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Corporate Strategy, Analyst Coverage, and the Uniqueness Discount

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October 20, 2005

*We thank Rich Frankel, Bart Hamilton, Rob Solomon, Bernie Yeung, Garrick Blalock, and seminar participants at NYU, USC, and Cornell for helpful comments and suggestions in preparing this manuscript.

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Abstract

In this paper we argue theoretically and empirically that capital markets systematically discount uniqueness in the strategy choices of firms. Uniqueness in strategy heightens the cost of collecting and analyzing information to evaluate a firm's future value. These greater costs in strategy evaluation discourage the collection and analysis of information regarding the firm and result in a valuation discount. If empirically true, this result is rather troubling since uniqueness or scarcity as defined in economics and in strategy is a necessary condition for creating economic rents and increasing firm value. We find empirical support for 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

In an efficient market for firms, rewarding managers based on equity values encourages strategy choices that raise value. Yet, the market's capacity to promote value-enhancing strategies depends on the market's capacity to efficiently incorporate information about strategy choices into price. Such choices differ in the information costs they impose on the market. Thus, some strategies are easily evaluated and examined, while others, particularly strategies which are more unique or complex, are quite difficult and costly to evaluate and assess. We contend that the higher information costs that accompany the evaluation and analysis of unique or complex strategies restrict information to the market. In particular, securities analysts which engage in strategy evaluation may systematically avoid coverage of these securities. We argue that this restricted information elevates uncertainty about the stock, and all else equal generates a valuation discount.

If capital markets systematically discount complex or unique strategies, as we argue and empirically conclude, then managers face a clear paradox in selecting strategy. Strategy choice involves searching for economic rents—rents which fundamentally derive from scarcity or uniqueness (Bowman , 1974; Rumelt, 1984; Barney, 1986; Montgomery and Wernerfelt, 1988; Brandenburger & Stuart, 1996). Indeed, economic rents are defined as "reward[s] for scarcity of superior efficiency that …vanish as [they become] common…." (Becker, 1971:77). Whether at the level of business or corporate strategy, if strategies are common or easily understood, competition within product markets or competition in factor markets for the resources to execute the strategy, eliminate economic rents (Barney 1986). Common business strategies ensure perfect

competition in product markets. With corporate strategy, value creation requires the manager to identify non-obvious synergies between two previously unconnected businesses. If the synergies are obvious, the market for business units—a strategic factor market as defined in Barney (1986)—will incorporate these synergies into the prices paid for these business units. Thus, while the selection of unique strategy is necessary for the creation of economic value, it is precisely such strategies which are more costly for the market to evaluate and therefore potentially discounted.

Our objective in this paper is to both theoretically and empirically argue for the presence of a uniqueness or complexity discount in equity markets for firms. We specifically argue that the choice of unique or complex strategy heightens the costs of evaluating strategy. This heightened cost leads to systematically less coverage by securities analysts and a valuation discount. We empirically test these propositions 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. We find results consistent with a uniqueness discount: while unique strategies trade on average at a premium to common strategies, more unique strategies receive less analyst coverage, and this reduced analyst coverage creates a corresponding discount in market valuation.

Our paper is organized as follows. In the next section we outline a stylized, conceptual model of the relationship between firm strategy and equity value. Consistent with prior work in accounting and finance, we argue that analyst coverage positively influences equity value (Hong, Lim, & Stein, 2000; Elgers, Lo, & Soffer, 2001) and that strategy choice, particularly uniqueness and complexity, affects the costs of an analyst initiating coverage. Our third section describes the data and methods in modeling the effects of strategy choice on coverage and coverage on valuation. The fourth section

presents empirical results. The final section concludes with a brief summary and some directions for future research.

THEORY

Firm Strategy, Analyst Coverage, and Stock Prices

Like many models in the finance and accounting literature, our theory begins with the assumption that managers possess incentives to increase the equity value of the firms they manage. These incentives encourage managers to evaluate the likely impact of strategy choice on share price. We view this link between strategy choice and market valuation as a three-stage process. Managers first choose corporate strategies which range from the rather common to the extremely unique. Common strategies are those observed frequently among firms in an industry, while unique strategies are those rarely observed. Market participants, including analysts, then observe the selected strategy and, based on an assessment of costs and benefits, decide whether to invest in acquiring further information.

We operationalize market participant's choice to seek information using analysts' decisions whether or not to initiate coverage. For those firms selected for coverage, analysts then collect and evaluate relevant information and 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. Consequently, the more analysts who cover a firm, the more informed is the market for that firm's equity, i.e. the more accurate is the information about the future prospects of the firm and the lower is the uncertainty associated with investing in the firm. While a variety of factors may motivate analyst coverage (see Lin & McNichols, Michaely & Womack, 1999), empirical evidence generally confirms that increased

analyst coverage increases the informational efficiency of markets (Frankel, Kothari, and Weber, 2003; Hong, Lim, and Stein, 2000; Elgers, Lo, and Pfeiffer, 2001; Lys & Sohn, 1990). In a final stage, investors in the market review the available information about the firm, including reports issued by analysts, and then submit their 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. Hence, investors are willing to pay more for the equity securities if they are sold through intermediaries—the retail brokers—who provide more precise assessments of their value. 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 cover and thus receive featured "shelf space." 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.

A manager's choice of strategy therefore plays two critical roles. First, it defines the expected financial returns of the firm, including the mean and variance of the firm's future cash flows which in a fully efficient market with no costs of collecting information defines the firm's equity price. Second, the firm's strategy determines the costs that an investor or market intermediary faces in accurately predicting this mean and variance. When information is costly to obtain, information is likely to be limited in the market, thus creating greater uncertainty about a firm's value. A standard result of modern finance is that, when investors are risk-averse and unable to eliminate all firm-specific risk through diversification strategies, a feature of many models of rational trade in

financial securities (e.g. Hellwig 1980), the market discounts the values of higher risk firms (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 increase the equity value of the firm they manage.[1]

Strategy Choices and Analyst Costs

While a variety of factors influence the scope of analysis and coverage that a particular firm receives, our focus is on strategy choice, particularly the uniqueness or complexity of that strategy choice. Our assumption is that the scope of coverage for a particular security is a function of the costs and benefits of providing coverage. On the one hand, the adoption of a unique or complex strategy could arguably attract analyst coverage, because investors particularly value information precisely in those settings where information is costly to obtain. However, this argument presumes that analysts and the firms that employ them are strongly rewarded for satisfying investors' preferences for information gathering and analysis. The alternative hypothesis which we empirically explore is that the costs of covering more unique or complex strategy choices generally or frequently outweigh any added benefits to the analyst. While analysts or their employers bear the full cost of information collection, the benefits of accurate analysis are quite broadly shared. Consequently, as the costs of collecting and analyzing information about a firm's strategy rise, analyst coverage should decline.

[1] 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.[1]

The complexity and uniqueness of strategy choices shapes the associated costs of analysis. Thus, the number of distinct businesses in which the firm competes strongly influences the complexity of the analyst's task. In practice analysts specialize by industry to economize on the costs of information gathering and analysis (Zuckerman, 1999). If a firm competes in a range of industries, this increases the costs of coverage, because it either requires analysts to develop expertise in multiple industries or it requires coverage and collaboration among analysts across multiple industries. Prior empirical work suggests that an increase in the complexity of the analysts' task reduces the accuracy of their earnings forecasts (cites from Duru and Reeb, 2002; Brown, Richardson, and Schwager, 1987). Our suggestion here is that diversification increases the complexity of the analysts' task and the costs of analysis, which in turn causes the level of coverage itself to decline.

Firms pursuing unique or less familiar strategies are also more costly for analysts to evaluate. Like many other activities, securities analysis is an activity governed by economies of scale. A firm adopting a strategy common to an industry imposes a small incremental cost on the analyst who chooses to cover it, because the analyst has already made substantial investments in understanding the strategy, as pursued by others. By contrast, a firm with an unusual strategy may impose a large incremental cost on the analyst. These information costs of uniqueness may rise both with the uniqueness of business strategy and the uniqueness of corporate strategy, i.e. the particular combination of businesses in which the firm competes. Assessing the value of a unique collection of businesses not only requires an understanding of the separate industries in which each competes, but also an understanding of any complementarities or synergies that are generated through the combination. The more unique the combination assembled, the less likely it is that any given analyst will be familiar with these synergies. By

simplifying a complex strategy, or adopting a more common strategy, managers lower analysts' costs of coverage, thereby attracting coverage and escalating information available about their security.

A 1999 analyst report from Paine Webber pushing for Monsanto's break-up as a life sciences company provides a surprisingly candid revelation of these complexity- and uniqueness-related costs:

> The life sciences experiment is not working with respect to our analysis or in reality. 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.

The suggestion here is clear—analysts make coverage choices in part based on the effort required to provide that coverage. Moreover, this particular analyst implies that strategy choice should reflect the reality of these cost driven choices by analysts. The analyst here recommends that Monsanto unbundle so as to reduce analysis costs, thereby presumably promoting more extensive and precise analysis and ultimately higher valuation. Empirical evidence supports this prescription. Gilson, Healy, Noe, and Palepu (2001) find that focus-increasing transactions (spin-offs, carve-outs, and targeting stock offerings) increase analyst coverage and increase the accuracy of analysis. Similarly, Zuckerman (2000) finds evidence that firms engage in divestitures when there is a mismatch between the industry expertise of the analysts covering the firm and the breadth of industries in which the firm competes. Firms tend to reshape themselves to match the

expertise of the analysts providing coverage. Finally, Bhushan (1989) shows that the number of analysts covering a security declines as the total number of SICs in which a firm operates increases. Our empirical analysis extends beyond complexity and instead looks for evidence that, after controlling for the sheer number of business lines, firms with unique strategies systematically receive less coverage. Our question is whether firms pursuing costly to analyze strategies—strategies that are either unique or highly complex—receive systematically less analyst coverage which in turn ultimately leads to a valuation discount.

METHODS

Data

For our analysis we construct an 11-year panel dataset from information about firms and their analyst following. We use the CRSP Monthly Files, the combined CRSP-Compustat database and the I/B/E/S Detailed History and Summary Datasets to construct these data.[2] 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 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 [3] 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

[2] 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.

[3] 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.

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 3.8. 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 6.9 and 7.8, with the maximum number of analysts covering a firm ranging between 44 and 59. Approximately 10% of all firms that receive any coverage in a given 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 the average firm in that industry receives coverage from approximately 11% of the analysts covering that industry.

Our primary interests are two-fold. First, we wish to examine whether a firm's strategy choice affects the level of coverage it receives. And second, we seek to confirm that the amount of coverage that the firm receives affects the stock market's valuation of the firm.

Measures

Analyst Coverage. We model the coverage level received by a firm using the following stylized model of analyst behavior. Define $\mathbf{X}_i$ as a vector of aspects of firm *i* that are believed to affect the costs and benefits to the analyst/brokerage firm 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

$$U_{ik} \equiv \beta_0 + \beta_1 \mathbf{X}_i + \beta_2 D_{ik} + u_{ik}$$

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*:

$$U_i \equiv \beta_0 + \beta_1 \mathbf{X}_i + \beta_2 \, \mathrm{E}_k[D_{ik}] + \varepsilon_i \qquad 1.0$$

If we assume that the firm-specific disturbance term ε_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:

$$\Pr(\varepsilon_i > \beta_0 + \beta_1 \mathbf{X}_i + \beta_2 \, \mathrm{E}_k[D_{ik}]) = 1 - F(\beta_0 + \beta_1 \mathbf{X}_i + \beta_2 \, \mathrm{E}_k[D_{ik}]) \quad 2.0$$

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

$$a_i = A_j (1 - F(\beta_0 + \beta_1 \mathbf{X}_i + \beta_2 \, \mathrm{E}_k[D_{ik}])),$$

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

$$\frac{a_i}{A_j} = (1 - F(\beta_0 + \beta_1 \mathbf{X}_i + \beta_2 \, \mathrm{E}_k[D_{ik}])),$$

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 $\boldsymbol{\beta} = (\beta_0, \beta_1, \beta_2)$ using the maximum likelihood method and the share of analysts covering

a firm as the dependent variable. Note, however, that there are 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 $F(\beta_0 + \beta_1 \mathbf{X}_i + \beta_2 \, \mathrm{E}_k[D_{ik}]) \cong 0$ so that our dependent variable for coverage level becomes:

$$\text{COVSHARE}_i = \begin{cases} 0 & \text{if } A_j = 0 \\ a_i / A_j & \text{if } A_j > 0 \end{cases}$$

We utilize two other measures of analyst coverage. First, we measure analyst coverage as a simple count of the number of analysts which cover a particular security. The primary difficulty with this measure is the large proportion of firms which receive no coverage whatsoever. While we use methods appropriate for this type of dependent measure, we also present analyses using a simple dichotomous measure coded as 1 when the firm receives any coverage whatsoever in a given year, and 0 otherwise.

Firm strategy choice. We compute measures of both strategy uniqueness and strategy complexity, arguing that the choice to pursue either raises analysts' coverage costs. Analysts generally specialize by industry and thus consider for coverage only a subset of the publicly traded firms. Firms which pursue common strategies should be more familiar and more easily analyzed by industry specialized analysts. 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:

$$\text{DIST}_i = \begin{cases} 0 & \text{if } \frac{1}{N_j}\sum_i d_i = 0 \\ d_i / \frac{1}{N_j}\sum_i d_i & \text{if } \frac{1}{N_l}\sum_i d_i \neq 0 \end{cases}$$

with N_j equal to the number of firms in industry *j*. Thus, the variable 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 standardized 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 subsequently 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 SICs, 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 $DIST_A = DIST_B = 0$. 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 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.

The costs of analysis should also rise with the complexity that accompanies increased diversification. As firms enter related or unrelated industries, analysis of the firm requires either multiple analysts to collaboratively evaluate the firm or analysts to develop expertise across multiple industries. In either case, analysis of the firm is more costly than analyzing a single segment firm. We measure the total number of reported segments, using a series of dummy variables (S1, S2, S3…S8) which are coded as 1 if the number of segments in which the firm competes equals 1, 2, 3, or 8 or more, respectively, and coded as 0 otherwise.

Control variables. As control variables in our analysis, we include several firm-specific factors identified either empirically or theoretically to affect the costs and benefits of coverage from the analysts' perspective. Following 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, the coefficient of variation of its earnings over the last 3 to 5 years, and the log of the number of firms in the focal firm's primary SIC. In addition, we include the log of the number of shareholders, shares outstanding, and common equity for the firm.[4] We also control for the issuance of debt or equity in the current or prior year with four measures: the log of the amount of equity issued in the present and prior year (STOCKSALE and PAST STOCKSALE) and log of the amount of debt issued in the present and Finally, we include variables measuring the firm's return on average equity (ROAE), the sales-weighted average of the Herfindahl concentration index 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. To confirm that our results are not driven by outliers, we winsorize all variables generated from accounting data at the 2.5 and 97.5 percentiles.[5] Table 1 provides means, medians, and standard deviations for all variables.

[4] 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.

[5] To confirm the robustness of our results, we also performed all analyses with unwinsorized variables. The results are qualitatively the same. The significant results supporting our key hypotheses remain significant.

Results

Table 2 presents analyses of analyst coverage. Column 1 presents the estimates of a negative binomial regression of a simple count measure of the number of analysts covering a firm. We include in this model both year and industry effects and the full set of control variables described above. The results generally support our fundamental hypothesis that difficulty in analysis, measured either by the progression of dummy variables for number of segments in which a firm competes or the strategy uniqueness measure (DIST), is negatively related to analyst coverage. Controlling for other factors which may influence analyst coverage, firms with more lines of business and more unique strategies receive less analyst coverage. The array of dummy variables measuring diversification shows a rather linear progression of increasingly negative coefficient values. In addition, the coefficient for AVGDIST is significant and negative, suggesting the industries characterized by more heterogeneous strategies receive less analyst coverage. The estimated effects of our control variables are also generally consistent with our description of the analyst coverage decision. Larger firms, as measured by their common equity and firms that are traded more heavily receive more coverage. However, after controlling for trade volume, the number of outstanding shares and the number of outstanding shareholders are both negatively related to analyst coverage. The firm's performance as measured by accounting profitability (ROAE) and sales growth (GROWTH) also have positive effects on the level of coverage. The number of firms within the focal firm's primary SIC code has no significant impact the number of analysts who provide coverage. The issuance of either equity or debt in the current year is negative related to the number of analysts providing coverage, while the issuance of

equity in the prior year is positively related to the number of analysts currently providing coverage.

Column 2 presents estimates of a conditional fixed effects negative binomial regression. We model here the effects of changes in our independent variables across time and within a firm on the number of analysts covering that firm. With this method we control for unmeasured firm specific factors that may generate the results presented in Column 1. Our particular interest is in whether changes in a strategy's uniqueness or complexity from year to year are associated with changes in the level of analyst coverage. The coefficient on our uniqueness measure (DIST) remains significant and negative though the magnitude drops by 60%. Similarly, the coefficients for the diversification dummy variables similarly diminish in magnitude, but still maintain the same rather linear progression of increasingly negative coefficient values. The magnitude of the coefficients on our control variables diminish relative to the Column 1 estimates, but the signs and significance levels generally remain the same. The clear exception is that the coefficients measuring changes in the industry structure (# of firms in the primary SIC (ln) and Average Herfindahl) and changes in the focal firm's market share (Ave. Market Share) now become significant.

Column 3 of Table 2 presents a logit specification with a simple dichotomous dependent variable, measuring whether or not the firm received analyst coverage of any magnitude. The results are quite consistent with the negative binomial regression model. Strategy uniqueness (DIST) is negatively related to the receipt of analyst coverage. Similarly, the dummy variables measuring the scope of diversification show the same very consistent with prior specifications. Increases in uniqueness or complexity significantly reduce the likelihood that the firm receives analyst coverage at any level. Coefficients for the control variables are also similar in sign and significance with the

negative binomial models. Column 4 is a conditional fixed effects logit model. We lose about 60% of the observations because most firms either have or do not have coverage for the entire time window. The included observations are obviously only those in which coverage was either initiated or completely terminated during the 1990 to 2000 time frame. Again, the results are quite consistent with the prior specifications. In this case, the coefficient on uniqueness (DIST) remains quite stable relative to specification without firm fixed effects. The results suggest that as uniqueness increases (or decreases) there is an increased probability that coverage will be dropped (or initiated).

Table 3 presents models of analyst coverage using the share of analyst coverage received by the firm (COVSHARE) as the dependent measure. Column 1 presents the results of an OLS regression of COVSHARE on the strategy variables, DIST, AVGDIST, and the diversification dummy variables, as well as the control variables described above. The results are generally consistent with the results presented in Table 2. The results suggest that uniqueness (DIST) and diversification have significant negative effects on COVSHARE. Note that while the series of segment dummies do not show the same orderly progression of increasingly negative coefficient values, the trend of greater diversification diminishing coverage remains apparent. The average industry uniqueness (AVGDIST) is also significant and negative, as predicted. The sign and significance of the control variables are also quite consistent across these specifications. Column 2 is an OLS model of COVSHARE with firm fixed effects. Consistent with the conditional fixed effects negative binomial specification and the logit results, an increase in the uniqueness (DIST) or diversification of a firm's strategy is associated with a decrease in the share of analyst coverage that a firm receives.

A concern with the OLS specifications of columns 1& 2 is that 44% of our observations have a value of 0 for COVSHARE, suggesting a left censoring problem.

To correct for this, columns 3 & 4 model COVSHARE using a Tobit specification, though unfortunately, a fixed effects Tobit specification would yield biased results and is therefore not included. Column 4, instead reports a random effects Tobit model. The key results in these Tobit models remain fairly consistent with those of prior models. The coefficient for our uniqueness measure is negative and significant, however the coefficients for the diversification dummies do not show the same orderly progression of increasingly negative values.

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 as 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:

$$MV_{it} = \text{total assets}_{it} - \text{common equity}_{it} + \text{price}_{it}*\text{shares outstanding}_{it} + \text{deferred taxes}_{it}$$

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.

Column 1 of Table 3 presents results of an OLS regression of ADJTQ on COVSHARE, uniqueness (DIST), our diversification dummy variables, and a range of

variables known to be related to Tobin's q. The coefficient for COVSHARE is positive and significant as predicted. The result suggests that firms which receive more coverage trade at a higher premium relative to firms receiving less coverage. In addition, the coefficients for assets (ln), growth, number of shares, and ROAE are all positive and statistically significant, while the coefficient for sales (ln) is negative and significant. These results are broadly consistent with other work looking at Tobin's q as a measure of firm value. Consistent with the diversification discount literature (Lang & Stulz, 1994), our results also suggest that firms that are in more segments have lower Tobin's q.[6] Consistent with the strategy literature's argument that uniqueness is a necessary condition for competitive advantage and value creation, we find that the selection of unique strategy is positively related to Tobin's q.

Column 2 presents a fixed effects OLS specification. The results are generally consistent, though there is much weaker evidence of a diversification discount here. The premium for the adoption of a unique strategy however remains, though it too diminishes significantly in magnitude. Note that the positive coefficients on uniqueness in these specifications do not preclude the possibility of a uniqueness discount that accompanies reduced analyst coverage. Our argument is that uniqueness discourages coverage and reduced coverage dampens Tobin's q. Thus, while unique strategies receive a premium, that premium is lower (i.e. discounted) relative to where it would be with greater analyst coverage.

This logic suggests, of course, that our columns 1 & 2 models are mis-specified in not accounting for the endogeneity of COVSHARE. To further examine the effects of analyst coverage on valuation and to specifically control for the possibility that firm

[6] 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

valuation and analyst coverage are codetermined by some unobservable attributes of the firm that are correlated with our regressors, we ran two additional specifications. In the first, we ran a two-stage least squares instrumental variables regression of ADJTQ on the predicted values of COVSHARE, with the magnitude of stock issued (ln) in both the current and lagged period, the magnitude of debt issued (ln) in both the current and lagged period, the trade volume (ln), and the number of firms in the primary SIC (ln) functioning as instruments and thus excluded from the second stage. Column 3 presents these results. The coefficient for COVSHARE remains positive, significant, and similar in magnitude. The sign, significance, and magnitude of our control variable coefficients are also similar to the Column 1 OLS results. Finally, the results on strategy choice, both uniqueness and diversification, remain largely unchanged from the Column 1 results.

In our final model (Column 4), we include firm fixed effects in the second stage of the IV regression. 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 remains statistically significant and quite similar in magnitude to the Column 2 results. Further, the premium on uniqueness remains consistent with the fixed effects OLS specification. Evidence supporting a diversification discount, however, nearly disappears in this specification. Only one of the dummy coefficients is negative and significant.

Table 5 presents OLS regressions of ADJTQ using number of analysts rather than COVSHARE as an independent measure. The results are quite consistent with the Table 4 results. Column 1 is a simple OLS specification and confirms a significant positive effect of number of analysts on adjusted Tobin's q. Column 2 is a firm fixed effects OLS specification which confirms the same relationship. To address the endogeneity issue

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diversification adds very little additional information about the nature of a firm's diversification.

with number of analysts, Column 3 uses the predicted values from the negative binomial regression model presented in Column 1 of Table 2. Again, the results confirm a positive and significant relationship between number of analysts covering the firm and adjusted Tobin's q.

Discussion and Conclusions

Our empirical results are generally consistent with the relationships we hypothesized. First, we find that firms which choose more unique strategies receive less analyst coverage than those which choose 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. Alternatively, as they move closer to the strategy of their peers, analyst coverage increases. Second, after controlling for a wide range of firm and industry attributes including size, we find that firms which pursue more complex, diversifying strategies receive significantly less analyst coverage. These results also hold up in our fixed effects specification. Increases (or decreases) in diversification over time increase (or decrease) the level of analyst coverage.

Third, 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 non-trivial in magnitude. Holding all other variables constant, an increase in coverage by one analyst increases the firm's Tobin's q by approximately 0.8-3%, depending on the specification used.

Our results suggest 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 by participants in the market to evaluate the strategy. If analysts (or the investment banks which assign analysts) are rewarded in ways that overcome these greater costs associated with evaluating unique strategy, then capital markets will correctly evaluate unique strategies. However, casual observations and our empirical results suggest that this is not the case. 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 analysts and investment banks, the capacity to draw investment banking business or trade volume through coverage choices and analysis has been and continues to be a stronger financial motivation. Because analysts are not directly rewarded for effort, effort allocated to costly-to-analyze firms is likely to be less than effort allocated to easily analyzed firms, all else equal. Consequently, capital markets may systematically discount uniqueness, the most important element required for value creation.

The result of the above is that managers make strategy choices that are, at the margin, 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. In light of these results, the structure of CEO compensation may have an important bearing on strategy choice. Rewards that are more weakly linked to present market value may encourage more unique strategy choices, while rewards linked to current market valuations encourage strategy choices that are more responsive to effort-averse analysts and are thus more common and less complex.

Table 1: Means and Standard Deviations

Descriptive Statistics			
	N	Mean	Standard Dev.
Num. of Analysts	48,774	3.78	6.03
Adj. Coverage Share	48,774	0.11	0.19
Any coverage	48,774	0.55	0.5
Adj. Tobin's q	43,869	0.35	2.33
Uniqueness (DIST)	48,774	1.17	2.44
Ave. Uniqueness (AVEDIST)	48,774	1.03	2.72
Segment1	48,774	0.71	
Segment2	48,774	0.15	
Segment3	48,774	0.09	
Segment4	48,774	0.03	
Segment5	48,774	0.01	
Segment6	48,774	0.004	
Segment7	48,774	0.001	
Segment8	48,774	0.001	
Assets ($mm)	43,865	970.79	4180.15
Trade volume (mm)	45,955	51.78	224.19
Growth (winsorized)	36,481	12.69	18.47
Stock Sale ($mm)	48,561	26.63	173.37
Debt Issue ($mm)	48,560	154.9	1037.51
Earnings Var. (winsorized)	39,145	204.17	360.49
Num. of Firms in Industry	48,774	59.68	88.12
ROAE (winsorized)	45,445	0.071	0.471
Num of Shares (mm)	48,774	55.72	191.37
Num of Shareholders (mm)	48,774	16.67	499.71
Common equity ($mm)	48,774	630.45	2895.12
Ave. Herfindahl	48,774	0.23	0.2
Ave. Market Share	0.085	0.11	0.2

Table 2: Analyst Coverage

This table provides estimates of the effects of strategy choice on the level of analyst coverage. Model 1 is a negative binomial regression of strategy choice and various industry and firm controls on a simple count measure of analysts covering the firm. Model 2 is a firm fixed effects specification of the same model. Models 3 & 4 examine coverage as a dichotomous variable using a logit specification. The dependent measure is coded as 1 if the firms receives any coverage in a given year and 0 otherwise. Model 4 is a fixed effects logit specification.

	Number of Analysts		**Any Coverage**	
	Negative Binomial		Logit	
	1	2	3	4
ln(assets)	.433 ***	.170 ***	.578 ***	.641 ***
	.019	.017	.037	.104
ln(sales)	.132 ***	.091 ***	.203	.940 ***
	.012	.018	.023	.128
ln(trade volume)	.542 ***	.245 ***	.628 ***	.710 ***
	.008	.009	.015	.058
Growth/100	.259 ***	.254 ***	.427 ***	.547 *
	.042	.032	.085	.270
ln(Stocksale)	-.037 ***	-.022 ***	-.081 ***	-.093 ***
	.006	.003	.014	.031
ln(Stocksale), lag	.018 **	.003	.012	.079 **
	.006	.003	.014	.031
ln(debt issue)	-.019 ***	.000	-.037 ***	.023
	.004	.002	.009	.020
ln(debt issue), lag	-.005	.002	-.009	.051 **
	.004	.002	.009	.020
Earnings Var./1000	-.214 *	.070 ***	-.283 ***	-.178 *
	.021	.000	.040	.080
Ln(# of firms in SIC)	-.003	-.075 **	-.072 ***	.054
	.008	.026	.016	.227
ROAE	.072 ***	-.021 *	.163 ***	-.140
	.018	.010	.036	.073
# shares (ln)	-.421 ***	-.087 ***	-.723 ***	-.024
	.015	.014	.028	.107
# shareholders (ln)	-.049 ***	-.023 ***	-.138 ***	-.035
	.006	.007	.012	.053
ln(common equity)	.085 ***	.159 ***	.114 ***	.434 ***
	.017	.015	.032	.091
Ave. Herfindahl	-.094	-.148 **	-.129	-.553
	.061	.056	.114	.370
Ave. Market Share	.077	.259 ***	.357 ***	.859 *
	.059	.054 ***	.114	.398
Segment2	-.242 ***	-.052 ***	-.344 ***	-.107
Segment3	-.353 ***	-.086 ***	-.520 ***	-.458 ***
Segment4	-.413 ***	-.100 ***	-.694 ***	-.431 *
Segment5	-.562 ***	-.162 ***	-1.011 ***	-.945 ***
Segment6	-.536 ***	-.197 ***	-.838 ***	-.1.749 ***
Segment7	-.505 ***	-.156 *	-.781 *	-1.804 *
Segment8	-1.722 ***	-.598 ***	-2.858 ***	-39.984
Uniqueness (DIST)	-.092 ***	-.036 ***	-.325 ***	-.343 ***
	.006	.004	.014	.041
Ave. Uniqueness	-.112 ***		-.231 ***	
	.006		.013	
year dummies	yes	yes	yes	yes
Firm Fixed Effects		yes		yes
Observations	27,147	20,958	27147	9508
R^2/Pseudo R^2	.128		.205	

* p<.05, ** p<.01, *** p<.001

Table 3: Analyst Coverage (Adjusted Coverage Share)

This table provides estimates of the effects of strategy choice on the level of analyst coverage. Model 1 is an OLS regression of strategy choice and various industry and firm controls on analyst coverage (COVSHARE) measured as the percentage of all analysts in an industry which cover the focal firm. Model 2 is a firm fixed effects specification of this same model. Models 3 & 4 are tobit specifications of COVSHARE, correcting for the left truncation (44% are zeros) in the dependent measure. Model 4 is a random effects tobit specificiation.

	OLS		Tobit	
	1	2	3	4
ln(assets)	.043 ***	.014 ***	.080 ***	.043 ***
	.002	.003	.004	.003
ln(sales)	.003 *	.011 ***	.008 ***	.012 ***
	.002	.003	.002	.003
ln(trade volume)	.040 ***	.019 ***	.080 ***	.056 ***
	.001	.001	.002	.002
Growth/100	.007	.013 *	.020 *	.021 **
	.006	.006	.008	.007
ln(Stocksale)	-.001	-.002 ***	-.006 ***	-.005 ***
	.001	.001	.001	.001
ln(Stocksale), lag	.002 **	.002 **	.002	.002
	.001	.001	.001	.001
ln(debt issue)	.000	.000	-.001	.001
	.001	.000	.001	.001
ln(debt issue), lag	.001 **	.000	.001	.001
	.001	.001	.001	.001
Earnings Var./1000	-.018 *	-.007 ***	-.035 ***	-.017 ***
	.003	.002	.004	.003
Ln(# of firms in SIC)	-.077 ***	-.108 ***	-.095 ***	-.082 ***
	.001	.005	.002	.003
ROAE	.005 *	-.003	.013 ***	-.003
	.002	.002	.004	.003
# shares (ln)	-.022 ***	.000	-.066 ***	-.041 ***
	.002	.003	.003	.003
# shareholders (ln)	.001	-.001	-.005 ***	-.004 *
	.001	.001	.001	.002
ln(common equity)	-.008 ***	.010 ***	.000	.019 ***
	.002	.002	.003	.003
Ave. Herfindahl	-.091 ***	-.005	-.112 ***	-.044 ***
	.008	.009	.012	.013
Ave. Market Share	.200 ***	.074 ***	.222 ***	.158 ***
	.008	.009 ***	.011	.011
Segment2	-.022 ***	-.008 *	-.042 ***	-.020 ***
Segment3	-.016 ***	-.002	-.043 ***	-.022 ***
Segment4	-.029 ***	-.011 *	-.065 ***	-.037 ***
Segment5	.016	-.008	-.030 *	-.042 ***
Segment6	-.033 ***	-.051 ***	-.070 ***	-.080 ***
Segment7	-.023	-.009	-.050	-.025
Segment8	-.213 ***	-.059	-.367 ***	-.233
Uniqueness	-.015 ***	-.014 ***	-.029 ***	-.023 ***
	.001	.001	.001	.001
Ave. Uniqueness	-.012 ***		-.025 ***	
	.001		.001	
year dummies	yes	yes	yes	yes
Firm Fixed Effects		yes		
Random Effects				yes
Observations	27,147	27,147	27,147	27,147
R^2/Pseudo R^2	.406		.602	

* p<.05, ** p<.01, *** p<.001

Table 4: Adjusted Tobin's q and Share of Analyst Coverage

This table provides estimates of the effects of analyst coverage, measured as adjusted coverage share, on adjusted Tobin's q. Model 1 is an OLS specification of the determinants of adjusted Tobins' q. Model 2 is a firm fixed effects specification. Model 3 is a two-stage least squares (IV) specification of the determinants of Tobin's q with trade volume and investment banking usage instrumenting for analyst coverage. Model 4 adds firm fixed effects to the two-stage least squares (IV) specification. The IV regression models (models 3 & 4) include as instruments for adjusted coverage share, the magnitude of stock issued (ln, current and lagged), the magnitude of debt issued (ln, current and lagged), trade volume (ln), and the number of firms in the primary SIC (ln).

	OLS	OLS, Fix. Eff.	IV	IV, Fix. Eff
	1	2	3	4
Adjusted Cov. Share	433***	.137***	.442***	.143***
	.032	.039	.034	.041
ln(assets)	.586***	.440***	.587***	.449***
	.015	.015	.016	.016
ln(sales)	-.334***	-.199***	-.331***	-.203
	.009	.017	.010	.018
Growth/100	.522***	-.028	.494***	-.003
	.029	.034	.030	.036
Earnings Var./1000	-.125	-.010	-.135***	-.004
	.014	.012	.015	.013
ROAE	.267***	.157***	.279***	.156***
	.012	.011	.013	.011
# shares (ln)	.351***	.276***	.352***	.267***
	.009	.014	.010	.015
# shareholders (ln)	-.029***	-.055***	-.030***	-.054***
	.005	.008	.005	.009
common equity (ln)	-.465***	-.407***	-.461***	-.423***
	.013	.014	.014	.015
Ave. Herfindahl	-.086	.010	-.046	.004
	.048	.050	.051	.054
Ave. Market Share	-.034	-.088	-.073	-.090
	.044	.052	.046	.055
Segment2	-.104***	-.036*	-104***	-.025
Segment3	-.158***	-.055*	-.169***	-.049*
Segment4	-.137***	-.056	-.148***	-.040
Segment5	-.141***	-.068	-.140**	-.046
Segment6	-.287***	.009	-.310***	.029
Segment7	-.371**	-.062	-.364*	-.059
Segment8	-.526**	.111	-.578**	.092
Uniqueness	.039***	.019***	.039***	.018***
	.005	.005	.005	.005
year dummies	yes	yes	yes	yes
Industry dummies	yes		yes	
Fixed Effects		yes		yes
Observations	30,381	30,381	27147	27,147
R-square	.235	.143	.245	.140

* p<.05, ** p<.01, *** p<.001

Table 5: Adjusted Tobin's q and Number of Analysts Providing Coverage

This table provides estimates of the effects of number of analysts providing coverage on adjusted Tobin's q. Model 1 is an OLS specification of the determinants of adjusted Tobins' q. Model 2 is a firm fixed effects OLS specification. Model 3 is an OLS regression, but uses predicted values for number of analysts. These predicted values are generated from the negative binomial regression model presented in Table 2, Column 1.

	OLS	OLS, Fix. Eff.	OLS
	1	2	3
Num of Analysts	.029 ***	.007 ***	
	.001	.001	
Num of Analysts_pred			.011 ***
			.002
ln(assets)	.569 ***	.437 ***	.596 ***
	.014	.015	.016
ln(sales)	-.342 ***	-.203 ***	-.335 ***
	.009	.017	.010
Growth/100	.465 ***	-.031	.469 ***
	.029	.034	.031
Earnings Var./1000	-.121 ***	-.009	-.137 ***
	.014	.012	.015
ROAE	.260 ***	.158 ***	.278 ***
	.012	.011	.013
# shares (ln)	.335 ***	.271 ***	.350 ***
	.009	.014	.010
# shareholders (ln)	-.031 ***	-.056 ***	-.028 ***
	.005	.008	.005
common equity (ln)	-.474 ***	-.408 ***	-.471 ***
	.013	.014	.014
Ave. Herfindahl	-.118 *	.014	-.091
	.047	.050	.051
Ave. Market Share	.039	-.080	.009
	.043	.052	.046
Segment2	-.085 ***	-.036 *	-.099 ***
Segment3	-.123 ***	-.051 *	-152 ***
Segment4	-.090 ***	-.052	-.131 ***
Segment5	-.077	-.059	-.097 *
Segment6	-.222 **	.015	-.286 ***
Segment7	-.264 *	-.053	-.325 *
Segment8	-.311 **	.128	-.550 **
Uniqueness	.026 ***	.016 ***	.031 ***
	.005	.005	.005
year dummies	yes	yes	yes
Industry dummies	yes		yes
Fixed Effects		yes	
Observations	30,381	30,381	27147
R-square	.242	.150	.230

* p<.05, ** p<.01, *** p<.001

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Notes