Is Catering Rewarded?: Evidence from the Insurance Industry

Submitted by

Yu-Luen Ma
Department of Finance, Insurance and Law
E-mail: yma@ilstu.edu
Tel: 309-438-7081

and

Yayuan Ren
Department of Finance, Insurance and Law
E-mail: yren2@ilstu.edu
Tel: 309-438-7779

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Abstract

Ma and Ren (2012) find that insurers cater to the market's preference when make decisions on growth. In this paper we further examine whether the catering behavior is rewarded by higher market valuation in both short term and long term, and whether the catering involves greater risk. We find that insurers catering to the market receive a greater abnormal return in short term, but not in long term for most years. Insurers that frequently cater are found to have higher volatility, smaller in size and lower profitability, which deserves regulatory attention.

Is Catering Rewarded?: Evidence from the Insurance Industry

1. Introduction

In wake of the 2007-2009 crisis and especially the collapse of AIG, a better understanding of the impact of stock market on the insurance industry has been in great demand. Ma and Ren (2011, 2012) explored the catering channel through which the stock market affects insurers' managerial decisions. They find that managers of publicly-traded insurers try to boost their growth when stock prices are more sensitive to growth-related news, and that managers with shorter shareholder horizons tend to cater more. These findings suggest that the publicly-traded insurers' growth decisions are affected by stock market and investor sentiments. The results also imply that due to managers' short-termism, the catering may lead to distortion in capital allocation. Given the significant findings, several questions naturally arise: Are insurers that cater to the market rewarded, if any? What are the risk implications of the catering behavior? The answers to these questions would not only explain the incentives behind the catering behavior but also shed light on the impact of stock market on insurance industry's risk. The main objectives of this paper are (1) to examine whether insurers catering to the market are rewarded by higher market valuation in both short term and long term, and (2) to assess the risk of firms that frequently cater.

Among the significant literature regarding the influence of stock valuation on managerial decisions, a thread of research proposes various catering theories. The catering theories describe that short-run-oriented managers make decisions that cater to investor preference in order to boost share price.[1] If the market is efficient, stock price accurately reflects all relevant information. In that case, managers catering to rational stock price variations will not necessarily result in inefficient capital allocation or distortions. The catering theories, in contrast, predict that the catering to investor sentiment will lead to distortionary capital allocations. Given that investor sentiment results in mispricing, rational managers will make decisions that exploit or further encourage mispricing (DeLong, Shleifer, Summers, and Waldmann, 1990; Shleifer and Vishny, 1997; Baker and Wurgler, 2006). While their decisions may maximize the short-run value of the firm, they may also impair the long-run value as prices correct to fundamentals.

In a work closely related with our study, Aghion and Stein (2008) propose a catering theory of growth, in which they explain a mechanism on how catering can generate excess volatility in real variables, even though investors are rational and external shocks are absent. For example, if the market conjectures that the firm is pursuing a growth strategy, investors will rationally put more weight on realized growth, which will in turn encourage the manager to stick with the growth strategy. Thus the firm will be trapped into continuing with the growth strategy longer than optimal. In the first-best scenario, firms would respond to a smooth decline in its growth

[1] For example, Baker *et al*. (2003) develop a catering theory of investment, which describes how managers make investment decisions according to stock price movements. Baker and Wurgler (2004a, 2004b) and Li and Lie (2006) propose a catering theory of dividends, which predicts that managers cater to investors demand for dividends when make decisions on dividend payments. Rajgopal *et al.* (2007) propose a catering theory of earning management showing that it is driven by the prevailing investor demand for earnings surprises. Baker, Greenwood and Wurgler (2009) propose and test a catering theory of nominal stock prices. The theory predicts that when investors place higher valuations on low-price firms, managers respond by supplying shares at lower price levels, and vice versa.

prospects by gradually and monotonically shifting resources away from a growth strategy. But when managers cater to the market, the adjustment will become not only too late but also too abrupt.

As the prior literature suggests that catering to the market may lead to distortions and excess fluctuations, it is of interest to investigate whether publicly-traded insurers cater to the market or not. Ma and Ren (2012) reported evidence that managers of publicly-traded insurers do cater to the market's preference when make decision on growth. Given that fast growth and the related inadequate pricing is the leading cause of insurer failures, it is particularly important to further examine the catering behavior of insurers in their growth decisions. The most concerned questions are whether the catering behavior is rewarded and whether the catering leads to greater risk.

To examine whether catering is rewarded in the short run, we first define a "catering move" as an act where a firm delivers a higher growth than most of other firms during the period when the market places greater value on growth. We then calculate the quarterly abnormal return following the catering move. To evaluate the long-term effect of catering, we identify firms that frequently cater and then examine their abnormal return on one-year, three-year and five-year horizon. We further assess the volatilities of stock returns for insurers that frequently cater.

Our main results are summarized as follows. First, when the market places greater value on growth, firms that delivers better growth performance (catering move) receive a higher abnormal return in short term. Second, firms that frequently cater to the market do not have higher valuation in long run for most years. Third, firms that frequently cater are found to have greater volatility of stock return. We also find that insurers that frequently cater, compared to insurers that rarely or never cater, have a smaller firm size and lower rates of return to assets (ROA) and return to equity (ROE). Robustness tests are conducted and results are found to continue to hold.

The remainder of this article is organized as follows. In Section 2, we develop research hypotheses. We describe the methodology to test the hypotheses in Section 3. Empirical results are reported in Section 4. We summarize and conclude in Section 5.

2. Hypotheses Development

The influence of stock market valuation on real economy is a long-studied issue. Market efficiency theory suggests that stock price accurately reflects all relevant information in a given time. It indicates that rational stock price variations will not result in inefficient capital allocation or distortions. For example, if the time-varying market reactions to firm growth performance arise because of rational adjustment for fundamentals, such as cyclical insurance market changes, the fact that firms move in the same direction as the market expectation would be an efficient outcome.

The market inefficiency theories, in contrast, predict that managers catering to investor sentiment will lead to distortionary capital allocations. While classic finance models give no role to investor sentiment, researchers in behavioral finance suggest that when arbitrage is limited, noise trader sentiment can persist in financial markets and affect asset prices (De Long, Shleifer, Summers, and Waldmann, 1990; Shleifer and Vishny, 1997; Baker and Wurgler, 2006). Given that investor sentiment results in mispricing, catering to such sentiments will lead to distortions.

While the market efficiency theory predicts that no firms will earn abnormal return, the catering theory suggests that catering to the market will be rewarded by higher market valuation at least in short term, which provides an incentive for managers to cater. We, therefore, test the following null hypothesis:

Null Hypothesis 1: *Insurance companies that cater to market preference do not have greater abnormal return in the short-term.*

The catering theory is built on the premise of managers' short-termism. It suggests that managers caring about short-run stock price may rationally cater to investor sentiment (for example, Baker and Wurgler, 2003, 2004; Shleifer and Vishny, 2003; Rajgopal *et al*., 2007, among many others). When managers consider this decision they trade off the short-run benefits against the long-run costs. As a result, this catering moves firms away from the first best efficiency or long-term value. Previous studies have shown evidence of long-term return reversals (i.e., Berk *et al.*, 1999; Lewellen and Shanken, 2002; Brav and Heaton, 2002). We, therefore, expect that insurers that incline to cater will not have greater long-term abnormal return.

Hypothesis 2: *Insurance companies that cater to market preference do not have greater long-term return.*

We further examine the risk associated with the catering behavior. While Aghion and Stein (2008) suggest that catering brings greater volatility to firms, studies on investor sentiment generate mixed results on the relationship between investor sentiment and risk. DeLong *et al.* (1990) and Brown (1999) suggest that increased volatility and systematic risk are attributed to investor sentiment. Jiang and Indro (2002), in contrast, show that increased systematic risk resulted from investor sentiments is priced and that bullish sentiment leads to lower volatility. In a recent study by Yu and Yuan (2011), high sentiments are found to undermine an otherwise positive mean-variance tradeoff, implying an ambiguous impact of investor sentiments on volatility. These studies indicate that whether catering to market sentiment leads to greater or lower risk is an open question. Given that there is lack of consensus on the risk implications of catering behavior in the existing literature, we test the null hypothesis as follows:

Null Hypothesis 3: *Insurance companies that cater to market preference do not have greater variation in stock price.*

3. Research Methodology

Abnormal Return Measures

Our objective is to examine the stock market responses to firm catering. We hypothesize that firms catering to market sentiment may have different expected return and risk compared to firms that do not cater to market preference. There are several methods one can use to calculate expected return. In this study, we adopt three different approaches: Capital Asset Pricing Model (CAPM), Fama-French three-factor models and Carhart four-factor model. Sharpe (1964) introduced the CAPM model where a firm's expected return is based its covariance with a market portfolio. Under CAPM assumption, a firm's expected return can be expressed by the following equation:

$$R_{i,t} = R_{f,t} + \beta_i (R_{m,t} - R_{f,t}) + \mu_{i,t} \quad (1)$$

where $R_{i,t}$ is the actual return, $R_{f,t}$ is the risk-free return and $R_{m,t}$ represents market return. Classic finance theories have defined abnormal returns as the difference between actual return and expected return. In other words,

$$AR\_CAPM_{i,t} = (R_{i,t} - R_{f,t}) - \beta_i (R_{m,t} - R_{f,t}) \quad (2)$$

The CAPM model has been criticized by some for attributing systematic risks to a single coefficient. Fama and French (1993) introduced a multi-factor model where a firm's expected return is also attributable to firm size and book-to-market ratios. Fama-French asset pricing equation can be written as follows:

$$R_{i,t} = R_{f,t} + \beta_1 (R_{m,t} - R_{f,t}) + \beta_{2,i} SMB_{m,t} + \beta_{3,i} HML_{m,t} \quad (3)$$

where

SMB (Small Minus Big) = 1/3 (Small Value + Small Neutral + Small Growth) – 1/3 (Big Value + Big Neutral + Big Growth) (4)

and

HML (High Minus Low) = 1/2 (Small Value + Big Value) – 1/2 (Small Growth + Big Growth) (5)

SMB is the average return on three small portfolios minus the average return on the three big portfolios. It represents the excess return of small stocks over big stocks. *HML* is the average return on the two value portfolios minus the average return on the two growth portfolios, which indicates the excess return of stocks with high book-to-market ratios over stocks with low book-to-market ratios. Comparing to the CAPM model, the three-factor model has been shown to be able to explain a greater variability of returns (Fama and French, 1993). The abnormal return based on the Fama-French three-factor model can be expressed as follows:

$$AR\_FF3_{i,t} = (R_{i,t} - R_{f,t}) - \beta_1 (R_{m,t} - R_{f,t}) - \beta_{2,i} SMB_{m,t} - \beta_{3,i} HML_{m,t} \quad (6)$$

Additionally, we also use the Carhart four-factor model, which extends the Fama-French three-factor model by including a momentum factor, to predict stock return. The Carhart four-factor model can be written as follows:

$$R_{i,t} = R_{f,t} + \beta_1 (R_{m,t} - R_{f,t}) + \beta_{2,i} SMB_{m,t} + \beta_{3,i} HML_{m,t} + \beta_{4,i} WML_{m,t} \quad (7)$$

where

WML (Winner Minus Loser) = 1/2 (Small High + Big High) – 1/2 (Small Low + Big Low) (8)

WML is the average return on the two high prior return portfolios minus the average return on the two low prior return portfolios. It reflects the monthly premium on winners minus losers.

Combined together, the abnormal return based on the Carhart four-factor model can be expressed as follows:

$$AR\_CT4_{i,t} = (R_{i,t} - R_{f,t}) - \beta_1(R_{m,t} - R_{f,t}) - \beta_{2,i} SMB_{m,t} - \beta_{3,i} HML_{m,t} - \beta_{4,i} WNL_{m,t} \quad (9)$$

Catering Classification

To identify investor sentiment in a time period we first calculate the sensitivity of stock prices to premium growth following Ma and Ren (2012). We estimate the following equation:

$$MTB_{i,t} = \alpha + \beta_t PGROWTH_{i,t} + u_{i,t} \quad (10)$$

where $MTB_{i,t}$ is the market-to-book ratio for firm *i* during time *t* and *PGROWTH* is the premium growth rate measured by net premiums written at time *t* divided by net premiums written at time *t-1*. Market-to-book ratio is defined as market equity over book value of equity. Following Fama and French (1992), we define book value of equity as the book value of stockholders' equity, plus deferred taxes and minus the book value of preferred stock. Market equity is defined as common shares outstanding time price. The coefficient β_t (*Growth_Beta*) in the equation (10) reflects the sensitivity of stock prices to premium growth in time *t*. In addition to *Growth_Beta*, we also calculate *Growth_Premia,* which is defined as the difference between the average logs of market-to-book ratios of high-growth firms and low-growth firms in each quarter, as an alternative measure for the sensitivity of stock prices to premium growth. A positive value of *Growth_Beta* (or *Growth_Premia*) indicates that the market rewards growth strategy during this time period. In a time period where the investors do not reward growth strategy in particular, *Growth_Beta* (or *Growth_Premia*) is expected to be negative.

Our next step is to identify a catering move. We rank all firms' premium growth in each quarter, and define the behavior as catering if a firm's growth strategy follows market preference. Specifically, a firm is classified as catering if its premium growth is in the upper quartile of the distribution during a period when the market rewards growth strategy (i.e. when *Growth_Beta* or *Growth_Premia* is positive). Our objective is to compare insurers that cater to investor sentiment with those that do not cater to market preference and examine whether there is performance difference between these two groups.

Variable Definition and Data Analysis

To examine our first hypothesis on whether firms that cater to market preference have greater short-term abnormal return, we first calculate abnormal returns for each firm during quarter *t*, and then estimate regression models where abnormal returns are regressed on a firm's catering classification, along with other control variables. We use daily stock and market return data to calculate daily abnormal return using equations (2), (6) and (9) for each firm, and add up daily abnormal return for each quarter. Specifically, we calculate the following:

$$CAR_{i,t} = \sum_{t=1}^{n} AR_{i,t} \tag{11}$$

where *n* represents number of trading days in *t*th quarter. We expect a firm's return to be dynamically correlated with each other from quarter to quarter, and thus also include the return information from the previous quarter in the regression model as a predictor. To allow the market to react to a firm's catering strategy, we calculate the quarterly abnormal return in the following quarter as our response variable. Specifically, the general form of our regression model can be written as follows:

$$CAR_{i,t+1} = \alpha CAR_{i,t} + \phi CATER_{i,t} + \gamma x_{i,t} + \mu_{i,t} \tag{12}$$

where $CAR_{i,t}$ represents abnormal return for firm *i* during quarter *t*, estimated from the difference between actual return and expected return using CAPM, Fama French three-factor or Carhart four-factor models. $CATER_{i,t}$ is a dummy variable that takes the value of one if a firm is categorized as being catering during quarter *t*. $x_{i,t}$ is a matrix of firm level control variables and $\mu_{i,t}$ includes unobserved company-specific effects and observation specific errors. The main parameter of interest is ϕ. If firms experience greater abnormal return compared to other firms when they cater their strategies corresponding to market preference, we would expect ϕ to bear a positive sign.

When lagged dependent variable is included in the model, static panel data methodologies are biased and inconsistent due to the correlation between the lagged dependent variable and company specific effects. Arellano and Bond (1991) and Arellano and Bover (1995) developed the GMM estimators that produce consistent and unbiased coefficient estimates when lagged dependent variables are present. The GMM estimator uses first-differences to transform equation (10) into

$$\begin{aligned} CAR_{i,t+1} - CAR_{i,t} = {} & \alpha(CAR_{i,t} - CAR_{i,t-1}) + \phi(CATER_{i,t} - CATER_{i,t-1}) \\ & + \gamma(x_{i,t} - x_{i,t-1}) + (\mu_{i,t} - \mu_{i,t-1}) \end{aligned} \tag{13}$$

where the individual fixed effects are eliminated from the equation and lagged values of the repressors are now instruments. Blundell and Bond (1998) further developed the GMM system estimators that improve upon the potential problem of weak instrument found in Arellano and Bond (1991) and Arellano and Bover (1995). Thus, we use dynamic panel-data GMM estimators developed by Blundell and Bond (1998) in this analysis. These estimates are heteroscedasticity consistent where the covariance matrix is adjusted using White's correction.

In addition to GMM, we also use panel data fixed effects models that allows for firm specific intercepts. To account for serial correlation in a firm's return, we assume the covariance structure in the fixed effects models follows a first order autoregressive process *AR* (1). Additionally, our standard errors are clustered by firms to allow for cross-sectional correlation of the results across firms. All of our models are heteroscedasticity consistent where the covariance matrix is adjusted using White's correction and are free from multicollinearity. The findings from the alternative methods do not change the paper's conclusions.

We consider several control variables that are known to affect cross-sectional pricing, including size, value, momentum, volatility, liquidity and institutional ownership.

Firm Size and Book-to-Market Value

Fama and French (1992) show that firm size and book-to-market ratios are important determinants of stock returns. We use market capitalization to capture firm size, which is calculated as share price times total shares outstanding at the end of quarter *t*. Book-to-market ratio is calculated as book value of the stock at the end of the previous fiscal year divided by market capitalization at the end of quarter *t* where book value is defined as the book value of stockholders' equity, plus deferred taxes and investment tax credit (if available), minus the book value of preferred stock, at the end of the previous fiscal year.

Momentum

Jegadeesh and Titman (1993) and Carhart (1997) provide evidence that past returns or momentum effect predicts future returns. Particularly, Jegadeesh and Titman (2013) document that stocks with low (high) past returns continue to have low (high) future returns. In our study, we use total return from the previous quarter as a measure for the momentum effect.[2]

Volatility

Many studies (e.g. Duffee, 1995; Brown and Ferreira, 2003; Grullon, Lyandres and Zhdanov, 2012) find that firm-level return volatility has positive predictive power for excess market returns. We follow Duffee (1995) and Grullon, Lyandres and Zhdanov (2012), among others, and estimate firm *i*'s volatility as the standard deviation of daily stock return during quarter *t*.

Liquidity and turnover

Amihud and Mendelson's (1986) and Amihud (2002) shows that liquidity and stock turnover rate are negatively related to stock returns, suggesting that illiquidity risk is priced. Stock illiquidity is measured by the ratio of the absolute return to the trading volume in dollars on a daily basis. This ratio reflects the price change per dollar of daily trading volume. Stock turnover rate is the daily trading volume of stock *i* scaled by total shares outstanding. We calculate the average daily ratios for each quarter as proxies for illiquidity and turnover rate for each quarter.

Institutional ownership

Gompers and Metrick (2001) document a positive relation between institutional ownership and future stock returns. Institutional ownership is measured as the number of shares held by institutional investors divided by total shares outstanding, measured in quarter *t*.

Our second hypothesis examines whether firms that cater to market preference have greater long-term abnormal return. To measure long-term abnormal return, we calculate the cumulative return for each firm using monthly return data over a one-year, three-year and five-year period. To calculate the cumulative abnormal return, we use the buy-and-hold abnormal return (BHAR) method. BHAR measures the difference between the compounded actual return and the

[2] The past return variable is included in the fixed effects models but not the GMM models as the GMM models has already included the lagged abnormal return variable. Due to the high correlation between abnormal return and actual return, we drop this variable from the GMM models.

compound predicted return, which simulates the effect of holding a stock for a specific period of time. Specifically, BHAR is calculated as follows:

$$BHAR_{i,t} = \prod_{t=1}^{n}(1 + R_{i,t}) - \prod_{t=1}^{n}(1 + E[R]_{i,t}) \quad (14)$$

where $R_{i,t}$ and $E[R]_{i,t}$ are the actual monthly return and the expected monthly return, respectively. $E[R]_{i,t}$ is estimated using three different methods: CAPM, Fama French three-factor and Carhart four-factor models. We compare BHAR of those who have repeatedly catered to market preference with those that do not tend to cater. To identify firms that recurrently cater to market preference, we first calculate $\overline{CATER}_{i,t}$, the average value of *CATER* for each firm over the time period a firm has been trading. $\overline{CATER}_{i,t}$ indicates the tendency a firm caters and a firm that is more likely to cater has a larger $\overline{CATER}_{i,t}$. Next, we rank $\overline{CATER}_{i,t}$ of all firms and firms that are in the top 25th percentile of the distribution are identified as frequent market caters. We then compare the BHAR of frequent market caters with those who are either in the bottom 25th percentile of the distribution or those who have never catered throughout the entire observation period.

To test the third hypothesis, we compute the standard deviation of monthly return for each firm, which reflects the risk level, over a one-, three- and five-year period. Similar to the approach on examining hypothesis two, we compare the risk level of frequent market caters with those who are either in the bottom 25th percentile of the $\overline{CATER}_{i,t}$ distribution or those who have never catered throughout the entire observation period. Our goal is to examine whether firms that tend to cater to market preference are also high risks when comparing to those that do not cater to market signals.

Our sample includes U.S. public property-liability insurance companies over the 2002-2014 period. There are three main sources for our data. We obtain stock return data from the Center for Research in Security Prices (CRSP). All other firm specific data are obtained from the SNL database. Market return, interest rate and other variables used in Fama-French asset-pricing equations are obtained from Kenneth French's website. As mentioned previously, we use quarterly data to increase the sensitivity of our model results. Our final sample includes a total of 1461 observations from 41 distinct companies. Table 1 shows the summary statistics of variables used in our analysis.

4. Empirical Results

Tables 2 and 3 present our regression results. Table 2 contains the results of the GMM models and Table 3 contains the results of the fixed-effects models. We were able to include 1360 observations in GMM models and 1424 observations in fixed effects models due to lagged values. The R-square for our fixed-effects models ranged from 24.33% to 27.55%. We use three different methods to calculate abnormal return (i.e. CAR_CAPM, CAR_FF3 and CAR_CT4) and the results are reported in separate columns. We use two measures for the sensitivity of stock price to premium growth strategy and the first three columns in each table correspond to *Growth_Beta* and the next three columns correspond to *Growth_Premia*.

Our main variables of interest are *Growth_Beta* and *Growth_Premia*. The coefficient for *Growth_Beta* are positive in all models, and statistically significant in four out of six models. Similarly, *Growth_Premia* are positively significant in five out of six models. The positive coefficients suggest that firms that cater to market preference experience higher abnormal return. Among the control variables, we find that large firms have smaller abnormal return, everything else equal.

Next, we compare the long-term abnormal return between firms that cater to market preference frequently and those that either never or only occasionally cater to market. Table 4 compares the yearly abnormal return between those that cater frequently and those that seldom cater. For all years, except for 2003, firms that frequently cater to market do not appear to generate different abnormal return from firms that seldom cater. In 2003, we do find evidence that catering firms have higher long-term abnormal return. The reason for the high abnormal return in 2003 is that the market reward for favorable growth performance was extra high in 2003 (i.e. large *Growth_Beta* and *Growth_Premia*), and consequently the catering firms earn extra higher abnormal return. We repeat the analysis by comparing firms that frequently cater with those that never cater and report the results in Table 5. Our findings remain unchanged with different control groups. Our results suggest that catering to market in general does not generate greater yearly abnormal return.

Tables 6 and 7 compare the standard deviation of monthly return between firms that cater frequently and firms that either seldom cater or never cater. Our results show that firms that cater frequently have higher variation in monthly return on multiple years, indicating higher risks. Specifically, we find that firms that tend to cater experienced greater variation in monthly return in 2005, 2006, 2013 and 2014.

Given that our sample period extends over a time span that may be considered a global recession period, we also perform separate analysis on three- and five-year windows examining the potential differing effects catering may have on abnormal returns and risk during financial crisis. Tables 8-11 show the three-year analysis and Tables 12-14 show the five-year analysis. For the 3-year analysis, we examine both abnormal return and standard deviation of monthly return over four different time periods: 2002 to 2004, 2005 to 2007, 2008 to 2010 and 2011 to 2013.[3] Our intention is to see whether firms that tend to cater to market preference have greater long-term abnormal return and/or greater variation in stock return over a three-year period. Our findings in Table 8 shows that firms that cater frequently have higher abnormal return in 2002-2004, while there is no statistically significant difference between those that cater frequently and those that seldom cater in other time periods. The exception of period 2002-2004 is largely due to the extra high market reward for growth performance in 2003. When we change the control group to firms that never cater, the results remain the same. The results of the latter analysis are reported in Table 9.

As for standard deviation of monthly return, our results in Tables 10 and 11 show that firms that frequently cater have greater variation in monthly return during 2005-2007. However, there is no

[3] We also repeat the analysis using different segments for three-year and five-year analysis, and the findings of the alternative analyses do not change the conclusion presented here.

significant difference in terms of variation in stock return in other years. These results hold true regardless of whether we use firms that seldom cater or firms that never cater as our control group.

Results from the five-year analyses are reported in Tables 12 to 15. We examine five-year cumulative return and standard deviation of return over the windows of 2005 to 2009 and 2010 to 2014. Our results show that there is no difference between firms that cater frequently and firms that either seldom cater or never cater when it comes to long-term return and standard deviation of return. The three-year and five-year analyses suggest that investors' response to firm's catering behavior does not significantly differ between recession and stock boom.

We list firms that are classified as frequent caters in Table 16. There are 11 firms and eight firms that fall into this category when we use *Growth_Beta* and *Growth_Premia* as the sensitivity measure, respectively. Seven firms made both lists. Firms that seldom cater to the market are listed in Table 17, and firms that never cater to market are listed in Table 18. There are five firms that have never catered to the market. These firms include: Chubb, CNA, Hartford, Kemper and Travelers. We made a comparison of firm characteristics between those that cater frequently and those that either cater occasionally or never cater and report the results in Tables 19 and 20. We compare five characteristics: loss ratio, total assets, return on assets (ROA), return on equity (ROE) and equity to assets ratio. Consistently, we find that firms that frequently cater to the market tend to be smaller and have lower ROA as well as lower ROE when comparing to firms that either seldom or never cater. The results hold true for both *Growth_Beta* and *Growth_Premia*.

5. Conclusion

A healthy and sustainable growth is critical for insurer solvency. Ma and Ren (2012) find that managers of publicly-traded insurers tend to cater to the market's preference when make decisions on growth. This finding calls for regulatory attention and further research because the existing literature suggests that catering may impair a firm's long-term value and bring excess volatility. In this study, we extend Ma and Ren (2012)'s study to further examine whether insurers catering are rewarded by higher valuation in both short term and long term and whether the catering will involve excess volatility.

We find that when insurers cater to market preference by delivering favorable growth performance, they receive higher abnormal return in short term, which provides an incentive for managers to cater. Insurers that frequently cater, however, do not outperform in long term and are found to have greater volatility in stock return. These results are consistent with the predictions of Aghion and Stein (2008). Our results also show that insurers that frequently cater are smaller firms with lower ROA and ROE when comparing to insurers that seldom or never cater. These findings suggest that smaller and less profitable insurers are more likely to cater to market preference and involve in greater risk, which deserves special regulatory attention.

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Table 1 Descriptive Statistics of Variables[†]

Variable	Number of Observations	Mean	Standard Deviation	Minimum	Maximum
CAR_CAPM	1461	0.011	0.127	-0.763	0.770
CAR_FF3	1461	0.018	0.125	-1.112	0.708
CAR_CT4	1461	0.022	0.119	-0.896	0.619
Growth_Beta	1461	0.346	0.491	-0.709	1.463
Growth_Premia	1461	0.290	0.335	-0.514	0.845
B/M	1461	0.668	0.634	0.029	9.761
Size (in million)	1461	7.315	19.374	0.022	186.402
Volatility	1461	0.024	0.216	0.005	8.250
Illiquidity	1461	0.033	0.409	0.000	14.805
Turnover	1461	0.006	0.011	0.000	0.337
Institutional ownership	1461	0.736	0.234	0.020	1.000

[†] Variable definitions are as follows:

CAR_CAPM	=	Abnormal return measured by the difference between actual return and expected return where expected return is estimated using the CAPM model;
CAR_FF3	=	Abnormal return measured by the difference between actual return and expected return where expected return is estimated using the Fama French three-factor model;
CAR_CT4	=	Abnormal return measured by the difference between actual return and expected return where expected return is estimated using the Carhart four-factor model;
Growth_Beta	=	The sensitivity coefficient measured by the coefficient of premium growth when regressing logged value of market-to-book ratio on logged value of premium growth;
Growth_Premia	=	The sensitivity coefficient measured by the difference between the average logs of market-to-book ratios of high-growth firms and low-growth firms;
B/M	=	Book-to-market ratio calculated as book value of the stock at the end of the previous fiscal year divided by market capitalization at the end of the quarter*;*
Size (in million)	=	Market capitalization calculated as share price times total shares outstanding;
Volatility	=	Standard deviation of daily stock return;
Illiquidity	=	Stock illiquidity measured by the ratio of the absolute return to the trading volume in dollars on a daily basis (multiplied by 1,000,000);
Turnover	=	Stock turnover rate is the average daily trading volume of stock *i* scaled by total shares outstanding;
Institutional ownership	=	Institutional ownership measured as the number of shares held by institutional investors divided by total shares outstanding.

Table 2 Effect of Catering on Abnormal Return: GMM (Dependent Variable: Abnormal Return$_{i,t+1}$)†

Abnormal Return:	AR_CAPM	AR_FF3	AR_CT4	AR_CAPM	AR_FF3	AR_ CT4
Intercept $_{i,t}$	1.580***	1.792***	1.212**	1.619***	1.830***	1.240***
	(0.499)	(0.419)	(0.494)	(0.498)	(0.417)	(0.490)
Abnormal Return $_{i,t}$	-0.037	-0.059	-0.105***	-0.037	-0.059	-0.105***
	(0.031)	(0.046)	(0.032)	(0.032)	(0.046)	(0.032)
Cater (Growth_Beta)$_t$	0.020***	0.017**	0.014*			
	(0.008)	(0.009)	(0.008)			
Cater (Growth_Premia)$_t$				0.022***	0.018**	0.014*
				(0.008)	(0.009)	(0.008)
Ln(B/M)$_{i,t}$	-0.002	-0.008	<0.001	-0.001	-0.007	<0.001
	(0.021)	(0.024)	(0.020)	(0.021)	(0.024)	(0.020)
Ln(Size)$_{i,t}$	-0.146***	-0.155***	-0.083**	-0.145***	-0.155**	-0.082**
	(0.043)	(0.052)	(0.041)	(0.043)	(0.052)	(0.041)
Ln(Volatility)$_{i,t}$	0.039	0.031	0.011	0.040	0.032	0.013
	(0.066)	(0.070)	(0.063)	(0.065)	(0.069)	(0.061)
Ln(Illiquidity)$_{i,t}$	-0.023	-0.019	0.002	-0.023	-0.019	0.002
	(0.033)	(0.033)	(0.027)	(0.032)	(0.033)	(0.027)
Ln(Turnover)$_{i,t}$	-0.032	-0.023	-0.002	-0.032	-0.023	-0.002
	(0.038)	(0.042)	(0.032)	(0.038)	(0.042)	(0.032)
Ln(Institutional Ownership)$_{i,t}$	-0.030	-0.017	0.002	-0.030	-0.017	0.002
	(0.023)	(0.029)	(0.026)	(0.023)	(0.029)	(0.026)
Number of observations	1360	1360	1360	1360	1360	1360
Wald χ^2	4574.22	6319.64	6100.29	5379.50	3508.17	9156.15

Notes:

* indicate significance at 10% level

** indicate significance at 5% level

*** indicate significance at 1% level

† Robust standard errors are reported in the parentheses below coefficient estimates. Standard errors are heteroscedasticity consistent. Time specific intercepts are included in the models, but are not reported here.

Table 3 Effect of Catering on Abnormal Return: Two-Way Fixed-Effects Models (Dependent Variable: Abnormal Return$_{i,t+1}$)†

Abnormal Return:	AR_CAPM	AR_FF3	AR_ CT4	AR_CAPM	AR_FF3	AR_ CT4
Intercept	1.120***	1.119***	0.723***	1.114***	1.114***	0.719***
	(0.407)	(0.370)	(0.270)	(0.410)	(0.372)	(0.271)
Return $_{i,t}$	0.048	0.026	0.066**	0.047	0.024	0.065
	(0.045)	(0.042)	(0.032)	(0.045)	(0.042)	(0.032)
Cater (Growth_Beta)$_t$	0.017**	0.013	0.009			
	(0.008)	(0.008)	(0.008)			
Cater (Growth_Premia)$_t$				0.019**	0.014*	0.010
				(0.008)	(0.008)	(0.008)
Ln(B/M)$_{i,t}$	-0.006	-0.004	-0.002	-0.006	-0.003	-0.002
	(0.018)	(0.016)	(0.012)	(0.018)	(0.016)	(0.012)
Ln(Size)$_{i,t}$	-0.093***	-0.090**	-0.043	-0.092**	-0.090**	-0.043**
	(0.041)	(0.044)	(0.029)	(0.041)	(0.043)	(0.029)
Ln(Volatility)$_{i,t}$	0.052	0.057	0.026	0.051	0.056	0.025
	(0.047)	(0.049)	(0.038)	(0.047)	(0.049)	(0.038)
Ln(Illiquidity)$_{i,t}$	-0.012	-0.011	0.002	-0.012	-0.011	0.002
	(0.030)	(0.032)	(0.021)	(0.030)	(0.032)	(0.021)
Ln(Turnover)$_{i,t}$	-0.024	-0.019	-0.001	-0.024	-0.019	-0.001
	(0.033)	(0.036)	(0.025)	(0.033)	(0.036)	(0.024)
Ln(Institutional Ownership)$_{i,t}$	-0.004	-0.002	0.010	-0.003	-0.002	0.010
	(0.020)	(0.022)	(0.022)	(0.020)	(0.022)	(0.022)
Number of observations	1424	1424	1424	1424	1424	1424
R-Square	0.2516	0.2433	0.2755	0.2522	0.2435	0.2755

Notes:

* indicate significance at 10% level

** indicate significance at 5% level

*** indicate significance at 1% level

† Standard errors are heteroscedasticity and autocorrelation consistent, and are clustered by firm. Robust standard errors are reported in the parentheses below coefficient estimates. Company specific intercepts as well as time dummy variables are included models, but are not reported here.

Table 4. Comparison of yearly buy-and-hold abnormal return (BHAR) between firms that cater frequently and firms that seldom cater to market preference

Year	Sensitivity	Catering Tendency+	Number of firms	BHAR_CT4	Seldom – Frequent
2002	Growth_Beta	Seldom	7	0.0003	-0.1147
		Frequent	3	0.1150	
	Growth_Premia	Seldom	8	-0.0114	-0.1264
		Frequent	3	0.1150	
2003	Growth_Beta	Seldom	8	-0.1427	-0.4088**
		Frequent	4	0.2661	
	Growth_Premia	Seldom	8	-0.0864	-0.3888**
		Frequent	3	0.3024	
2004	Growth_Beta	Seldom	8	-0.0504	-0.0840
		Frequent	6	0.0336	
	Growth_Premia	Seldom	8	0.00115	0.00287
		Frequent	5	-0.00172	
2005	Growth_Beta	Seldom	8	0.0890	-0.0414
		Frequent	6	0.1304	
	Growth_Premia	Seldom	8	0.1092	0.0209
		Frequent	6	0.0883	
2006	Growth_Beta	Seldom	8	-0.0681	-0.1616
		Frequent	7	0.0935	
	Growth_Premia	Seldom	8	-0.0590	-0.0800
		Frequent	6	0.0210	
2007	Growth_Beta	Seldom	8	0.0492	-0.1721
		Frequent	7	0.2213	
	Growth_Premia	Seldom	8	0.0534	0.0310
		Frequently	6	0.0224	
2008	Growth_Beta	Seldom	9	0.1782	-0.0336
		Frequent	10	0.2118	
	Growth_Premia	Seldom	9	0.1609	0.0585
		Frequently	9	0.1024	

Table 4 Cont.

Year	Sensitivity	Catering Tendency+	Number of firms	AR_CT4	Seldom – Frequent
2009	Growth_Beta	Seldom	9	0.2231	0.1339
		Frequent	11	0.0892	
	Growth_Premia	Seldom	9	0.2732	-0.0649
		Frequent	10	0.3380	
2010	Growth_Beta	Seldom	8	0.1172	0.0733
		Frequent	11	0.0439	
	Grwoth_Premia	Seldom	9	0.1155	0.0727
		Frequent	10	0.0429	
2011	Growth_Beta	Seldom	8	0.0573	-0.0369
		Frequent	11	0.0942	
	Growth_Premia	Seldom	9	0.0553	0.0788
		Frequent	10	-0.0235	
2012	Growth_Beta	Seldom	9	0.0529	0.0177
		Frequent	11	0.0352	
	Growth_Premia	Seldom	10	0.0566	0.0156
		Frequent	9	0.0410	
2013	Growth_Beta	Seldom	9	0.0747	-0.1136
		Frequent	11	0.1883	
	Growth_Premia	Seldom	10	0.0614	-0.1763
		Frequent	9	0.2377	
2014	Growth_Beta	Seldom	9	0.0144	-0.0366
		Frequent	11	0.0511	
	Growth_Premia	Seldom	10	0.0268	-0.0211
		Frequent	9	0.0480	

* indicates significance at 10% level
** indicates significance at 5% level
*** indicates significance at 1% level

+ Firms whose $\overline{CATER}_{i,t}$ are ranked in the top 25th percentile of the distribution are identified as frequent caters and those whose $\overline{CATER}_{i,t}$ are in the bottom 25th percentile of the distribution are identified as the ones that seldom cater to market preference.

Table 5. Comparison of yearly buy-and-hold abnormal return (BHAR) between firms that cater frequently and firms that never cater

Year	Sensitivity	Catering Tendency[+]	Number of firms	BHAR_CT4	Never – Frequent
2002	Growth_Beta	Never	3	-0.0659	-0.1809
		Frequent	3	0.1150	
	Growth_Premia	Never	3	-0.0659	-0.1809
		Frequent	3	0.1150	
2003	Growth_Beta	Never	3	-0.1725	-0.4386*
		Frequent	4	0.2661	
	Growth_Premia	Never	3	-0.1725	-0.4749*
		Frequent	3	0.3024	
2004	Growth_Beta	Never	3	-0.0776	-0.1112
		Frequent	6	0.0336	
	Growth_Premia	Never	3	-0.0776	-0.0759
		Frequent	5	-0.00172	
2005	Growth_Beta	Never	3	0.2219	0.0915
		Frequent	6	0.1304	
	Growth_Premia	Never	3	0.2219	0.1336
		Frequent	6	0.0883	
2006	Growth_Beta	Never	3	-0.1229	-0.2164
		Frequent	7	0.0935	
	Growth_Premia	Never	3	-0.1229	-0.1439
		Frequent	6	0.0210	
2007	Growth_Beta	Never	3	0.0683	-0.1530
		Frequent	7	0.2213	
	Growth_Premia	Never	3	0.0683	0.0459
		Frequent	6	0.0224	
2008	Growth_Beta	Never	4	0.1113	-0.1005
		Frequent	10	0.2118	
	Growth_Premia	Never	4	0.1113	0.0089
		Frequent	9	0.1024	

Table 5 Cont.

Year	Sensitivity	Catering Tendency+	Number of firms	AR_CT4	Never – Frequent
2009	Growth_Beta	Never	4	0.2735	0.1843
		Frequent	11	0.0892	
	Growth_Premia	Never	4	0.2735	-0.0646
		Frequent	10	0.3380	
2010	Growth_Beta	Never	4	0.0674	0.0235
		Frequent	11	0.0439	
	Grwoth_Premia	Never	4	0.0674	0.0245
		Frequent	10	0.0429	
2011	Growth_Beta	Never	4	0.0952	0.0010
		Frequent	11	0.0942	
	Growth_Premia	Never	4	0.0952	0.1187
		Frequent	10	-0.0235	
2012	Growth_Beta	Never	5	-0.0196	-0.0548
		Frequent	11	0.0352	
	Growth_Premia	Never	5	-0.0196	-0.0607
		Frequent	9	0.0410	
2013	Growth_Beta	Never	5	0.0479	-0.1404
		Frequent	11	0.1883	
	Growth_Premia	Never	5	0.0479	-0.1898
		Frequent	9	0.2377	
2014	Growth_Beta	Never	5	-0.0125	-0.0636
		Frequent	11	0.0511	
	Growth_Premia	Never	5	-0.0125	-0.0605
		Frequent	9	0.0480	

* indicates significance at 10% level
** indicates significance at 5% level
*** indicates significance at 1% level

+ Firms whose $\overline{CATER}_{i,t}$ are ranked in the top 25th percentile of the distribution are identified as frequent caters.

Table 6. Comparison of standard deviation of monthly return between firms that cater frequently and firms that seldom cater to market preference

Year	Sensitivity	Catering Tendency[+]	Number of firms	SD of monthly return	Seldom – Frequent
2002	Growth_Beta	Seldom	7	0.0687	-0.0729
		Frequent	3	0.1416	
	Growth_Premia	Seldom	8	0.0647	-0.0769
		Frequent	3	0.1416	
2003	Growth_Beta	Seldom	8	0.0869	0.0082
		Frequent	4	0.0787	
	Growth_Premia	Seldom	8	0.0654	-0.0162
		Frequent	3	0.0816	
2004	Growth_Beta	Seldom	8	0.0555	0.0013
		Frequent	6	0.0542	
	Growth_Premia	Seldom	8	0.0471	-0.0036
		Frequent	5	0.0507	
2005	Growth_Beta	Seldom	8	0.0500	-0.0093
		Frequent	6	0.0593	
	Growth_Premia	Seldom	8	0.0429	-0.0252***
		Frequent	6	0.0681	
2006	Growth_Beta	Seldom	8	0.0509	-0.0200
		Frequent	7	0.0709	
	Growth_Premia	Seldom	8	0.0373	-0.0313**
		Frequent	6	0.0687	
2007	Growth_Beta	Seldom	8	0.0590	-0.0151
		Frequent	7	0.0741	
	Growth_Premia	Seldom	8	0.0530	-0.0124
		Frequent	6	0.0653	
2008	Growth_Beta	Seldom	9	0.1609	0.0359
		Frequent	10	0.1250	
	Growth_Premia	Seldom	9	0.1532	0.0168
		Frequent	9	0.1364	

Table 6 Cont.

Year	Sensitivity	Catering Tendency+	Number of firms	SD of monthly return	Seldom – Frequent
2009	Growth_Beta	Seldom	9	0.1488	0.0126
		Frequent	11	0.1362	
	Growth_Premia	Seldom	9	0.1409	-0.0091
		Frequent	10	0.1500	
2010	Growth_Beta	Seldom	8	0.0661	0.0025
		Frequent	11	0.0636	
	Grwoth_Premia	Seldom	9	0.0623	-0.0062
		Frequent	10	0.0685	
2011	Growth_Beta	Seldom	8	0.0731	-0.0080
		Frequent	11	0.0811	
	Growth_Premia	Seldom	9	0.0713	-0.0184
		Frequent	10	0.0897	
2012	Growth_Beta	Seldom	9	0.0495	-0.0213
		Frequent	11	0.0708	
	Growth_Premia	Seldom	10	0.0488	-0.0257
		Frequent	9	0.0745	
2013	Growth_Beta	Seldom	9	0.0497	-0.0214*
		Frequent	11	0.0710	
	Growth_Premia	Seldom	10	0.0485	-0.0245
		Frequent	9	0.0730	
2014	Growth_Beta	Seldom	9	0.0531	-0.0334**
		Frequent	11	0.0865	
	Growth_Premia	Seldom	10	0.0521	-0.0393**
		Frequent	9	0.0914	

* indicates significance at 10% level
** indicates significance at 5% level
*** indicates significance at 1% level

+ Firms whose $\overline{CATER}_{i,t}$ are ranked in the top 25th percentile of the distribution are identified as frequent caters and those whose $\overline{CATER}_{i,t}$ are in the bottom 25th percentile of the distribution are identified as the ones that seldom cater to market preference.

Table 7. Comparison of standard deviation of monthly return between firms that cater frequently and firms that never cater

Year	Sensitivity	Catering Tendency+	Number of firms	SD of monthly return	Never – Frequent
2002	Growth_Beta	Never	3	0.0795	-0.0621
		Frequent	3	0.1416	
	Growth_Premia	Never	3	0.0795	-0.0621
		Frequent	3	0.1416	
2003	Growth_Beta	Never	3	0.0801	0.0014
		Frequent	4	0.0787	
	Growth_Premia	Never	3	0.0801	-0.0015
		Frequent	3	0.0816	
2004	Growth_Beta	Never	3	0.0506	-0.0035
		Frequent	6	0.0542	
	Growth_Premia	Never	3	0.0506	-0.0001
		Frequent	5	0.0507	
2005	Growth_Beta	Never	3	0.0436	-0.0158
		Frequent	6	0.0593	
	Growth_Premia	Never	3	0.0436	-0.0245
		Frequent	6	0.0681	
2006	Growth_Beta	Never	3	0.0359	-0.0350*
		Frequent	7	0.0709	
	Growth_Premia	Never	3	0.0359	-0.0328*
		Frequent	6	0.0687	
2007	Growth_Beta	Never	3	0.0496	-0.0245
		Frequent	7	0.0741	
	Growth_Premia	Never	3	0.0496	-0.0157
		Frequent	6	0.0653	
2008	Growth_Beta	Never	4	0.1847	0.0598
		Frequent	10	0.1250	
	Growth_Premia	Never	4	0.1847	0.0483
		Frequent	9	0.1364	

Table 7 Cont.

Year	Sensitivity	Catering Tendency+	Number of firms	SD of monthly return	Never – Frequent
2009	Growth_Beta	Never	4	0.1776	0.0414
		Frequent	11	0.1362	
	Growth_Premia	Never	4	0.1776	0.0275
		Frequent	10	0.1500	
2010	Growth_Beta	Never	4	0.0597	-0.0038
		Frequent	11	0.0636	
	Grwoth_Premia	Never	4	0.0597	-0.0088
		Frequent	10	0.0685	
2011	Growth_Beta	Never	4	0.0750	-0.0061
		Frequent	11	0.0811	
	Growth_Premia	Never	4	0.0750	-0.0147
		Frequent	10	0.0897	
2012	Growth_Beta	Never	5	0.0475	-0.0233
		Frequent	11	0.0708	
	Growth_Premia	Never	5	0.0475	-0.0270
		Frequent	9	0.0745	
2013	Growth_Beta	Never	5	0.0449	-0.0262**
		Frequent	11	0.0710	
	Growth_Premia	Never	5	0.0449	-0.0282*
		Frequent	9	0.0730	
2014	Growth_Beta	Never	5	0.0543	-0.0322**
		Frequent	11	0.0865	
	Growth_Premia	Never	5	0.0543	-0.0371**
		Frequent	9	0.0914	

* indicates significance at 10% level
** indicates significance at 5% level
*** indicates significance at 1% level

+ Firms whose $\overline{CATER}_{i,t}$ are ranked in the top 25th percentile of the distribution are identified as frequent caters.

Table 8. Comparison of three-year buy-and-hold abnormal return (BHAR) between firms that cater frequently and firms that seldom cater to market preference

Years	Sensitivity	Catering Tendency+	Number of firms	BHAR_CT4	Seldom – Frequent
2002 - 2004	Growth_Beta	Seldom	7	-0.1895	-0.8342***
		Frequent	3	0.6447	
	Growth_Premia	Seldom	8	-0.1167	-0.7614**
		Frequent	3	0.6447	
2005 - 2007	Growth_Beta	Seldom	8	0.0765	-0.4013
		Frequent	6	0.4778	
	Growth_Premia	Seldom	8	0.1259	-0.0538
		Frequent	6	0.1797	
2008 - 2010	Growth_Beta	Seldom	8	0.4658	0.1797
		Frequent	10	0.2862	
	Growth_Premia	Seldom	9	0.4636	0.2375
		Frequent	9	0.2261	
2011 - 2013	Growth_Beta	Seldom	8	0.2298	-0.1299
		Frequent	11	0.3597	
	Growth_Premia	Seldom	9	0.2151	-0.1172
		Frequent	9	0.3323	

* indicates significance at 10% level
** indicates significance at 5% level
*** indicates significance at 1% level

+ Firms whose $\overline{CATER}_{i,t}$ are ranked in the top 25th percentile of the distribution are identified as frequent caters and those whose $\overline{CATER}_{i,t}$ are in the bottom 25th percentile of the distribution are identified as the ones that seldom cater to market preference.

Table 9. Comparison of three-year buy-and-hold abnormal return (BHAR) between firms that cater frequently and firms that never cater

Years	Sensitivity	Catering Tendency+	Number of firms	BHAR_CT4	Never – Frequent
2002 - 2004	Growth_Beta	Never	3	-0.3706	-1.0153***
		Frequent	3	0.6447	
	Growth_Premia	Never	3	-0.3706	-1.0153***
		Frequent	3	0.6447	
2005 - 2007	Growth_Beta	Never	3	0.2089	-0.2690
		Frequent	6	0.4778	
	Growth_Premia	Never	3	0.2089	0.0292
		Frequent	6	0.1797	
2008 - 2010	Growth_Beta	Never	4	0.3130	0.0269
		Frequent	10	0.2862	
	Growth_Premia	Never	4	0.3130	0.0870
		Frequent	9	0.2261	
2011 - 2013	Growth_Beta	Never	4	0.1735	-0.1861
		Frequent	11	0.3597	
	Growth_Premia	Never	4	0.1735	-0.1587
		Frequent	9	0.3323	

* indicates significance at 10% level
** indicates significance at 5% level
*** indicates significance at 1% level

+ Firms whose $\overline{CATER}_{i,t}$ are ranked in the top 25th percentile of the distribution are identified as frequent caters.

Table 10. Comparison of standard deviation of monthly return between firms that cater frequently and firms that seldom cater to market preference

Year	Sensitivity	Catering Tendency+	Number of firms	SD of monthly return	Seldom – Frequent
2002 - 2004	Growth_Beta	Seldom	7	0.0635	-0.0389
		Frequent	3	0.1024	
	Growth_Premia	Seldom	8	0.0607	-0.0417
		Frequent	3	0.1024	
2005 - 2007	Growth_Beta	Seldom	8	0.0546	-0.0125
		Frequent	6	0.0671	
	Growth_Premia	Seldom	8	0.0455	-0.0233***
		Frequent	6	0.0687	
2008 - 2010	Growth_Beta	Seldom	8	0.1334	0.0176
		Frequent	10	0.1158	
	Growth_Premia	Seldom	9	0.1259	-0.00353
		Frequent	9	0.1295	
2011 - 2013	Growth_Beta	Seldom	8	0.0608	-0.0178
		Frequent	11	0.0787	
	Growth_Premia	Seldom	9	0.0592	-0.0225
		Frequent	9	0.0817	

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Table 11. Comparison of standard deviation of monthly return between firms that cater frequently and firms that never cater

Year	Sensitivity	Catering Tendency+	Number of firms	SD of monthly return	Never – Frequent
2002 - 2004	Growth_Beta	Never	3	0.0726	-0.0298
		Frequent	3	0.1024	
	Growth_Premia	Never	3	0.0726	-0.0298
		Frequent	3	0.1024	
2005 - 2007	Growth_Beta	Never	3	0.0443	-0.0228*
		Frequent	6	0.0671	
	Growth_Premia	Never	3	0.0443	-0.0245
		Frequent	6	0.0687	
2008 - 2010	Growth_Beta	Never	4	0.1514	0.0356
		Frequent	10	0.1158	
	Growth_Premia	Never	4	0.1514	0.0219
		Frequent	9	0.1295	
2011 - 2013	Growth_Beta	Never	4	0.0586	-0.0200
		Frequent	11	0.0787	
	Growth_Premia	Never	4	0.0586	-0.0231
		Frequently	9	0.0817	

* indicates significance at 10% level
** indicates significance at 5% level
*** indicates significance at 1% level

+ Firms whose $\overline{CATER}_{i,t}$ are ranked in the top 25th percentile of the distribution are identified as frequent caters.

Table 12. Comparison of five-year buy-and-hold abnormal return (BHAR) between firms that cater frequently and firms that seldom cater to market preference

Years	Sensitivity	Catering Tendency+	Number of firms	BHAR_CT4	Seldom – Frequent
2005 - 2009	Growth_Beta	Seldom	8	0.3077	-0.3113
		Frequent	6	0.6190	
	Growth_Premia	Seldom	8	0.3706	-0.0100
		Frequent	6	0.3806	
2010 - 2014	Growth_Beta	Seldom	8	0.5599	0.0361
		Frequent	11	0.5238	
	Growth_Premia	Seldom	9	0.5491	0.0504
		Frequent	9	0.4987	

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*** indicates significance at 1% level

+ Firms whose $\overline{CATER}_{i,t}$ are ranked in the top 25th percentile of the distribution are identified as frequent caters and those whose $\overline{CATER}_{i,t}$ are in the bottom 25th percentile of the distribution are identified as the ones that seldom cater to market preference.

Table 13. Comparison of five-year buy-and-hold abnormal return (BHAR) between firms that cater frequently and firms that never cater

Years	Sensitivity	Catering Tendency+	Number of firms	BHAR_CT4	Never – Frequent
2005 - 2009	Growth_Beta	Never	3	0.2278	-0.3912
		Frequent	6	0.6190	
	Growth_Premia	Never	3	0.2278	-0.1529
		Frequent	6	0.3806	
2010 - 2014	Growth_Beta	Never	4	0.3718	-0.1519
		Frequent	11	0.5238	
	Growth_Premia	Never	4	0.3718	-0.1268
		Frequent	9	0.4987	

* indicates significance at 10% level
** indicates significance at 5% level
*** indicates significance at 1% level

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Table 14. Comparison of standard deviation of monthly return between firms that cater frequently and firms that seldom cater to market preference

Year	Sensitivity	Catering Tendency+	Number of firms	SD of monthly return	Seldom – Frequent
2005 - 2009	Growth_Beta	Seldom	8	0.1137	0.0090
		Frequent	6	0.1047	
	Growth_Premia	Seldom	8	0.1054	-0.0102
		Frequent	6	0.1156	
2010 - 2014	Growth_Beta	Seldom	8	0.0600	-0.0177
		Frequent	11	0.0778	
	Growth_Premia	Seldom	9	0.0581	-0.0229
		Frequent	9	0.0810	

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Table 15. Comparison of standard deviation of monthly return between firms that cater frequently and firms that never cater

Years	Sensitivity	Catering Tendency+	Number of firms	SD of monthly return	Never – Frequent
2005 - 2009	Growth_Beta	Never	3	0.1408	0.0362
		Frequent	6	0.1047	
	Growth_Premia	Never	3	0.1408	0.0253
		Frequent	6	0.1156	
2010 - 2014	Growth_Beta	Never	4	0.0576	-0.0202
		Frequent	11	0.0778	
	Growth_Premia	Never	4	0.0576	-0.0235
		Frequently	9	0.0810	

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** indicates significance at 5% level
*** indicates significance at 1% level

+ Firms whose $\overline{CATER}_{i,t}$ are ranked in the top 25th percentile of the distribution are identified as frequent caters.

Table 16. List of firms that frequently cater to market preference

Company Name	
Growth_Beta	**Growth_Premia**
AMERISAFE Inc.	Arch Capital Group Ltd.
Enstar Group Ltd.	Affirmative Insurance Holdings
Arch Capital Group Ltd.	Aspen Insurance Holdings Ltd.
Aspen Insurance Holdings Ltd.	Employers Insurance Group
Employers Insurance Group	Endurance Specialty Holdings
Endurance Specialty Holdings	Kingsway Financial Services
Kingsway Financial Services	Maiden Holdings Ltd.
Maiden Holdings Ltd.	Meadowbrook Insurance Group Inc
Meadowbrook Insurance Group Inc	
Universal Insurance Holdings	
Validus Holdings Ltd.	

[+] Firms whose $\overline{CATER}_{i,t}$ are ranked in the top 25th percentile of the distribution are identified as frequent caters.

Table 17. List of firms that seldom cater to market preference

Company Name	
Growth_Beta	**Growth_Premia**
Chubb Corp.	Allstate Corp.
CNA Financial Corp.	Chubb Corp.
Hartford Financial Services	CNA Financial Corp.
Kemper Corp.	Hartford Financial Services
Travelers Companies Inc.	Horace Mann Educators Corp.
Allstate Corp.	Kemper Corp.
Fairfax Financial Holdings	Mercury General Corp.
Horace Mann Educators Corp.	Old Repub International Corp.
Mercury General Corp.	Travelers Companies Inc.
Old Repub International Corp.	Alleghany Corp.

[+] Firms whose $\overline{CATER}_{i,t}$ are ranked in the bottom 25th percentile of the distribution are identified as frequent caters.

Table 18. List of firms that never cater to market preference

Company Name
Chubb Corp.
CNA Financial Corp.
Hartford Financial Services
Kemper Corp.
Travelers Companies Inc.

Table 19. Comparison of firm characteristics between firms that cater frequently and firms that cater occasionally

Variable	Sensitivity	Catering Tendency+	Number of firms	Values	Seldom – Frequent
Loss Ratio	Growth_Beta	Seldom	10	0.5907	0.0436
		Frequent	10	0.5470	
	Growth_Premia	Seldom	10	0.5950	0.0443
		Frequent	9	0.5507	
Assets (in millions)	Growth_Beta	Seldom	10	26.7288	25.1505***
		Frequent	10	1.5783	
	Growth_Premia	Seldom	10	26.5101	25.1668***
		Frequent	9	1.3434	
ROA	Growth_Beta	Seldom	10	0.0334	0.0324***
		Frequent	10	0.0010	
	Growth_Premia	Seldom	10	0.0337	0.0377***
		Frequent	9	-0.0041	
ROE	Growth_Beta	Seldom	10	0.1056	0.0955***
		Frequent	10	0.0101	
	Growth_Premia	Seldom	10	0.1060	0.1254***
		Frequent	9	-0.0194	
Equity/Assets	Growth_Beta	Seldom	10	0.3127	0.00344
		Frequent	10	0.3093	
	Growth_Premia	Seldom	10	0.3137	0.00165
		Frequent	9	0.3120	

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* indicates significance at 10% level
* indicates significance at 10% level

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Table 20. Comparison of firm characteristics between firms that cater frequently and firms that never cater

Variable	Sensitivity	Catering Tendency+	Number of firms	Values	Never – Frequent
Loss Ratio	Growth_Beta	Never	5	0.5692	0.0222
		Frequent	10	0.5470	
	Growth_Premia	Never	5	0.5692	0.0185
		Frequent	9	0.5507	
Assets (in millions)	Growth_Beta	Never	5	38.1755	36.5973**
		Frequent	10	1.5782	
	Growth_Premia	Never	5	38.1755	36.8322**
		Frequent	9	1.3434	
ROA	Growth_Beta	Never	5	0.0319	0.0308**
		Frequent	10	0.0010	
	Growth_Premia	Never	5	0.0319	0.0359***
		Frequent	9	-0.0041	
ROE	Growth_Beta	Never	5	0.1110	0.1009**
		Frequent	10	0.0101	
	Growth_Premia	Never	5	0.1110	0.1304**
		Frequent	9	-0.0194	
Equity/Assets	Growth_Beta	Never	5	0.2857	-0.0236
		Frequent	10	0.3093	
	Growth_Premia	Never	5	0.2857	-0.0263
		Frequent	9	0.3120	

* indicates significance at 10% level
* indicates significance at 10% level
* indicates significance at 10% level

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