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AN EXAMINATION OF FINANCIAL LEVERAGE TRENDS IN THE LODGING INDUSTRY

Seoki Lee

ABSTRACT

This study examines financial leverage trends of firms in the US lodging industry for the period 1980 to 2005. It compares mean and median leverage ratio estimates of lodging firms to find which works better as an industry norm during the entire sample period, as well as during economic expansion and recession periods. Research results suggest that the industry median leverage ratio is more valid than the mean industry ratio as a proxy for the lodging industry. Results also suggest that the industry median leverage ratio is valid during the recession periods, but not during the expansion periods.

INTRODUCTION

The lodging industry is capital-intensive due to its characteristically large investment in properties and equipments such as buildings. This is why capital structure is one of the significant topics in the lodging industry's financial literature. Various theories suggest factors that impact debt financing, and several lodging studies have examined such factors (Dalbor & Upneja, 2004; Kwansa, Johnson & Olsen, 1987; Tang & Jang, 2007; Sheel, 1994). Despite the importance, few of the examinations focus on the issue of explicit, optimum, leverage point for lodging firms. Even though general capital structure literature suggests the existence of an optimum leverage point, where the marginal costs of using debts are equal to the marginal benefits to maximize firm value (Brealy & Myer, 2001), knowing the exact optimum leverage point for an entire economy, an industry, or a firm is extremely difficult, if even possible.

Several studies from mainstream finance and accounting literature have paid attention to the optimum leverage point issue, and reveal some consensus of differences in optimum leverage ratios among different industries (Bowen, Daley & Huber, 1982; Bradley, Jarrell & Kim, 1984; Fischer, Heinkel & Zechner, 1989; Hull, 1999; Marsh, 1982; Schwartz & Aronson, 1967; Scott,

1972; Taggart, 1977). However, much of general financial literature does not explicitly examine the optimum leverage point issue of a given firm, and in particular, does not include lodging sample observations in their studies. Thus these findings are probably inapplicable to the lodging industry (Bowen, Daley & Huber, 1982; Bradley, Jarrell & Kim, 1984; Hull, 1999; Schwartz & Aronson, 1967; Scott, 1972). Also, researchers have not paid much attention to investigating the issue under different economic conditions: expansion and recession periods.

The purpose of this study is, therefore, to investigate the optimum leverage point issue in a lodging industry setting. Because it is extremely difficult to know the exact optimum leverage point, if even possible, as discussed above, this study examines the validity of using industry mean and median leverage ratios as the industry norm for given lodging firms. The study further compares the two industry leverage ratio estimates with a lodging focus under different economic conditions: expansion and recession periods. The findings of this study suggest that the industry median leverage ratio is more valid than the mean industry ratio as a proxy for the industry norm of lodging firms. Also, the findings show that both mean and median ratios act better as industry norms for recession periods than for expansion periods.

LITERATURE REVIEW

Capital structure literature proposes an optimum leverage point for each firm in which the marginal costs of using debts are equal to the marginal benefits, thus maximizing firm value (Brealy & Myer, 2001). Several recognized financial, economics studies examined the existence of different levels of industry optimum leverage points (Bowen, Daley & Huber, 1982; Bradley, Jarrell & Kim, 1984; Schwartz & Aronson, 1967; Scott, 1972). All investigated mean industry leverage ratios and found significant differences across industries. Bowen, Daley and Huber

(1982) also found that firms have a tendency to move toward their industry mean leverage point and suggested that industry mean leverage ratio is a valid proxy for an optimum leverage point. Marsh (1982) found that firms act as though they have a target debt level as well. Hull (1999) employed an event study to examine the validity of the industry leverage ratio as an industry norm. The study used the median industry leverage ratio and found, in fact, the industry debt-to-equity ratio acts as an industry norm.

Despite efforts of the aforementioned studies regarding the optimum leverage ratio topic, several issues remain unexplored. First, little study has concentrated on comparing the industry mean and median leverage ratios for superiority as a proxy for the optimum leverage point. Hull (1999) used the industry median leverage ratio without certain justification, while other studies (Bowen, Daley & Huber, 1982; Bradley, Jarrell & Kim, 1984; Schwartz & Aronson, 1967; Scott, 1972) used the industry mean value as an optimum leverage point. Comparing those two, in the lodging context, will provide evidence of which ratio is more valid in the lodging setting.

Second, the studies in primary literature have often excluded lodging firms from their study samples. Hull (1999) used 338 sample observations that announced public common stock offerings, and very likely, none or very few lodging firms were part of the sample. Bradley, Jarrell and Kim (1984) used 24 industries; Scott (1972) used 12 industries, and Schwarz and Aronson (1967) used four industries; every group excluded the lodging industry. Bowen, Daley and Huber (1982) used nine industries, up to SIC code 5411, thus excluding lodging firms. The findings of these studies may have no application to lodging firms, and therefore, the findings of the current study, using lodging samples, will provide meaningful and specific evidence about the lodging industry.

Third, none of the aforementioned studies has inspected the optimum leverage point issue under different economic conditions: expansion and recession periods. This research performs analysis and provides such findings, applicable to lodging firms.

Several lodging financial studies considered the capital structure issue in general in a lodging context (Dalbor & Upneja, 2004; Kwansa, Johnson & Olsen, 1987; Tang & Jang, 2007; Sheel, 1994). Dalbor and Upneja (2004) and Tang and Jang (2007) provided some lodging industry-specific evidence which is inconsistent with general capital structure theory. Sheel (1994) and Tang and Jang (2007) compared the lodging industry to other industries, such as software and manufacturing to successfully reveal differences between these industries. All of the studies, however, focused on the determinants of the debt ratio, not the optimum leverage point issue for the specific industries. Addressing that exclusion renders the current research valuable for its additional, unique contributions to lodging capital, structure studies.

METHODOLOGY

This study performs a regression analysis to investigate the industry norm leverage point issue for the lodging industry. To accomplish its main purpose, the study investigates impacts of lodging industry mean and median debt-to-equity ratios as proxies for an industry norm leverage point on equity returns. For estimating the movement of a firm's individual debt-to-equity ratio toward or away from the industry norm leverage point, first, the absolute difference (DIFF, hereafter) between the mean (median) debt-to-equity ratio and an individual firm's debt-to-equity ratio are the basic calculations. Then, changes of the absolute difference over each year are estimated. The assumption is that, on average, the mean (median) debt-to-equity ratio is the industry norm leverage point for the lodging industry. Therefore, if a lodging firm's leverage

ratio moves closer to (away from) this point, a positive (negative) stock return will occur, suggesting a negative relationship between the two variables. Thus, the regression analysis in this study examines the basic relationship between changes in DIFF and stock returns.

The regression model includes five control variables as explanatory variables along with the main variable of change in DIFF. The control variables are: change in earnings (CHOIBD), firm size (SIZE), market return (SPRETURN), book-to-market equity (BtoM) and price momentum (PM). Estimation of the change in earnings (CHOIBD) variable is via changes in operating income before depreciation. The expectation is that the CHOIBD variable will have a positive relationship with a firm's equity return because a firm with better performance likely has positive equity performance. Market capitalization, estimated by multiplying the number of outstanding shares by a stock price, is a proxy for firm size (SIZE) and likely has a negative relationship with equity return (Fama & French, 1992, 1995; Berk, 1995). The log of SIZE is used for analysis to reduce the problem of skewed distribution. Estimates for the market return (SPRETURN) variable use S&P 500 Composite Index returns and will likely have a positive relationship with a firm's stock return because an individual firm's stock, more likely, performs well when general market condition is positive and vice versa. Estimates for book-to-market equity (BtoM) occurs by dividing book equity by market equity and will likely have a positive relationship with equity return (Fama & French, 1992, 1995). The last control variable is the price momentum variable (PM) whose estimates originate from the past one-year equity return. Jegadeesh and Titman (1993) proposed that past equity performance winners tend to outperform past losers, and thus the expectation is for a positive relationship between the past and current equity returns.

The regression model is:

$$Equity\ Return_t = \alpha_0 + \alpha_1 CHDIFF1(2)_t + \alpha_2 CHOIBD_t + \alpha_3 SIZE_t + \alpha_4 SPRETURN_t + \alpha_5 BtoM_t + \alpha_6 PM_t$$

where,

$$Equity\ Return_t = \frac{(Stock\ Price_t + Dividends - Stock\ Price_{t-1})}{Stock\ Price_{t-1}}, t = time\ at\ t ;$$

$$CHDIFF1(2)_t = \frac{(DIFF1(2)_t - DIFF1(2)_{t-1})}{DIFF1(2)_{t-1}} ;$$

$$DIFF1(2) = |(Industry\ Mean\ (Median)\ Debt - to - Equity) - (Firm\ Debt - to - Equity)| ;$$

$$CHOIBD_t = \frac{(OIBD_t - OIBD_{t-1})}{OIBD_{t-1}}, OIBD = Operating\ Income\ Before\ Depreciation ;$$

$$SIZE_t = \log(Market\ Capitalization) = \log(Number\ of\ Shares\ Outstanding \times Stock\ Price) ;$$

$$SPRETURN_t = S\ \&\ P\ 500\ Index\ Return ;$$

$$BtoM_t = Book - to - Market\ Ratio = \frac{Book\ Equity}{Market\ Equity}, \text{ and}$$

$$PM_t = Price\ Momentum = Equity\ Return_{t-1} .$$

DATA

This study investigates the sample period, 1980 to 2005. Selection for the sample period includes all economic cycles of expansion and recession. The annual financial data of publicly traded lodging firms was collected from *Compustat* and stock price data was collected from *CRSP*. Sample observations were designated as outliers if the standardized residual error is larger than 10 in the main regression analysis for the full sample period. After elimination of the outliers, the final total observations of 560 became the sample population for the analyses. The study performs analyses during expansion and recession periods which were determined by National Bureau of Economic Research (NBER).

RESULTS

Table 1 presents summary statistics of variables used in the main analysis of this study. The final sample size is 560 for the full sample period, 1980 to 2005. The mean value of debt-to-equity ratio is approximately 2.87 while the median value is approximately 0.95. The mean (median) return for stock of lodging firms (Equity Return) is about 9.6% (3.4%), while the mean (median) annual S&P 500 Composite return is around 9.7% (13.5%). The absolute difference between the mean industry debt-to-equity ratio and a firm's specific debt-to-equity ratio (DIFF1) has a mean (median) value of 2.56 (2.26). The absolute difference between the median industry debt-to-equity ratio and a firm's specific debt-to-equity ratio (DIFF2) has a mean (median) value of 1.66 (0.70). The analysis uses operating income before depreciation (OIBD) as a proxy for firm performance, and this factor has a mean (median) value of \$127.55 (19.16) million. Market equity value (EQUITY) has a mean (median) value of \$988.78 (81.95) million. Book-to-market ratio (BtoM) has a mean (median) value of 1.18 (0.75).

The study performs a multiple regression analysis to investigate the industry norm leverage point for the lodging industry for the period of 1980 to 2005, and the results of the main analysis appear in Table 2. The analysis regresses the dependent variable of an individual firm's stock return on the main independent variable of changes in DIFF1 (CHDIFF1) or DIFF2 (CHDIFF2) with five other control variables: CHOIBD, SIZE, SPRETURN, BtoM and PM. The first section of Table 2 shows the results of the regression analysis with CHDIFF1, indicating that CHDIFF1 has no significant explanatory power for stock return. The findings suggest that the mean value of lodging industry debt-to-equity ratio does not work as an industry norm leverage point for lodging firms. Only book-to-market ratio (BtoM) shows a significant

coefficient (t-value = -3.94, p-value < .0001). However, the sign is negative, which is different from its expected positive sign. None of other variables shows a statistically significant coefficient. The adjusted R^2 is 0.0313.

The second section of Table 2 presents the findings of the regression analysis with CHDIFF2. According to these findings, CHDIFF2 has a significant and negative explanatory power for return on stock as expected (t-value = -2.10, p-value = .0036). This finding reveals that, as a lodging firm moves closer to (away from) the lodging industry's median debt-to-equity ratio, its stock performs significantly better (poorer), suggesting that the lodging industry's median debt-to-equity ratio works well as the industry norm leverage point for lodging firms. Among the five control variables, only BtoM appears to be statistically significant, but again, with a negative coefficient (t-value = -3.75; p-value = .0002). The adjusted R^2 is 0.0388.

This study further investigates the industry norm leverage issue by dividing the full sample period into two sub-periods: economic expansion and recession periods. Table 3 shows the results of the regression analysis. The first section presents the findings of the analysis for the economic expansion period and neither of the main variables (CHDIFF1 and CHDIFF2) presents statistically significant coefficients. Only the BtoM variable shows a significant, negative coefficient for both periods. For the economic recession period, however, the results of analysis show that CHDIFF2 demonstrates a statistically significant, negative coefficient (t-value = -3.43; p-value = .0009), while CHDIFF1 fails to show such a coefficient even though its p-value is quite close to the 5% significance level (t-value = -1.90; p-value = .0599). BtoM is the only significant variable for the model with an industry mean value (t-value = -3.07; p-value = .0028) during the recession periods. For the model with the industry median variable, in addition to the BtoM variable (t-value = -2.50; p-value = .0028), SPRETURN also shows a

significant coefficient with the expected positive sign (t-value = 2.09; p-value = .0389) during the recession periods.

The results of Table 3 suggest that during economic expansion, both mean and median debt-to-equity ratios are not useful as industry norm leverage points, while, contrarily, for economic recession, the industry median value is useful for the industry norm leverage point. The adjusted R^2 is 0.0146 (0.1647) for expansion (recession) periods with CHDIFF1, and is 0.0163 (0.2276) with CHDIFF2. Further discussion of findings appears in the next section.

An additional analysis applied period specific industry mean and median leverage ratios. For this consideration, estimates of industry mean and median leverage ratios for expansion (recession) periods use leverage data of expansion (recession) periods, not the entire sample period as in previous analyses. The results appear in Table 4. Overall, none of the main variables (CHDIFF1 and CHDIFF2) have significant coefficients for the both economic periods. In fact, only the book-to-market ratio demonstrates a significant explanatory power for both periods. Basically, the findings suggest that period-specific industry mean and median ratios are not valuable as industry norm leverage points for lodging firms.

To enhance validity, this study checked the variance inflation factor for a possible multicollinearity problem, and estimated the Durbin-Watson d-statistic to check for possible autocorrelation. None of the variables and models analyzed in this study indicates either of the two problems.

IMPLICATIONS AND DISCUSSIONS

For the entire sample period, 1980 to 2005, the results of this study suggest that the median lodging debt-to-equity ratio is better than the mean value for determining an industry

norm leverage point for lodging firms. The mean ratio may not be representative of many lodging firms because the value may contain significant influence from a few extreme values, even after the elimination of outliers. At the same time, the median value is less sensitive to those extreme observations. A frequency chart of leverage ratio* shows that the distribution is, in fact, heavily and positively skewed supporting the above argument.

Further analysis revealed that the industry median leverage ratio continues to function well as an industry norm leverage point for lodging firms, and the industry mean leverage ratio is an improvement as an industry norm leverage point during recession periods. However, both do not act as an industry norm leverage points during expansion periods. One possible explanation for this phenomenon is that during expansion periods, the economy grows and the market has an expectation that the economy will continue to grow for a while. Therefore, the market may become less sensitive to certain facts, such as a capital structure issue, meaning that even though a firm diverges from the industry norm leverage point, the market may expect that the firm will still perform well because of the overall economic conditions. Therefore, the market does not punish the firms for their equity performances. On the other hand, during recession periods, the market may become more sensitive to a firm's capital structure issue because the market wants to spot those firms that do not cope well with poor economic conditions, and consequently, punishes them. This explanation may hold more value for the lodging industry because the lodging industry is very sensitive to economic conditions.

This study also examines the validity of using period-specific industry mean and median leverage ratios for the expansion and recession periods. The findings are that they both do not act as industry norm leverage points for lodging firms during the specific types of economic

* The frequency chart does not appear. Those are available upon request.

period. The industry mean and median, especially median, leverage ratios estimated using the full sample size for the period, 1980 to 2005, still performs better as industry norm leverage points for lodging firms than period-specific industry mean and median leverage ratios. For the full sample size, the mean (median) industry leverage ratio is 2.87 (0.95). For the expansion periods, the mean (median) industry leverage ratio is 2.58 (0.78), while for the recession periods, the mean (median) ratio is 3.49 (1.10). During the expansion periods, both mean and median industry leverage ratios tend to decrease and during the recession periods, both tend to increase. However, the findings suggest that changes during the specific economic periods do not reflect an industry norm practice for determining the capital structure of lodging firms. Therefore, advisedly, investors, analysts, managers and executives should not follow period specific leverage ratios as industry norm points for lodging firms.

The book-to-market ratio has had use, for a while, in primary financial literature as an indication of a growth opportunity, and at the same time, a risk measure. Fama and French (1992, 1995) showed, empirically, that the ratio has a positive relationship with equity returns. The higher ratio indicates a lower growth opportunity, and also a higher risk, and vice versa. The findings of this study consistently show a negative and significant coefficient for the book-to-market ratio. Three possible explanations exist. First, the book-to-market ratio may not accurately measure risk of lodging firms. Second, the model may have a specification problem, such as, omission of correlated variables. Third, lodging firms may have different characteristics from the entire economy and other industries in terms of book-to-market ratio. For example, Dalbor and Upneja (2004) and Tang and Jang (2007) examined the explanatory power of growth opportunity on debt level and found a positive relationship when other theories suggest the reverse. They provided a possible reason for this finding as being the fundamental differences of

the lodging industry from other industries. Even though which particular factor(s) created the differences remains unclear, such fundamental differences may have contributed to the findings of the current research as well.

The findings of this study benefit analysts, investors, executives and managers of the lodging industry in several ways. First, lodging analysts can use the findings, regarding the capital structure issue for their own analyses of individual lodging firms, or the lodging industry as a whole, regarding the capital structure issue. They may use the information to assist their analyses to substantiate their lodging industry investment recommendations. For example, in their analyses, they may estimate if a firm's capital structure is moving away from or getting closer to the industry median capital structure value. According to the findings, analysts may make a positive or negative recommendation about the firm. Investors also can use the information provided by this study for improving investment decisions, similar to the way that analysts may use the information. Executives and managers of lodging firms may use the findings to maximize their firm values by learning, obtaining and maintaining their capital structure based on information of the industry median leverage ratio.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The study investigated two industry leverage ratio measures (mean and median) to find which works better as an industry norm leverage point for the lodging industry. However, in this setting, many specific and individualized factors are averaged out from the two industry mean and median estimates, and generalizing findings may become uncertain. Thus, consideration of more specific or individualized factors, such as breaking down the sample into more franchising-

oriented lodging firms, more owning-oriented lodging firms, and so on (i.e., analysis of sub-samples), will enhance quality of the study.

Two specific issues were discussed in implications and discussions section in regard to different findings in different economic conditions and book-to-market ratio. The further research on these two issues will explore more detailed findings and enrich the literature. This study is, by no means, comprehensive, but merely the first step in investigating the industry norm leverage point issue for the lodging industry. Further analyses are necessary to expand findings on the issue.

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Table 1. Summary Statistics of Variables

Variable	N	Mean	Median	Maximum	Minimum	Std Dev
Equity Return	560	0.09642	0.03421	4.40000	-0.93500	0.53040
DERATIO	560	2.87148	0.94798	49.37500	0	6.15704
DIFF1	560	2.55681	2.25930	33.49864	0.00622	3.50689
DIFF2	560	1.66171	0.70371	35.42214	0.00242	4.03860
OIBD	560	127.55	19.16	1,719.76	-295.74	298.74
EQUITY	560	988.78	81.95	15,023.55	0.05545	2,414.68
SPRETURN	560	0.09660	0.13510	0.30932	-0.22154	0.13531
BtoM	560	1.17917	0.75011	34.26510	0.007025	2.00312

DERATIO is the debt-to-equity ratio of firm. Equity Return is stock return of the firm. The SPRETURN is the annual S&P 500 composite return. DIFF1 is an absolute value of the difference between the debt-to-equity ratio of an individual firm and the industry mean. DIFF2 is an absolute value of difference between the debt-to-equity ratio of an individual firm and the industry median. OIBD is operating income before depreciation and is used as a proxy for firm performance (in millions). EQUITY is the total equity value of a firm and is calculated by multiplying total outstanding shares by stock price (in millions).

Table 2. Regression Analysis for Full Sample Period

$$\text{Equity Return} = \alpha_0 + \alpha_1 \text{CHDIFF1 (2)} + \alpha_2 \text{CHOIBD} + \alpha_3 \text{SIZE} + \alpha_4 \text{SPRETURN} + \alpha_5 \text{BtoM} + \alpha_6 \text{PM}$$

Variables	N	Mean (CHDIFF1)			Median (CHDIFF2)		
		Coefficient	t-value	p-value	Coefficient	t-value	p-value
Intercept	560	0.15454	2.49	0.0129*	0.17189	2.87	0.0043**
CHDIFF1	560	-0.00718	-0.33	0.7410			
CHDIFF2	560				-0.02359	-2.10	0.0360*
CHOIBD	560	-0.01023	-1.62	0.1052	-0.01053	-1.68	0.0944
SIZE	560	-0.00603	-0.61	0.5442	-0.00669	-0.69	0.4922
SPRETURN	560	0.30527	1.86	0.0638	0.31589	1.93	0.0543
BtoM	560	-0.04723	-3.94	<.0001**	-0.04491	-3.75	0.0002**
PM	560	-0.01036	-0.25	0.8019	-0.01050	-0.26	0.7971
Adj. R^2			0.0313			0.0388	

* and ** indicate p-value levels less than 5% and 1% respectively.

CHDIFF1 (2) is the change in DIFF1 (2) where DIFF1 (2) is defined as the absolute value of the difference between the industry mean (median) and an individual firm's debt-to-equity ratio. The industry mean (median) debt-to-equity ratio for the expansion periods is calculated using debt-to-equity ratio data of the expansion periods, and for the recession periods using the data of the recession periods. CHOIBD is the change in earnings. Earning is defined as operating income before depreciation (OIBD). SIZE is defined as the log of market value of a firm. SPRETURN is annual S&P 500 composite return. PM is price momentum which is a stock return over the past year.

Table 3. Regression Analysis for Expansion and Recession Periods

$$\text{Equity Return} = \alpha_0 + \alpha_1 \text{CHDIFF1 (2)} + \alpha_2 \text{CHOIBD} + \alpha_3 \text{SIZE} + \alpha_4 \text{SPRETURN} + \alpha_5 \text{BtoM} + \alpha_6 \text{PM}$$

Variables	Expansion Period					Recession Period				
	N	Mean (CHDIFF1)		Median (CHDIFF2)		N	Mean (CHDIFF1)		Median (CHDIFF2)	
		t-value	p-value	t-value	p-value		t-value	p-value	t-value	p-value
Intercept	457	2.82	0.0050**	3.22	0.0014**	103	0.16	0.8700	0.28	0.7795
CHDIFF1	457	0.50	0.9672			103	-1.90	0.0599		
CHDIFF2	457			-1.03	0.3054	103			-3.43	0.0009**
CHOIBD	457	-1.72	0.0862	-1.75	0.0815	103	0.77	0.4415	0.87	0.3867
SIZE	457	-1.11	0.2694	-1.31	0.1918	103	0.90	0.3692	1.07	0.2859
SPRETURN	457	0.74	0.4622	0.78	0.4366	103	1.88	0.0636	2.09	0.0389*
BtoM	457	-2.90	0.0039**	-2.91	0.0038**	103	-3.07	0.0028**	-2.50	0.0141*
PM	457	0.04	0.9672	-0.02	0.9808	103	-1.27	0.2067	-1.08	0.2844
Adj. R^2		0.0146		0.0163			0.1647		0.2276	

* and ** indicate p-value level less than 5% and 1% respectively.

CHDIFF1 (2) is the change in DIFF1 (2) where DIFF1 (2) is defined as the absolute value of the difference between the industry mean (median) and an individual firm's debt-to-equity ratio. The industry mean (median) debt-to-equity ratio for the expansion periods is calculated using debt-to-equity ratio data of the expansion periods, and for the recession periods using the data of the recession periods. CHOIBD is the change in earnings. Earning is defined as operating income before depreciation (OIBD). SIZE is defined as the log of market value of a firm. SPRETURN is annual S&P 500 composite return. PM is price momentum which is a stock return over the past year.

Table 4. Regression Analysis for Expansion and Recession Periods Using Period Specific Ratio

$$\text{Equity Return} = \alpha_0 + \alpha_1 \text{CHDIFF1 (2)} + \alpha_2 \text{CHOIBD} + \alpha_3 \text{SIZE} + \alpha_4 \text{SPRETURN} + \alpha_5 \text{BtoM} + \alpha_6 \text{PM}$$

Variables	Expansion Period					Recession Period				
	N	Mean (CHDIFF1)		Median (CHDIFF2)		N	Mean (CHDIFF1)		Median (CHDIFF2)	
	457	t-value	p-value	t-value	p-value	103	t-value	p-value	t-value	p-value
Intercept	457	3.07	0.0023**	3.03	0.0026**	103	-0.27	0.7872	-0.28	0.7770
CHDIFF1	457	-0.77	0.4443			103	-1.46	0.1488		
CHDIFF2	457			0.11	0.9120	103			-1.04	0.3012
CHOIBD	457	-1.71	0.0876	-1.72	0.0869	103	0.82	0.4159	0.63	0.5322
SIZE	457	-1.21	0.2283	-1.19	0.2343	103	1.25	0.2128	1.14	0.2569
SPRETURN	457	0.76	0.4456	0.72	0.4747	103	1.83	0.0703	1.98	0.0510
BtoM	457	-2.90	0.0039**	-2.88	0.0042**	103	-2.79	0.0064**	-2.86	0.0052**
PM	457	-0.03	0.9758	0.02	0.9844	103	-0.47	0.6362	-0.42	0.6785
Adj. R^2		0.0149		0.0136			0.1501		0.1409	

* and ** indicate p-value level less than 5% and 1% respectively.

CHDIFF1 (2) is the change in DIFF1 (2) where DIFF1 (2) is defined as the absolute value of the difference between the industry mean (median) and an individual firm's debt-to-equity ratio. The industry mean (median) debt-to-equity ratio for the expansion periods is calculated using debt-to-equity ratio data of the expansion periods, and for the recession periods using the data of the recession periods. CHOIBD is the change in earnings. Earning is defined as operating income before depreciation (OIBD). SIZE is defined as the log of market value of a firm. SPRETURN is annual S&P 500 composite return. PM is price momentum which is a stock return over the past year.