The Two Faces of Analyst Coverage

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We find that positive excess (strong) analyst coverage is associated with overvaluation and low future returns. This finding is consistent with the view that excessive analyst coverage, driven by investment banking incentives and analyst self-interests, raises investor optimism causing share prices to trade above fundamental value. However, weak analyst coverage causes stocks to trade below fundamental values. This finding indicates that investors tend to believe that these firms are more likely to be plagued by information asymmetries and agency problems. The results remain robust after controlling for the possible endogenous nature of analyst coverage and analysts' self-selection bias.

A US Bancorp Piper Jaffray analyst in August 2000 prepared a mock report that rated TheraSense, a medical technology firm, a "strong buy" and touted its sales as "nothing short of breathtaking," according to the NYSE. Shortly after that, Piper Jaffray won the lead underwriting role in a deal with TheraSense, plus $3.8 million in fees from the company. Piper Jaffray also started coverage, rating the TheraSense stock as a "strong buy" (*USA Today*, 3B, April 29, 2003).

Both anecdotal evidence such as this and academic studies[1] show that analyst coverage has become an integral component of equity valuation and the investment process. While the role of financial analysis has increased dramatically in recent years, there is growing suspicion that the wedge between stock prices and fundamental values is likely to be associated with excessive analyst coverage, which is driven by investment banking economic incentives and analysts' self-interests.

In this article, we examine whether the divergence of stock prices from fundamental values is linked to the depth of analyst coverage. To do so, we use a sample of firms spanning the 1980-2001 period. We find that strong analyst coverage is associated with stock overvaluation and low future returns, while stocks with weak analyst coverage trade below fundamental values and earn high future returns.

Since the Nasdaq crash, security analysts have been subject to considerable criticism. As a result, ten of the nation's major investment banks settled enforcement actions involving conflicts of interests between analyst research and investment banking, and the government, Congress, and the SEC are likely to take additional regulatory measures in defense of the interests of investors and markets. Although the regulatory bodies mention a decline in standards and

[1]Cragg and Malkiel (1968), Malkiel (1982), Givoly and Lakonishok (1984), La Porta (1996), and Brav and Lehavy (2003) find that financial analysts' earnings forecasts are extensively distributed and are of substantial interest to investors and researchers, since they are often viewed as surrogates of market expectations. Elton, Gruber and Grossman (1986) argue that analysts' recommendations represent "a clear and unequivocal course of action." D'Mello and Ferris (2000) also show that analyst activity is associated with firms' long-term performance.

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quality of research, the most frequent criticism of security analysis has been that investment banking economic incentives cause analysts to direct their attention and provide stock recommendations in favor of certain stocks that they expect to generate lucrative investment banking transactions and trading activity (see Michaely and Womack, 1999, and Lin and McNichols, 1998, among others).

We argue that coverage builds up in anticipation of profitable investment banking transactions and trading activity that could create an investor bias for high coverage stocks. Furthermore, to the extent that investors categorize stocks based on certain attributes (Barberis and Shleifer, 2003), it is possible that excessive analyst coverage could also serve as a framing mechanism (see also Beunza and Garud, 2004). If investors rely on analyst coverage to classify stocks with excessively high (low) analyst coverage as high (low) growth stocks, then excessively high (low) analyst coverage could cause an upward (downward) demand shift. For many investors, such framing might be all they wish to know. Consequently, strong analyst coverage has the potential to cause an upward demand bias leading to overvaluation and low future returns. However, stocks with weak analyst coverage are more likely to trade below fundamental values and realize high future returns. This motivates the core of our investigation.

Burton Malkiel in a March 22, 2002 interview for CBS Market Watch indicated that analysts behave more like "trend chasers" than "news watchers" and, consequently, can cause asset prices to trade above fundamental values. Analysts' incentive structure could be another reason that may trigger deviations of stock prices from fundamental values (McNichols and O'Brien, 1997). Since analysts are involved in a two principal-agent relationship with investors and corporate managers, they can force equity shares to trade above fundamental values by releasing upward-biased earnings forecasts. In turn, higher share prices could improve managerial compensation, ward off takeovers, or issue new equity at more favorable terms. There is also increasing evidence supporting the belief that security analysts are coerced by bankers to withhold negative information or compromise their stock research in order to win investment-banking business (Kah, 2002).

While some previous studies suggest that security analysis may lead to higher stock prices,[2] to our knowledge, there is no direct evidence to support the view that the difference between stock prices and their fundamental values is likely to be associated with the degree of analyst coverage. Therefore, an empirical investigation of the relation between the depth of analyst coverage and equity mispricing can benefit the investment community and expand the understanding of financial markets.

This study makes several contributions to the literature. First, we explore the possible link between excess analyst coverage and asset prices. We provide evidence in support of the view that excess analyst coverage explains a significant portion of stock prices' deviation from their imputed (fundamental) values. Second, we document that positive excess (strong) analyst coverage is associated with stock premiums. Third, we document that negative excess (weak) analyst coverage is linked with stock discounts.[3] Finally, we provide limited evidence that corporate-governance provisions impact on firm value.

The article is organized as follows. In Section I, we discuss the link between excess value and excess analyst coverage. We also describe the estimation of alternative excess market

[2]See, for example, Womack (1996), Brennan and Tamarowski (2000), Botosan (1997), and Irvine (2000a and 2000b).

[3]The terms discount (relative to the value of industry peers), negative excess value and undervaluation are used interchangeably throughout the paper. Similarly, throughout the article, we interchangeably refer to firms with positive (negative) excess analyst coverage as firms with strong (weak) coverage, or as firms with high (low) relative coverage.

value and analyst coverage measures used in the analysis. Section II contains a description of the data sources and sample selection process. Section III presents and describes the empirical results. Section IV provides a summary and concluding remarks.

I. Excess Firm Value and Excess Analyst Coverage

Analysts' buy and sell recommendations represent a primary source of information for individual investors (Marcus and Wallace, 1991). Further, researchers find that analysts have an immediate effect on stock prices (Womack, 1996).[4] Thus, it is not surprising that studies perceive analysts as performing an important role in keeping stock prices close to their fundamental values. This perception is believed to arise from the monitoring and information diffusion attributes of security analysts. Jensen and Meckling (1976) have argued that security analysis can address the agency problems that are induced by the separation of ownership and control in the modern corporation and reduce informational asymmetries between managers and outside investors. Therefore, they conjecture that increasing analyst coverage will cause share prices to trade close to fundamental value. Conversely, firms with weak analyst coverage are more likely to be plagued by information asymmetries and engage in non-value maximizing corporate activities. Consequently, analyst under-covered firms are expected to trade below fundamental value. If the number of analysts covering a firm, proxies for the total resources spent on private information acquisition (Bhushan, 1989), a firm with large analyst coverage should have a greater amount of private information filtered to investors. As a result, trading of such securities should be more informationally efficient (Moyer, Chatfield, and Sisneros, 1989). Collectively, the monitoring and information diffusion arguments suggest that firms with strong analyst coverage will trade at valuations that are closer to their fundamental values.[5] This view of security analysis, however, rules out the possibility of a positive association between excess analyst coverage and overvaluation.

To the extent that analysts influence investors' decisions and analyst coverage is driven by analysts' self-interests and investment bankers' economic incentives, coverage of a particular stock may become excessive in anticipation of lucrative investment banking transactions and trading activity benefiting both investment banks and their analysts. Excessive analyst coverage has the potential to create an investor bias in favor of a certain stock, and therefore can raise its price above fundamental value. Analysts' upward earnings forecast bias, motivated by compensation and investment-banking incentives, may also trigger mispricing by increasing the gap of beliefs between optimistic and pessimistic investors. Consistent with this view, excessive analyst coverage is also expected to result in overvaluation by exposing stocks to a greater number of optimistic investors (see Miller, 1977).

Behavioral pricing models suggest that stocks tend to be persistently mispriced mainly because of investors' judgment biases (Barberis, Shleifer, and Vishny, 1998, Daniel, Hirshleifer, and Subramanyam, 1998, and Hirshleifer and Teoh, 2003) and arbitrage limitations (Shleifer and Vishny, 1997, Gromb and Vayanos, 2001, and Chen, Hong, and Stein, 2002).[6] Investor

[4]See Cragg and Malkiel (1968), among others, for a discussion on the importance of analysts' information to investors and markets.

[5]Doukas et al. (2000) provide evidence consistent with this argument.

[6]Regardless of how you measure mispricing, the behavioral finance literature has embraced mispricing as a standard feature of capital markets and developed models to explain its origin (Baker and Wurgler, 2000 and Baker, Greenwood, and Wurgler, 2003, Baker and Wurgler, 2002a, and Baker and Wurgler, 2002b. Shleifer and Vishny (2003) develop a theory of mergers based on managers' rational response to mispricing.

judgment biases, however, may be partially rooted in security analysts' biased forecasts caused by analysts' compensation and investment banking economic incentives. Moreover, excessive analyst coverage may increase investor overconfidence by overstating the precision of the informational content in analysts' earnings forecasts (see, for example, Kyle and Wang, 1997). Overconfidence, in turn, could generate heterogeneous beliefs among investors about the prospects of future earnings encouraging investors to bid up stock prices above fundamental values. Hence, overconfidence is expected to feed investors illusion of knowledge resulting in more aggressive trading and higher prices. Finally, since investors tend to categorize stocks based on certain attributes (Barberis and Shleifer, 2003), they could also use analyst coverage to classify stocks as high (low) growth stocks based on the extent of high (low) analyst coverage, causing an upward (downward) demand shift. Investors might also perceive the depth of analyst coverage as a signal of stock liquidity, popularity among valuation experts (i.e., analysts), stylishness among other investors, and market sentiment. For many investors, such framing might be all they want to know in identifying short-term profitable investment opportunities. Analyst coverage hype, then, may cause overvaluation and low future returns. Jensen (2004) identifies excessive analyst coverage as the potential source of the agency costs of overvalued equity that ends up destroying firm value.

Overall, for all these reasons excessive analyst coverage has the potential to generate informational frictions, and exacerbate investor judgment biases driving asset prices above fundamental values. Consequently, the question that has motivated this study is whether mispricing is associated with excessive analyst coverage.[7] The purpose of this paper is not to determine the exact channel that analyst coverage generates mispricing. That is, we do not discriminate among the various arguments described above suggesting that excessive analyst coverage has the potential to cause mispricing. We note that our focus is not on examining the relative importance of the different informational frictions and judgmental bias effects associated with excessive coverage, but on investigating the connection between excess analyst coverage and valuation.

A. Excess Firm Value

Previous studies that examine the valuation effects of analyst coverage have used Tobin's Q as a measure of value.[8] However, average Tobin's Q cannot reflect mispricing like the relative valuation measures used in this study. Moreover, while marginal Q is suitable to construct a relative valuation measure, it is difficult to estimate. To test whether excess analyst coverage is associated with mispricing, we use three alternative mispricing measures to ensure that our results are not driven by the choice of the valuation model.

Our first excess valuation measure, $EXVAL1$, is based on the relative valuation approach. We use this measure because the relative valuation approach is widely used by investors for investment decisions and is also popular in equity research reports and acquisition decisions.[9]

[7]In a different context, Hong, Lim, and Stein (2000) proxy information diffusion with residual analyst coverage, and show that the short-term momentum in stock returns is driven by the residual number of analysts tracking different stocks.

[8]See, for instance, Chung and Jo (1996)

[9]The advantage of relative valuation is that it relies on few assumptions, it is easier to estimate, and simpler to understand. Moreover, relative valuation is much more likely to reflect the current market sentiment, since it is an attempt to estimate relative, and not intrinsic, value. We argue that investors have imperfect information about expected returns or cash flows, and therefore learn about the process of returns or cash flows by using relative industry performance information. Relative valuation allows investors to categorize securities into "underpriced stocks," "fair-valued stocks," and "overpriced stocks."

Relative valuation also permits investors to make inferences about future growth prospects. For instance, stocks trading at a premium (discount) relative to their industry peers may be perceived by investors as high (low) growth stocks. Therefore, when investors infer that overvalued (undervalued) stocks have good (poor) prospects they are likely to bid prices up (down) realizing lower (higher) future returns. Indeed, as will be shown in Section III, overvalued stocks earn low future returns (see Table II).

We define *EXVAL*1 as the natural logarithm of the ratio of the firm's actual value to its imputed value.[10] We measure the actual value of the firm by its total capital. The imputed value is calculated by multiplying the firm's level of sales by the median total capital to sales ratio (sales multiplier) for single-segment firms in the same four-digit SIC industry as the firm's primary SIC industry.[11] When less than five single-segment firms exist in a particular four-digit SIC industry, we use the three-digit SIC sales multiplier. Again, if there are fewer than five single-segment firms, we use the two-digit SIC industry sales multiplier.

We construct our second mispricing measure, *EXVAL2*, the same way as the first one. We use the Fama and French (1997) 48 industry sectors rather than the conventional SIC code industry classifications to identify the firm's primary industry and compute the imputed value based solely on the primary industry sector information.

We base our third mispricing measure, *RRVVAL*, on the estimation of the fundamental value of a stock, *V*, following the approach of Rhodes-Kropf, Robinson, and Viswanathan (2005). In using this procedure, we estimate fundamental value by decomposing the market-to-book into two components, a measure of price to fundamentals (ln(*M/V*)), and a measure of fundamentals to book value (ln(*V/B*)). The first component captures the part of market-to-book associated with mispricing. Rhodes-Kropf et al. (2005) further decompose this mispricing into firm-specific and industry-specific mispricing. In our tests, we use the firm-specific mispricing component based on Model III of Rhodes-Kropf et al. (2005) that also accounts for net income and leverage effects. Specifically, we estimate fundamental value using the following regression:

$$\ln\mathbf{M}_{\mathbf{it}} = \alpha_{0jt} + \alpha_{1jt}\ln\mathbf{B}_{\mathbf{it}} + \alpha_{2jt}\ln(\mathbf{NI})^{+}_{\mathbf{it}} + \alpha_{3jt}\mathrm{I}_{(<0)}\ln(\mathbf{NI})^{+}_{\mathbf{it}} + \alpha_{4jt}\mathbf{LEV}_{\mathbf{it}} + \boldsymbol{\varepsilon}_{\mathbf{it}}$$

where M is firm value, B is book value, NI^{+} is the absolute value of net income, $I_{(<0)}$ is an indicator function for negative net income observations and LEV the leverage ratio.

B. Excess Analyst Coverage

We also use three measures of analyst coverage. First, we develop a relative analyst coverage measure, *EXCOV1*, to determine the extent of a firm's coverage in comparison to other firms that are otherwise similar. We define excess analyst coverage as the difference between a firm's actual analyst following and its expected coverage (i.e., normal coverage by industry standards), using the firm's imputed coverage as our proxy. We measure imputed analyst coverage as the average number of analysts covering a similar firm in the same industry, adjusting for size. Since an analyst's decision to cover a firm is influenced by his marginal cost of information gathering and the investment opportunity of the firm (Bhushan, 1989), the imputed coverage measure provides an average estimate of these characteristics

[10]We calculate *EXVAL*1 as in Berger and Ofek (1995). However, following the suggestion of an anonymous referee, and to ensure that our mispricing results are not contaminated by the diversification discount phenomenon, we perform our tests using only a sample of single-segment firms. We note that our results are essentially the same when we allow multi-segment firms to enter our analysis.

[11]We also repeated this procedure using an asset-multiplier. These results, available on request, are quantitatively and qualitatively similar to those based on sales-multipliers reported in this study.

in each industry. If analysts face high marginal costs and/or the firm has poor growth opportunities, they will choose not to cover such a firm, which will result in coverage below the firm's industry-imputed coverage. We interpret this imputed analyst benchmark as representing the market's required analyst coverage that we expect will provide effective coverage, in terms of monitoring managerial behavior and disseminating adequate information to investors. Therefore, we expect analyst coverage below its industry-imputed level to cause shares to trade below the firm's fundamental value.

Consistent with the excess value measures, we require that there are at least five single-segment firms within each industry classification in order to compute the sales multipliers. When this requirement is not met, we proceed with a broader industry classification (e.g., from a four-digit SIC to a three-digit SIC classification).

We follow the same procedure, to construct a second excess analyst coverage measure, *EXCOV2*, by using the Fama and French (1997) 48 industry sectors rather than the conventional SIC code industry classifications. We base our third excess coverage measure, *RESCOV*, on the residual analyst coverage method of Hong et al. (2000). We compute *RESCOV* as the residual from the following regression run each year t:

$$\ln(\mathbf{NAF})_{\mathbf{it}} = \alpha_{0jt} + \alpha_{1jt}\ln(\mathbf{MVE})_{\mathbf{it}} + \Sigma_j \alpha_{jit}(\mathbf{IND})_{\mathbf{jit}} + \boldsymbol{\varepsilon}_{\mathbf{it}},$$

where NAF is the number of analysts following the firms, MVE is the market value of equity and IND_j are industry dummy variables representing 15 industries classified based on two-digit SIC codes. Negative (positive) excess analyst coverage values reflect weak (strong) coverage: that is, negative (positive) excess analyst coverage indicates that coverage is below (above) what the market considers the standard coverage, given the firm's size and its industry affiliation(s), i.e., its expected coverage.

While security analysis may act as an external monitoring mechanism that is likely to reduce agency costs, corporate governance as an internal monitoring mechanism also deals with the agency problems arising from the separation of ownership and control. As a result, the discounting of stocks may also be related to the degree of expropriation of outside investors by insiders, as reflected in the governance characteristics of the firm. Therefore, in our empirical investigation of the deviation of stock prices from their imputed values we also control for the influence of corporate governance. The valuation effects of corporate governance are investigated using a variant of the corporate governance index developed by Gompers, Ishii, and Metrick (2003). Stocks of firms with weak governance attributes (i.e., with weak shareholder rights) are expected to trade at a discount because they have high potential for wealth expropriation.[12]

II. Data

Our analysis is based on all firms covered in the *Standard & Poor's Compustat Primary, Secondary, Tertiary, Full Coverage, Research and Industry Segment* databases over the 1980-2001 period. Firms with total sales of less than $20 million are excluded in order to avoid cases of firms with distorted valuation multiples due to very low sales figures. Firms included in the sample must also have information on total capital, measured as market value of common equity plus book value of debt. We have restricted our analysis to single-segment

[12]Gompers et al. (2003) find that weaker shareholder rights are associated with lower profits, lower sales growth, higher capital expenditures, and a larger number of corporate acquisitions.

firms in order to avoid criticism that our results are driven by the diversification discount phenomenon. When we include multi-segment firms we obtain similar results to those reported in this study.

For the construction of the excess analyst coverage measure, we also require that firms have analyst coverage data available in the *I/B/E/S* database. We selected the number of one fiscal year-ahead analyst forecasts issued in June of each year for all stocks covered by security analysts. All valuation and coverage measures used in the study are aligned on the month of June, as in Fama and French (1992 and 1993). Returns of portfolios sorted on excess analyst coverage measures are extracted from *CRSP* and are computed over the July of year t – June of year t+1 period, following the month of June where sorting is performed. Our final sample includes more than 24,000 single-segment firm-years with excess value, excess coverage and future returns information available from *Compustat*, *I/B/E/S* and *CRSP*, respectively.

Table I reports descriptive statistics for the measures of excess market value and analyst coverage. Panel A shows that stock of firms with positive (negative) excess analyst coverage, trade at a premium (discount). The mean (median) excess market value for firms with positive excess analyst coverage is 0.3675 (0.2858) while the mean (median) value for firms with negative excess analyst coverage is -0.0693 (-0.0240). The difference in the mean and median are statistically significant at the 1% level. Moreover, Panel B reveals that firms that trade at a premium (discount) have positive (negative) excess analyst coverage. Both the mean and the median excess analyst coverage for firms trading at a premium are significantly higher than the corresponding mean and median excess analyst coverage for firms trading at a discount. These results are in agreement with the view that excess analyst coverage is positively associated with excess market value, suggesting that stocks of firms with analyst coverage in excess of the industry-based benchmark coverage trade at a premium.

III. Empirical Results

In this section, we address the relation between excess analyst coverage and the excess market value of the firm's equity using univariate and multivariate tests. Table II reports means of excess market value and analyst coverage characteristics of *EXVAL1*-quintile portfolios formed annually over the 1980-2001 period. Two interesting results emerge from Table II. First, all three excess valuation measures (*EXVAL1*, *EXVAL2*, and *RRVVAL*) show that mispricing is systematically decreasing as we move from low (Q1) to medium (Q3) excess valuation quintiles, and then increasing as we move from medium to high (Q5) excess valuation quintiles. This suggests that all three excess valuation measures are not very different from each other. The mean excess values obtained from the first two measures are very similar since the only difference between these two measures lies in the industry classification (i.e., the *EXVAL1* is based on firms' primary SIC industry classification while the *EXVAL2* on the 48 industries of Fama-French). The mean excess values derived from the valuation model of Rhodes-Kropf et al. (2005), are somewhat smaller. Second, all three excess analyst coverage measures (*EXCOV1*, *EXCOV2*, and *RESCOV*) show a positive association with mispricing.

We find that firms that trade at a discount have low excess analyst coverage. Mean excess analyst coverage for low excess value firms (Q1) is considerably lower than that of high excess value firms (Q5). The mean difference between Q5 and Q1 portfolios, reported in the last column, is 1.0131, 0.9965 and 0.2115 for *EXCOV1*, *EXCOV2*, and *RESCOV*, respectively,

Table I. Descriptive Statistics for the Excess Value and Excess Analyst Coverage Measures Based on the Intersection of the Compustat and I/B/E/S Samples

Panel A presents descriptive statistics for the excess value (*EXVAL1*) for the whole sample and the samples of firms with analyst coverage exceeding the imputed analyst coverage (*EXCOV* ≤ 0) and with analyst coverage short of the imputed analyst coverage (*EXCOV1* > 0). Also reported are the mean and median difference tests for *EXVAL1* between the two sub-samples. Panel B presents descriptive statistics for excess analyst coverage (*EXCOV1*) for the whole sample and for the samples of firms valued at a premium (*EXVAL* ≤ 0) and at a discount (*EXVAL1* > 0), respectively. Also reported are the mean and median difference tests for *EXCOV1* between the two sub-samples. The mean (median) difference test statistic is the *t*- (Wilcoxon rank-sum *z*-) statistic. Excess value (*EXVAL1*) is computed as in Berger and Ofek (1995) using a sales multiplier. Excess analyst coverage (*EXCOV1*) is computed as the natural logarithm of the ratio of a firm's actual number of analyst following to its imputed analyst following. A firm's imputed analyst following is equal to its sales multiplied by its industry median analyst following to sales ratio (computed for single-segment firms in the industry).

Panel A. Descriptive Statistics for Excess Value (EXVAL1)

	Whole Sample (N=24247)	Firms with *EXCOV1* > 0 (N=11357)	Firms with *EXCOV1* ≤ 0 (N=12890)	Mean (median) Difference Tests: t-value, (z-statistic)
Mean	0.1352	0.3675	-0.0693	54.80 ***
Std. Deviation	0.6567	0.6501	0.5911	
Minimum	-3.1533	-2.3127	-3.1533	
25th Percentile	-0.2361	-0.0149	-0.4001	
Median	0.0687	0.2858	-0.0240	51.93 ***
75th Percentile	0.4941	0.7360	0.2486	
Maximum	4.9426	4.9426	3.3484	

Panel B. Descriptive Statistics for Excess Analyst Coverage (EXCOV1)

	Whole Sample (N=24641)	Firms with *EXVAL1* > 0 (N=13929)	Firms with *EXVAL1* ≤ 0 (N=10712)	Mean (median) Difference Tests: t-value, (z-statistic)
Mean	-0.0426	0.1991	-0.3571	51.58 ***
Std. Deviation	0.8833	0.8398	0.8384	
Minimum	-2.3103	-2.3103	-2.3103	
25th Percentile	-0.5874	-0.2684	-0.8933	
Median	0.0000	-0.1698	-0.2753	49.79 ***
75th Percentile	0.5221	0.7625	0.1375	
Maximum	1.8852	1.8852	1.8851	

***Significant at the 0.01 level.

Table II. Excess Value and Analyst Coverage Characteristics of Quintile Portfolios Formed by Excess Value (*EXVAL1*)

This table reports means of excess value and analyst coverage characteristics of quintile portfolios formed each year based on *EXVAL1*. We measure *EXVAL1* as the natural logarithm of the ratio of a firm's actual value to its imputed value. A firm's imputed value is equal to its sales multiplied by its industry median capital to sales ratio (computed for single-segment firms in the industry). Industry classification is based on the primary SIC code. We compute *EXVAL2* similarly to *EXVAL1*, but we base our industry classification on Fama-French's (1997) 48 industries. *RRVVAL* is the firm specific pricing deviation from the short-run industry pricing, computed as in Rhodes-Kropf et al. (2005). We describe analyst coverage characteristics by the following variables: *EXCOV1* is the excess analyst following measure, which we compute as the natural logarithm of the ratio of a firm's actual number of analyst following to its imputed analyst following. A firm's imputed analyst following is equal to its sales multiplied by its industry median analyst following to sales ratio (computed for single-segment firms in the industry). We compute *EXCOV2* similarly to *EXCOV1*, but we base our industry classification on Fama-French's (1997) 48 industries. *RESCOV* is the residual analyst coverage computed as in Hong et al. (2000). *NAF* is the number of analysts following the firm (i.e., number of analysts who make one-fiscal-year-ahead earnings forecasts, in June of each year). *SIZE* is the market value of common equity. *RETURN* is the average monthly return on the equally weighted portfolios of stocks belonging to different quintiles when sorted by *EXVAL1*. *EXRETURN* is the average monthly abnormal return, computed using parameters estimated from the market model run over the last 60 months. We compute the returns over a one-year period starting in July of each year. Q5-Q1 results represent differences in means between the top (Q5) and bottom (Q1) quintiles. The sample period is 1980-2001. The sample size is 24641 firm-year observations.

	Q1 Low *EXVAL1*	Q2	Q3	Q4	Q5 High *EXVAL1*	All Firms	Q5 – Q1
EXVAL1	-0.7310	-0.1597	0.0775	0.3996	1.0813	0.1353	1.8133 ***
EXVAL 2	-0.7161	-0.2521	0.1000	0.3218	0.8711	0.0487	1.5872 ***
RRVVAL	-0.1717	-0.0821	0.0123	0.1186	0.4222	0.0605	0.5939 ***
EXCOV1	-0.5300	-0.2323	-0.0798	0.1322	0.4831	-0.0444	1.0131 ***
EXCOV2	-0.4549	-0.1964	-0.0198	0.2094	0.5416	0.0172	0.9965 ***
RESCOV	0.0188	0.1008	0.1582	0.2213	0.2303	0.1463	0.2115 ***
NAF	4.4641	5.9719	6.9585	7.7169	8.1667	6.6617	3.7024 ***
Ln(SIZE)	5.2029	5.6406	5.8748	6.0050	6.1537	5.7770	0.9508 ***
RETURN	0.0150	0.0127	0.0122	0.0110	0.0125	0.0126	-0.0025 ***
EXRETURN	0.0041	0.0026	0.0024	-0.0002	0.0001	0.0018	-0.0040 ***

***Significant at the 0.01 level.

and statistically significant at the 1% level. On average, low excess value firms are also covered by smaller number of analysts (4.4641) than high excess value firms (8.1667). The mean difference between Q5 and Q1 portfolios is 3.7024 and statistically significant at the 1% level. The results also show that the lowest and highest excess value quintile firms are significantly different in terms of size. Low excess value firms are considerably smaller than high excess value firms. The mean difference between large (Q5) and small (Q1) firms is 0.9508 and statistically significant at the 1% level. Finally, another interesting observation that emerges from Table II is that overvalued (undervalued) stocks consistently earn low (high) future returns. Both raw (*RETURN*) and risk-adjusted (*EXRETURN*) monthly mean return differences between low (Q1) and high (Q5) excess value quintile firms are –0.0025 and –0.0040, respectively, and statistically significant at the 1% level. This provides supplemental evidence that the excess value metrics, used in this study, are comparable and appropriate measures of mispricing.

A. Excess Market Value and Analyst Coverage

As hypothesized in the previous section, the relation between excess analyst coverage and excess market value should be positive. To test whether the potential for misvaluation is related to the degree of analyst coverage, we estimate the following equation using fixed effects regressions over the 1980-2001 period.

$$EXVAL = f\,(EXCOV, SIZE, EBITS, CAPXS, GI)$$

The above equation controls for firm size (*SIZE)*, profitability *(EBITS)*, growth opportunities (*CAPXS),* and corporate governance (*GI*) characteristics. The *SIZE*, *EBITS,* and *CAPXS* variables are measured by the book value of total assets, EBIT-to-sales ratio, and capital expenditures-to-sales ratio, respectively.[13] Finally, to account for the effects of corporate governance, we introduce in our analysis a corporate governance index (*GI*) based on the index originally developed by Gompers, Ishii, and Metrick (2003). Their index uses 24 different provisions that define the power sharing relationship between managers and investors, and is constructed by adding one point for every provision that restricts shareholder rights, or increases managerial power. Thus, it has a range from 0 to 24, where higher values indicate lower investor rights (higher managerial power). In this paper we define *GI* as the inverse of the Gompers et al. (2003) index. Hence, firms with high (low) *GI* values have stronger (weaker) governance. The *GI* is available for the years 1990, 1993, 1995 and 1998 and not for every firm included in the dataset used in the previous tables. The total number of firm-year observations for *GI* is 2,402. Since, our analysis relies on the combination of cross-sectional and times series data for 4,864 firms, fixed-effects regression procedures seem appropriate to capture the heterogeneity among individual firms.[14]

A potential limitation of this testing procedure is that excess analyst coverage could be endogenous. That is, analysts are likely to increase coverage on stocks whose price is expected to rise. We control for endogeneity in analysts' decision to provide high/low

[13]We have also used the dollar value of annual sales and the natural logarithm of the book value of total assets as well as the natural logarithm of sales as alternative measures of firm size. The results of our empirical tests remain essentially unaltered by the choice of the size variable.

[14]For the purpose of choosing among the fixed-effects and the random-effects models we compute the Hausman test χ^2-statistic that indicates whether the random-effects and the fixed-effects models coefficients are significantly different from each other. A high χ^2-statistic rules in favor of the fixed-effects model. The results obtained using the random effects model are qualitatively similar to the ones from the fixed-effects model presented here.

coverage (i.e., coverage above or below the expected level) in two ways: First, we use a two-stage least squares procedure whereas we model analysts' decision to provide a specific level of excess coverage as a function of firm and industry characteristics and then use the estimated excess coverage as an instrument in evaluating the impact of excess coverage on excess value. Second, we use an endogenous self-selection model and Heckman's (1979) procedure to correct for self-selection bias introduced by analysts' decision to provide high levels of coverage. The two procedures and corresponding results are described below.

1. Two-Stage Least Squares Fixed Effects

We estimate fixed effects two-stage least squares (2SLS) regressions by employing the following structural model:

$$EXCOV = f(EXVAL, NAF, SIZE, 1/PRICE) \tag{1}$$

$$EXVAL = f(EXCOV, SIZE, EBITS, CAPXS, GI) \tag{2}$$

Model (2) is the *EXVAL* model while Model (1) is using the excess analyst coverage as the dependent variable. The excess stock value, *EXVAL*, enters as an independent variable in Model (1) along with size and the number of analysts following the firm, *NAF*, as additional control variables. Following Brennan and Hughes (1991) we use the reciprocal of the share price, *1/PRICE*, as an instrumental variable in this model. We estimate four different versions of the above structural model based on four variants of Model (2) for the first two measures of excess valuation (*EXVAL1*, *EXVAL*2) and coverage (*EXCOV1*, *EXCOV*2). Table III lists these results.

Two-stage least square fixed effects regression results are reported in Panel A of Table III. In all four different specifications, the evidence shows that excess analyst coverage (*EXCOV1*) has invariably a positive and significant influence on excess value (*EXVAL1*) even though the relation between excess value and excess analyst coverage in the first stage regressions is also positive and significant. While these findings suggest that excess analyst coverage is likely to increase when stocks are overvalued, excess analyst coverage remains an important determinant of the firm's excess market value. The remaining independent and instrumental variables have the expected coefficient signs. When we use an alternative set of excess valuation (*EXVAL*2) and analyst coverage (*EXCOV*2) measures, as shown in Panel B of Table III, the results are remarkably similar. Interestingly, after controlling for other effects, the impact of *GI* on *EXVAL1*, which initially was negative, becomes positive consistent with the view that strong corporate governance improves firm value.

2. Self-Selection Model

The second method used to control for endogeneity is based on Heckman's (1979) two-step procedure that controls for the self-selection of firms that are excessively covered by analysts.

We start with a model such as Model (2), which in general can be written as:

$$EXVAL_{it} = \alpha_0 + \alpha_1 X_{it} + \varepsilon_{it},$$

where X is a vector of independent variables, as in Model (2).

We estimate the expected excess value conditional on analysts' choice to provide high coverage as:

Table III. Fixed Effects Two-Stage Least Squares Models of Excess Value on Excess Analyst Coverage

This table reports coefficients and corresponding t-statistics (in parentheses) for the two-stage least squares fixed effects model of the endogenous relation between excess value and excess analyst coverage. The dependent variables are as follows. The excess value, *EXVAL1*, which we measure as the natural logarithm of the ratio of a firm's actual value to its imputed value. A firm's imputed value is equal to its sales multiplied by its industry median capital to sales ratio (computed for single-segment firms in the industry). The excess analyst coverage measure, *EXCOV1*, which we compute as the natural logarithm of the ratio of a firm's actual number of analyst following to its imputed analyst following. A firm's imputed analyst following is equal to its sales multiplied by its industry median analyst following to sales ratio (computed for single-segment firms in the industry). We compute *EXCOV2* and *EXVAL2* similarly to *EXCOV1* and *EXVAL1*, respectively, but we base our industry classification on Fama-French's (1997) 48 industries. The independent variables are *SIZE*, which is the market value of common equity; *EBITS*, the ratio of EBIT to sales; *CAPXS*, the ratio of capital expenditures to sales; *GI*, the inverse of the corporate governance index developed in Gompers, Ishii, and Metrick (2003), which uses 24 different provisions that define the power- sharing relation between managers and investors. Gompers et al. (2003) constructed their governance index by adding one point for every provision that restricts shareholder rights or increases managerial power. We use the annual rank order of *GI* in our calculations. Thus, higher *GI* values indicate higher investor rights (lower managerial power). *GI* is available for the years 1990, 1993, 1995 and 1998. *NAF* is the number of analysts following the firm, i.e., number of analysts who make one-fiscal-year-ahead earnings forecasts in June of each year. *1/PRICE* is the reciprocal of the stock price at the end of each June.

Panel A. Dependent Variables are EXCOV1 and EXVAL1

	(1)		(2)		(3)		(4)	
Variables	**Dep. Var: *EXCOV1***	**Dep. Var: *EXVAL1***	**Dep. Var: *EXCOV1***	**Dep. Var: *EXVAL1***	**Dep. Var: *EXCOV1***	**Dep. Var: *EXVAL1***	**Dep. Var: *EXCOV1***	**Dep. Var: *EXVAL1***
Intercept	0.7830 ***	0.1834 ***	0.7287 ***	-0.8436 ***	1.2566 ***	0.6034 ***	1.1913 ***	-1.6379 ***
	(23.27)	(98.19)	(21.00)	(-59.66)	(8.33)	(12.97)	(7.50)	(22.16)
EXCOV1		1.0702 ***		1.1479 ***		0.8304 ***		1.1070 ***
		(140.10)		(160.68)		(32.71)		(54.37)
EXVAL1	0.4937 ***		0.4892 ***		0.5789 ***		0.5913 ***	
	(57.22)		(53.96)		(16.24)		(15.85)	
GI						-0.7868 **		0.3030
						(-2.43)		(1.32)
NAF	0.0601 ***		0.0604 ***		0.0415 ***		0.0432 ***	
	(47.89)		(46.37)		(10.88)		(10.74)	
Ln(SIZE)	-0.2457 ***		-0.2373 ***	0.1892 ***	-0.3264 ***		-0.3204 ***	0.3241 ***
	(-38.27)		(-35.70)	(70.31)	(-14.64)		(-13.76)	(33.07)
EBITS				0.1524 ***				-0.0138
				(11.21)				(-0.25)
CAPXS				0.1584 ***				0.1229
				(11.38)				(1.39)
1/PRICE	0.0408 **		0.0411 **		-0.0300		-0.0265	
	(2.50)		(2.48)		(-0.52)		(-0.46)	
N	24162		22802		2345		2222	
R^2 - within	0.2669	0.5043	0.23253	0.6203	0.3239	0.4711	0.3224	0.7419
F – value	1546.6 ***	19628.7 ***	1393.6 ***	7398.9 ***	145.5 ***	541.9 ***	90.6 ***	4293.1 ***
[Prob > F]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]

Table III. Fixed Effects Two-Stage Least Squares Models of Excess Value on Excess Analyst Coverage (*Continued*)

Panel B. Dependent Variables are EXCOV2 and EXVAL2

	(1)		(2)		(3)		(4)	
Variables	**Dep. Var: *EXCOV2***	**Dep. Var: *EXVAL2***	**Dep. Var: *EXCOV2***	**Dep. Var: *EXVAL2***	**Dep. Var: *EXCOV2***	**Dep. Var: *EXVAL2***	**Dep. Var: *EXCOV2***	**Dep. Var: *EXVAL2***
Intercept	1.3596 ***	0.0346 ***	1.3014 ***	-1.3548 ***	1.7264 ***	0.5197 ***	1.6871 ***	-2.0140 ***
	(41.72)	(19.51)	(38.79)	(-113.31)	(13.08)	(11.08)	(12.24)	(-34.84)
EXCOV2		0.8782 ***		1.0117 ***		0.6958 ***		0.9620 ***
		(158.49)		(221.29)		(34.67)		(72.03)
EXVAL2	0.7002 ***		0.6977 ***		0.7595 ***		0.7719 ***	
	(86.49)		(82.21)		(24.61)		(23.92)	
GI						-0.6954 **		0.3356 *
						(-2.15)		(1.86)
NAF	0.0632 ***		0.0629 ***		0.0422 ***		0.0422 ***	
	(52.22)		(50.24)		(12.56)		(12.01)	
Ln(SIZE)	-0.3415 ***		-0.3312 ***	0.2569 ***	-0.4086 ***		-0.4029 ***	0.3704 ***
	(-55.08)		(-51.69)	(113.09)	(-21.03)		(-13.76)	(47.50)
EBITS				0.1318 ***				0.0549
				(11.70)				(1.29)
CAPXS				0.1167 ***				0.1574 **
				(10.15)				(2.25)
1/PRICE	0.0691 ***		0.0721 **		0.0181		0.0237	
	(4.38)		(4.53)		(0.36)		(0.48)	
N	24195		22832		2347		2224	
R^2 - within	0.3779	0.5652	0.3686	0.7570	0.5005	0.5040	0.4961	0.8453
F - value	2934.8 ***	25120.5 ***	2647.9 ***	14134.9 ***	304.8 ***	619.32 ***	283.99 ***	12599.9 ***
[Prob > F]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]

***Significant at the 0.01 level.
**Significant at the 0.05 level.
*Significant at the 0.10 level.

$$\mathrm{E}(EXVAL_{it} \mid EXCOV_{it} = 1) = \alpha_0 + \alpha_1 X_{it} + \mathrm{E}(\varepsilon_{it}, \mid EXCOVD_{it} = 1) \tag{3}$$

where *EXCOVD* is an indicator variable that takes the value of one (zero) when the excess coverage is positive (negative).

We assume that analysts' decision to provide a certain level of coverage is determined by:

$$EXCOVD^*_{it} = \beta Z_{it} + \mu_{it} \tag{4}$$

$$EXCOVD_{it} = 1 \text{ if } EXCOVD^*_{it} > 0$$

$$EXCOVD_{it} = 0 \text{ if } EXCOVD^*_{it} < 0$$

where $EXCOVD^*_{it}$ is an unobserved latent variable, Z_{it} is a set of firm characteristics that influence the analysts coverage decision, and μ_{it} is an error term. The correlation between $EXCOVD_{it}$ and the error term $\varepsilon_{\iota t}$ in the excess value Equation (Model 3) arises when some of the exogenous variables in Model (4) have an effect on $EXCOVD_{it}$ but are not included as regressors in Equation (3), or when the error terms $\varepsilon_{\iota t}$ and μ_{it} are correlated. In either case the estimation of α_1 using OLS will be biased.

Consistent with Heckman's two-step procedure, we first estimate the probability of being covered by more analysts than the market expects, i.e., the probability of positive excess coverage, using the following probit model:

$$EXCOVD = f(RANKBM, NAF, SIZE, 1/PRICE) \tag{5}$$

Model (5) is used to get consistent estimates of β, which are then used to obtain estimates of l, the correction for self-selection (a.k.a inverse of Mill's ratio). In Model (5) we include the book-to-market decile ranking of each firm (*RANKBM*), computed annually, as a control for the possible mispricing effects on excess coverage, in lieu of *EXVAL* that cannot be included in the first-step regression. The use of the *RANKBM* variable is consistent with the behavioral view that investors expect firms with higher market-to-book ratios to be overpriced. In the second step we estimate the impact of *EXCOVD* on *EXVAL* by estimating the following model.

$$EXVAL = f(EXCOVD, SIZE, EBITS, CAPXS, GI, l) \tag{6}$$

where the significance of the coefficient of l indicates whether there is self-selection bias. Moreover, the sign of the coefficient of l indicates whether the OLS model over- or underestimates the impact of *EXCOVD* on *EXVAL*. The independent variables in Equations (5) and (6) are as previously described.

Results based on the Heckman (1979) two-step procedure are presented in Table IV. Panel A reports regression results using the excess coverage dummy, *EXCOV1D*, based on our first coverage measure, and the first excess value measure, *EXVAL1*, as dependent variables. Panel B lists results from regressions that use the excess coverage dummy, *EXCOV2D*, based on our second coverage measure, and the second excess value measure, *EXVAL2*, as dependent variables. Coefficient estimates of *EXCOV1D* and *EXCOV2D* variables remain positive and significant at the 1% level throughout. In addition, the coefficients of the inverse of Mill's ratio (l) are significant in all four models in Panel A and in two out of the four models in Panel B, indicating that the coefficient of *EXCOVD* without correcting for self-selection would be biased. Interestingly, once we have accounted for self-selection the *GI*

Table IV. Heckman's (1979) Two-Step Regressions of Excess Value on Excess Analyst Coverage

This table reports coefficients and corresponding z-statistics (in parentheses) for the two-step self-selection model (Heckman, 1979) of the endogenous relation between excess analyst coverage and excess value. The first step of the estimation is a probit model where the dependent variable is a dummy variable, *EXCOV1D*, that takes the value of one (zero) if the excess coverage measure, *EXCOV1,* is positive (negative). In the second step we estimate the excess value conditional on the self-selection of analysts who provide positive excess coverage. We measure the dependent variable in the second step, *EXVAL1*, as the natural logarithm of the ratio of a firm's actual value to its imputed value. A firm's imputed value is equal to its sales multiplied by its industry median capital to sales ratio (computed for single-segment firms in the same industry). The excess analyst coverage measure, *EXCOV1*, is the natural logarithm of the ratio of a firm's actual number of analyst following to its imputed analyst following. A firm's imputed analyst following is equal to its sales multiplied by its industry median analyst following to sales ratio (computed for single-segment firms in the industry). We compute *EXCOV2* and *EXVAL2* similarly to *EXCOV1* and *EXVAL1*, respectively, but we base our industry classification on Fama-French's (1997) 48 industries. The independent variables are *SIZE*, which is the firm's total assets; *EBITS*, the ratio of EBIT to sales; *RANKBM*, the decile rank of the firm after sorting on book-to-market annually; *CAPXS*, the ratio of capital expenditures to sales; *GI*, the inverse of the corporate governance index developed in Gompers, Ishii and Metrick (2003), which uses 24 different provisions that define the power-sharing relation between managers and investors. Gompers et al. construct their governance index by adding one point for every provision that restricts shareholder rights, or increases managerial power. We use the annual rank order of *GI* in our calculations. Thus, higher *GI* values indicate higher investor rights (lower managerial power). *GI* is available for the years 1990, 1993, 1995, and 1998. *NAF* is the number of analysts following the firm, i.e., number of analysts providing one fiscal year-ahead earnings forecasts in June of each year. *1/PRICE* is the reciprocal of the stock price at the end of each June.

Panel A. Dependent Variables are EXCOV1-Dummy (EXCOV1D) and EXVAL1

	(1)		(2)		(3)		(4)	
Variable	**Probit Estimates Dep.Var: *EXCOV1D***	***EXVAL1* Model**	**Probit Estimates Dep.Var: *EXCOV1D***	***EXVAL1* Model**	**Probit Estimates Dep.Var: *EXCOV1D***	***EXVAL1* Model**	**Probit Estimates Dep.Var: *EXCOV1D***	***EXVAL1* Model**
Intercept	0.0244	-0.2533 ***	0.0121	-0.4580 ***	0.5912 ***	-0.1449 ***	0.6195 ***	-0.2952 ***
	(1.19)	(-19.12)	(0.57)	(-27.75)	(7.53)	(-3.64)	(7.59)	(-6.21)
EXCOV1D		0.8318 ***		1.0416 ***		0.7633 ***		0.9327 ***
		(30.90)		(31.84)		(8.62)		(8.53)
RANKBM	-0.0277 ***		-0.0274 ***		0.0060		0.0108	
	(-9.35)		(-9.00)		(0.55)		(0.97)	
GI						0.7511 ***		0.7224 ***
						(3.56)		(3.45)
NAF	0.0402 ***		0.0404 ***		0.0366 ***		0.0379 ***	
	(22.45)		(21.87)		(7.70)		(7.70)	
SIZE	-0.0004 ***		-0.0004 ***	0.00002 ***	-0.0003 ***		-0.0003 ***	0.00001 ***
	(-35.65)		(-34.37)	(13.48)	(-11.20)		(-11.06)	(3.72)
EBITS				0.3444 ***				0.4491 ***
				(20.45)				(6.50)
CAPXS				0.5320 ***				0.2977 ***
				(24.99)				(4.96)
1/PRICE	-0.0527 **		-0.0573 **		-0.2187		-0.2449	
	(-1.90)		(-2.05)		(-1.29)		(-1.40)	
Mill's lambda		-0.2676 ***		-0.4180 ***		-0.2004 ***		-0.3217 ***
		(-15.48)		(-20.19)		(-3.62)		(-4.78)
N	24162		22802		2345		2222	
χ^2	2463.3 ***	5651.6 ***	2308.0 ***	3283.3 ***	231.1 ***	89.91 ***	222.7 ***	282.39 ***
[Prob > χ^2]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
Pseudo R^2	0.0738		0.0733		0.0807		0.0802	

Table IV. Heckman's (1979) Two-Step Regressions of Excess Value on Excess Analyst Coverage (*Continued*)

Panel B. Dependent Variables are EXCOV2-dummy (EXCOV2D) and EXVAL2

	(1)		(2)		(3)		(4)	
Variable	**Probit Estimates Dep.Var: *EXCOV2D***	***EXVAL2* Model**	**Probit Estimates Dep.Var: *EXCOV2D***	***EXVAL2* Model**	**Probit Estimates Dep.Var: *EXCOV2D***	***EXVAL2* Model**	**Probit Estimates Dep.Var: *EXCOV2D***	***EXVAL2* Model**
Intercept	0.1018 ***	-0.2656 ***	0.0988 ***	-0.5117 ***	-0.5469 ***	-0.2563 ***	-0.5307 ***	-0.4763 ***
	(4.82)	(-20.21)	(4.53)	(-34.11)	(-6.96)	(-5.91)	(-6.54)	(-9.94)
EXCOV2D		0.5914 ***		0.7446 ***		0.5458 ***		0.6700 ***
		(25.49)		(29.34)		(7.07)		(7.70)
RANKBM	-0.0120 ***		-0.0125 ***		0.0236 **		0.0218 *	
	(-3.95)		(-4.01)		(2.15)		(1.94)	
GI						1.1495 ***		0.9986 ***
						(4.66)		(4.23)
NAF	0.0656 ***		0.0655 ***		0.0506 ***		0.0501 ***	
	(32.49)		(31.46)		(10.19)		(9.75)	
SIZE	-0.0008 ***		-0.0008 ***	0.00001 ***	-0.0005 ***		-0.0005 ***	0.00001 **
	(-45.48)		(-43.86)	(10.42)	(-13.84)		(-13.45)	(2.04)
EBITS				0.7838 ***				0.9606 ***
				(32.96)				(12.30)
CAPXS				0.6452 ***				0.7453 ***
				(31.46)				(11.13)
1/PRICE	0.0231		0.0197		-0.0021		-0.0246	
	(0.82)		(0.69)		(-0.02)		(-0.23)	
Mill's lambda		0.0160		-0.1233 ***		0.0250		-0.1064 *
		(1.04)		(-7.45)		(0.50)		(-1.91)
N	24195		22832		2347		2224	
χ^2	4019.9 ***	649.9 ***	3793.8 ***	4988.9 ***	3789.0 ***	75.5 ***	360.44 ***	532.5 ***
[Prob > χ^2]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
Pseudo R^2	0.1202		0.1201		0.1258		0.1262	

***Significant at the 0.01 level.
**Significant at the 0.05 level.
*Significant at the 0.10 level.

coefficients are significant in both panels. The remaining independent variables behave largely as in the previous models. Overall, based on the results of Table IV, we conclude that even after controlling for self-selection in analyst coverage, the effect of excess coverage on excess value remains strong and positive.

B. Robustness Tests

In this section, we test whether our results are robust to the use of alternative measures of mispricing and abnormal analyst coverage.

1. The Rhodes-Kropf, Robinson, and Viswanathan Mispricing Measure

The evidence thus far supports the existence of a positive association between excess analyst coverage and excess valuation. However, these results are based on the relative excess valuation and excess analyst coverage measures. To examine the robustness of our findings, we replicate the previous analysis using the mispricing measure derived from the approach of Rhodes-Kropf et al. (2005), *RRVVAL*. These results are reported in Table V. Two-stage least square fixed effects regression results are reported in Panel A of Table V. These new results are consistent with our previous evidence listed in Table III. In all four regressions, the coefficient of the excess coverage variable, *EXCOV*1, is positive and statistically significant at the 1% level. Panel B of Table V presents Heckman's two-step regression results. Once again, the excess analyst coverage variable, *EXCOV*1*D,* maintains a positive and significant association with the excess valuation variable, *RRVVAL*. These results suggest that the association between excess analyst coverage and excess valuation is not sensitive to the choice of the excess valuation measure.

2. The Residual Analyst Coverage Measure

We further check the reliability of our results using the Hong et al. (2000) residual analyst coverage, *RESCOV*, as a proxy for the excess analyst coverage measure. Table VI reports these results. Panel A shows the two-stage least square fixed effects regression results. In all four regressions, the coefficients of *RESCOV* are positive and statistically significant at the 1% level. These new regression results are consistent with our previous findings, suggesting that our results are not limited to a particular analyst coverage measure. Panel B of Table VI shows similar results when we use Heckman's two-step regression analysis that controls for self-selection bias in analysts' coverage. The coefficients of the *RESCOVD* variable remain positive and significant at the 1% level in all regression models.

C. Multi-Factor Regression Analysis

Our analysis has documented a positive association between excessive analyst coverage and mispricing in stocks. The results suggest that excessive analyst coverage causes share prices to trade above fundamental values because it may trigger attention and unfounded optimism among investors. It follows that stocks with high excess coverage should realize lower future returns than stocks with low analyst coverage. If high analyst coverage stocks underperform low analyst coverage stocks on a risk-adjusted basis, time-series portfolios of high analyst coverage stocks should consistently underperform relative to an explicit asset-pricing model. Fama and French (1992, 1993, 1995, 1996) suggest that a three-factor model may explain the time series of stock returns. The Fama-French three factors are the excess return on the value-weighted market portfolio, RMRF, the return on a zero investment portfolio

Table V. Robustness Tests: Using the Firm-Specific Pricing Deviation from Short-Run Industry Pricing (*RRVVAL*) as a Mispricing Measure

Panel A reports two-stage least squares regression results and Panel B reports Heckman two-step regression results. The models in Panel A and Panel B correspond to the ones included in tables III and IV, respectively, but here we substitute the Rhodes-Kropf et al. (2005) firm-specific price deviation from book value, *RRVVAL*, for the excess value measure, *EXVAL*. The other variables are as follows. We compute the excess analyst coverage measure, *EXCOV1*, as the natural logarithm of the ratio of a firm's actual number of analyst following to its imputed analyst following. A firm's imputed analyst following is equal to its sales multiplied by its industry median analyst following to sales ratio (computed for single-segment firms in the industry). *SIZE*, is the market value of common equity; *EBITS*, the ratio of EBIT to sales; *RANKBM*, the decile rank of the firm after sorting on book-to-market annually; *CAPXS*, the ratio of capital expenditures to sales; *GI*, the inverse of the corporate governance index developed in Gompers, Ishii, and Metrick (2003), which uses 24 different provisions that define the power- sharing relation between managers and investors. Gompers et al. (2003) constructed their governance index by adding one point for every provision that restricts shareholder rights or increases managerial power. We use the annual rank order of *GI* in our calculations. Thus, higher *GI* values indicate higher investor rights (lower managerial power). *GI* is available for the years 1990, 1993, 1995 and 1998. *NAF* is the number of analysts following the firm, i.e., number of analysts who make one-fiscal-year-ahead earnings forecasts in June of each year. *1/PRICE* is the reciprocal of the stock price at the end of each June.

Panel A. Two Stage Least Squares Regressions: Dependent Variables are EXCOV1 and RRVVAL

	(1)		(2)		(3)		(4)	
Variable	**Dep. Var: *EXCOV1***	**Dep. Var: *RRVVAL***	**Dep. Var: *EXCOV1***	**Dep. Var: *RRVVAL***	**Dep. Var: *EXCOV1***	**Dep. Var: *RRVVAL***	**Dep. Var: *EXCOV1***	**Dep. Var: *RRVVAL***
Intercept	1.0954 ***	0.0819 ***	1.0262 ***	-1.2759 ***	1.3807 ***	0.2768 ***	1.2694 ***	-1.9284 ***
	(29.62)	(36.51)	(26.93)	(-77.18)	(8.43)	(4.85)	(7.37)	(-18.09)
EXCOV1		0.4824 ***		0.6595 ***		0.3487 ***		0.7712 ***
		(36.51)		(68.86)		(9.59)		(21.33)
RRVVAL	0.4410 ***		0.4304 ***		0.3839 ***		0.3771 ***	
	(39.69)		(36.95)		(8.90)		(8.43)	
GI						0.4784		1.5685 ***
						(1.23)		(4.80)
NAF	0.0744 ***		0.0738 ***		0.0519 ***		0.0545 ***	
	(56.07)		(53.68)		(12.91)		(12.80)	
Ln(SIZE)	-0.3145 ***		-0.3036 ***	0.2577 ***	-0.3578 ***		-0.3457 ***	0.3344 ***
	(-43.71)		(-40.71)	(82.06)	(-14.59)		(-13.50)	(23.04)
EBITS				-0.0223				-0.3335 ***
				(-1.42)				(-4.35)
CAPXS				0.0205				0.0786
				(1.28)				(0.63)
1/PRICE	0.0266		0.0279 *		-0.0625		-0.0640	
	(1.57)		(1.65)		(-1.02)		(-1.04)	
N	24162		22802		2345		2222	
R^2 - within	0.1811	0.0976	0.1746	0.3448	0.2276	0.0780	0.2225	0.3691
F - value	1066.9 ***	2086.7.4 ***	958.3 ***	2383.5 ***	89.5 ***	51.5 ***	82.4 ***	134.7 ***
[Prob > F]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]

Table V. Robustness Tests: Using the Firm-Specific Pricing Deviation from Short-Run Industry Pricing (*RRVVAL*) as a Mispricing Measure (*Continued*)

Panel B. Heckman's Two-Step Regressions: Dependent Variables are EXCOV1-dummy (EXCOV1D) and RRVVAL

	(1)		(2)		(3)		(4)	
Variable	**Probit Estimates Dep.Var: *EXCOV1D***	***RRVVAL* Model**	**Probit Estimates Dep.Var: *EXCOV1D***	***RRVVAL* Model**	**Probit Estimates Dep.Var: *EXCOV1D***	***RRVVAL* Model**	**Probit Estimates Dep.Var: *EXCOV1D***	***RRVVAL* Model**
Intercept	0.0244	-0.2258 ***	0.0121	-0.4436 ***	0.5912 ***	0.0664 *	0.6195 ***	-0.0771 *
	(1.19)	(-18.94)	(0.57)	(-27.59)	(7.53)	(1.95)	(7.59)	(-1.81)
EXCOV1D		0.6122 ***		0.9430 ***		0.4145 ***		0.6974 ***
		(25.28)		(29.51)		(5.40)		(6.94)
RANKBM	-0.0277 ***		-0.0274 ***		0.0060		0.0108	
	(-9.35)		(-9.00)		(0.55)		(0.97)	
GI						0.1393		0.0937
						(0.78)		(0.53)
NAF	0.0402 ***		0.0404 ***		0.0366 ***		0.0379 ***	
	(22.45)		(21.87)		(7.70)		(7.70)	
SIZE	-0.0004 ***		-0.0004 ***	0.00003 ***	-0.0003 ***		-0.0003 ***	0.00002 ***
	(-35.65)		(-34.37)	(23.06)	(-11.20)		(-11.06)	(6.60)
EBITS				0.2335 ***				0.1929 ***
				(13.18)				(3.32)
CAPXS				0.0992 ***				0.0109
				(7.19)				(0.22)
1/PRICE	-0.0527 **		-0.0573 **		-0.2187		-0.2449	
	(-1.90)		(-2.05)		(-1.29)		(-1.40)	
Mill's lambda		-0.3718 ***		-0.5812 ***		-0.2423 ***		-0.4168 ***
		(-24.08)		(-29.02)		(-5.06)		(-6.77)
N	24162		22802		2345		2222	
χ^2	2463.3 ***	639.1 ***	2420.3 ***	3283.3 ***	231.1 ***	30.3 ***	222.7 ***	195.9 ***
[Prob > χ^2]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
Pseudo R^2	0.0738		0.0733		0.0807		0.0802	

***Significant at the 0.01 level.
**Significant at the 0.05 level.
*Significant at the 0.10 level.

Table VI. Robustness Tests: Using the Residual Analyst Coverage (*RESCOV*) as Excess Coverage Measure

Panel A reports two-stage least squares regression results and Panel B reports Heckman two-step regression results. The models in Panel A and Panel B correspond to the ones included in tables III and IV, respectively, but here we substitute the Hong et al. (2000) residual analyst coverage, *RESCOV*, for the excess analyst coverage measure, *EXCOV*. The other variables are as follows. We measure the dependent variable in the second step, *EXVAL1*, as the natural logarithm of the ratio of a firm's actual value to its imputed value. A firm's imputed value is equal to its sales multiplied by its industry median capital to sales ratio (computed for single-segment firms in the same industry). *SIZE*, is the market value of common equity; *EBITS*, the ratio of EBIT to sales; *RANKBM*, the decile rank of the firm after sorting on book-to-market annually; *CAPXS*, the ratio of capital expenditures to sales; *GI*, the inverse of the corporate governance index developed in Gompers, Ishii, and Metrick (2003), which uses 24 different provisions that define the power- sharing relation between managers and investors. Gompers et al. (2003) constructed their governance index by adding one point for every provision that restricts shareholder rights or increases managerial power. We use the annual rank order of *GI* in our calculations. Thus, higher *GI* values indicate higher investor rights (lower managerial power). *GI* is available for the years 1990, 1993, 1995 and 1998. *NAF* is the number of analysts following the firm, i.e., number of analysts who make one-fiscal-year-ahead earnings forecasts in June of each year. *1/PRICE* is the reciprocal of the stock price at the end of each June.

Panel A. Two Stage Least Squares Regressions: Dependent Variables are RESCOV and EXVAL1

	(1)		(2)		(3)		(4)	
Variable	**Dep. Var: *RESCOV***	**Dep. Var: *EXVAL1***	**Dep. Var: *RESCOV***	**Dep. Var: *EXVAL1***	**Dep. Var: *RESCOV***	**Dep. Var: *EXVAL1***	**Dep. Var: *RESCOV***	**Dep. Var: *EXVAL1***
Intercept	0.6387 ***	0.0964 ***	0.6126 ***	0.5499 ***	1.2227 ***	0.0185	1.1634 ***	-1.1809
	(40.91)	(-31.87)	(38.10)	(-25.50)	(18.51)	(0.32)	(16.92)	(-8.55)
RESCOV		0.2660 ***		0.2636 ***		0.2943 ***		0.3788 ***
		(24.37)		(24.63)		(8.23)		(10.16)
EXVAL1	0.0867 ***		0.0870 ***		0.1160 ***		0.1143 ***	
	(21.67)		(20.70)		(7.43)		(7.08)	
GI						0.7616 *		1.0674 **
						(1.78)		(2.58)
NAF	0.0945 ***		0.0945 ***		0.0758 ***		0.0776 ***	
	(162.44)		(156.66)		(45.44)		(44.54)	
Ln(SIZE)	-0.2153 ***		-0.2108 ***	0.1054 ***	-0.2781 ***		-0.2723 ***	0.1510 ***
	(-72.29)		(-68.45)	(26.10)	(-28.48)		(-27.01)	(8.83)
EBITS				0.3780 ***				0.2941 ***
				(18.26)				(3.00)
CAPXS				0.4118 ***				0.8325 ***
				(19.45)				(5.27)
1/PRICE	0.0408 ***		0.0398 ***		-0.0099		-0.0095	
	(5.38)		(5.19)		(-0.39)		(-0.38)	
N	24162		22832		2347		2222	
R^2 - within	0.5882	0.0299	0.5851	0.1090	0.6872	0.0585	0.6904	0.1549
F – value	6890.2 ***	594.1 ***	6387.7 ***	554.0 ***	667.2 ***	37.8 ***	642.1 ***	42.2 ***
[Prob > F]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]

Table VI. Robustness Tests: Using the Residual Analyst Coverage (*RESCOV*) as Excess Coverage Measure (*Continued*)

Panel B. Heckman's Two-Step Regressions: Dependent Variables are RESCOV-dummy (RESCOVD) and EXVAL1

	(1)		(2)		(3)		(4)	
Variable	**Probit Estimates Dep.Var: RESCOVD**	**EXVAL1 Model**	**Probit Estimates Dep.Var: RESCOVD**	**EXVAL1 Model**	**Probit Estimates Dep.Var: RESCOVD**	**EXVAL1 Model**	**Probit Estimates Dep.Var: RESCOVD**	**EXVAL1 Model**
Intercept	-1.5508 ***	-0.0942 ***	1.5407 ***	-0.1660 ***	-2.1364 ***	-0.2574 ***	-2.0358 ***	-0.2994 ***
	(-53.61)	(-10.68)	(51.60)	(-18.57)	(-17.54)	(-5.93)	(-16.39)	(-6.86)
RESCOVD		0.3756 ***		0.3308 ***		0.3815 ***		0.3486 ***
		(29.67)		(26.46)		(9.98)		(8.95)
RANKBM	0.0550 ***		0.0525 ***		0.0962 ***		0.0889 ***	
	(15.66)		(14.55)		(6.95)		(6.30)	
GI						1.3336 ***		1.2081 ***
						(6.04)		(5.51)
NAF	0.3457 ***		0.3466 ***		0.3031 ***		0.2950 ***	
	(81.57)		(79.51)		(24.90)		(24.03)	
SIZE	-0.0003 ***		-0.0003 ***	-0.00000 **	-0.0002 ***		-0.0002 ***	-0.00000
	(-59.70)		(-58.85)	(-2.09)	(-18.89)		(-18.40)	(-1.36)
EBITS				0.5323 ***				0.4111 ***
				(23.82)				(5.68)
CAPXS				0.3918 ***				0.3786 ***
				(22.16)				(6.18)
1/PRICE	0.5056 ***		0.4899 ***		0.1803		0.1729	
	(13.32)		(12.78)		(1.54)		(1.47)	
Mill's lambda		-0.1617 ***		-0.0983 ***		-0.1867 ***		-0.1595 ***
		(-16.47)		(-10.18)		(-6.17)		(-5.22)
N	24195		22832		2347		2224	
χ^2	15293.7 ***	880.2 ***	11681.9 ***	5439.4 ***	1334.7 ***	125.7 ***	1225.6 ***	539.5 ***
[Prob > χ^2]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
Pseudo R^2	0.3803		0.3831		0.4607		0.4497	

***Significant at the 0.01 level.
**Significant at the 0.05 level.
*Significant at the 0.10 level.

subtracting the return on a large firm portfolio from the return on a small firm portfolio, SMB, and the return on a zero investment portfolio estimated as the return on a portfolio of high book-to-market minus the return on a portfolio of low book-to-market stocks, HML. In line with Carhart (1997) we add a momentum factor, UMD, to the Fama-French model, to capture the medium-term continuation effect in stock returns documented in Jagadeesh and Titman (1993). UMD is the return difference between the return on a portfolio of past winners (t-12 to t-2) and a portfolio of past losers (t-12 to t-2). We use the intercept from the time-series regressions of the arbitrage portfolio between low excess coverage (Low *EXCOV*) stocks and high excess coverage (High *EXCOV*) stocks as a measure of risk-adjusted abnormal performance. Moreover, in order to account for the degree of analysts' optimism we consider the arbitrage portfolio between Low *EXCOV* stocks with pessimistic earnings expectations and High *EXCOV* stocks with optimistic earnings expectations.[15] Earnings expectations are categorized as optimistic (pessimistic) if the median June forecast of the fiscal year end earnings-per-share is greater (less) than the actual earnings-per-share. The intercept in these regressions is similar in spirit to Jensen's alpha in the context of CAPM, but controls for size, book-to-market and momentum factors in addition to the overall market factor.

If High *EXCOV* stocks trade at premium (i.e., underperform Low *EXCOV* stocks), the alpha of the arbitrage portfolio should be positive and statistically significant. The arbitrage portfolios are computed as the difference in monthly returns between the lowest 30th percentile of excess coverage firms with pessimistic earnings forecasts and the highest 30th percentile of excess coverage firms with optimistic earnings expectations. The sorting procedure is repeated for all three excess coverage measures (*EXCOV1*, *EXCOV*2 and *RESCOV*). If the return difference between low and high analyst coverage stocks is a manifestation of confounding effects (i.e., differences in market beta, size, book-to-market and momentum), the regression intercepts should be economically and statistically indistinguishable from zero.

The four-factor time-series regression results are reported in Table VII. Panel A of Table VII, reports three arbitrage portfolio regressions (i.e., single-factor, Fama-French three-factor and four-factor models) for equally- and value-weighted quintile portfolios sorted according to the *EXCOV*1 measure. These regression results indicate that the intercepts of the equally-weighted arbitrage portfolios for the single-, three- and four-factor models are 0.0260 (with t-value of 9.24), 0.0262 (with t-value of 10.66), and 0.0237 (with t-value of 9.87), respectively. All three intercepts are statistically significant at the 1% level. Similarly, the intercepts of the value-weighted arbitrage portfolios are 0.0229, 0.025, and 0.0231, respectively. They are all highly statistically significant with t-values of 5.92, 8.19, and 7.81, respectively. These intercepts suggest that all three asset pricing models and in particular the multi-factor models, leave a large fraction of the return variability unexplained. Panels B and C of Table VII report arbitrage regression results based on portfolios sorted on our second coverage, *EXCOV2*, and residual coverage, *RESCOV*, measures, respectively. The intercepts from the equally- and value-weighted arbitrage portfolio regressions are all positive and highly statistically significant. Consistent with our previous evidence, these results suggest that high analyst coverage stocks with optimistic forecasts realize lower returns than low analyst coverage stocks with pessimistic forecasts: that is, analyst coverage hype is priced at a premium. This reliable pattern of returns between high and low excess analyst coverage stocks supports the existence of a unique analyst optimism effect in stock returns.

[15]Analysts' optimism has been extensively documented in the literature (see, Easterwood, Easterwood, and Nutt, 1999).

Table VII. Time-Series Tests for Returns of Portfolios with Extreme Excess Coverage and Investor Sentiment

This table reports OLS test coefficients (heteroskedasticity-adjusted) and corresponding t-values (in parentheses). The sample includes 252 monthly observations for the July 1980 - June 2001 period. We compute the portfolio returns as the difference in monthly returns between the portfolio of firms belonging to the lowest 30th percentile of excess coverage, which have pessimistic forecasts and the portfolio of firms belonging to the highest 30th percentile of excess coverage, which have optimistic forecasts. Sorting is done annually in the month of June. The sorting procedure is repeated for all three excess coverage measures. Forecasts are classified as optimistic (pessimistic) if the median June forecast of fiscal-year-end earnings per share is higher than the actual earnings per share. Thus, Panel A includes results obtained from sorting on *EXCOV1*, while Panels B and C contain results obtained after forming portfolios by sorting according to *EXCOV2* and *RESCOV*, respectively. *RMRF* is the value-weighted market return (*RM*) minus the one-month Treasury Bill rate (*RF*). *SMB* ("small minus big") is the difference each month between the return on small and big firms, while *HML* ("high minus low") is the monthly difference of the returns on a portfolio of high book-to-market and low book-to-market firms. *UMD* ("up minus down") is the momentum factor computed on a monthly basis as the return differential between a portfolio of winners and a portfolio of losers. *RMRF*, *HML*, *SMB* and *UMD* are extracted from K. French's website.

$$R_{[\text{Low } \boldsymbol{EXCOV1}]}(t) - R_{[\text{High } \boldsymbol{EXCOV1}]}(t) = a + bRMRF(t) + sSMB(t) + hHML(t) + mUMD(t) + e(t)$$

Panel A. Left hand-side returns are differences between returns on stocks with low EXCOV1 and pessimistic forecasts, and stocks with high EXCOV1 and optimistic forecasts

Variable	Dependent Variable: Equally-Weighted Return Differential of $\{R_{[\text{Low } EXCOV1]} - R_{[\text{High } EXCOV1]}\}$		
Intercept	0.0260 ***	0.0262 ***	0.0237 ***
	(9.24)	(10.66)	(9.87)
RMRF	-0.1123 *	-0.0801	-0.0675
	(-1.81)	(-1.22)	(-1.17)
SMB		-0.6278 ***	-0.6447 ***
		(-8.51)	(-9.18)
HML		-0.0960	-0.0221
		(-0.81)	(-0.20)
UMD			0.2424 ***
			(4.60)
Adjusted - R^2	0.0094	0.2157	0.2545

Variable	Dependent Variable: Value-Weighted Return Differential of $\{R_{[\text{Low } EXCOV1]} - R_{[\text{High } EXCOV1]}\}$		
Intercept	0.0229 ***	0.0251 ***	0.0231 ***
	(5.92)	(8.19)	(7.81)
RMRF	-0.1211	-0.1737 **	-0.1641 **
	(-1.25)	(-2.23)	(-2.26)
SMB		-1.0881 ***	-1.1009 ***
		(-9.66)	(-10.12)
HML		-0.4171 **	-0.3610 *
		(-2.39)	(-1.86)
UMD			0.1843 *
			(1.73)
Adjusted - R^2	0.0042	0.2911	0.3039

***Significant at the 0.01 level.
**Significant at the 0.05 level.
*Significant at the 0.10 level.

Table VII. Time-Series Tests for Returns of Portfolios with Extreme Excess Coverage and Investor Sentiment (*Continued*)

Panel B. Left hand-side returns are differences between returns on stocks with low EXCOV2 and pessimistic forecasts, and stocks with high EXCOV2 and optimistic forecasts

Variable	Dependent Variable: Equally-Weighted Return Differential of $\{R_{[Low\ EXCOV2]} - R_{[High\ EXCOV2]}\}$		
Intercept	0.0267 ***	0.0291 ***	0.0274 ***
	(9.75)	(11.90)	(10.94)
RMRF	-0.0502	-0.1533 **	-0.1451 **
	(-0.73)	(-2.52)	(-2.51)
SMB		-0.5796 ***	-0.5905 ***
		(-7.34)	(-7.81)
HML		-0.3956 ***	-0.3479 ***
		(-3.46)	(-2.67)
UMD			0.1566 **
			(2.04)
Adjusted - R^2	-0.0011	0.1616	0.1813
Variable	**Dependent Variable: Value-Weighted Return Differential of $\{R_{[Low\ EXCOV2]} - R_{[High\ EXCOV2]}\}$**		
Intercept	0.0244 ***	0.0268 ***	0.0246 ***
	(6.04)	(7.69)	(6.55)
RMRF	-0.1151	-0.1862 **	-0.1752 **
	(-1.11)	(-2.27)	(-2.27)
SMB		-1.0711 ***	-1.0857 **
		(-9.15)	(-9.78)
HML		-0.4552 ***	-0.3913 ***
		(-3.06)	(-2.90)
UMD			0.2097
			(1.38)
Adjusted - R^2	0.0030	0.2623	0.2785

***Significant at the 0.01 level.
**Significant at the 0.05 level.
*Significant at the 0.10 level.

IV. Conclusions

In this article, we use a panel of firms over the 1980-2001 period to analyze whether excess stock valuations are associated with excess analyst coverage. We document that positive excess (strong) analyst coverage is associated with stock premiums while negative excess (weak) analyst coverage with stock discounts. This evidence corroborates Jensen's (2004) agency costs of overvalued equity argument. Our empirical findings suggest that abnormal analyst coverage causes stocks to trade at prices away from fundamental values, which is detrimental to investors and market's ability to allocate capital efficiently. The results remain robust when we control for the possible endogenous nature of analyst coverage and self-selection bias.■

Table VII. Time-Series Tests for Returns of Portfolios with Extreme Excess Coverage and Investor Sentiment (*Continued*)

Panel C. Left hand-side returns are differences between returns on stocks with low RESCOV and pessimistic forecasts, and stocks with high RESCOV and optimistic forecasts

Variable	Dependent Variable: Equally-Weighted Return Differential of $\{R_{[Low\ RESCOV]} - R_{[High\ RESCOV]}\}$		
Intercept	0.0240 ***	0.0264 ***	0.0240 ***
	(8.43)	(9.50)	(8.38)
RMRF	-0.0668	-0.1902 ***	-0.1781 ***
	(-0.90)	(-2.74)	(-2.72)
SMB		-0.3603 ***	-0.3766 ***
		(-4.07)	(-4.18)
HML		-0.3830 ***	-0.3118 **
		(-3.10)	(-2.20)
UMD			0.2338 ***
			(2.75)
Adjusted - R^2	0.0006	0.0664	0.1093
Variable	**Dependent Variable: Value-Weighted Return Differential of $\{R_{[Low\ RESCOV]} - R_{[High\ RESCOV]}\}$**		
Intercept	0.0195 ***	0.0207 ***	0.0147 ***
	(4.14)	(4.47)	(2.58)
RMRF	-0.0854	-0.1301	-0.1005
	(-0.69)	(-1.07)	(-1.10)
SMB		-0.3920 **	-0.4319 ***
		(-2.60)	(-2.60)
HML		-0.2097	-0.0354
		(-1.18)	(-0.09)
UMD			0.5720 *
			(1.83)
Adjusted - R^2	-0.0011	0.0177	0.1217

***Significant at the 0.01 level.
**Significant at the 0.05 level.
*Significant at the 0.10 level.

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