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Agency Costs, Bankruptcy Costs and the Use of Debt in Multinational Restaurant Firms

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Agency Costs, Bankruptcy Costs and the Use of Debt in Multinational Restaurant Firms

Abstract

The purpose of this paper is to understand whether multinational restaurant firms (MNRFs) have higher agency and expected bankruptcy costs. Given this expectation, this may have an impact on the amount of debt incurred by MNRFs. Overall, the findings are consistent with the existing literature in terms of the positive relationship between MNRFs and agency and bankruptcy cost. However, it was found that MNRFs also have more total debt. This is surprising given the higher agency and bankruptcy costs. The importance of this research is that there may be considerations other than agency and bankruptcy costs affecting the capital structure decisions of MNRFs.

Keywords

Arun Upneja, Food and Beverage

Agency Costs, Bankruptcy Costs and the Use of Debt in Multinational Restaurant Firms

By Arun Upneja and Michael C. Dalbor

The purpose of this paper is to understand whether multinational restaurant firms (MNRF's) have higher agency and expected bankruptcy costs. Given this expectation, this may have an impact on the amount of debt incurred by MNRF's. Overall, the findings are consistent with the existing literature in terms of the positive relationship between MNRF's and agency and bankruptcy costs. However, it was found that MNRF's also have more total debt. This is a surprising result given the higher agency and bankruptcy costs. The importance of this research is that there may be considerations other than agency and bankruptcy costs affecting the capital structure decision of MNRF's.

Introduction

The purpose of this paper is to assess the relationship between agency costs, bankruptcy costs and the use of debt in multinational restaurant firms (MNRF's). The underlying tradeoff is between the benefits of international diversification against the expected increases in agency and bankruptcy costs from the use of debt.

This research represents a continuation of work done regarding capital structure. Capital structure has been actively researched in the field of finance since the seminal work of Modigliani and Miller (1958). More recently, a stream of research has begun in the field of hospitality (Sheel, 1994; Kim, 1997; Dalbor and Upneja, 2004). However, much of the hospitality literature in this area has focused primarily on domestic firms or has paid very little attention to the multinational aspects of companies. International revenues are becoming more important to the industry. McDonald's, for example, is a component of the Dow Jones Industrial Average and is one of the most well-known hospitality firms. In 2004, it derived more than 65 percent of its total revenues from outside of the United States. Accordingly, the significance of this research is that it extends an understanding of the factors that influence the capital structure decision of MNRF's.

One of the motivations for this research is to continue to investigate the link between diversification benefits for multinational firms and capital structure. One theory is that multinational firms invest in countries that are negatively correlated with the United States, initially lowering their risk. This subsequently allows them to take on more debt. This diversification benefit was confirmed by early research conducted by Hughes, Logue and Sweeney (1975). However, Reeb, Kwok and Baek (1998) find that multinational firms have more risk. This may be from an increase in systematic risk due to extra exchange rate risk as suggested by Bartov, Bodnar and Kaul (1996). In terms of capital structure, Lee and Kwok (1988) find that multinational firms use less debt than their domestic counterparts. One reason for investigating the capital structure of MNRF's is to assess whether the benefits of diversification outweigh the extra agency monitoring costs in a multinational environment.

Multinational firms grow in different ways. Many industrial firms will build and own facilities overseas. This is not always the case for restaurants. As an example, Yum Corporation is the largest MNRF with about two-thirds of its stores operated by franchisees. Moreover, this does not mean that Yum does not bear the same type of risk a company owned manufacturer. For example, at the end of 2004 Yum Corporation was contingently liable for lease payments totaling \$365 million. Additionally, the company provided guarantees on loan pools to franchisees of \$16 million and various letters of credit totaling \$22 million during this same period (Yum Corporation, p. 70). Thus, direct ownership is not a necessary condition to bear the risks of international expansion.

An important consideration in this type of research is the definition of a MNRF. There is no single definition of a multinational firm that is recognized within the financial literature. Differing variables such as the nationality of management, the number of different countries in which firms do business and sales or profits have been used. When attempting to use either sales or profits, sales are generally considered superior because of the smaller likelihood of earnings manipulation.

Lee and Kwok (1988) address this issue by using the foreign tax ratio, or the percentage of total taxes paid to foreign governments. In their research, Lee and Kwok used a wide variety of firms to increase their sample size. Here, the research is limited to one particular industry, the use of the foreign tax ratio severely limits the sample size available for analysis. In addition, there is a possibility of manipulation of the foreign tax ratio through use of transfer pricing and other accounting techniques. Finally, we had to determine a cut-off point for foreign revenue as a percentage of total revenue, to classify the firm as foreign or not. Again there was no uniform number used in the literature. Therefore, this study was begun using an arbitrary number (10%) and said that if the firm has to derive at least ten percent or more of its revenue from foreign sources it would be classified as a MNRF. Use of different levels of threshold amounts does not materially change the results.

The capital structure of multinational firms is a relatively recent endeavor for capital structure researchers. The common capital structure model according to Megginson (1997) is shown:

$$VL = Vu + \text{Tax Shield} - \text{Expected Bankruptcy Costs} - \text{Agency Costs}$$

Where VL is the value of the levered firm and Vu is the value of the unlevered firm. As shown in the equation, the value of the firm is increased by the present value of the tax shield of the deductibility of interest payments and decreased by expected bankruptcy and agency costs.

We hypothesize that differences in expected bankruptcy costs and agency costs will have an impact on the capital structure of MNRF's. Specifically, firms with higher costs are less likely to have debt in their capital structures. Our research finds that MNRF's have higher agency costs, but bankruptcy costs are indeterminate. The overall effect in our research is that there is a positive relationship between MNRF's and total debt despite the increased agency costs.

Agency Costs, Bankruptcy Costs and Internationalization

Agency costs associated with debt

Research conducted by Myers (1977) hypothesizes that capital structure choice is related to the agency costs of debt. Myers argues that firms have real options whose value is dependent upon further discretionary investments. Examples of these investments include advertising and research and development costs. If bondholders have a contract that matures after the expiration of a real option, the benefits will accrue primarily to the bondholders. Myers refers this as the underinvestment problem; where shareholders pass up projects with positive net present values.

Bondholders, aware of this potential problem, take all of this into consideration. Therefore, because of this underinvestment risk to the shareholders, bondholders will pay less for the debt securities of the firm. This reduction in purchase price, paid by the bondholders, represents an agency cost to the firm. The more a firm spends on research and advertising costs, the higher the agency costs and the potential for underinvestment by the firm. These costs have been used in previous research as proxies for agency costs by Lee and Kwok (1988) and Bradley, Jarrel and Kim (1984).

Another agency cost to the firm is the substitution problem hypothesized by Jensen and Meckling (1976). The owners of the firm will have an incentive to engage in risky project that transfers wealth from bondholders to the shareholders. Specifically, the upside potential of the

project accrues to the shareholders while any downside loss is borne more by the bondholders than the shareholders. There are two types of agency costs associated with this problem. The first cost is the reduction in price paid for the firm's bonds by bondholders (similar to the underinvestment problem). Secondly, because of the potential for a substitution problem, bondholders will most likely require bond covenants and monitoring of firm activities. These activities represent real costs to the firm. Thus, the lower price paid for the bonds along with the costs of bond covenants are all considered agency costs of debt.

The agency costs of debt can have a particular effect on the capital structure of MNRF's as hypothesized by Kwok and Reeb (2000). They argue that given the wider diversity of MNRF operations, it takes greater effort to monitor the actions of a multinational firm. Therefore, this would discourage the use of debt. Additionally, the authors argue that that MNRF's have more real options, thereby bondholders are less willing to pay the price for debt. Both of these points support the notion that a MNRF would have less debt in its capital structure than a DRF.

Agency costs and the use of debt in hospitality firms

Capital structure research in hospitality is an emerging field. Sheel (1994) examines the potential determinants of debt use by hotel and manufacturing firms. His research only includes domestic firms and excludes restaurants. Gu (1995/96) attempts to test the pecking-order theory of financing by using a sample of domestic lodging and manufacturing firms. Upneja and Dalbor (2001) and Dalbor and Upneja (2002) examine the use of debt by domestic restaurant firms and find key determinants to be firm size, age and firm risk (positive) and growth opportunities (negative). Debt is used by larger and older firms as an effective monitoring agent to help reduce the agency costs associated with potential empire building by management. On the other hand, restaurant firms with large growth opportunities may choose less debt because of the pecking order as defined by Myers (2001).

Further research by Dalbor and Upneja (2004) find a positive relationship between growth opportunities and total debt for domestic lodging firms. This is different from restaurant firms as growth opportunities for lodging firms can involve expansions, renovations or acquisitions that have tangible value for lenders even in the case of financial distress. Overall, while there has been capital structure research in the hospitality, none has covered or focused on the behavior of multinational restaurant firms. Also, the results of previous studies indicate the hospitality industry may not be homogeneous in terms of capital structure choice.

Bankruptcy costs and debt

The relationship between the use of financial leverage and potential bankruptcy costs has been ambiguous in the literature. The first theory is parallel to using international investments to reduce the variance in a portfolio. As discussed by Shapiro (1978), a company developing overseas operations can reduce the volatility of expected cash flows, subsequently reducing the likelihood of bankruptcy and its associated costs. Accordingly, a MNRF should use more debt.

Kwok and Reeb (1998) develop an extension of the international diversification hypothesis. They argue for an "upstream/downstream" effect where less developed countries represent increased risk, leading to the use of less debt by the international firm. On the other hand, expansion into a relatively developed country represents less risk, and would therefore lead to the use of more debt. Therefore, the use of debt is dependent upon the condition of the country into which operations are being expanded.

Another approach is taken by Khambata and Reeb (2000). A MNRF has operations in a variety of international locations, subject to a large variety of legal jurisdictions. While holding bankruptcy costs constant, the heterogeneity of lenders' rules and regulations increases the costs of potential bankruptcy. Therefore, the authors argue that this would lead to a MNRF to use less debt in the capital structure.

There seems to be a consensus in the recent capital structure literature regarding internationalization and agency costs. Higher agency costs are associated with internationalization and therefore those firms should use less debt. But, there seems to be no consensus on the effect of bankruptcy costs and debt in the multinational firm. Because of the conflict between the diversification and upstream-downstream hypotheses, there is no a priori expectation of a relationship between the use of debt and bankruptcy costs.

Empirical evidence from Lee and Kwok (1988) indicates that multinational firms do have higher agency costs than domestic firms. In terms of bankruptcy costs, the authors find that multinational firms do not have lower bankruptcy costs than domestic firms after controlling for firm size. Size is accounted for in their research by grouping the firms by amount of assets and placing each firm in one of seven categories.

The authors also tested the multinational and domestic firms for debt ratios and found that domestic firms have higher debt ratios. However, this was not true for all industries. Domestic industries with lower debt ratios include mining, textile, publishing and primary metals. Moreover, the authors did not examine any hospitality firms such as hotels or restaurants.

Upneja and Dalbor (2001) examine the use of debt and expected bankruptcy costs for domestic restaurant firms. While they find a positive relationship between firm risk and debt use, this merely confirms the pecking order theory of Myers (1977) rather than address the higher potential bankruptcy costs for restaurant firms, whether they are DRF's or MNRF's. While bankruptcies and their associated costs are high for small private domestic restaurant firms, it remains an empirical question for publicly traded MNRF's.

Measurement of agency costs and expected bankruptcy costs

As previously discussed, a MNRF would be expected to have higher agency costs. Myers (1977) argues that research and development expenditures and advertising expenditures create future opportunities for the firm that may or may not be utilized. Accordingly, the greater the amount of expenditures, the greater the potential for underinvestment by the owners and thus, higher agency costs.

Lee and Kwok (1988) use the percentage of sales represented by advertising and research and development costs as proxies for agency costs. This had also been used in other studies including Bradley, Jarrel and Kim (1984). We use a similar measure, although we do not expect a large amount of research and development expenditures in our sample.

As argued by Lee and Kwok (1988), bankruptcy costs can generally be expected to remain constant. Therefore, expected bankruptcy costs are largely a factor of the probability of bankruptcy. Although Lee and Kwok use the variability of cash flows as a measure of this, we have decided to use Ohlson's Revised O Score as used by Dalbor and Upneja (2002). This score makes use of number of key ratios to effectively predict bankruptcy and has been used in other hospitality capital structure research (Upneja and Dalbor, 1999).

Hypotheses to be tested

Based on the established theory, we propose two alternative hypotheses:

- H1:* There is a positive relationship between agency costs and MNRF's.
- H2:* There is a positive relationship between bankruptcy costs and MNRF's.

If the first hypothesis were correct, then this would appear to indicate that MNRF's would use less debt. On the other hand, if MNRF's have lower expected bankruptcy costs, this would indicate that they would use more debt. Since these two elements are in contradiction, it is uncertain which factor has greater influence on the overall debt in the capital structure of the firms in the sample. Accordingly, we propose a third alternative hypothesis to assess the relationship between total debt and MNRF's.

H3: There is a negative relationship between total debt and MNRF's .

We were prepared, in fact, that the results could indicate an opposite effect depending on the balance of agency costs of debt and expected bankruptcy costs.

Methodology - Data sample

The sample of restaurant firms is from the COMPUSTAT database for the years 1980 through 2004. We excluded from our analysis firms that did not have data for the entire period. However, the exclusion was selective, based on the regression model. Only those firms were excluded for each model that did not have the required data for that model. For example, the variables required in the first regression are agency costs, size, and an indicator variable for multinational character of the firm. Note that the Ohlson's revised O-score is used only in the second regression model, therefore observations were not excluded if they did not have the required information to calculate the Ohlson's O-score. Therefore, the exclusion for the first model was based only on the three variables required for the first model. In the second model, we excluded based on the requirements of the second model. The number of observations for each model varied from 38 to 90. Summary statistics of the data are provided in Table 1 and a correlation matrix is shown in Table 2.

Table 1: Summary statistics for the variables used in the regression analysis.

Variable	N	Mean	s. d.	Minimum	Maximum
AC	75	0.038	0.034	.001	.062
DR	91	0.560	0.249	.139	.968
OR	39	0.213	0.247	0	.66
SIZE	101	2.000	1.420	0	4
MNRF	101	0.406	0.493	0	1

The table lists the descriptive statistics for the dependent and independent variables used in the regression analyses.

Terms used:

- AC: agency costs of the firm represented by the ratio of advertising and research and development costs to total sales.
- DR: total debt ratio and is defined as the total debt of the firm (both long and short term) divided by total assets.
- OR: Ohlson's revised O score, a measure between 0 and 1 indicating the probability of bankruptcy (1 is the highest probability).
- SIZE: categorical variable with the firms divided into five categories based upon the log of the number of total assets. 1 is the largest firm while 5 is the smallest firm.
- MNRF: an indicator variable where 1 is a multinational restaurant firm.

Because the number of observations varied between the three models, the correlation matrix is shown in three panels in table 2. Each panel corresponds to each of the three regression models.

Table 2: Correlation Matrix by Regression Models*

Panel A: Correlation matrix for first regression model AC = Size + MNRF

Variable	AC	SIZE
AC		
SIZE	0.13	
MNRF	0.28	.76

Panel B: Correlation matrix for second regression model OR = Size + MNRF

Variable	OR	SIZE
OR		
SIZE	-0.64	
MNRF	-0.25	0.64

Panel C: Correlation matrix for third regression model DR = Size + MNRF

Variable	DR	SIZE
DR		
SIZE	0.07	
MNRF	0.27	.76

* Because there were different numbers of observations in each model, resulting in different values for correlations between the same variables, we decided to show the correlation matrix separately for each model.

Terms used:

- AC: agency costs of the firm represented by the ratio of advertising and research and development costs to total sales.
- DR: total debt ratio and is defined as the total debt of the firm (both long and short term) divided by total assets.
- OR: Ohlson's revised O score, a measure between 0 and 1 indicating the probability of bankruptcy (1 is the highest probability).
- SIZE: categorical variable with the firms divided into five categories based upon the log of the number of total assets. 1 is the largest firm while 5 is the smallest firm.
- MNRF: an indicator variable where 1 is a multinational restaurant firm.

Methodology – linear models

Our methodology uses general linear models to investigate the relationship between agency costs, expected bankruptcy costs and debt ratios and MNRF's. We considered a firm that has more than 10 percent of its sales from international sources to be a MNRF. Additionally, to alleviate any size bias, we placed the firms into 5 different categories based upon the number of assets under their control. The largest firm was a 1 and the smallest is given a 5. This is consistent with Lee and Kwok (1988). Accordingly, the three linear models are as follows:

$$AC = \alpha_0 + \alpha_1 \text{SIZE} + \alpha_2 \text{MNRF} + \epsilon_i .$$

$$OOR = \alpha_0 + \alpha_1 \text{SIZE} + \alpha_2 \text{MNRF} + \epsilon_i .$$

$$DR = \alpha_0 + \alpha_1 \text{SIZE} + \alpha_2 \text{MNRF} + \epsilon_i .$$

Where:

- AC = the ratio of advertising and r&d expenditures to total sales
- OOR = Revised Ohlson's O score, a predictor of bankruptcy and an indicator of expected bankruptcy costs
- DR = the ratio of total debt to total assets
- SIZE = indicator variable based upon total assets
- MNRF = variable indicating if the firm is multinational
- ϵ_i = the error terms of the model.

Results

The regression results are shown in Table 3. The table reports regression results for the three regression models.

Table 3: Regression Analysis Results

Regression	Dependent Variable	Intercept	SIZE	MNRF	F*	Adj.R ² (%)
1	AC	0.03 (5.55)**	-0.01 (-1.07)	0.03 (2.46)**	3.73*	6.88
2	OOD	0.38 (8.86)**	-.16 (-5.11)**	.17 (1.71)	15.14**	42.67
3	DR	0.55 (12.97)**	-0.05 (-1.99)*	0.25 (3.27)**	5.61**	9.29

* Significant at $p < .05$.

**Significant at $p < .01$.

Terms used:

AC: agency costs of the firm represented by the ratio of advertising and research and development costs to total sales.

DR: total debt ratio and is defined as the total debt of the firm (both long and short term) divided by total assets.

OR: Ohlson's revised O score, a measure between 0 and 1 indicating the probability of bankruptcy (1 is the highest probability).

SIZE: categorical variable with the firms divided into five categories based upon the log of the number of total assets. 1 is the largest firm while 5 is the smallest firm.

MNRF: an indicator variable where 1 is a multinational restaurant firm.

The first regression shows the results with agency costs as the dependent variable. After taking into consideration the size of the firms, there is a significant and positive relationship between MNRF's and agency costs. This result confirms previous research with other firms, indicating that more costs have to be incurred to reduce the information asymmetry regarding the firm as it expands internationally.

The second regression shows the relationship between MNRF's and expected bankruptcy costs as operationalized by the revised Ohlson's O Score variable. The predicted sign of the MNRF variable was indeterminate a priori because of the relative importance of exactly where a firm was going to expand overseas. But after taking size into consideration, the result supports the notion that risky firms take on more debt overall as found by Dalbor and Upneja (2004) for domestic restaurant firms.

The final regression shows the relationship between MNRF's and total debt. Given the higher agency and bankruptcy costs shown in the first two regressions, we expected to find a negative relationship between MNRF's and total debt. Instead, we find a significant and positive relationship between MNRF's and total debt.

This unexpected result could be for a number of reasons:

- The MNRF's may be more "mature" than expected, thus they may have less growth opportunities and according to Myers' (1977) pecking order theory of financing, would use more debt.
- We have used total debt as a dependent variable, which could include a substantial amount of short-term debt, which is easier to re-finance.

- MNRF's may have more locations that are actually owned instead of leased. Real estate ownership would seem to imply greater use of debt that is secured by valuable tangible assets such as land and building.

It should be noted that we ran other regression models using different measures for total debt. We ran a regression with total current liabilities as the dependent variable and another model with long-term debt as the dependent variable. Both regressions indicated a significant and positive relationship with MNRF's and the measure of debt confirming the results of our original model.

Conclusions and Implications for Further Research

This research examines the relationship between agency costs and expected bankruptcy costs and MNRF's. Our first result supports the existing literature that states that these types of firms should incur higher agency costs. Our bankruptcy cost model has borderline significance, but the sign of this coefficient was indeterminate because of the dependence upon the location of foreign expansion. Additionally, we find that MNRF's use more total debt, a result that was unexpected.

The results generated by this research warrant further investigation. Overall, operational characteristics of MNRF's should be examined in greater detail to understand the similarities and differences as compared to domestic firms. Additionally, agency costs in general, and for the restaurant industry in particular, need to be better defined. Moreover, more research should be conducted as to the appropriate definition of a multinational restaurant firm. There is no current consensus on this issue and, unfortunately, a consensus may not be forthcoming anytime soon.

The research highlights the very fluid situation confronting research into multi-national activities. Firms are still experimenting with investment structures and there are still surprises when doing research in this area.

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Appendix

The revised O-score (probability) of bankruptcy is calculated in the following manner: First, we calculate the numerical value (NV) of the probability of bankruptcy. The second step is to calculate the O-score that represents the probability of bankruptcy.

$$NV = -1.32 - (.407*SIZE) + (6.03*TLTA) - (1.43*WCTA) + (.076*CLCA) - (1.72*OENEG) - (2.37*NITA) - (1.83*FOTL) + (.285*INTWO) - (.521*CHIN)$$

The revised O-Score ranges from 0 (extremely low probability of bankruptcy) to 1 (*indicating a 100% probability of bankruptcy*). The procedure for calculating the revised O-score is based on the equation below.

$$\text{Revised O Score} = 1/(1 + e^{-NV})$$

An explanation of the variables is shown below.

Variable	Calculation
SIZE	Log of total assets
TLTA	Total liabilities/total assets
WCTA	Working capital/total assets
CLCA	Current liabilities/current assets
OENEG	If total liabilities > total assets, OENEG = 1 If total liabilities ≤ total assets, OENEG = 0
NITA	Net income or loss/total Assets
FOTL	Funds received from operations/total liabilities
INTWO	If the firm has reported a net loss for the current period AND the previous period INTWO = 1; 0 otherwise
CHIN	Net income in current year – net income in prior year Absolute value of current year net income plus absolute value of net income in prior year

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