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ABSTRACT

The issuance of debt is a monitoring mechanism. Whether the debt is from a private lender or is in the form of publicly traded bonds, both types of lenders expect a return on their money (Jensen, 1986). Thus, while finding ways to increase sales is important, the control of expenses is paramount to the success of the firm and to be able to borrow more funds in future. Using data from 111 restaurant firms for the 2009–2018 period, this study examines whether the use of debt by U.S. restaurant companies is an effective monitoring agent and if it helps firm performance. Results reveal a significant relationship between a restaurant firm's expense ratio and its short-term, long-term, and total debt ratios after controlling for firm size, economic cycles, and franchising. As such, the phenomenon of debt relevance in the restaurant sector is better understood.

Keywords: capital structure, debt, monitoring effects, restaurant industry

Introduction

The purpose of this research is to understand if the use of debt by U.S. restaurant companies is an effective monitoring agent and if it helps firm performance. The restaurant industry has a reputation for being risky. Risk factors include few barriers to entry, relatively high failure rates, and significant reliance on the managerial skill set (Parsa et al., 2005; Dalbor et al., 2014). This is particularly true for an industry with a large number of locations operated by local franchisees.

According to Ralmer (2018), restaurant profit margins vary widely (from 0 to 15 percent), but the average is only 3 to 5 percent. The basic solutions to increasing profitability are increasing sales, reducing expenses, or both. Most of the effort lies in controlling three large expenses: cost of goods sold, labor, and overhead. A variety of subcategories exist within those expenses.

The marketplace recognizes the significance of controlling cost of goods sold and labor in particular given that these are generally the two highest costs of doing business in the restaurant industry. In addition to low profit margins, borrowed funds are somewhat hard to acquire for smaller, independent restaurant firms. The use of borrowed funds is one way to increase the amount of assets under management so that independent restaurant firms can grow into national or multinational firms like Brinker and Chipotle.

As discussed by Jensen (1986), the issuance of debt is a monitoring mechanism. However, it may also be a signaling mechanism. Regardless of whether the debt is from a private lender or is in the form of publicly traded bonds, both types of lenders expect a return on their money and at a minimum, repayment from the firm. Thus, while finding ways to increase sales is important (particularly growth in same store sales for restaurant chains), the control of expenses is paramount to the success of the firm and to be able to borrow more funds in the future. As explained in the literature review (Jensen, 1986), borrowed funds may not be the first choice of restaurant firms, but it certainly has some advantages to the borrower.

Therefore, this paper attempts to answer the following research question: Are restaurant firms that use borrowed funds more efficient at controlling operational expenses?

The following section will discuss the relevant hospitality literature regarding capital structure and the use of debt. The data obtained and the methodology employed will be discussed. The results of the statistical analysis will be subsequently presented. Conclusions and recommendations for future research are provided in the final sections of the paper.

Literature Review

Pecking Order Theory

The notion of the use of debt as a monitoring agent emanates from capital structure theory. Initial work by researchers such as Modigliani and Miller (1958) focuses on the appropriate amount of debt to be included in a firm's capital structure. Their argument largely revolves around the tradeoff theory in which the optimal amount of debt is based on the tax deductibility of the interest payments.

Capital structure theory evolved from attempting to determine the optimal amount of debt for the firm into trying to determine why debt is used. For most firms, debt is one component in the capital structure of the firm.

One of the first theories of capital structure is the pecking order theory (Myers, 1977; 1984; 2001). Under this theory, there are three major choices of financing: internal equity, outside debt, and new external equity. The order of these financing choices is in line with their costliness. Internal equity is the least costly because of the lack of issuance costs (although it required firms to maintain profitability). Debt falls in the middle because while there are new issuance costs, the interest payments on debt service are tax deductible. Finally, new external equity requires due diligence prior to issuance, and dividend payments to shareholders are not tax deductible.

Debt as a monitoring agent

The focus of this paper is the use of debt as a monitoring mechanism as outlined by Jensen (1986). According to Jensen, managers have an incentive to grow the firm beyond its optimal size. This is because managers are often rewarded for the amount of assets under their management.

Jensen's work involves the notion of "free cash flow" (FCF). FCF is defined as cash flow in excess of what is needed to fund all projects with positive net present values. In order to help prevent such actions, firms take on debt to help reduce these agency costs. Debt service payments can even be a better control mechanism than dividends. This is because dividends are "weak promises" that can be cut in the future. More often than not the market punishes dividend cuts as an acknowledgment of the FCF hypothesis.

Jensen cites work by Smith (1986) that indicates that leverage-increasing transactions lead to significant and nearly immediate stock price increases while leverage-reducing transactions have the opposite effect. This finding appears to support the notion that firms who take on financial leverage (i.e., debt) better produce profits and or cash flows, thus being more effective or efficient. The market appears to recognize the value of debt as a monitoring agent to control expenses and the overinvestment problem.

Although underinvestment is mentioned as an agency problem in capital structure research, it is not merely a hypothetical scenario. Jensen (1986) studied oil industry practices from 1984. He finds that the 10 largest oil companies had cash flows of approximately $50 billion, nearly 30% of the total cash flows from the top 200 firms in the United States. They did not return these large cash flows to shareholders in the form of increased dividends but instead continued to invest in development projects with returns below the cost of capital. Thus, it appears the need for monitoring is an actual real-world concern.

Potential factors impacting restaurant expenses

In a study of Texas restaurants by English, Josiam, Upchurch, and Willems (1996), they find that corporate and/or franchise restaurant operators definitely have a competitive edge in the marketplace. Size is a critical factor in restaurant firm success because large operations can achieve economies of scale regarding operational costs (Kalnins & Mayer, 2004). Moreover, firms that have franchise locations utilize local operators who cannot only take advantage of scale economies but also make use of trade names (Hua & Dalbor, 2013; Litz & Stewart, 1998). Size and

franchising are also important factors in mitigating restaurant failure (Parsa et al., 2005; Self et al., 2015) and serve as a tool for future growth (Roh, 2002).

Perhaps the most prominent studies on restaurant failures are those completed by Parsa et al. (2005) and the follow-up study by Parsa, Self, Sydnor-Busso, and Yoon (2011). These studies indicate a wide variety of causes of restaurant failure. However, they place the causes into two major categories: internal and external factors. Internal factors include items such as industry experience, management skills, and planning (or lack thereof). External factors include things like location, competition and availability of financing. While they generally conclude that internal factors make the greatest contribution to failure, external factors definitely play a role and cannot be ignored. Thus, one could argue that, in general, economic conditions have an impact on the development of new competition (or the survival of existing competition), availability of financing, and changes in customer demand. While economic conditions are often used by management as a ready-made excuse for poor performance, declining economic conditions may not be a cause of failure but yet can have a negative impact on restaurant firm performance and/or expense management.

Research hypothesis

Based upon the literature reviewed, we propose the following research hypothesis: restaurant firms that take on debt have improved operating efficiency. To be specific, debt ratios are negatively correlated with operating expenses ratios. We will subsequently examine the relationship between operating expense ratios and the following variables: debt ratios, firm size, franchising, and economic conditions. The next section will describe the data used and methodology employed to answer the research question.

Methodology

Sample

Ten years of data from Compustat (2009–2018) were used in this study. The selection of data was based mainly on data availability, the reliability of data sources, and the ability to quantify variables in the modeling process. Standardized difference of fit value (SDF), standardized difference in beta value

(SDB), Cook's distances, and case wise analysis were conducted to detect outliers. After removing outliers, a total of 111 restaurants with 752 restaurant-year observations were included in the sample and used for the analysis.

Variables

Dependent variables
The dependent variables of interest in this study are the percentage of various operating expenses to total revenue (REVT). This includes advertising expense (XAD), administrative and general expense (XAGT), equipment and occupation expense (XEQO), total operating expenses (XOPR) and total expenses excluding interest expenses (XT—XINT).

Independent variables
The independent variables (IVs) are the debt ratios relative to total assets (AT). This includes debt in current liabilities (DLC), long-term debt (DLTT), and total liabilities (LT). A control variable for size (the natural log of total assets) is also used. Dummy variables for franchising (1 if the firm has franchise locations) and economic conditions (1 for recession years) will be included. As a result, the relationship between capital expenditures in the U.S. restaurant industry and the determinants is stated as:

$$ExpRat_{it} = a_0 + a_1 DebtRat_{it} + a_2 Size_{it} + a_3\,Fra_{it} + a_4 Eco_{it} + e_i \qquad (1)$$

Where:

$ExpRat_{it}$ = Ratio of operating expenses (advertising, administrative and general, equipment and occupancy, and operating excluding interest expenses) to total revenue for firm i in year t;

$DebtRat_{it}$ = Three separate debt ratios will be used in the regressions: the ratio of short-term debt, long-term debt, and total debt to total assets for firm i in year t;

$Size_{it}$ = Restaurant size (the natural log of total assets) for firm i in year t;

Fra_{it} = Franchising or not for firm i in year t (0 = not franchising, 1 = franchising);

Eco_{it} = Economic conditions in year t (1 = economic recession year, 0 = otherwise);

e_i = the error term of the regression;
t = years 2009 through 2018.

Assumptions Check for Multiple Regression Analysis

In order to run the multiple regression analysis properly, several assumptions were examined. First, the linearity and multicollinearity (tolerance value and variance inflation factor) of the relationship between the dependent variables and the independent variables were examined through residual plots; second, heteroscedasticity was checked through a statistical diagnosis to make sure there was no assumption violations for the presence of unequal variances; third, independence of the error terms was examined to ensure each predicted value is independent; last, normal probability plots were used to check the normality of the error term distribution. All assumptions were met, and we determined that the data is appropriate for analysis.

Results

Summary statistics of key variables are reported in Table 1. The final sample consists of 752 restaurant firm-year observations from 2009 to 2018. As can be seen from Table 1, Operating Expenses Ratio (ExpRat) ranged from –0.431 to 5.845, with an average of 0.858; the means of the three Debt Ratios were 0.049, 0.333, and 0.724, respectively. Eighty-five percent of the restaurants in the sample were franchised (mean = 0.85).

Pearson correlation analysis results are provided in Table 2. All independent variables but franchising were significantly correlated with the dependent variable.

Table 1. Summary Statistics for the Sample

Variable	Observations	Mean	Std. Dev.	Minimum	Maximum
ExpRat	752	0.859	0.312	−0.431	5.845
DebtRat$_1$	752	0.049	0.170	0	2.500
DebtRat$_2$	752	0.333	0.437	0	3.852
DebtRat$_3$	752	0.724	0.581	0	6.154
Size	752	2.518	0.885	−0.339	4.579
Fra	752	0.85	0.358	0	1
Eco	752	0.1	0.300	0	1

Table 1 details the summary statistics for the sample. ExpRat is the ratio of operating expenses to total revenue. DebtRat$_1$ is the ratio of short-term debt to total assets. DebtRat$_2$ is the ratio of long-term debt to total assets. DebtRat$_3$ is the ratio of total debt to total assets. Size is the natural log of total assets. Fra is an indicator variable with 0 for firms with no franchising and 1 for firms that franchise. Eco is an economic condition indicator variable where it is 1 if the data was from 2009, 0 otherwise.

Table 2. Pearson Correlation Coefficients (N = 752)

Measure	ExpRat	DebtRat$_1$	DebtRat$_2$	DebtRat$_3$	Size	Fra	Eco
ExpRat	—						
DebtRat$_1$	0.153*** (0.000)	—					
DebtRat$_2$	0.118** (0.001)	0.060 (0.050)	—				
DebtRat$_3$	0.068* (0.031)	0.513*** (0.000)	0.729*** (0.000)	—			
Size	−0.293*** (0.000)	−0.388*** (0.000)	−0.181*** (0.000)	−0.119** (0.001)	—		
Fra	0.009 (0.405)	0.024 (0.252)	0.114** (0.001)	0.070* (0.028)	0.208*** (0.000)	—	
Eco	0.048 (0.093)	0.021 (0.283)	0.011 (0.383)	0.030 (0.204)	0.044 (0.112)	−0.009 (0.402)	—

P-values are reported in parentheses.
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$
Table 2 contains the Pearson correlation analysis statistics for the sample. ExpRat is the ratio of operating expenses to total revenue. DebtRat$_1$ is the ratio of short-term debt to total assets. DebtRat$_2$ is the ratio of long-term debt to total assets. DebtRat$_3$ is the ratio of total debt to total assets. Size is the natural log of total assets. Fra is an indicator variable with 0 for firms with no franchising and 1 for firms that franchise. Eco is an economic condition indicator variable where it is 1 if the data was from 2009, 0 otherwise.

To assess the effect of debt on a number of different operating expenses, three debt-to-asset ratios were included in the stepwise regression analysis. Multicollinearity was assessed, and the variance inflation factors (VIFs) ranged from 1.002 to 1.182, and tolerance value ranged from 0.846 to 0.998, suggesting there is neither collinearity nor multicollinearity. In Table 3, unstandardized coefficients (B), standard error of unstandardized coefficients (SE B), standardized coefficients (β), and t statistic (*t*) are reported.

As shown in Table 3, the linear regression results showed that all independent variables were statistically significant. To be specific, all three debt-to-asset ratios and size were negatively correlated with the operating expenses ratio; meanwhile, franchising status was positively correlated with the operating expenses ratio. The results suggested that the higher the debt ratio, the lower the operating expenses ratio, which results in higher profits. The results also suggested that franchising a restaurant tends to generate higher operating expenses, but this may not suggest practical meaning given that the majority of the sample were franchised restaurants.

Table 3. Regression Analysis Results (N = 752)
The final regression model is as follows:

$$ExRat = 0.755 - 0.315DebtRat_1 - 0.269DebtRat_2 - 0.213DebtRat_3 - 0.081Size + 0.065Fra + e_i$$

Predictor	B	SE B	β	t
Constant	0.755	0.032		23.793***
DebtRat$_1$	−0.315	0.110	−0.172	−2.862**
DebrRat$_2$	−0.269	0.054	−0.378	−4.995***
DebtRat$_3$	−0.213	0.047	−0.396	−4.543***
Size	−0.081	0.012	−0.260	−6.705***
Fra	0.065	0.031	0.074	2.105*
Eco	0.044	0.036	0..42	1.216

Notes: $R^2 = 0.52$, Adjusted $R^2 = 0.51$
B represents unstandardized coefficients; β represents standardized coefficients.
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$
Table 3 contains the results of the regression analysis. ExpRat is the ratio of operating expenses to total revenue. DebtRat$_1$ is the ratio of short-term debt to total assets. DebtRat$_2$ is the ratio of long-term debt to total assets. DebtRat$_3$ is the ratio of total debt to total assets. Size is the natural log of total assets. Fra is an indicator variable with 0 for firms with no franchising and 1 for firms that franchise. Eco is an economic condition indicator variable where it is 1 if the data was from 2009, 0 otherwise. This variable was excluded from the final model due to insignificance. e$_i$ is the error term of the regression.

The economic conditions variable was not significant in any of the models and was removed from the final overall model.

Conclusions and Discussion

The purpose of this research is to understand if the use of debt by U.S. restaurant companies is an effective monitoring agent and if it helps firm performance. What follows is a discussion of each of the factors we examined.

The short-term debt ratio (DebtRat1) showed a significantly negative relationship with expense ratios. This may be because if firms attempt to match assets with liabilities, short-term debt could be helping to manage day-to-day operations more effectively. Obtaining short-term financing is important to restaurant firms in order to manage important items such as inventory and payroll. Given the notoriously low profit margins of most restaurant firms, controlling expenses is an important signal to short-term lenders to be able to have continued access to capital to remain in business.

The long-term debt ratio (DebtRat2) was also significant and negatively related to operating expense ratios. Once again, if liabilities are being matched with assets, it could be that long-term debt is being used to finance long-term assets that may make an operation more efficient (i.e., newer equipment). Although restaurant firms are not as fixed asset intensive as other hospitality firms (such as hotels and/or casinos), many restaurant firms make long-term investments in land and buildings. Given that the success of many firms is based upon capital budgeting decisions, the ability to operate efficiently and please long-term lenders is of critical importance.

The total debt ratio (DebtRat3) is the short-term debt and long-term debt added together. Thus, if both the short-term debt ratio and long-term debt ratios yielded negative coefficients with operating expenses, the long-term debt ratio would be a monotonic transformation and produce similar results to the two other debt ratios, which are subcomponents of the total. Controlling operating expense is an important function to owners and lenders alike. Our total debt ratio variable produced both a negative and highly significant coefficient in the regression model.

Size is the natural log of total assets and is used in the model as a control variable. This is also an interesting result. The coefficient is negatively related to the expense ratio and is highly significant. What this may indicate is that larger firms are able to achieve economies of scale and do a better job of controlling operating expenses.

We find a significant and positive relationship between franchising and operating expense ratios. The assumption of becoming a franchisee is being able to increase revenues though brand recognition and being part of a national or regional advertising program. Another potential benefit of franchising is to have access to the experience and knowledge of a franchisor in order to understand the business better and potentially save on operating costs. On the other hand, franchisors often take on franchisees in order to gain insight into local markets in which they are unfamiliar. Additionally, becoming a franchisee is not costless. Therefore, at least for restaurants, becoming a franchisee may have the net effect of raising operating expenses.

We also included an indicator variable for economic conditions. Specifically, this variable was used for the U.S. recession year of 2009. It was unclear what the effect of this recession would be on the operating expense ratios. Nevertheless, the variable was insignificant and removed from the final model.

Implications, Limitations, and Future Research

The current study has both theoretical implications and practical implications. This research investigates the notion that debt usage by U.S. restaurant companies acts as a monitoring agent of operating expenses. This has not been examined in prior studies of U.S. restaurant firms. Moreover, we consider the effects of franchising and economic conditions as improvements to the models used by previous researchers. Knowing the monitoring role of debt could help stakeholders better understand the potential of risk and return in the U.S. restaurant industry.

However, this research is not without its limitations. First, Compustat does not report all the various operating expenses for restaurant firms, and they also do not report all operating expenses individually. If expenses were ever to be delineated individually, it would be interesting to see if debt has differing effects on these separate expenses.

Secondly, while our sample size is quite large (752 observations), the sample includes a wide variety of restaurant firms. The restaurant industry is not homogeneous. It may prove valuable to separate firm types by level of service (i.e., quick service, family style, etc.) to understand if there are any differing effects on the expense ratios from the use of different types of debt.

Finally, our results indicate a positive and significant relationship between franchising and operating expense ratios. This is a somewhat curious finding in that some of the reasons for franchising include earning higher revenues or incurring fewer expenses. Our sample contains a mix of firms that are franchisors as well as companies that exist only as franchisees of other firms. It may be fruitful to conduct additional research to better understand potential differences between these two types of firms.

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