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Abraham and Harrington: Earnings Whisper Forecasts As Predictors of Security Returns: Sup

EARNINGS WHISPER FORECASTS AS PREDICTORS OF SECURITY RETURNS: SUPPORT FOR THE MILLER PRICE OPTIMISM MODEL

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This study provides empirical support for the Miller (1977) model which sets forth that security returns reflect the opinions of optimists in markets where more rational and pessimistic trading is excluded by high short-sale costs. Using the differential between earnings whisper forecasts and analysts' consensus forecasts as a proxy for heterogeneous expectations of earnings, this study finds that for stocks with higher differentials, optimistic valuations dominate resulting in significantly lower future security returns than for stocks with lower differentials. Low differential stocks are shown to resemble value stocks while high differential stocks display the characteristics of glamour stocks.

Introduction

Price optimism has been evident at certain points in time as depicted by historical cases such as the tulip bulb craze in Holland three centuries ago, the wild excesses predating the crash of the stock market in 1929, and more recently, the bubble in technology stocks. However, price optimism is not limited to episodes of irrational exuberance. It has been observed in normal market activity where there are optimistic investors within a pool of others of varying levels of rationality. In general, financial markets are composed of investors with heterogeneous expectations as recognized in a series of theoretical models in which heterogeneous expectations have been shown to affect security prices (Chen, Hong, & Stein, 2001; Diamond and Verrecchia, 1987; Jarrow, 1980; Mayshar, 1982).

Empirical studies require a proxy for heterogeneous expectations since expectations cannot be measured directly. Proxies have been limited heretofore to trading volume (Lee & Swaminathan, 2000) and dispersion of analysts' earnings forecasts (Diether, Malloy, & Scherbina, 2002). Both studies found evidence of negative security returns through excessively optimistic valuations. This study provides further evidence for the Miller model using earnings whispers forecasts as a proxy for heterogeneous expectations.

REVIEW OF THE LITERATURE

The theoretical rationale for our research is the Miller (1977) model which suggests price optimism, where optimistic investors' overvaluation of certain stocks expecting them to attain high future returns results in more rational investors refraining from trading in such markets due to high short-sale costs. Rational investors' expectations of lower future security returns will result in their desire to sell; however, they will be

prevented from selling due to the high transactions costs of short selling. This study uses the differential between whisper forecasts of earnings and analysts' consensus forecasts as the measure of heterogeneous expectations. Message boards of Internet sites devoted to investments receive a multitude of postings wherein individuals attempt to forecast the earnings per share of a particular stock. These unofficial forecasts of earnings provided by individuals are termed whisper forecasts. Analysts' forecasts of earnings differ from whispers in that they originate from institutional forecasters employed by large brokerage houses throughout the country armed with sophisticated analytical tools, econometric software, corporate annual reports and SEC filings, as opposed to the relatively simple analytical tools and publicly-available documents of individual investors. Since earnings whispers differ from analysts' earnings forecasts, the difference between the two forecasts may act as a proxy for heterogeneous expectations. Empirical support for this thesis may be found in the Bagnoli, Beneish, and Watts' (1999) comparison of whisper forecasts and analysts' consensus forecasts generated by the First Call Corporation. Whisper forecasts were found to be significantly different from First Call forecasts with trading strategies based on whisper forecasts earning significantly different market and size-adjusted returns than a strategy based on First Call consensus forecasts. Opening positions five, three, and two days prior to the earnings announcement and closing them at the end of the trading day on the day of announcement, they found significantly different market and size-adjusted returns for all three holding periods.

The literature on individual versus institutional investors suggests that individual investors are likely to be optimists while institutional investors are the more rational arbitrageurs who are precluded from trading by

high short-sale costs. Individual investors lack access to a range of news reports and analyses, are most certainly, not professional investment managers. Brennan (1995) observed that only about 27 percent of households hold stocks and even with high levels of ownership of assets, the percentage is only 48 percent. Individuals are frequently misled by the exceptional returns offered by commodity funds (Elton, Gruber, and Rentzler, 1989). Brennan's review (1995) cites studies in which new issues of closed end funds and REITs which are dominated by individual ownership are overpriced with higher underwriting fees than competing initial offerings (Peavey, 1989; Wang, Chan, & Gau, 1992; Weiss, 1989). Given that individuals are less likely to be in a position to conduct rigorous fundamental analyses of financial statements, they are overwhelmingly influenced by recent past returns in making purchase decisions (Patel, Zeckerhauser, & Hendricks, 1991) and fail to make accurate predictions about the direction of price movements following events such as earnings announcements. Welker and Sparks (2001) demonstrate that in the pre-earnings announcement period, individuals were unable to predict the content of forthcoming news. This effect was exacerbated in the post-earnings announcement period, in which individuals reacted in an opposing direction to the expected price movement following the announcement. Simply, individuals were significantly inclined to purchase following negative news and sell following positive news. In contrast, the direction of trading volume for institutions was consistent with the expected price movement to the news. Welker and Sparks (2001) conjecture that the opposing position of individuals and institutions in the post-announcement period suggests that the two groups either have different sources of information or vary in their interpretation of the content of information. Institutions have been shown to improve the efficiency of setting security prices, with securities tracked by multiple analysts responding rapidly to new information (Brennan, Jegadeesh, & Swaminathan, 1993). The price response of a stock to trades increases with the number of analysts tracking it, and in turn results in the more rational pricing of securities (Brennan & Subrahmanyam, 1994a, 1994b). Lakonishok, Shleifer, and Vishny (1992) demonstrated that institutional managers failed to destabilize prices for over 700 pension funds managed by over 300 money managers. Institutional investors did not engage in herding (acting in concert) in their trades of large stocks and even though there was some evidence of herding in small stocks the magnitude was limited.

In order for security returns to reflect the irrational

optimism inherent in whisper forecasts, optimists must predominate in the market. In his seminal paper, Miller (1977) argued that securities will be held by optimists as pessimists are unlikely to desire to purchase stock that they consider to be inherently overvalued. He constructed market supply and demand curves to demonstrate that given a vertical supply curve, an increase in heterogeneous expectations will result in a wider variety of prices, both higher and lower, that investors will be willing to pay for the stock. Prices will be moved upward as optimistic investors will bid prices to excessively high levels so that the equilibrium price formed at the intersection of market supply and demand for a stock will clear at a higher level than is normal. Pessimistic investors would normally lower prices as they would attempt to short sell. Short selling involves the selling of borrowed securities. If short selling was to occur, the market supply of stock would increase, i.e. the market supply curve would shift to the right, so that the equilibrium price of the stock would decline. Profits are made only if security prices fall as short sellers purchase at high prices and in the event of a price decline repay the lender with cheaper securities. Short sellers cannot make a profit even if there is a small positive return on the stock as the proceeds of a short sale are deposited with the lender as collateral for the loan. Even if there are large numbers of pessimists in the market willing to sell short, as long as there are heterogeneous expectations with sufficient numbers of optimists assuming positive returns and bidding prices upward, short sellers will be limited in the level of short sales they can make. However, the Miller model restricts short selling further with the assumption that pessimists are prohibited from short selling due to high short-sale costs. Therefore, pessimists do not have an impact on prices, trading is dominated by optimists, the stock becomes overvalued, and is subject to lower future returns.

This theory can be empirically operationalized in terms of the relationship between open short positions and the level of individual holdings. Institutions engage in short selling by creating open short positions (unsettled short trades). The dominance of trading by optimists and the prevention of rational institutional investors from short selling, suggests that as the level of individual holding of a stock increases, institutions will make fewer short positions available, or open short positions will be negatively related to the level of institutional holdings. The foregoing discussion suggests the following hypotheses:

Hypothesis 1: The higher the differential between whisper forecasts and analysts' consensus forecasts of earnings, the lower will be their future returns.

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Specifically, stocks with high differentials will have future returns that are significantly lower than their low differential counterparts.

Hypothesis 2: Open short positions decrease with the level of institutional holdings. By definition, value stocks have weaker operating performance, larger declines in past operating performance and higher book-to-market ratios (Lee & Swaminathan, 2000). prior studies showed, low dispersion stocks Diether, Malloy and Scherbina (2002), and low volume stocks Lee and Swaminathan (2000) behaved like value stocks and high dispersion or high volume stocks) behaved like glamour stocks. It follows that low differential stocks may resemble value stocks while high differential stocks may find similarity with glamour stocks. By virtue of greater conformity between the expectations of optimistic and pessimistic investors, low differential stocks are less likely to be subjected to irrationally optimistic expectations. This may be due to the fact that they are less well known, have had weaker past operating performance, and stronger fundamentals, and consequently, are more likely to have hitherto unknown price potential. Conversely, the greater the divergence in opinion between excessively optimistic investors and pessimists along with the dominance of optimists assures that high differential stocks are more likely to be subject to the hype and hysteria commonly associated with glamour stocks so that there is overconfidence in expectations of their performance, with subsequent declines in returns.

Hypothesis 3: High differential stocks act as value stocks while low differential stocks act as glamour stocks.

METHODOLOGY

Data and Sample Characteristics

Earnings whisper forecasts were collected daily from whispernumber.com and on the reporting dates from earningswhispers.com from the inception of their reporting (January 1999 to February 2003) yielding observations for 457 stocks. While both sites are official repositories of whisper numbers, their method of data collection differs.

Earnings whispers.com presents narrative summaries of whisper and earnings information along with numbers for a limited number of stocks on certain dates. Whisper forecasts are obtained by the site through scanning of electronic message boards and electronic mail. In contrast to Earningswhispers.com, whispernumber.com solicits whisper forecasts from its

subscribers. While the issue of credibility of data may arise as all data were gathered from internet sites, at this time, this is the only method of data extraction. Until a commercial database firm like Wharton Research Data Services which has the Optionmetrics, Center for Research in Security Prices, and COMPUSTAT databases collects whispers internet sites are the only existing source. Web message boards were the only data source used in the earlier Bagnoli et al. (1999) study. Whisper and earnings forecasts are reported daily until the earnings release for a broad range of stocks. On a single day, February 11, 2003, both whisper and analyst forecasts were reported for 20 stocks, though the usable number of forecasts was 15, given that forecasts remained unchanged on the other stocks. Therefore, although daily data is available through whispernumber.com, only about 60-75% of it is usable, due to the repetition of data values.

Hypothesis 1 was tested using pair wise t tests of the differences between high and low differential stocks. It was further tested using an econometric model in which security returns are predicted by differentials, book to market ratios, market capitalization, price, volatility, and momentum.

$$R_i = \alpha_i + \beta_1 D_i + \beta_2 BEME + \beta_3 ME + \beta_4 P + \beta_5 V + \beta_6 Mo + \xi_i$$

R_i = Stock Return, 1 month after portfolio formation

D_i = Whisper-Analyst Forecast Differential measured as Earnings Whisper Number - Analysts' Consensus Forecasts

BEME = Book to Market Ratio measured as (Book Value of Stockholder's Equity Balance Sheet Deferred Taxes - Value of Preferred Stock)/Market Capitalization
ME = Natural logarithm of market capitalization measured as Market Price Per Share x Number of Shares Outstanding

P = Market Price at the time of Portfolio Formation

V = Volatility measured as the Standard Deviation of Returns from $t - 12$ to $t - 2$

Mo = Momentum measured as returns from $t - 12$ to $t - 2$ (12 months to 2 months prior to the current period), With positive returns indicating winners and negative returns indicating losers.

Why were the above predictors (book to market ratio, market capitalization, price, volatility, and momentum) included in this model? The literature (see Fama and French, 1996, for a review) has established the relationship between each of these variables and security returns. Stocks with high book-to-market ratios, small stocks (low market capitalizations) and low returns over

the past year have experienced higher returns chiefly due to undervaluation. Stoll (1978) theorized that in order to induce dealers to move off the efficient frontier with minimal risk for their portfolios, i.e. for dealers to acquire higher risk portfolios, additional compensation must be paid to the dealers, which could take the form of higher returns. We expect negative relationships between differentials, market capitalization, price, and momentum with stock returns and positive relationships for price, book-to-market ratios, and volatility with the criterion. The second hypothesis tested whether open short positions decreased with the level of institutional holdings. The following econometric model was tested:

$$OS_i = \alpha_1 + \beta_1 \text{Turn} + \beta_2 \text{BEME} + \beta_3 \text{ME} + \beta_4 \text{INST} + \beta_5 \text{P} + \beta_6 \text{V} + \xi_i$$

OS = Open Short Positions measured as Dollar Value of the Outstanding Amount of Unsettled Short Contracts
Turn = Turnover measured as Average Monthly Sales for the past 12 months.

BEME = Book to Market Ratio

ME = Natural logarithm of market capitalization

INST = Institutional Holdings measured as Percentage of Institutional Holdings

P = Price

Vol = Volatility

Drawing on case law, Del Guercio (1996) establishes that institutions have fiduciary responsibilities. Termed the prudent man theory, both banks and non-bank institutions are governed by standards that require them to be cautious in selecting investments. One of the variables that had been frequently mentioned in case law is volatility. Institutions select low volatility stock, and particularly in a declining market (as in the period covered by this study) have been shown to retain such low volatility stock. Therefore, they are likely to short sell high volatility stock or volatilities should be directly related to open short positions. Institutions purchase large quantities of stock for liquidity purposes so that they are sensitive to transactions costs (Gompers & Metrick, 2001). As transactions' costs are highest on low priced illiquid stocks institutions prefer to hold high market cap stocks with high turnover (turnover is a proxy for liquidity as high turnover means active trading). To minimize transactions costs and maximize liquidity, institutions are likely to short sell low market cap stocks

with limited turnover. Open short positions will vary directly with price, market capitalization and turnover.

Except for the whisper forecasts obtained from whispernumber.com and earningswhispers.com, data was obtained from CRSP (The Center for Research in Security Prices) and Thomson's First Call Reports. Since whisper and earnings forecasts for each stock were obtained on different dates, so were the returns. For example, IBM's whisper and analyst consensus forecasts were obtained on September 5, 2001, and AOL's were on September 18, 2001, then a portfolio of IBM, AOL, and another stock was created (most portfolios consisted of 3 stocks, although there were a few 2-stock portfolios), held for a month, and returns measured during the following month to produce portfolios in five differential quintiles. The differential quintiles were formed with differentials < .02 being the lowest quintile, followed by 0.03-0.04, 0.05-.06, 0.07-0.08 and > 0.09 being the highest quintile. A perusal of the differentials revealed a dearth of negative differentials so that all whisper-analyst consensus differentials were uniformly positive. It follows that the whisper forecasts were overestimates of earnings while the analyst forecasts were underestimates as observed in the earlier Bagnoli et al. (1997) study.

RESULTS

Hypothesis 1 stated that the higher the differential between whisper forecasts and analysts' consensus forecasts of earnings, the lower will be their future returns. Table 1 shows that this hypothesis was supported as mean portfolio returns were significantly lower for the highest differential stocks over the lowest differential quintile. To test if our results are robust to size, each month, we assigned stocks to five market capitalization quintiles. Within each size quintile, stocks were ranked into five quintiles based on earnings differentials as of the previous month. The average monthly return differential was significant across size, indicating that our results are immune to size differences.

Panel A reports t testing the mean differential between high and low differential portfolios sorted by size. Each month stocks were sorted into 5 categories based on the current level of market capitalization (< \$ 9 billion-small cap, \$ 10-49 billion-mid cap, and > \$ 50 billion-large cap). Panel B reports the mean differential for all categories by size.

Table 1: Mean Portfolio Returns by Size and Average Differentials on Sorts by Size

Panel A: Mean Portfolio Returns by Size and Whisper-Analyst Forecast Differentials

Differential Quintile	Size Quintile				
	1	2	3	4	5
1	1.1079	2.010	0.3808	1.0100	1.2100
2	0.1534	0.7080	0.3200	0.1800	0.3213
3	0.1460	0.1340	0.5042	0.1344	0.1892
4	-0.4338	-0.1358	-0.2600	-0.1800	-0.0763
5	-0.6642	-0.3318	-0.4044	-0.6142	-0.9050
t statistics	t = 2.7041*	t = 9.4712***	t = 1.3110	t = 1.69*	t = 2.78**

Panel B: Mean Differential by Size Category

Differential Quintile	Size Quintile				
	1	2	3	4	5
1	0.0156	0.0144	0.0143	0.0143	0.01316
2	0.0300	0.0314	0.0314	0.0350	0.0341
3	0.0543	0.0550	0.0550	0.0535	0.0617
4	0.0720	0.0725	0.0725	0.0750	0.0700
5	0.1168	0.2430	0.2430	0.1533	0.6700

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

We triple sorted on size, book-to-market (BE/ME) ratio and earnings forecast differentials to determine if our results were robust to book to market effects. Since low book-to-market stocks have relatively higher levels of market capitalization, we attempted to control for the fact that large return differences between low and high differential quintiles for small stocks may be due to book-to-market effects. As there were an insufficient number of stocks to separate into several size or book-to-market or earnings differential quintiles, we first sorted the stocks into three categories based on the current level of market capitalization with those with capitalizations < \$ 9 billion designated as small cap, < \$ 49 billion mid cap, and > \$ 50 billion large cap. Each

size group was further sorted into three categories in terms of book-to-market ratio, and then into three differential groups, formed by merging the differential quintiles used earlier (differentials <.02 were designated as low, .03-.06 were medium, and >.07 were high). Table 2 below presents the returns on the resulting portfolios. The return differential on low and high whispers-earnings forecast differentials is significant for seven out of nine differential categories with one category not reporting any results due to insufficient data. This indicates that high differential stocks produce significantly lower returns across size and book-to-market or that we are simply not capturing book-to-market effects.

Table 2: Mean Portfolio Returns and Mean Differentials on Sorts by Size and Book-to-Market

Panel A: Mean Portfolio Returns by Size and Book to Market

Differential	Low Book-to-Market			Medium Book-to-Market			High Book-to-Market		
	Small	Medium	Large	Small	Medium	Large	Small	Medium	Large
low	0.67	0.84	0.54	0.86	0.68	1.07	1.15	1.12	0.75
Medium	0.24	Insufficient date	Insufficient date	-0.34	-0.27	Insufficient date	0.25	0.80	-0.03
High	1.66	-1.10	-1.26	-1.12	Insufficient date	-0.69	-1.79	-1.01	-1.12
t statistic	2.095	3.7918**	3.8815**	12.82***		7.85***	5.00***	3.49**	3.11**

Panel B: Mean Differential by Size and Book-to-Market

Differential	Low Book-to-Market			Medium Book-to-Market			High Book-to-Market		
	Small	Medium	Large	Small	Medium	Large	Small	Medium	Large
low	0.01514	0.0223	0.0177	0.0206	0.025	0.01938	0.0198	0.01895	0.01577
Medium	0.1800	Insufficient date	0.0300	0.0492	0.0531	Insufficient date	0.034	0.0600	0.04600
High	0.275	0.2344	0.1692	0.1200	Insufficient date	0.22625	0.1000	0.1067	0.0900

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

Panel A of this table reports t testing the mean differential between high and low differential stocks sorted by size and book-to-market. Each month, stocks

were sorted into 3 categories based on the current level of market capitalization (< \$ 9 billion-small cap, \$ 10-49 billion-mid cap, and > \$ 50 billion-large cap). Each size

group was further sorted into 3 categories in terms of book-to-market ratio, and then into 3 differential groups followed by computation of the return differential on low and high differential categories. Panel B shows mean differentials by size and book-to-market category.

The final portfolio strategy involved three-way cuts on size, momentum, and whisper-analyst earnings differentials to eliminate the possibility of a momentum effect, whereby high momentum stocks have significantly lower returns than others (Jegadeesh & Titman, 1993). Stocks were first sorted into three categories based on market capitalization. Within each size category, the stocks were sorted into two groups based on past returns from $t - 12$ to $t - 2$ to capture momentum effects. The groups with positive returns were designated "winners" or high-momentum stocks,

while those with negative returns were dubbed "losers" or low-momentum stocks. Finally, stocks were sorted into high and low whisper-analyst earnings differential groups based on differentials in earnings forecasts for the next month. Table 3 presents the returns on the resulting portfolios. For all size categories, high differential stocks have significantly lower returns than low differential stocks with strongly significant differences (t values ranging from 5.1 to 8.79 all of which are significant at the 0.001 level) indicating that the differential effect is robust across momentum categories, or that we are simply not capturing the momentum effect. Mid cap losers (low momentum) stocks have the highest return differentials with high differential stocks earning a negative 1.0383 % return over a one-month period versus positive 1.2491 % return for low differential stocks.

Table 3: Stock Returns and Differentials by Sorts on Size and Momentum

Panel A: Mean Returns by Momentum and Size

Differential	Losers (Low Momentum)			Winners (High Momentum)		
	Small Cap	Mid Cap	Large Cap	Small Cap	Mid Cap	Large Cap
low	1.2695	1.2491	0.7799	1.5842	1.1058	1.1069
High	-1.2548	-1.0383	-0.9400	-1.3635	-1.3917	-0.5609
t statistic	6.0890***	8.7900***	5.17***	7.5770 ***	5.86***	5.1000***

Panel B: Mean Differentials by Momentum and Size

Differential	Losers (Low Momentum)			Winners (High Momentum)		
	Small Cap	Mid Cap	Large Cap	Small Cap	Mid Cap	Large Cap
low	0.0578	0.01545	0.021	0.021	0.0227	0.027
High	0.1836	0.09000	0.130	0.1218	0.2000	0.173

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

Panel A reports the results of three-way cuts on size, momentum, and whisper-analyst forecast differentials commencing with sorting stocks into the 3 size categories used in table 2. Within each size category, the stocks were sorted into 2 groups based on past returns from $t - 12$ to $t - 2$ to capture momentum effects. Groups with positive returns were termed winners and those with negative returns were termed losers. Finally, stocks were sorted into low and high differential groups based on differentials in ratios for the past month.

Tables 1-3 provide preliminary evidence that supports the first hypothesis that high differential stocks earn significantly lower returns than low differential stocks, this finding being robust across size, book-to-market, and momentum effects. As shown in Table 4, in a linear model, all relationships were observed to be in the theorized direction with differentials explaining a significant 1.4% of the variance in security returns ($t = -1.91, p < .05$). Nonlinear functional forms were tested; <https://scholars.fhsu.edu/jbl/vol1/iss1/2>

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however, the linear form was selected as it provided the best fit. As this predictor increased, security returns decreased, so that higher differentials lowered security returns and lower differentials increased security returns, in accordance with Hypothesis 1. To prevent collinearity among predictors, especially price, market capitalization, and volatility, separate regressions of pairs of predictors were performed. All relationships remained in the hypothesized directions.

This following table reports the results of a cross-sectional regression to test if whisper-analyst consensus forecast differentials significantly influenced stock returns 1 month after portfolio creation. Stock returns in the 1-month post-portfolio formation period were regressed on differentials, the book-to-market ratio measured as the book value to market capitalization, and the logarithm of market capitalization. With the exception of momentum, all predictors were highly significant in explaining variance in the criterion.

Table 4: Results of Cross-Sectional Regressions of Stock Returns on Whisper-Analyst Forecast Differentials

Variables	Coefficient
Differential	-.0239 [†]
	(-2.12)
Book to Market	.0004*
	(2.96)
Market Capitalization	-1.2353***
	(-2.06)
Price	-.0051 [†]
	(-2.07)
Volatility	9.5645***
	(3.484)
Momentum	-.3156
	(-1.70)
N = 457	
R ² (%) = 1.93	

t in parentheses. [†]p<.1,*p<.05,**p<.01,***p<.001

Hypothesis 2 was supported with open short positions declining with the level of institutional holdings controlling for variables known to affect institutional holdings including turnover, book-to-market ratio, market size, price, volatility, and momentum (see

table 5). In other words, open short positions are highly significant in explaining institutional holdings, decreasing with the rise in institutional holdings for all four functional forms including the linear, logarithmic, quadratic, and square root forms.

Table 5: Results of Cross-Sectional Regressions of Open Short Positions on Institutional Holdings

Variable	Model 1	Model 2	Model 3	Model 4
Turnover	-.2168***	-.3532***	-.1877***	-.1250***
	(-4.83)	(-7.86)	(-4.56)	(-2.75)
Book to Market	-1.98	-.1230*	-1.6146	-.2140
	(-1.65)	(-2.23)	(-1.61)	(-1.45)
Market Capitalization	-2.94	-.1843***	-1.7021	-4.3781***
	(-1.12)	(-4.09)	(-0.67)	(-3.95)
Institutional Holdings	-2.40*	-1.40**	-13.5025***	-1.4218***
	(-1.94)	(-2.84)	(-3.47)	(-2.48)
Institutional Holdings ²	--	--	-13.0222***	--
Volatility	146.92*	9205***	1.2078	1.1566***
	(1.90)	(7.52)	(1.59)	(6.06)
N	457	457	457	457
R Sq	7.30	59.16	10.12	27.51

t in parentheses. *p<.1,*p<.05,**p<.01,***p<.001

The table above reports the results of a cross-sectional regression of open short positions on the level of institutional holdings, turnover, book-to-market ratio, size, price, volatility, and portfolio returns in the 1-month period following portfolio formation. Model 1 is linear formulation, Model 2 is logarithmic, Model 3 is quadratic, and Model 4 is a square root functional form.

The third hypothesis maintains that low differential stocks act like value stocks, while high differential stocks act like glamour stocks. This hypothesis is supported with low (high) differential stocks displaying many of the characteristics associated with value (glamour) investing. Low momentum stocks show lower returns during the past year than high momentum stocks earning them the title of losers. Given that value investing requires small market capitalizations, small market cap losers should display higher future returns

than high market cap winners. Table 3 shows us that this is indeed the case for the mean future return for small cap losers is 1.2695 (SD = 0.0178) which is significantly higher than the mean future return for large market cap winners of -0.5609 (SD = 0.5765) t = 7.0987, p < .001. By the same token, small cap stocks with high book-to-market ratios have significantly higher mean future returns 1.15 (SD = 0.865) versus -1.26 (SD = 1.61) t = 4.7077, p < .001 their low book-to-market large cap counterparts (glamour) stocks. In both cases, the glamour stocks have negative future returns as the high prices fueled by superior past performance and the buildup of high past returns fails to materialize in higher earnings (in the wake of an earnings announcement) so that prices and returns adjust downwards rapidly. The next question is whether the return differential is higher for low book-to-market (value stocks) than it is for the

high book-to-market counterparts (glamour stocks). Value stocks exhibit higher return differentials in the large size category. For stocks with market capitalizations above \$ 50 billion, i.e., the largest stocks, either a value pattern exists, or the third hypothesis that glamour stocks exhibit lower returns than value stocks is supported for large stocks.

CONCLUSIONS AND RECOMMENDATIONS

Implications for Research

We have created a new empirical measure of heterogeneous expectations, i.e. the whisper-analyst consensus forecast differential is both a proxy for heterogeneous expectations and predictor of security returns. Our principal finding is that low differential stocks (differentials of $<.02$) with greater agreement between whisper forecasts and analysts consensus forecasts are not subject to excessive optimism in predicting security returns, and may therefore, be considered as credible predictors of security returns. Such stocks are less well-known value stocks.

This article also provides support for the Miller model's contention that negative returns result whenever rational investors are excluded from short selling or any other source of friction. However, it must be accepted that our results pertain solely to ultra-short time horizons with excessively high expectations by individual investors (as represented by the whisper forecast) immediately prior to the earnings announcement resulting in a market overreaction which is corrected in the month following the earnings announcement. This study and the Diether et al. (2002) study are the only two of the numerous empirical investigations of heterogeneous expectations that are based on the same premise that heterogeneous expectations may be proxied by the consensus or lack thereof of earnings forecasts. Diether et al. (2002) viewed heterogeneous expectations as the dispersion (or varying levels of consensus) of earnings forecasts. High dispersion stocks showed a divergence of expectations regarding earnings in a market in which optimists predominate so that they (as predicted by the Miller model) were optimistic and therefore posted lower future returns. Low dispersion stocks showed greater conformity of expectations among analysts with more rational or higher future returns. Likewise, this study has found that high differential stocks, with greater divergence between optimists and pessimists in a market in which optimists predominate post lower future returns than their low differential counterparts. Both studies, may, therefore, be particularly useful to determine the impact on stock

prices of the predictors in the wake of earnings announcements. Over the same time horizon, a month following the observation of the predictor, the whisper analyst consensus earnings forecast differential showed negative returns for high differential stocks and positive returns for their low differential counterparts suggesting an immediate price correction in the wake of the earnings announcement made within a few days of the measurement of the earnings differentials.

Our results find a theoretical basis in Daniel et al. (1998) who observed that certain stocks are subject to an overconfidence bias. Daniel et al. (1998) examined samples of prominent (glamour) stocks and undervalued (value) stocks. Glamour stocks were the subject of much speculation by analysts as to their earnings; most of whom predicted excessively high earnings. Their overconfidence was fueled by the higher momentum displayed by these stocks during the previous year. Such stocks suffered declines in future portfolio returns. In this context, the high differential stocks in this study are well-known and the subject of much speculation as to their final price, their past favorable performance fueling momentum leading traders to buy on good news. Such overconfidence results in inferior earnings leading to weak stock returns. Our results corroborate De Long et al.'s (1990) contention that well-known stocks (high differential stocks in this study) are the subject of much speculation as to their final price, their favorable past performance attracting momentum traders. Momentum traders confine themselves to purchases of stocks with rising prices and sales of stocks with declining prices. Assuming that the favorable past performance of high differential traders will continue, such traders purchase them, their initial optimism fading with the announcement of weak earnings and lower future returns.

The other principal study that supports our evidence is that of Lee and Swaminathan (2000) whose proxy for heterogeneous expectations of trading volume, yielded superior operating performance for low volume (akin to our low differential stocks) over high volume stocks for up to eight quarters subsequent to the earnings announcement. If we place our results within the framework of an intertemporal sequence, we posit that following the eight quarters of abnormal returns, there is a reversal in the intermediate-term time horizon with high volume stocks outperforming low volume stocks suggesting that the optimism that was dashed by the earnings announcement is rejuvenated, so that optimism prevails and high volume (glamour) stocks continue to outperform their low volume (value) counterparts. From 3-5 years, the long time horizon reversal occurs again as

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optimism fades and negative returns are experienced by high volume stocks. In other words, earnings differential effects predominate for the first month following the earnings announcement, only to be dominated by momentum effects for the next year with earnings differential effects for the next year with earnings differential effects strengthening over the long term 3-5 year period.

We may create an intertemporal model of stock returns over various time periods. There are two effects on future security returns, the first one due to whisper-earnings differentials and the dispersion in forecasted earnings termed the earnings effect, and the second due to momentum or past security returns termed the momentum effect. The two effects operate in diametrically opposite directions. The earnings effect, which is most pronounced in the immediate one-month aftermath of earnings announcements, provides a correction to excessive optimism so that stocks that show high differentials between whisper forecasts and analysts consensus forecasts in our study will have lower future returns following the earnings announcement for up to one month after the earnings announcement. The earnings effect is also apparent in high volume stocks though it may last longer as Lee and Swaminathan (2000) report that abnormally low returns are earned by these stocks for up to 8 quarters following the earnings announcement with abnormally high returns earned by low volume stocks for the same time period. This is the first reversal of stock returns as excessive optimism is corrected by stocks failing to live up to their promise with the announcement of weak earnings.

During the third year, the intermediate-term horizon emerges with momentum effects predominating as winners (stocks with high returns during the three years prior to the earnings announcement) display higher returns than losers. Therefore, earnings effects decline as the time period from the initial earnings announcement lengthens, while past performance in terms of the relative strength of security returns becomes the principal predictor of future stock returns. Jegadeesh and Titman (1993) provide evidence of the continuation of stock returns from the period prior to the earnings announcement over this intermediate time horizon. In a direct test of earnings and momentum effects, Chen, Jegadeesh, and Lakonishok (1996) demonstrated that stock returns during the intermediate-term horizon under-reacted to earnings news as the higher momentum of winners subsumed the earnings effect. Factors other than earnings and momentum do not appear to affect security returns during this time period as Fama and French (1996) observed that the three-factor model

failed to explain intermediate-term price momentum suggesting that other effects determined security prices. As security returns are higher for winners, there is a second form of overconfidence, i.e., that due to excessive optimism from superior past operating performance. This correction takes place in the third phase, the long-term time horizon, from the end of the third year to the fifth year, when the winners underperform the losers, or high momentum stocks with superior past performance underperform low momentum stocks with inferior past performance. Individual investors, who make up the population predicting whisper forecasts are lured by the high momentum and past operating performance of high differential, high volume stocks commonly known as glamour stocks to expect excessively high returns from these stocks. In contrast, they underestimate the future prices of low volume, less common value stocks with weaker momentum (dubbing them losers) and weaker operating performance. Subsequent to the earnings announcement, the market's overreaction is corrected in the form of negative returns on the glamour stocks and positive returns on the value stocks. Although future testing is needed, we can state that high differential stocks are indeed glamour stocks while low differential stocks are value stocks. Lee and Swaminathan shed further light on the issue with their finding that high volume stocks that underperform in the short-term, do outperform in the long-term or the three to five year time horizon, whereas the situation is reversed with low volume stocks that outperform in the short-term and underperform in the long-term. Future research should determine if such reversals occur in the long-term for high and low differential stocks

We have expanded the literature on whisper forecasts of earnings. Whereas the Bagnoli et al. (1997) study favored the use of whisper forecasts in that they were found to be more accurate than First Call forecasts in predicting earnings, we consider whisper forecasts to be symptomatic of excessive optimism as they overestimate the prices of our sample of stocks. To reconcile the two positions, we assume that whisper forecasts in the period preceding earnings announcements exhibit optimism, although this may not be continued into the intermediate-term of the following three to twelve months. Further, their results may have been due to the nature of data collection with greater inaccuracy among whisper forecasts generated through the monitoring of message boards rather than the use of published whisper numbers as in our study. Their study should be replicated to determine if the results hold with more reliable measures of whisper forecasts.

Implications for Practice

This study assists traders who follow stocks during earnings announcements. We can assume that stocks that are widely followed, that generate much media hype and speculation between individuals and analysts about their future performance or excessive optimism about future prices will suffer the greatest corrections in the wake of earnings announcements, though such effects may reverse in the next three to twelve months so that investors should be willing to hold them regardless of their poor immediate performance. Likewise, value stocks may exhibit positive returns during the first month following the earnings announcement; however, in the intermediate-term, i.e., the three-month to twelve month time horizon this situation may revert to weaker performance as momentum effects outweigh earnings effects. However, it does not pay to hold glamour stocks over the 3-5 year time horizon as they may then suffer declines in returns exhibited in the first month following earnings announcements. This suggests considerable volatility in stock prices; so that the investors who are most likely to profit are those who clearly define the time horizon for holding their particular assets. Those who are ultra-short term investors should hold value stocks, intermediate 3-12 month investors should hold glamour stocks, and long-term investors should hold value stocks.

Even very short-term investors could be affected by earnings reversals. We have shown that stocks that are overvalued are capable of losing value over just a single month following the earnings announcement. Speculative investors who hold stock for 1 month or less should be cautioned against investing in high differential stocks as such stocks may lose value rapidly, and not regain their position for up to 2 years.

Directions for Future Research

Future research should seek additional proxies for heterogeneous expectations. The dispersion of whispers forecasts may be one such proxy. Stocks with widely dispersed whisper forecasts will have a lack of consensus about their future earnings or greater speculation and optimism, whereas those with less dispersion will be more conservative and rational. Another proxy could be based on hedging strategies in options markets. As optimistic investors expect the prices of certain stocks to rise, they would choose to purchase a minimal amount of put options on the underlying stock to hedge against price declines. Pessimists, on the other hand, would purchase large numbers of put options on the underlying stock as they

expect price declines. Therefore, the varying levels of put option volume would act as a proxy for heterogeneous expectations. Likewise, call writers are pessimists and call buyers are optimists as call writers sell the right to buy stock at a certain price hoping that buyers will purchase at a higher price than the writer will be able to sell the stock for in the future after the price has decreased. Call buyers expect the stock price to rise so that they can gain from the difference between the stock price and the strike price. Number of calls written or the volume of call options purchased will also serve as proxies for heterogeneous expectations. All proxies should be evaluated during the short, intermediate, and long term time periods to verify the existence of earnings and momentum effects.

REFERENCES

- Bagnoli, M., Beneish, M. D., & Watts, S. G. 1999. Whisper forecasts of quarterly earnings per share. *Journal of Accounting and Economics*, 28: 27-50.
- Brennan, M. 1995. The individual investor. *Journal of Financial Research*, 18: 59-74.
- Brennan, M., Jegadeesh, N., & Swaminathan, B. 1993. Investment analysis and the adjustment of stock prices to new information. *Review of Financial Studies*, 6: 799-824.
- Brennan, M., & Subrahmanyam, A. 1994a. Investment analysis and price formation in securities markets. *UCLA, Working Paper # 23-93*.
- Brennan, M., & Subrahmanyam, A. 1994b. Market microstructure and asset pricing: On the compensation for market illiquidity in stock returns. *UCLA, Working Paper # 7-94*.
- Chen, J., Hong, H., & Stein, J. C. 2001. Forecasting crashes: Trading volume, past returns, and skewness in security prices. *Journal of Financial Economics*, 61: 345-381.
- Chen, J., Jegadeesh, N., & Lakonishok, J. 1996. Momentum strategies. *Journal of Finance*, 51: 1681-1713.
- Daniel, K., Hirshleifer, D., & Subrahmanyam, A. 1998. A theory of overconfidence, self-attribution, and security market under- and overreactions. *Journal of Finance*, 53: 1839-1888.
- Del Guercio, D. 1996. The distorting effect of prudent-man laws on institutional equity investments. *Journal of Financial Economics*, 60: 31-62.
- Diamond, D. W., & Verrecchia, R. E. 1987. Constraints on short-selling and asset price adjustments to private

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- information. **Journal of Financial Economics**, 18: 277-311.
- Diether, K. B., Malloy, C. J., & Scherbina, A. 2002. Differences of opinion and cross section of stock returns. **Journal of Finance**, 57: 2114-2141.
- DeLong, J., Bradford, A., Shleifer, A., Summers, L. H., & Waldemann, R. T. (1990). Noise trader risk in financial markets. **NBER, Working Paper, 2385**.
- Earningswhispers.com**.
- Elton, E. J., & Gruber, M. J. 1989. New public offerings, information, and investor rationality: The case of publicly offered commodity funds. **Journal of Business**, 62: 1-16.
- Fama, E. F., & French, K. R. 1996. Multifactor explanations of asset pricing anomalies. **Journal of Finance**, 51: 55-84.
- Gompers, P., & Metrick, A. 2001. Institutional investors and equity prices. **NBER, Working Paper No. 6723**.
- Jarrow, R. 1980. Heterogeneous, expectations, restrictions on short sales and equilibrium asset prices. **Journal of Finance**, 35: 1105-1114.
- Jegadeesh, N., & Titman, S. 1993. Returns to buying winners and selling losers: Implications for stock market efficiency. **Journal of Finance**, 48: 65-395.
- Lakonishok, J., Shleifer, A., & Vishny, R. 1997. What do money managers do? **Harvard, Working Paper**.
- Lee, C. M., & Swaminathan, B. 2000. Price momentum and trading volume. **Journal of Finance**, 55: 2017-2069.
- Mayshar, J. 1987. On divergence of opinion and imperfections in capital markets. **American Economic Review**, 73: 114-128.
- Miller, E. 1977. Risk, uncertainty, and divergence of opinion. **Journal of Finance**, 32: 1151-1168.
- Patel, J., Zeckhauser, R., & Hendricks, D. 1991. The rationality struggle: Illustrations from financial markets. **American Economic Review**, 81: 311-83.
- Peavey, J. W., 1990. Returns on initial public offerings of closed-end funds. **Review of Financial Studies**, 3: 695-708.
- Pulliam, S. 1997. On-target earnings, or better, kick the air out from your stocks as investor expectations soar. **Wall Street Journal**, October 15, C4.
- Stoll, H. 1978. The supply of dealer services in securities markets. **Journal of Finance**, 33: 1133-1151.
- Wang, K. S., Chan, H., & Gau, G. W. 1992. Initial public offerings of equity securities: Anomalous evidence using REITS. **Journal of Financial Economics**, 31: 381-410.
- Welker, M., & Sparks, H. C. 2001. Trade patterns. **Journal of Financial Research**, 24: 261-287.
- Weiss, K. 1989. The post-offering price performance of closed-end funds. **Financial Management**, 18: 57-67.

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