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THE RELEVANCE OF FINANCIAL LEVERAGE FOR EQUITY RETURNS OF RESTAURANT FIRMS—AN EMPIRICAL EXAMINATION

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ABSTRACT

Cross-sectional time series regressions were used to examine the relationship between the debt/equity ratios of 37 firms in the restaurant sector and their risk/size–adjusted common equity returns. Findings reveal a statistically significant relationship between a restaurant firm's debt/equity ratio and its risk/size–adjusted common equity returns. The relationship holds true regardless of the January effect, and regardless of the use of real or nominal returns. As such, the findings support the issue of capital structure relevance in the restaurant industry, and are suggestive of a strategic relationship between a restaurant firm's debt use and the growth in its market-to-book value.

Introduction

The impact of capital structure on firm value has been a subject of recurring interest since Modigliani and Miller (1958, 1963) first showed its irrelevance in perfect capital markets, and then showed its relevance in the presence of taxes and/or bankruptcy costs. An important issue facing financial managers and researchers today is the relationship between a firm's capital structure and its equity value. Existent finance literature strongly supports the notion that the choice of capital structure is important for a firm's value (Higgins, 1977; Miller, 1977; Myers & Majluf, 1984; Harris & Raviv, 1991). Bhandari (1988) has shown that the premium associated with a firm's financial leverage has an 'additional' element, in excess of the beta-associated risk premium. Jensen and Meckling (1976), Jensen (1986), Hershleifer and Thakor (1989), and others have shown the importance of capital structure decisions using the agency rationale. Ross (1977), Poitevin (1989), Ravid and Sarig (1989), and others have shown the relevance of capital structure changes for firms from the information asymmetry perspective. Researchers have also discussed the importance of capital structure changes for firms in the context of corporate control (Harris & Raviv, 1988), exchange offers (Constantinides & Grundy, 1989), and such other areas. Existent finance literature also documents industry-specific studies on the leverage behavior of firms. Studies by Solomon (1963); Bowen, Daly, and Huber (1982); Bradley, Jarrel, and Kim (1984); Kester (1984); and Long and Malitz (1985) are examples of the same. Although these studies have examined the issue of leverage relevance in electronics, drugs, manufacturing, and such other sectors, very few papers have examined the issue of leverage relevance in the hospitality industry. Kwansa, Johnson, and Olsen (1987) and Sheel (1994) have addressed the relevance of capital structure for firms in the hotel industry. Wood (1992) has referred to the use of equity financing as an

alternative to borrowing in restaurant firms. Traditionally, the extent of leverage usage has varied significantly across firms in the restaurant industry. On the one hand, some restaurant firms have relied heavily on debt use for growth. On the other, many have consistently maintained significantly lower debt ratios. The relationship between debt use and equity value of firms in the restaurant industry remains an important empirical question in hospitality finance. This research seeks to address the above deficiency, and investigates the relevance of financial leverage for equity returns in restaurant firms.

Purpose

The main purpose of this study is to examine the relationship between financial leverage and common equity returns of firms in the restaurant industry.

The study is designed to accomplish its objective in two steps. The first step is to examine whether financial leverage changes do influence the risk/size adjusted common equity returns of restaurant firms, after controlling for the January effect (Bhardwaj & Brooks, 1992) and the impact of inflation. The second step is to analyze whether there is any relationship between the use of financial leverage and a restaurant firm's market-to-book value growth. In essence, the first analysis is a direct test of financial leverage relevance in the restaurant sector, while the second analysis is an indirect test of the same.

Methodology

Research Hypotheses

The research accomplishes its objectives by testing two major hypotheses:

1. Changes in financial leverage do not influence the risk/size–adjusted common equity returns of restaurant firms after controlling for the January effect and the impact of inflation.

2. There is no relationship between the use of financial leverage and a restaurant firm's market-to-book value growth.

Data Collection, Research Model, and Analysis

Monthly data for 155 restaurant firms were retrieved from the COMPUSTAT industrial files for the 1992–1996 period. The standard industry code (SIC) 5812 was used to identify firms in the restaurant sector. Of the 155 restaurant firms accessed, the study retained 37 after discarding firms with inadequate information.

The study used the following model of Bhandari (1988) to accomplish its objectives:

$$E(r_{it}) = E(\gamma_0) + E(\gamma_1)\ \beta_{it} + E(\gamma_2)\ LTEQ_{it} + E(\gamma_3)DER_{it}\ ;\ i = 1, ..., n \qquad (1)$$

Table 1
Definition of Variables Used in the Analyses

Variable Name (Abbreviation Used) Definition	Period
1. Total Return (r_{it}) The total common stock return monthly adjusted for dividends and stock splits for the firm i during period t.	1992–1996
2. Firm Size $(LTEQ_{it})$ $LTEQ$ = the natural logarithm of $MKVALM_{it-1}$ where $MKVALM$ is the market value of total common equity of firm i for the period $t-1$.	1992–1996
3. Debt/Equity Ratio (DER) $DER = \dfrac{BVTA - BVEQ}{MKVALM}$, for the period $t-1$ $BVTA$ is the Book Value of Total Assets of firm i for the period $t-1$, $BVEQ$ is the Book Value of common Equity of firm i for the period $t-1$, and $MKVALM$ is the market value of total common equity of firm i for the period $t-1$.	1992–1996
4. Market-to-Book Ratio (M/B) Market-to-Book Ratio is market price per share divided by book value per share. The growth in M/B is computed as $\dfrac{MB_t - M/B_{t-1}}{M/B_{t-1}}$	1992–1996

In the ex-post form, the model may be written as:

$$r_{it} = \gamma_0 + \gamma_{1t}\beta_{it} + \gamma_{2t}LTEQ_{it} + \gamma_{3t}ER_{it} + e_{it}; \quad i = 1, \ldots, n \qquad (2)$$

where E is the expectation operator and the subscript it represents the performance of the restaurant firm i for month t; r is the total common equity return for the restaurant firm, β is its systematic risk, $LTEQ$ is the firm size, and DER is the firm's debt/equity ratio. Table 1 defines all the variables used in the study.

The first hypothesis was tested using six separate sets of regressions. Two were direct tests of leverage relevance for restaurant firms with and without the control for inflation. The other four repeated the same tests after incorporating the January and inflation effects into the analysis.

The second hypothesis was tested using two additional regressions: one for firms with high growth in market-to-book value ratio and the other for firms with low growth

Table 2
Summary of Trends in the Restaurant Industry (Monthly Data, 1992-1996)

	Mean	Median
Nominal Returns	0.125	0.091
Real Returns	0.112	0.074
Market-to-Book Growth	0.083	−0.031
Systematic Risk (Beta)	0.95	0.969
Debt/Equity Ratio	0.747	0.524

in market-to-book value ratio. The median of the market-to-book value growth rate of all firms for the 1992–1996 period was used as the threshold point.

The research used generalized least square regression (GLM) to test its hypotheses. Possible multicollinearity effects were addressed using standardized orthogonal forms of variables. Mutual correlation of error terms due to time effects was minimized using autoregressive measures. As shown in Table 1, lagged values of market value of common equity and debt/equity ratios were used as proxies for firm size and financial leverage. Such use is consistent with the methodology used by Bhandari (1988), and is also intuitively appealing.

Findings and Discussion

Summary of Trends

Table 2 summarizes the trends of nominal/real returns, growth in market-to-book ratio, systematic risk (beta), and debt/equity ratio of restaurant firms for the 1992–1996 period. As shown in the table, the mean nominal and real returns on common equity for this period were 12.5% and 11.2% respectively. Despite having positive returns, some firms exhibited a negative growth in market-to-book value while some showed a positive growth. For the period 1992–1996 the average market-to-book growth rate for restaurant firms was 8.3%. Their average systematic risk (beta) was 0.95, and their average debt/equity ratio was 0.75.

Results Relevant to Hypothesis One

Tables 3 and 4 summarize the results relevant to the first hypothesis. As shown in Table 3, the value of γ_3 is positive, using nominal returns (γ_3 0.013) as well as the inflation-adjusted returns (γ_3 0.006). Both coefficients are significant at the 10% level. Consequently, the findings reject the null of debt/equity irrelevance and suggest that changes in financial leverage do influence the risk/size–adjusted common equity returns of restaurant firms. The significant positive value of γ_3 supports Bhandari's (1988)

Table 3
Regression Results Relevant to Hypothesis One

The table summarizes regression results for the impact of debt-to-equity ratio (DER) on the common equity returns, using nominal and real returns, for 37 restaurant firms for the period 1992–1996 (monthly data). The Generalized Least Square regressions (GLM) used are:

$r_{it(nominal)} = \gamma_0 + \gamma_1\beta_{it} + \gamma_2 LTEQ_{it} + \gamma_3 DER_{it} + e_{it}; i = 1, ..., n$

and

$r_{it(real)} = \gamma_0 + \gamma_1\beta_{it} + \gamma_2 LTEQ_{it} + \gamma_3 DER_{it} + e_{it}; i = 1, ..., n$

where r_{it} is total return of common stock i of month t, β is the firm's systematic risk, $LTEQ$ is firm size, and DER is a firm's debt/equity ratio. The p value of each coefficient is reported in parentheses. The F value and $Pr>F$ are also reported.

	Nominal Returns	**Real Returns**
Intercept	0.177 (0.0001)	0.154 (0.0001)
Beta	0.015 (0.4022)	0.032 (0.0964)
Firm Size *(LTEQ)*	−0.019 (0.0001)	−0.019 (0.0001)
Debt/Equity Ratio *(DER)*	0.013 (0.0342)	0.006 (0.0904)
F Value *Pr>F*	29.09 0.0001	24.57 0.0001

Note: Please refer to Table 1 for definitions of variables.

findings, and suggests that the premium associated with the financial leverage of restaurant firms is more than just some kind of risk premium captured in a firm beta. The relationship holds true regardless of the use of nominal or inflation-adjusted, real returns.

The positive value of γ_1 shows that at least for the 1992–1996 period, restaurant firms with greater systematic risk (beta) showed higher size-adjusted returns on their common equity. Such a result is consistent with the theory underlining the capital asset pricing model, and shows that, ceteris paribus, restaurant firms with higher systematic risk tend to be rewarded with higher size-adjusted return on common equity. The negative value of γ_2 shows higher risk-adjusted returns for smaller restaurant firms, and is consistent with the size effect phenomenon (Keim, 1983).

Table 4 summarizes results relevant to the test of a possible January effect (Bhardwaj & Brooks, 1992) bias on the above relationship. As shown in Table 4, the value of γ_3 remains positive and significant at the 10% level for January as well as for non-January months, regardless of the use of real or nominal returns. The positive value of γ_3 here further corroborates the Table 3 results explained earlier. In essence, it shows that at least for

Table 4
Regression Results Relevant to the Examination of the January Effect on the Financial Leverage/Return Relationship for Restaurant Firms

The table summarizes regression results relevant to the examination of January effect bias on financial leverage/return relationship for 37 restaurant firms for the period 1992–1996 (monthly data). The GLM model tested was:

$$r_{it(nominal)} = \gamma_0 + \gamma_1\beta_{it} + \gamma_2 LTEQ_{it} + \gamma_3 DER_{it} + e_{it}; \ i = 1, \ldots, n$$

and

$$r_{it(real)} = \gamma_0 + \gamma_1\beta_{it} + \gamma_2 LTEQ_{it} + \gamma_3 DER_{it} + e_{it}; \ i = 1, \ldots, n$$

where r_{it} is total return of common stock i of month t, β is the firm's systematic risk, $LTEQ$ is firm size, and DER is a firm's debt/equity ratio. The p value of each coefficient is reported in parentheses. The F value and $Pr>F$ are also reported.

	January		Non-January	
	Nominal Returns	**Real Returns**	**Nominal Returns**	**Real Returns**
Intercept	0.160 (0.0608)	0.128 (0.2905)	0.177 (0.0001)	0.154 (0.0001)
Beta	0.103 (0.0882)	0.169 (0.0523)	0.006 (0.7730)	0.0155 (0.4022)
Firm Size *(LTEQ)*	−0.027 (0.0109)	−0.031 (0.0402)	−0.018 (0.0001)	−0.017 (0.0001)
Debt/Equity Ratio *(DER)*	0.007 (0.0649)	0.0185 (0.0862)	0.014 (0.0998)	0.004 (0.0792)
F Value $Pr>F$	5.63 0.0017	5.02 0.0033	23.98 0.0001	19.77 0.0001

Note: Please refer to Table 1 for definitions of variables.

the 1992–1996 period, the relevance of debt/equity ratio for risk- and size-controlled equity returns of restaurant firms holds true regardless of the January effect.

Results Relevant to Hypothesis Two

The analyses further divided the sample of restaurant firms into two groups: one with high growth rate in market-to-book ratio and the other with low growth rate in market-to-book value ratio. As mentioned earlier, the median of the market-to-book value growth rate of all firms for the 1992–1996 period was used as the threshold point. Table 5 summarizes the trend of mean common equity returns and debt/equity ratios in such firms for the 1992–1996 period. As shown in Table 5, firms with higher market-to-book growth generated higher returns (both nominal and real), and were generally associated

Table 5
Mean Common Equity Returns and Debt/Equity Ratios in Restaurant Firms with
Low/High Growth Rate in Market-to-Book Value Ratio (Monthly Data, 1992–1996)

	Firms with Low Growth Rate in Market-to-Book Value Ratio	**Firms with High Growth Rate in Market-to-Book Value Ratio**
Nominal Returns	0.118	0.135
Real Returns	0.107	0.119
Debt/Equity Ratio	0.769	0.714

with lower debt/equity ratios. Table 6 summarizes the regression results relevant to the second hypothesis. As shown in Table 6, the magnitude of the debt/equity effect appears to be significant, stronger, and more favorable in case of restaurant firms with higher growth rate in market-to-book value ratio. The results hold true at the 10% significance level regardless of the use of nominal (γ_3 0.028 for firms with high market-to-book growth) or inflation-adjusted returns (γ_3 0.012 for firms with high market-to-book growth). Such a finding is logical, and is suggestive of the fact that at least for the 1992–1996 period, restaurant firms with higher growth rate in market-to-book were, in fact, firms that utilized capital structure and leverage to their advantage.

Summary and Implications

This study uses cross-sectional time series regressions to examine the relationship between the debt/equity ratios of firms in the restaurant sector and their risk/size–adjusted common equity returns. The findings of this study have important implications for educators and professionals in the area of hospitality finance.

Relevance of Financial Leverage

Is there any relationship between changes in financial leverage of firms in the restaurant industry and their equity value? Considering the contrasting variations in debt usage within the restaurant industry today, this question has a special significance for researchers and educators in the area of hospitality finance. The findings of this study are suggestive of a direct relevance of financial leverage use in the restaurant sector. As shown in Tables 3 and 4, the significant positive values of γ_3 indicate that at least for the 1992–1996 period, changes in debt/equity ratio of restaurant firms did influence their risk- and size-adjusted common equity returns. These results hold true regardless of the January effect bias and the impact of inflation. As such, the values of γ_3 in Tables 3 and 4 support Bhandari's (1988) findings, and suggest that the premium associated with the financial leverage of restaurant firms is more than just some kind of risk premium captured in a firm beta. Further, the positive values of γ_1 in Tables 3 and 4 reveal that at least for the 1992–1996 period, restaurant firms with greater systematic risk (beta) were associated with higher size-adjusted returns on their common equity. Such a result is consistent

Table 6
Regression Results Relevant to Hypothesis Two

The table summarizes regression results relevant to the second hypothesis. Monthly data including 37 restaurant firms (15 with high growth market-to-book value ratio and 22 with low growth market-to-book value ratio) for the 1992–1996 were used in the analysis. The median of the market-to-book value growth rate for all firms for the 1992–1996 period was used as the threshold point to separate firms with high/low growth in market-to-book value ratio. The GLM model tested was:

$r_{it(nominal)} = \gamma_0 + \gamma_1\beta_{it} + \gamma_2 LTEQ_{it} + \gamma_3 DER_{it} + e_{it};\ i = 1, \ldots, n$

and

$r_{it(real)} = \gamma_0 + \gamma_1\beta_{it} + \gamma_2 LTEQ_{it} + \gamma_3 DER_{it} + e_{it};\ i = 1, \ldots, n$

where r_{it} is total return of common stock i of month t, β is the firm's systematic risk, $LTEQ$ is firm size, and DER is a firm's debt/equity ratio. The p value of each coefficient is reported in parentheses. The F value and $Pr>F$ are also reported.

	Firms with Low Growth Rate in Market-to-Book Value Ratio		Firms with High Growth Rate in Market-to-Book Value Ratio	
	Nominal Returns	Real Returns	Nominal Returns	Real Returns
Intercept	0.169 (0.0001)	0.150 (0.0001)	0.187 (0.0001)	0.157 (0.0001)
Beta	0.016 (0.4718)	0.026 (0.2428)	0.012 (0.7192)	0.040 (0.2490)
Firm Size (LTEQ)	–0.018 (0.0001)	–0.018 (0.0001)	–0.021 (0.0002)	–0.021 (0.0003)
Debt/Equity Ratio (DER)	0.006 (0.5473)	0.003 (0.7541)	0.028 (0.0132)	0.012 (0.0401)
F Value Pr>F	14.31 0.0001	13.46 0.0001	15.63 0.0001	11.34 0.0001

Note: Please refer to Table 1 for definitions of variables.

with the theory underlining the capital asset pricing model (CAPM), and shows that, ceteris paribus, restaurant firms with higher systematic risk tend to be rewarded with higher size-adjusted return on common equity. Finally, the negative values of γ_2 suggest higher risk-adjusted returns for smaller restaurant firms, and is consistent with the size effect phenomenon (Keim, 1983).

Relationship between Financial Leverage and Market-to-Book Value Growth in Restaurant Firms

The research findings are also suggestive of a strategic relationship between the use of financial leverage in restaurants and the rates of growth in their market-to-book

values. As shown in Table 5, at least for the 1992–1996 period, firms with higher growth in their market-to-book value were generally associated with lower debt/equity ratios, and generated higher returns (both nominal and real). Such a trend is intuitively sound. If nothing else, it shows that restaurant firms that follow a gradual pecking order (Myers & Majluf, 1984) to finance their growth are strategically better off than firms that rely heavily on debt use to finance rapid expansion projects. The findings presented in Tables 5 and 6 show that the magnitude of the debt/equity effect tends to be significantly stronger and more favorable in case of restaurant firms with higher growth rates in market-to-book value ratio (lower debt/equity ratio firms). Such a finding is also intuitively appealing, and suggests that, ceteris paribus, restaurant firms with higher growth rate in market-to-book value do tend to utilize their capital structure to their advantage.

This study has some important limitations. At the onset, the findings of this study are limited to publicly traded restaurant firms alone. Consequently, the research ignores all the individually owned mom-and-pop restaurants existent during the 1992–1996 period. Second, the control measures used in the research model are by no means exhaustive. Although the study examines the leverage/return relationship of restaurant firms after controlling for risk, firm size, January bias, and inflation effects, key issues such as the impact of agency factors and ownership structure of these firms have been ignored. In line with the above discussion, this paper strongly encourages further studies related to the leverage behavior of restaurant firms. Such studies should not only help provide a clear understanding of leverage relevance within the restaurant industry, but also help restaurant owners, managers, and professionals make prudent decisions related to capital structure changes and debt use.

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