC combinations among its peer set, generally defined as firms with the same primary SIC. We then use this data and a number of control variables in a reduced-form regression on the number of analysts covering a firm. Our results indicate that, after controlling for the size, complexity, and predicted stock performance of a firm, firms that have strategies that are similar to other peer firms with the same primary SIC receive more analyst coverage than firms that have strategies that are not as similar.

These results are broadly consistent with work by Zuckerman (2000) that offers empirical evidence that firms divest unrelated businesses in order to make their business models conform to those preferred by the analyst community. We also confirm earlier results by Bhushan (1989) that the sheer number of SICs in which a firm operates has a negative effect on the number of analysts its stock attracts, suggesting that the bias against diversified firms is not strictly a sociological tendency towards isomorphism in strategies, as suggested by Zuckerman (1999), but is instead at least partly due to the greater costs imposed on the analyst by more complex strategies.

The welfare implications of our results could be quite significant if it turns out that managers are indeed constrained in their strategy choices by the need to attract analysts. Entrepreneurs and managers create value by organizing firm resources in unique and novel ways. Often the unique configurations implemented by the entrepreneur create value by bridging the boundaries between previously separate or seemingly unrelated industries. If analysts are assigned to cover firms according to pre-existing industry classifications, then the entrepreneur or manager attempting to create value in this way will have difficulty communicating the value of these strategies to analysts who are trained and rewarded to think in terms of extant industry structures. We think that this narrowing of the strategies considered by managers is likely to grow in importance as publicly traded firms increase the intensity of the stock-price-based incentives they use with senior managers.

The remainder of this chapter is organized as follows. In the second section we outline a stylized, conceptual model of the relationship between firm strategies and stock prices and use it to identify four conditions that must hold in order for it to be the case that managers are constrained in their strategic choice by the need to attract analyst coverage. We then use the existing literature in finance, accounting, and strategy to make the case that three of the four conditions are likely to hold, leaving the fourth—that
analysts prefer familiar to unfamiliar strategies—as needing empirical investigation. The third section then describes our dataset and the methodology we use to examine analysts’ strategy preference, and the fourth section presents the results of our preliminary regressions. The final section concludes with a brief summary and some directions for future research.

**Firm Strategy, Analyst Coverage, and Stock Prices**

We model the linkage between a firm’s corporate strategy—its choice of industries in which to operate—and its stock price as a three-stage process. First, managers choose corporate strategies, which we define as the mix of SICs in which their firms operate and locate these strategies along a continuum between commonplace and unique. Commonplace strategies are those that are observed frequently among the firms in an industry while unique strategies are those that are rarely observed in an industry. Second, analysts observe firm strategies and then choose whether or not to cover a firm. For those firms that they choose to cover, they issue a report available to at least a subset of the investors in the market. For each analyst, there is a positive probability that he or she will discover some information that other analysts do not discover so that, the more analysts cover a firm, the more information there is about a firm. In the final stage, investors in the market review the reports issued by analysts and then submit buy and sell orders to a market maker, who sets a market-clearing price.

This process is akin to a three-stage product market value chain in which publicly traded firms ‘manufacture’ equity investments for sale to investors through retail brokers. These equity investments are complex products that investors have difficulty evaluating, and hence investors are willing to pay more for the equity securities if they are sold through intermediaries—the retail brokers—that provide a more precise assessment of the value of the product. The retail brokers employ financial analysts for the purpose of enhancing the value of the equities they sell to their clients and these analysts must make decisions on the brokerage firms’ behalf regarding which equities to ‘stock’ by choosing whether or not to cover a firm’s equity issue. Issuers of equity then have an incentive to cultivate the attention of analysts who both increase the distribution of the firm’s equity and enhance its value by reducing the amount of uncertainty that investors have about its performance prospects.
Within this value chain, a manager’s choice of strategy plays two critical roles in determining the ‘quality’ of the firm’s equity product and the analysts’ willingness to cover the security. First, it dictates the stochastic function that determines the mean and variance of the operating performance prospects of the firm, and in this regard determines the underlying value of the firm’s equity as an investment. That is, it determines the mean and variance of the firm’s cash flows. Second, the firm’s strategy also determines the degree of uncertainty that investors have regarding the performance prospects of the stock, and hence the firm-specific risk associated with investing in the firm’s stock. Note that this uncertainty is in addition to the general cash flow variance that stems from the stochastic nature of firm performance. It is a measurement error that is inherently higher for unfamiliar strategies, but it can be reduced through additional effort by analysts. Therefore, its contribution to the value of the firm’s equity is a function of the total effort that the analyst community expends on understanding the firm’s strategy. Specifically, more coverage by the analyst community reduces the forecast error regarding a firm’s performance prospects, reducing the overall uncertainty of the stock’s performance and increasing its value to risk-averse investors in a market in which it is not possible to diversify away all firm-specific risk, a feature of many models of rational trade in financial securities (see, for example, Hellwig 1980).

Given this process, there are four general conditions that must be met in order for managers to face an analyst-imposed constraint on their strategic decisions.

1. Managers seek to maximize the equity market’s appraisal of the underlying value of their firms’ activities, not the actual cash flows generated by these activities.
2. The market’s appraisal of the firm’s underlying value increases with the number of financial analysts who cover the firm so that, ceteris paribus, a manager prefers more to less coverage by analysts.
3. The underlying economics of the firm’s business must, on average, be better when the strategy is unique than when it is commonplace.
4. The net benefit—compensation less effort—that an analyst receives from covering a firm must decline as the firm’s strategy becomes more unique.

We support each of these conditions in the discussion below.
Managers’ Objectives

Since the pioneering work of Berle and Means (1968), there has been a general concern that managers are in a position to exploit their private knowledge about the firms they manage and, as a result, pursue strategies that are in their interests but not always in the interest of their shareholders. In particular, research in the 1970s and early 1980s provided a sound theoretical basis for arguing that there were decided economic costs associated with using non-owner managers to direct the operations of public corporations (Jensen and Meckling 1976). Subsequent empirical research, both anecdotal (see for example Donaldson 1984) and more formal cross-sectional and longitudinal studies (Murphy 1985; Jensen and Murphy 1990) indicated that managerial compensation was only tenuously tied to shareholder wealth maximization, a condition that is hypothesized to lead managers to pursue strategies for their private benefit. The conclusion generally drawn by these researchers and many commentators in the area of corporate governance been that managers of public corporations are largely unconcerned with the stock price consequence of their strategic decisions and instead take actions primarily to increase their power and control (Jensen 1986) and size-based compensation (Murphy 1985), or to reduce their employment risk (Amihud and Lev 1981; Shleifer and Vishny 1989).

Recent work by Hall and Leibman (1998), however, casts serious doubts on the applicability of these conclusions for the late 1990s. Using the best data currently available on CEO compensation, they find that the median elasticity of CEO compensation relative to the stock price performance increased twofold between 1982 and 1994, from 1.6 to 3.3. As Holmstrom and Kaplan (2001) observe, the performance

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1 Even without the increase over time, Hall and Leibman’s (1998) estimate of the sensitivity of CEO compensation to changes in shareholder wealth is an order of magnitude greater than earlier estimates by Jensen and Murphy (1990). Perhaps more importantly, Hall and Leibman (1998) show that the wealth increase a CEO can obtain by improving firm performance is easily in the range of several million dollars, not the $50,000 increases that Jensen and Murphy (1990) found, even in the early 1980s. The differences in the two estimates stem primarily from the better data that Hall and Leibman (1998) have, which provides a much more complete measure of CEO stockholdings.
sensitivity of CEO compensation for public corporations is now of the same order of magnitude as the performance sensitivity for managers at private leveraged buyout firms in the late 1980s. Since managers of these highly leveraged private firms have generally been assumed to have incentives more closely aligned with the interests of equity holders (Jensen 1986), the same conclusion of close alignment seems appropriate for managers and shareholders of public corporations at this time.

Holmstrom and Kaplan (2001) also highlight the positive effects on corporate governance produced by the substantial improvements in information technology and the increasing concentration of equity ownership in the hands of institutional investors. The two trends simultaneously lowered the cost of and increased the benefits to investors from monitoring managers and thereby encouraged the market for corporate control that was used to dismantle and restructure poorly performing public companies in the 1980s and 1990s. In turn, the advances in the market for corporate control seem to have also induced managers to act pre-emptively to restructure their firms before outsiders did, and thereby secure for them a portion of the value created.

This is not to say that managers do not continue to pursue their own wealth maximization when they make strategic choices. Rather, we contend there is a compelling case for our claim that, in the late 1990s, the time frame we are considering in our empirical analysis, both the incentives managers face and the monitoring they receive from the financial markets make stock price performance the key objective used in decision-making. Thus, we believe that changes in CEO compensation and the evolution of the financial markets have substantially narrowed the disparity between management’s objectives and the objectives of shareholders, and therefore we assume that a strategy that increases the firm’s stock price is preferred by managers to one that does not, regardless of its effect on the firm’s underlying cash flows.

**Analyst Coverage and Share Prices**

The finance and accounting literature provides a substantial empirical and theoretical basis for believing that managers care about analyst coverage and desire more rather than less of it. Empirically, Amir, Lev, and Sougiannis (1999) have shown that earnings forecasts by analysts explain between 12 per cent and 40 per cent of the above-normal returns earned by investors from publicly traded stocks, suggesting that analysts
do indeed provide information that is valuable to the markets. Moreover, they find that the contribution of analysts is particularly large when the firms operate in high-tech and R&D-intense industries, are in financial distress, or have more volatile fluctuations in performance, settings in which publicly available financial information is less informative about the performance prospects of the firm. Finally, Zuckerman (1999) has shown that a firm’s share price is lower when fewer analysts cover it.

The theoretical case for the importance of financial analysts is also quite strong. A standard result of modern finance is that, when investors are risk-averse and are unable to eliminate all firm-specific risk through diversification strategies, the market discounts the values of higher risk firms (see for example Merton 1987). Thus, informational uncertainty about a firm’s strategy increases the investor’s firm-specific risk from owning the firm’s stock and thereby diminishes the security’s price. Given this effect, the firm’s management has an incentive to attract more coverage by analysts in order increase the amount of information possessed by investors and to raise the stock prices of the firms they manage.²

**Unique Strategies and Firm Performance**

From a theoretical standpoint, all firm strategies that yield above-normal returns—that is, impart a competitive advantage to the firm—must involve some scarce resource or capability that is not competitively available to all buyers, suppliers, and competing firms in the firm’s industry. In this respect, a firm that operates in a unique combination of businesses is in a position to exploit any unique value-creating resources or capabilities that come about through its combination of diverse businesses. There is, of course, a large variety of resources and capabilities that can confer a competitive advantage to a business unit, many of which, such as possessing scarce capacity for example, do not necessarily entail combining different types of businesses. Nonetheless,

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² Even when investors do not care about firm-specific risk, managers may still have an incentive to cultivate a larger following of analysts. Fishman and Hagerty (1989), for example, have shown that firm managers have a positive incentive to increase analyst coverage in order to overcome a downward bias in the manner in which the market evaluates investments by the firm.
creating such advantages at the corporate level frequently requires choosing the business lines in which the corporation will operate.

The choice of which businesses to enter or exit necessarily entails using some private information that the firm has about the value that two previously separate businesses will create when combined. Specifically, the decision requires that the firm’s management identify non-obvious synergies between two heretofore unrelated businesses. These synergies must be non-obvious in order for the firm to earn rents from the decision to integrate the two. If the synergies are obvious, the market for business units—a strategic factor market as defined in Barney (1986)—will incorporate these synergies in the price the firm pays for these business units. In essence, these synergies will be competed away as other firms with similar resource endowments recognize the synergies and bid for the acquisitions or resources. For this reason, we think it is reasonable to hypothesize that ceteris paribus rent-generating diversification strategies will be unique rather than common.

Uniqueness is, however, only a necessary, not a sufficient, condition for above-normal returns (MacDonald and Ryall 2002). A strategy must also add value in the sense defined by Brandenburger and Stuart (1996), which requires that the strategy create more value than that of its rivals by either improving the firm’s products or lowering its costs. Clearly, unique strategies can be either good or bad from a corporate cash-flow perspective, and many have argued that corporate diversification is value destroying rather than value creating. In particular, there is a substantial body of literature in the finance area suggesting that diversified firms trade at a discount in the capital markets relative to focused firms (Lang and Stulz 1994; Berger and Ofek 1995; Servaes 1996). These results are interpreted to imply that firms with unique strategies, which by definition are more diversified relative to their peers than firms with common strategies,

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3 The theoretical argument that diversification destroys value rests primarily on the hypothesis that managers use their information advantage over investors to pursue projects that are in their own private interests rather than the shareholders’. Among the hypothesized benefits that managers pursue through diversification are a reduction non-diversifiable employment risk (Amihud and Lev 1981; Jensen 1986; Shleifer and Vishny 1989).

4 Note that the agreement about the presence of a diversification discount is far from unanimous. The best studies to date, which correct for a number of sample selection biases and problems in reported data, find very small negative and even positive ‘discounts’ (see Villalonga 2003 for a recent survey of this literature).
trade at a discount because they are expected to be poorer performers. In essence, diversification is taken by the market as a signal of significant agency costs that reduce the value of the firm to shareholders.

Such a conclusion, however, rests upon the assumption that the capital market’s valuation of the firm is an unbiased estimate of the firm’s underlying value (that is, based on its operating profitability). We will argue below that there are compelling reasons to believe that the market’s valuation of firms with unique strategies is biased downward because they attract less analyst coverage. Hence, a diversification discount is actually consistent with our hypothesis. If diversified firms do indeed attract less analyst coverage, then we would expect Tobin’s $q$, a common measure used to detect the diversification discount, to be lower for diversified firms than for their more focused peers. Therefore, we think it is premature to conclude that the diversification discount indicates that diversification strategies are value destroying.

Note that there is also a significant body of literature that indicates that diversified firms are more, not less profitable on an accounting basis than focused firms. These studies, dating from Rumelt (1974), indicate that firms that are diversified in a ‘coherent’ or ‘related’ fashion have higher returns on invested capital (Rumelt 1982), have higher price-cost margins (Rhoades 1973, 1974), and higher returns on sales (Palepu 1985). More recent work using better, more comprehensive data at the plant level indicates that diversified firms are also generally more efficient than less diversified firms, as measured by total factor productivity (Schoar 2002). The implication is that, on average, diversification is a good rather than a bad thing for value appropriation by the firm, as distinct from value appropriation by shareholders. Overall, we think that there is no clear basis to conclude that diversification is systematically value destroying rather than value creating at the firm level, in particular in the current era when managers face much stronger incentives to maximize share prices.

**Analyst Coverage and Strategy Uniqueness**

Analysts face a number of different incentives when deciding whether or not to cover a firm. Although the current dialogue in the popular press has focused almost exclusively on the benefits analysts receive by helping their investment-bank employers
earn underwriting fees on equity securities,\(^5\) we are primarily concerned with the cost side of their coverage decisions. These less scandalous disincentives to cover firms reflect the additional effort that is required to investigate a costly-to-analyze firm. An analyst’s report pushing for the break-up of Monsanto’s portfolio of related businesses reveals some of these incentives:

Proper analysis of Monsanto requires expertise in three industries: pharmaceuticals, agricultural chemicals and agricultural biotechnology. Unfortunately, on Wall Street, particularly on the sell-side, these separate industries are analyzed individually because of the complexity of each. This is also true to a very large extent on the buy-side. At PaineWebber, collaboration among analysts brings together expertise in each area. We can attest to the challenges of making this effort pay off: just coordinating a simple thing like work schedules requires lots of effort. While we are willing to pay the price that will make the process work, it is a process not likely to be adopted by Wall Street on a widespread basis. Therefore, Monsanto will probably have to change its structure to be more properly analyzed and valued.\(^6\)

The foregoing quotation highlights the presence of increasing returns to specialization in the production of financial analysis. Such specialization leads investment banks to organize their financial analysis along existing industry lines and makes it more difficult for analysts to assess the prospects of an entrepreneurial firm whose strategy combines businesses in unique ways and diverges significantly from those of its industry peers. There is already some empirical support for this conclusion. Bhushan (1989), for example, shows that the number of analysts covering a security declines as the total number of SICs in which a firm operates increases. The explanation provided is that, as the number of business lines increases, the analysts’ costs of acquiring information about the security increases more rapidly than the benefits of the information

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\(^5\) The *New York Times*, for example, reports that Jack Grubman, a highly influential analyst who is now under criminal investigation for his buy recommendations of several now-bankrupt telecommunications companies, received compensation of nearly $20m a year (18 July 2002) during a period when his employer, Citigroup, was generated over $800m in underwriting fees in that industry (25 April 2002). More recent accounts of the perquisites received by Mr Grubman for his role in Citigroup’s efforts to sell underwriting services to AT&T border on the farcical—in his efforts to gain admission for his children to a prestigious Manhattan preschool, Mr Grubman allegedly received help from Sanford Weill, the CEO of Citigroup, in exchange for an upgrade in his recommendation regarding the stock of AT&T.

gained, leading analysts to elect not to cover highly diversified firms. In our empirical analysis we seek to refine this result by looking for evidence that, after controlling for the sheer number of business lines, firms with unique strategies systematically receive less coverage.

To summarize, we think that it is reasonable to assume that managers evaluate strategies at least in part based on the effect the strategy will have on the price of their firms’ equity shares and that, as a result, they must consider analyst coverage in their strategy choice. More formally, let $V(P,C)$ be the value of a firm as a function of its performance, $P$, and the level of coverage it receives, $C$. The existing literature on the relationship between stock prices and analyst coverage indicates that $\frac{\partial V}{\partial C} > 0$. That is, more coverage should increase the price of a firm’s shares, and thus managers have an incentive to increase the number of analysts following their firms. We also think that the case can be made, at least at a theoretical level, that managers who seek to maximize their firm’s future cash flows prefer unique strategies to commonplace strategies because the former meet the necessary condition for above-normal returns while the latter do not. That is, if $d$ is a measure of the uniqueness of the firm’s strategy and $P(d)$ is its performance as a function of this uniqueness, then $\frac{\partial P}{\partial d} > 0$. Therefore, if we can show that analysts prefer commonplace strategies to unique strategies, that is, $\frac{\partial C}{\partial d} < 0$, we can provide evidence that is at least consistent with our hypothesis that financial markets do indeed constrain manager’s corporate strategy in ways that may be inconsistent with maximizing long term operating performance.

Data

For our analysis we construct an 11-year panel dataset from information about firms and their analyst following using the CRSP Monthly Files, the combined CRSP-Compustat database and the I/B/E/S Detailed History and Summary Datasets. Since there is no extant list of all publicly traded companies that are available for coverage by sell-side analysts, we construct our sampling frame from all AMEX, NYSE, and NASDQ

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7 I/B/E/S International Inc. is a unit of Thomson Financial and collects analysts’ estimates and research for institutional investors. It is available to researchers through the Wharton Research Data Services.
firms for which there exists transaction data in at least one of the CRSP Monthly files for the years 1990 to 2000. The 8-digit cusips numbers\(^8\) for these securities were then used to pull performance and segment data from the CRSP-Compustat combined datasets for the years 1985 to 2000 and analyst coverage data from the I/B/E/S Detailed history file. Our data on analyst coverage contains approximately one million firm-forecasts-date observations for firms traded on the AMEX, NYSE, NASDQ between 1990 and 2000. An analyst is considered to cover a firm in our sample frame in year \(t\) if he or she issued at least one earnings forecast for that firm in year \(t\), as determined by the date on which the forecast was made, regardless of the period that the analyst forecasts.

In the sample, we have approximately 45,000 observations on 7,747 unique firms. The mean number of yearly observations per firm is approximately 4.4. In each year, between 43% and 57% of the firms in our sample are covered by at least one analyst (Table 1). Among covered firms, the mean number of analysts per firm each year is between 7.0 and 8.2, with the maximum number of analysts covering a firm between 44 and 59. At the other extreme, approximately 10% of all firms that receive coverage in each year are covered by only one analyst each. Across the 400 industries represented in the data, the mean number of analysts covering at least one firm in the industry is 63, and each firm in that industry receives coverage from approximately 26% of the analysts covering that industry.

Our primary interests are two-fold. First, we wish to examine whether or not a firm’s strategy choice affects the level of coverage it receives. And second, we would like to determine whether or not the amount of coverage that the firm receives affects the stock market’s valuation of the firm, and in particular, whether or not firms with unusual strategies trade at a discount because of the lower coverage they receive.

**Coverage and Firm Strategy**

In regards to coverage levels, we hypothesize that unique strategies are harder to analyze and hence, *ceteris paribus*, are less attractive to analyze than firms with more familiar strategies. More specifically, we model the coverage level received by a firm using the following stylized model of analyst behavior. Define \(X\) as a vector of aspects of firm \(i\) that are believed to affect the costs and benefits to the analyst/brokerage firm.

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\(^8\) A cusip number consists of a 6-digit alpha-numeric character string that uniquely identifies the issuer of publicly traded securities and a 2-digit issuer code that uniquely identifies the specific security issued by the issuer.
from covering the firm. Define $D_{ik}$ as the uniqueness of firm $i$’s strategy relative to the strategies of the other firms considered for coverage by analyst $k$. Finally, define

$$U_{ik} \equiv \beta_0 + \beta_1 X_i + \beta_2 D_{ik} + u_{ik}$$

as the net benefit that analyst $k$ obtains when covering firm $i$, in which $u_{ik}$ is a disturbance term that incorporates analyst $k$’s idiosyncratic benefit from covering firm $i$. With this specification, analyst $k$ covers firm $i$ whenever $U_{ik} > 0$ and we have a multivariate discrete choice problem. Assume for simplicity that, $u_{ik} = \varepsilon_i + v_k$ and is uncorrelated both within and across indices. We can then take the expectation of $U_{ik}$ across all relevant $k$ to obtain the average benefit that an analyst will obtain from covering firm $i$:

$$U_i \equiv \beta_0 + \beta_1 X_i + \beta_2 E_k[D_{ik}] + \varepsilon_i \quad 1.0$$

If we assume that the firm-specific disturbance term $\varepsilon_i$ is i.i.d. across $i$ with some known distribution $F(\varepsilon_i)$, then the probability that firm $i$ is covered by an analyst is:

$$\Pr(\varepsilon_i > \beta_0 + \beta_1 X_i + \beta_2 E_k[D_{ik}]) = 1 - F(\beta_0 + \beta_1 X_i + \beta_2 E_k[D_{ik}]) \quad 2.0$$

If there are $A_j$ analysts covering industry $j$, then we can use Equation 2.0 to generate

$$a_i = A_j (1 - F(\beta_0 + \beta_1 X_i + \beta_2 E_k[D_{ik}])),$$

the number of analysts that find it attractive to cover firm $i$. Dividing both sides by $A_j$, we obtain:

$$\frac{a_i}{A_j} = (1 - F(\beta_0 + \beta_1 X_i + \beta_2 E_k[D_{ik}])),$$

as firm $i$’s share of the analysts covering industry $j$.

With this simple specification and the additional assumption that $F(\varepsilon_i)$ is the standard normal distribution, it is relatively straightforward to estimate the parameters in $\beta = (\beta_0, \beta_1, \beta_2)$ using the maximum likelihood method the share of analysts covering a firm as the dependent variable. Note, however, that there a small number of industries each year for which the firms in that industry receive no coverage. For firms in these
industries, we assume that 
\[ F(\beta_0 + \beta_1 \mathbf{X}_i + \beta_2 \mathbb{E}[D_{ik}]) \geq 0 \] 
so that our dependent variable for coverage level becomes:

\[ \text{COVSHARE}_i = \begin{cases} 
0 & \text{if } A_j = 0 \\
\frac{a_i}{A_j} & \text{if } A_j > 0 
\end{cases} \]

In equation 2.0, the variable \( \mathbb{E}[D_{ik}] \) is a measure of the average rarity of firm \( i \)'s strategy, with the average taken across all analysts. Our conversations with the analysts community suggest that analysts generally have an industry specialization and hence, consider only firms in a subset of the publicly traded firms. For this reason, we measure the familiarity of a firm’s strategy relative to other firms in its primary sic. Specifically, we begin by constructing a measure of the “typical” strategy of all firms that list sic \( j \) as their primary sic by creating an \( s \)-length row vector for all firms listing \( j \) as their primary sic. The elements 1, 2, 3… \( s \) of this vector for each firm are equal to the mean sales across all firms in industry \( j \) in each of the \( s \) sics that appear among the segment data for each of the firms in primary industry \( j \). The uniqueness of each firm’s strategy is then measured as the Euclidian distance, \( d \), between the industry centroid and an \( s \)-element vector constructed from the firm sales in each of the \( s \) sics that are observed in the industry.

This Euclidian distance is then standardized in the following way:

\[ \text{DIST}_i = \begin{cases} 
0 & \text{if } \frac{1}{N_j} \sum_i d_i = 0 \\
\frac{d_i}{\frac{1}{N_j} \sum_i d_i} & \text{if } \frac{1}{N_j} \sum_i d_i \neq 0 
\end{cases} \]

with \( N_j \) equal to the number of firms in industry \( j \). Thus, the variable \( \text{DIST}_i \) is a measure of the uniqueness of a firm \( i \)'s strategy relative to the average distance of its peers in primary industry \( j \).

As a way of addressing the fact that some industries receive no coverage at all, we also calculate the variable:

\[ \text{AVGDIST}_i = \frac{\frac{1}{N_j} \sum_i \text{DIST}_i}{\sum_j \frac{1}{N_j} \sum_i \text{DIST}_i}, \]

which is a measure of the mean level of dispersion in each industry relative to the mean across all industries in a given year. We expect that firms in industries with a higher than average standardize mean distance from the industry centroid will receive less coverage because the firms in these industries are inherently more idiosyncratic and
hence, offer fewer opportunities for using the expertise gained in analyzing one firm in the industry to analyze other firms.

Note that the industry centroid strategy used in both strategy measures is not meant to portray the most “familiar” strategy in the industry. Rather, it is simply a reference point against which to compare the strategies of all the firms in the industry. A simple example will best illustrate this point. Suppose that there are two firms, A and B, in industry \( j \), each of which has the same sales volume, \( s_j \) in industry \( j \). Suppose that both firm A and B are also active in two other sic's, 1 and 2, and that they have \( s_{A1}, s_{A2}, s_{B1}, \) and \( s_{B2} \) in sales in these two industry. To further simplify the example assume that \( s_{A1} = s_{A2} = s_{B1} = s_{B2} = s \) so that the industry’s centroid strategy is \( (s_j, s, s) \). Since this vector is the same as the vectors characterizing each of the firm’s strategy, the Euclidian distance between each firm and the centroid is equal to 0, and the mean distance is also equal to zero, implying that \( \text{DIST}_A = \text{DIST}_B = 0 \). That is, the strategy’s of firms A and B are commonplace in the extreme.

Now suppose that firm A has \( s_{A1} \) in sales in sic 1 but none in sic 2, and that firm B has no sales in sic 1 but \( s_{B2} \) in sales in industry 2. Again, to simplify the example assume that \( s_{A1} = s_{B2} = s \). The centroid of the industry would then be the vector \( (s_j, s/2, s/2) \) and the Euclidian distance of each firm from this centroid would be \( d = \sqrt{2(s/2)^2} \). Since both firms are equidistant from the centroid, the mean distance among all firms would also be \( d \), and our measure of the uniqueness of each firm would be \( \text{DIST} = d/d = 1 \). The implication is that both firms are somewhat unique, relative to the firms in the first example. However, relative to each other, they are equally familiar from the perspective of an observer of industry \( j \). Therefore, the variable DIST provides a useful summary of the uniqueness of a firm’s strategy both within and across industries.

As control variables in our analysis, we include several firm-specific factor that have been identified either empirically or theoretically as affecting the costs and benefits of coverage from the analysts perspective. Following the example of Barth, Kaznick and McNichols (2001) and Bushan (1989) we include the variables for each firm’s 3 to 5 year compound annual growth rate in sales (GROWTH), the log of its annual trading volume in its shares (LNVOL), the coefficient of variation of its earnings over the last 3 to 5 years (EVAR), a dummy variable indicating whether or not the firm has issue or retired equity or long term debt in years \( t-1, t, \) or \( t+1 \) (IB), the number of firms in the focal firm’s
primary sic (NFIRMS), and the log of total number of reported segments (LNSEGS). In addition, we include the log of the number of shareholders (LNSH), shares outstanding (LNS) and common equity for the firm (LNCE).\footnote{Barth, Kaznick and McNichols (2001) include the log of market value (which is equivalent to including log(price)+log(shares)) in their regressions as well as several measures of the relative level of intangible assets possessed by the firm. We chose not to use market value in our regressions because the firm’s stock price is endogenous to the level of analyst coverage under the hypotheses we are examining in this paper. We excluded the intangible asset variables because only a small subset of firms in the data report the necessary data for calculating these variables.} Finally, we include variables measuring the firm’s return on average equity (ROAE), the sales-weighted average of the Herfindahl concentration index (HERF) for all the sics in which the firm operates, and a sales-weighted average of its share of the sales in each of the industries in which it operates (SHARE).

**Results**

As a base case, we ran an OLS regression of COVSHARE on the strategy variables, DIST, and AVGDIST, the independent variables describe in the previous section, and year dummies, allowing for correlation across the yearly observations for each firm, but assuming independence across firms. The results (Table 2) are generally consistent with our hypotheses about the relationship between analyst behavior and firm strategy. First, the coefficients for both DIST and AVGDIST are negative as predicted, with the former statistically different from zero at a confidence level of greater than 99%. The implication is that firms with usual strategies relative to their peers in their primary industry attract less analyst coverage. Surprisingly, the coefficient for LNSEGS is not significant, although its sign is negative as expected.

The signs and significances of the coefficients for our control variables are generally consistent with our description of the analyst's coverage decision. Larger firms, as measured by their common equity (LNCE), firms that are traded more heavily (LNVOL), and firms that are widely held (LNSH) receive more coverage. It is also the case that firms that have a larger presence in the segments in which they operate (SHARE) receive more coverage, although when they have a lot of market power (HERF) they receive less coverage. Their general level of profitability (ROAE), however, has no affect the level of coverage they receive. The coefficients for GROWTH, NFIRMS and LNS, are negative and statistically significant, which would seem to suggest that that faster growing firms, firms in larger industries, and firms with
more shares outstanding receive less, rather than more coverage. Finally, there is no indication that contemporaneous investment banking activity (IB) had any effect on the level of coverage.

To control for unobserved firm and industry effects that might be correlated with our regressors, we ran a second regression including both firm and industry fixed effects. The signs of both our strategy uniqueness measure are again negative, but only AVGDIST is statistically significant in a two-tailed test at standard confidence levels. The t-statistic for the coefficient for DIST is only 1.35, indicating that we can reject the null hypothesis of no effect at a confidence level of only 91%, in one-sided t-test. The signs and coefficients of our control variables in this second regression are also more consistent with intuition developed above. The signs and significance of LNVOL, SHARE, and LNCE are all positive and significant as before. However, the coefficients for GROWTH and IB are both positive and significant at a high confidence level, while the coefficient for LNSEGS is now negative and significant. The weaker results for the DIST variable in this regression are not surprising given the manner in which we are measuring strategy uniqueness. As noted above, we construct this measure using all firms in the focal firm’s primary sic, which includes a large number of firms that are not covered at all. Since we are trying to assess the uniqueness of the firm’s strategy in the eyes of an analyst, this measure may not be accurately characterizing the firm’s strategy relative to the industry expertise of the analyst community, which should be more highly correlated with the strategies of the covered firms in the industry. Indeed, this variable might be a better measure for assessing the uniqueness of the firm’s strategy from the perspective of the market. In future analyses, we plan to develop distance measures relative to both an analyst-based and broker-based centroids, which we anticipate will provide much stronger results.

Firm Value and Analyst Coverage

To examine the relationship between analyst coverage and firm value, we ran regressions of Tobin’s q on our analyst coverage measure and a set of regressors generally shown to correlate with Tobin’s q. For each firm, our dependent variable was an industry-adjusted Tobin’s q, which we calculated the market value of the firm divided by its book value less the industry median market to book value for its primary sic. Following Kaplan and Zingales (1997), we calculate the market value of the firm i in year t as:

\[ \text{Market Value}_{it} = \frac{MV_{it}}{BV_{it}} \]

where

- \( MV_{it} \) is the market value of firm i in year t
- \( BV_{it} \) is the book value of firm i in year t

The industry median market to book value is then subtracted from this value to obtain the industry-adjusted Tobin’s q.
\[ MV_{it} = \text{total assets}_{it} - \text{common equity}_{it} + \text{price}_{it} \times \text{shares outstanding}_{it} + \text{deferred taxes}_{it} \]

and divide by total assets to obtain the Tobin’s q for the firm. To reduce the effect of cross industry differences in accounting practices and leverage, we adjust these values by subtracting the median Tobin’s q for the year for all firms in firm \( i \)’s primary sic. This results in our dependent variable, ADJTQ.

In our base case, we ran a standard OLS regression of ADJTQ on all the regressors we include as control variables in our coverage regressions and again allow for correlation among the observations for individual firms (Table 3). In this regression, the coefficient for COVSHARE is positive and significant as predicted. The implication is that firms which receive more coverage trade at a higher premium relative to firms receiving less coverage. In addition, the coefficients for GROWTH, LNVOL, ROAE, and LNS are all positive and statistically significant from zero, indicating that the assets of firms that are growing faster, have higher profits, and have shares that are traded more heavily are valued more highly than slower growing, less profitable and smaller firms. These results are broadly consistent with other work looking at Tobins q as a measure of firm value. Interestingly, our results also suggest that firms that are in more segments are valued less by the market, a result consistent with the diversification discount literature in strategy and finance.\(^{10}\) Since neither of our strategy uniqueness measures is significant, it would appear that diversification \( \text{per se} \) leads to lower valuations. If strategy uniqueness matters to firm valuation, it is an indirect effect that works through the amount of coverage the firm receives.

To further examine the effects of analyst coverage on valuation and to specifically control for the possibility that firm valuation and analyst coverage are codetermined by some unobservable attribute of the firm that is correlated with our regressors, we ran two additional specifications. In the first, we ran a two-stage least squares instrumental variables regressions of ADJTQ on the predicted values of COVSHARE, with IB and NFIRMS excluded from the second stage regression (Table 3, column 2). In this regression, the coefficient for COVSHARE is still positive but not significant using

\(^{10}\) The correlation between LNSEGS and the concentric measure of diversification used in several studies of the diversification discount is approximately .88 for our sample, indicating that this measure of diversification adds very little additional information about the nature of a firm’s diversification.
standard confidence interval in a one-tailed test ($p=.1$). Note, however, that its size is an order of magnitude more positive than in the simple OLS regressions. The signs and significance of our control variables are generally the same as in base case, with two exceptions. The coefficients for LNVOL and HERF are no longer significant, although their signs remain unchanged.

In our final regression, we included firm fixed effects in the second stage of the IV regression (Table 3, column 3). With the inclusion of the firm fixed effects, we are now testing whether changes in COVSHARE overtime within firms affect firm valuation. The coefficient for COVSHARE now becomes statistically significant primarily because its size increases by approximately 60% (5.0 versus 3.4). The coefficient for LNVOL is again statistically significant and of approximately the same magnitude as it was in the simple OLS regression. Of note, the coefficient for LNSEGS is no longer significant. We think this is an intriguing result because it suggests that there is actually not a direct effect of diversification on firm value *per se*. Rather, diversified firms trade at a discount because they receive less analyst coverage. To the extent that we effectively control for the effects of changes in operating performance that might occur from diversification, our results support the conclusion that diversification is in part discounted because diversified firms are simply more costly to evaluate.

**Discussion and Conclusions**

To summarize the results of our regression analysis, we find two key effects. First, firms with unusual strategies generally receive less analyst coverage than those with more familiar strategies. Although the results are generally weaker when we control for firm fixed effects, we can, nonetheless, reasonably conclude that as firms move further away from the strategies of their peers in their primary industry, they receive less coverage. In addition, this effect appears to be in addition to the consistently negative effect that diversification in general has on the level of coverage that the firm receives. Second, firms that receive less coverage also have lower valuations than those that receive more coverage. Moreover, the effect of a reduction in coverage after controlling for the likelihood that both coverage and value are correlated with unobserved firm effects is quite pronounced in magnitude. Holding all other variables constant, an increase in coverage by one analyst, the equivalent of increasing its share of the analysts from a mean of 10% to 12%, increases the firm’s Tobin’s q by approximately .07. For a
firm with $100 million in assets at book value, the increased coverage would add $7 million to its market value, suggesting that the returns to courting analysts are quite high.

Returning to our original question of whether managers choose strategies with an eye towards the reactions of the analyst community, our results indicate that they do. Recall that in our simple specification of the firm’s behavior, we hypothesized that managers consider two effects on the market value, \( V \), of their firms when choosing how unique to make their strategy: the effect of uniqueness on overall firm performance, \( P(d) \) and the effect of uniqueness on the level of coverage they obtain, \( C(d) \). Thus, the manager chooses the uniqueness of their strategy, \( d \), such that

\[
\frac{\partial V}{\partial d} = \frac{\partial V}{\partial P} \frac{\partial P}{\partial d} + \frac{\partial V}{\partial C} \frac{\partial C}{\partial d} = 0
\]

Our results indicate that \( V(P(d), C(d)) \) is increasing in \( C(d) \) and that \( C(d) \) is decreasing in \( d \). As a result, the second two terms in this first-order condition produce a negative number, implying that \( \frac{\partial V}{\partial P} \frac{\partial P}{\partial d} \) must be positive. Since it is all but axiomatic that better performing firms have higher valuations, our results suggest that \( \frac{\partial P}{\partial d} \) is also positive on average, and hence, that firms following unique strategies do outperform, on average, those that are following more familiar strategies.\(^{11}\)

Our results thus confirm that managers face a clear paradox in choosing strategy. While uniqueness is a necessary condition for value creation, as measured by expected future operating performance, uniqueness in strategy also mandates more costly expenditures to evaluate strategy. If analysts (or the investment banks which assign analysts) are not rewarded in ways that overcome these greater costs associated with evaluating unique strategy, then capital markets will yield a uniqueness discount. The strong link between investment banking business and analyst rewards suggests that at best analysts face a multi-tasking problem when allocating effort to accuracy in analysis of strategies. While accurate and thorough analysis yields some positive returns to

\(^{11}\) Of course, we can’t rule out the possibility that \( V(P(d), C(d)) \) is not concave in \( d \). Nonetheless, we think our results are intriguing enough to warrant more thorough theoretical and empirical work on the degree to which the stock market’s valuation of a firm is biased by the reaction of the intermediaries that contribute to the information pool on which these valuations are based. In particular, we think that many of the conclusions drawn from work on the value destroyed (or imparted) by diversification need to be revisited and reconsidered, taking do regard to the possibility that the valuation of firms in the financial markets, the basis upon which most of this literature rest, are biased against unusual strategies.
analysts and investment banks, the capacity to draw investment banking business through coverage choices and analysis has been and continues to be a stronger financial motivation. Thus, capital markets may systematically discount the most important element required for value creation. The result is that managers make strategy choices that, at the margin, are more common than they would be if the manager were simply choosing strategies that maximize the discounted present value of expected long term operating performance.
<table>
<thead>
<tr>
<th>Year</th>
<th>Firms</th>
<th>Covered</th>
<th>Mean Coverage</th>
<th>Maximum Coverage</th>
</tr>
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<tr>
<td>1990</td>
<td>5,749</td>
<td>1,907</td>
<td>6.5</td>
<td>47</td>
</tr>
<tr>
<td>1991</td>
<td>5,973</td>
<td>1,994</td>
<td>6.4</td>
<td>46</td>
</tr>
<tr>
<td>1992</td>
<td>6,422</td>
<td>2,231</td>
<td>6.2</td>
<td>44</td>
</tr>
<tr>
<td>1993</td>
<td>7,540</td>
<td>2,625</td>
<td>6.2</td>
<td>50</td>
</tr>
<tr>
<td>1994</td>
<td>7,893</td>
<td>3,044</td>
<td>6.2</td>
<td>48</td>
</tr>
<tr>
<td>1995</td>
<td>8,417</td>
<td>3,196</td>
<td>6.1</td>
<td>46</td>
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<tr>
<td>1996</td>
<td>8,202</td>
<td>3,668</td>
<td>5.9</td>
<td>54</td>
</tr>
<tr>
<td>1997</td>
<td>7,974</td>
<td>3,968</td>
<td>6.0</td>
<td>51</td>
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<td>1998</td>
<td>7,741</td>
<td>4,075</td>
<td>6.3</td>
<td>50</td>
</tr>
<tr>
<td>1999</td>
<td>7,522</td>
<td>3,921</td>
<td>7.1</td>
<td>52</td>
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<tr>
<td>2000</td>
<td>7,337</td>
<td>3,924</td>
<td>7.2</td>
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Table 2: Regressions on COVSHARE

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<tr>
<th></th>
<th>OLS</th>
<th>OLS</th>
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<tr>
<td>GROWTH</td>
<td>-0.0001*</td>
<td>0.0001***</td>
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<tr>
<td></td>
<td>(0.00003)</td>
<td>(0.00002)</td>
</tr>
<tr>
<td>LN VOL</td>
<td>0.0294***</td>
<td>0.0134***</td>
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<tr>
<td></td>
<td>(0.00148)</td>
<td>(0.00086)</td>
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<tr>
<td>IB</td>
<td>0.0011</td>
<td>0.0073**</td>
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<tr>
<td></td>
<td>(0.00548)</td>
<td>(0.00326)</td>
</tr>
<tr>
<td>EVAR</td>
<td>0.0000***</td>
<td>0.0000</td>
</tr>
<tr>
<td></td>
<td>(0.00000)</td>
<td>(0.00000)</td>
</tr>
<tr>
<td>NFIRMS</td>
<td>-0.0002***</td>
<td>-0.0002***</td>
</tr>
<tr>
<td></td>
<td>(0.00003)</td>
<td>(0.00003)</td>
</tr>
<tr>
<td>ROAE</td>
<td>0.0001</td>
<td>0.0000</td>
</tr>
<tr>
<td></td>
<td>(0.00005)</td>
<td>(0.00003)</td>
</tr>
<tr>
<td>HERF</td>
<td>-0.0883***</td>
<td>0.0039</td>
</tr>
<tr>
<td></td>
<td>(0.01291)</td>
<td>(0.00599)</td>
</tr>
<tr>
<td>SHARE</td>
<td>0.2185***</td>
<td>0.0551***</td>
</tr>
<tr>
<td></td>
<td>(0.01580)</td>
<td>(0.00655)</td>
</tr>
<tr>
<td>LNSEGGS</td>
<td>-0.0056</td>
<td>-0.0038*</td>
</tr>
<tr>
<td></td>
<td>(0.00399)</td>
<td>(0.00203)</td>
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<tr>
<td>LNS</td>
<td>-0.0087***</td>
<td>-0.0019</td>
</tr>
<tr>
<td></td>
<td>(0.00228)</td>
<td>(0.00157)</td>
</tr>
<tr>
<td>LNSH</td>
<td>0.0021*</td>
<td>-0.0013</td>
</tr>
<tr>
<td></td>
<td>(0.00116)</td>
<td>(0.00095)</td>
</tr>
<tr>
<td>LNCE</td>
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<td>0.0130***</td>
</tr>
<tr>
<td></td>
<td>(0.00106)</td>
<td>(0.00094)</td>
</tr>
<tr>
<td>DIST</td>
<td>-0.0012***</td>
<td>-0.0003</td>
</tr>
<tr>
<td></td>
<td>(0.00032)</td>
<td>(0.00019)</td>
</tr>
<tr>
<td>AVGDIST</td>
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<td>-0.0004**</td>
</tr>
<tr>
<td></td>
<td>(0.00026)</td>
<td>(0.00019)</td>
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Fixed Effects: No, Yes
Year Effects: Yes, Yes
Industry Effects: Yes, Yes
45,619 observations

*** $p<.01$
** $p<.05$
* $p<.10$
Table 3: Regressions on ADJTQ

<table>
<thead>
<tr>
<th>ADJTQ</th>
<th>OLS</th>
<th>IV</th>
<th>IV with Firm Fixed Effects</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>COVSHARE</td>
<td>0.371***</td>
<td>3.383</td>
<td>5.032*</td>
</tr>
<tr>
<td></td>
<td>(0.077)</td>
<td>(2.664)</td>
<td>(2.776)</td>
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<tr>
<td>GROWTH</td>
<td>0.002***</td>
<td>0.002***</td>
<td>-0.003***</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>LNVOL</td>
<td>0.204***</td>
<td>0.114</td>
<td>0.251***</td>
</tr>
<tr>
<td></td>
<td>(0.011)</td>
<td>(0.079)</td>
<td>(0.041)</td>
</tr>
<tr>
<td>IB</td>
<td>-0.079</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>(0.058)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVAR</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFIRMS</td>
<td>-0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td></td>
<td></td>
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<tr>
<td>ROAE</td>
<td>0.006***</td>
<td>0.005***</td>
<td>0.001**</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.001)</td>
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<tr>
<td>HERF</td>
<td>-0.291***</td>
<td>-0.041</td>
<td>-0.303</td>
</tr>
<tr>
<td></td>
<td>(0.103)</td>
<td>(0.242)</td>
<td>(0.122)</td>
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<tr>
<td>SHARE</td>
<td>0.006</td>
<td>-0.635</td>
<td>-0.279</td>
</tr>
<tr>
<td></td>
<td>(0.098)</td>
<td>(0.576)</td>
<td>(0.203)</td>
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<tr>
<td>LNSEGS</td>
<td>-0.123***</td>
<td>-0.111***</td>
<td>-0.068</td>
</tr>
<tr>
<td></td>
<td>(0.028)</td>
<td>(0.031)</td>
<td>(0.043)</td>
</tr>
<tr>
<td>LNS</td>
<td>0.579***</td>
<td>0.605***</td>
<td>0.295***</td>
</tr>
<tr>
<td></td>
<td>(0.019)</td>
<td>(0.030)</td>
<td>(0.033)</td>
</tr>
<tr>
<td>LNSH</td>
<td>-0.042***</td>
<td>-0.048***</td>
<td>-0.087***</td>
</tr>
<tr>
<td></td>
<td>(0.010)</td>
<td>(0.012)</td>
<td>(0.020)</td>
</tr>
<tr>
<td>LNCE</td>
<td>-0.449***</td>
<td>-0.515***</td>
<td>-0.465***</td>
</tr>
<tr>
<td></td>
<td>(0.010)</td>
<td>(0.059)</td>
<td>(0.041)</td>
</tr>
<tr>
<td>DIST</td>
<td>-0.006</td>
<td>-0.002</td>
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<tr>
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<td>(0.004)</td>
<td>(0.005)</td>
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</tr>
<tr>
<td>AVGDIST</td>
<td>0.001</td>
<td>0.003</td>
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</tr>
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<td>(0.005)</td>
<td>(0.005)</td>
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</tr>
<tr>
<td>CON</td>
<td>0.911***</td>
<td>0.897***</td>
<td>0.638***</td>
</tr>
<tr>
<td></td>
<td>(0.242)</td>
<td>(0.247)</td>
<td>(0.160)</td>
</tr>
</tbody>
</table>

Year Effects: Yes, Yes, Yes
Industry Effects: Yes, Yes, Yes

45,619 observations

*** p<.01
** p<.05
*   \( p < .10 \)
References


