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Hyun Kyung Chatfield

Robert E. Chatfield

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## **BOND YIELDS IN THE HOSPITALITY INDUSTRY**

**Hyun Kyung Chatfield**

**and**

**Robert E. Chatfield**

### **ABSTRACT**

This paper examines the question of whether there are systematic differences in the cost of debt relative to rating standards between firms in the hospitality industry and firms in other industries. It also examines the impact of make-whole call provisions on the cost of debt. The make-whole call provision is a relatively recent innovation in the corporate bond market. We do find some evidence of a positive hospitality industry impact on bond yields. Additionally, the make-whole call provision appears to be valued by investors, reducing the investor loss from early bond redemption in a period of declining interest rates.

### **Introduction**

Many firms in the hospitality industry are heavily dependent on debt financing. A sample of 17 hospitality companies reveals a debt ratio averaging 71.0%, as shown in Table 1. The lowest debt ratio of the 17 firms is 38.8% and the highest is 140.3%. We believe the debt ratios in this table are indicative of the hospitality industry. Hospitality firms are generally heavily dependent upon debt. The cost of debt is especially important to companies that are heavily reliant on debt to fund their capital needs relative to firms depending more on equity financing.

The purpose of this paper is to identify whether investors view hospitality firms differently than they do non-hospitality firms when they issue debt securities to the capital markets. Are hospitality firms viewed as being riskier or less risky, and thus do their debt securities sell for higher or lower yields than those of other firms after controlling for default ratings? There is a lack of research on the industry's effect on debt securities in the hospitality industry. Also, it is important for hospitality industry management to learn if the hospitality industry is perceived to be riskier than other industries. If it is perceived as riskier to investors, the cost of debt will be higher. Do hospitality firms pay more or less interest compared to other firms? The answer to this question is especially significant in light of the high reliance on debt securities in the hospitality industry.

**Table 1**  
**Financial leverage in the hospitality industry**  
**for the year 2002 (unless noted otherwise)**

<b>Company Name</b>	<b>Debt Ratio (Total Debt/Total Assets)</b>
ARAMARK Corp	79.9%
Avado Brands, Inc.	100.7% (2001)
Boyd Gaming Corp.	79.8%
Carnival Corp. (Panama)	39.9%
Darden Restaurants, Inc.	55.4%
Friendly Ice Cream Corp.	140.3%
Harrah's Entertainment, Inc.	76.8%
Hilton Hotels	40.8%
Mandalay Resort Group	76.7%
Marriott International, Inc.	56.9%
McDonald's Corp.	57.1%
MGM Mirage	74.6%
Prime Hospitality Corp.	38.8% (2001)
Royal Caribbean Cruises Ltd.	61.7%
Six Flags, Inc.	65.9% (2001)
Trump Hotels & Casino Resorts, Inc.	96.0%
Vail Resorts, Inc.	65.0%
<b>Mean</b>	71.0%
<b>Median</b>	65.9%

### **Literature Review**

This paper examines the question of whether there are systematic differences in the cost of debt relative to rating standards between firms in the hospitality industry and firms in other industries. There is reason to expect a significant difference—evidence suggests that hotel real estate is considered to be a riskier investment than other forms of real estate (Rushmore, 1990). Also, a significant difference in the cost of debt among different industry classifications was found as result of a study by Chatfield and Moyer (1986). Although this study did not examine the hospitality industry, it found that bond ratings were not strictly comparable across industries (industrials, utilities, and finance). Also, research by Atkinson and LeBruto (1995–1996) on whether the industry had an effect on the returns to common stock in the gaming industry found no significant impact.

This paper also considers the impact that make-whole call provisions have on the cost of debt. Call provisions on bonds are known to increase the yield (Yawitz & Marshall, 1981). They allow the corporation to redeem a bond before maturity, and callable bonds are typically called early when interest rates decline. This allows the corporation to refinance a bond with a new, lower-cost bond. Of course, this is costly to the investor, as he or she is now faced with reinvesting the funds at lower rates of return. Some call features have a make-whole provision, which still allows the corporation to redeem a bond early but protects the investor by providing for a higher redemption price if interest rates decline (Finnerty & Emery, 2002). Therefore, we expect call provisions to have the typical positive impact on bond yields, but a make-whole call provision to have a smaller positive impact than a regular call provision. If the make-whole call provides enough protection for the investor, any impact on bond yields may be negligible. Though make-whole call provisions eliminate corporate financial gain due to refunding a high-coupon bond issue with a lower-coupon bond issue, the make-whole call preserves a corporation's option to repay a bond early if, for any number of reasons (e.g., a desire to rebalance capital structure or to remove restrictions on its actions inherent in a bond indenture), it should choose to do so. Bond indentures are the formal contract between the corporate bond issuer and the investor; among other things, they place many restrictions on the corporation (e.g., constraints on dividend payments, additional debt, mergers, acquisitions, and asset liquidations). With the make-whole call feature, if a corporation wants to take some action prohibited by its bond indenture, it could redeem the bond early, thus ending the indenture contract and providing the corporation with freedom of action.

This study examines debt securities to find out if hospitality debt sells for yields different from those of other debt, even after controlling for default ratings. Previous research indicates significant differences between industrial, utility, and finance debt securities. We find empirical support that hospitality debt securities do sell for higher yields than other similarly rated debt securities.

We also examine the impact that make-whole call provisions have on the cost of debt. It is well accepted that call provisions increase the yield on debt securities. Make-whole call provisions, however, should lessen the impact on debt security yields by protecting the investors against a decline in market rates of return. We find strong empirical evidence that investors view make-whole call provisions positively.

The four sections that make up the remainder of this paper (1) discuss the sample and data, (2) develop the model used to explain bond yields, (3) provide the empirical results, and (4) summarize the study and content of the paper.

### **The Sample and Data**

Between the beginning of 1997 and the end of 2000, 35 debt securities issued by firms in the hospitality industry were identified. Table 2 lists the companies and their industry classification according to their primary North American Industry Classification System (NAICS) code number. Only 21 companies are listed, since several firms issued more than one debt security during this time period. The data are found in the Global New Issues (United States) database from Security Data Corporation.

**Table 2**  
**Hospitality industry firms**

<b>Company Name</b>	<b>Industry Classification (NAICS)</b>
American Restaurant Group, Inc.	Full-service restaurants
ARAMARK Corp (Old)	Food service contractors
Avado Brands, Inc.	Full-service restaurants
Boyd Gaming Corp.	Casinos (except casino hotels)
Carnival Corp. (Panama)	Inland water passenger transportation
Carrols Corp.	Full-service restaurants
Darden Restaurants, Inc.	Full-service restaurants
Friendly Ice Cream Corp. (New)	Full-service restaurants
Harrah's Entertainment, Inc.	Casinos (except casino hotels)
Hilton Hotels	Casinos (except casino hotels)
Hollywood Casino Corp.	Casino hotels
Lodgian, Inc.	Hotels (except casino hotels) and motels
Mandalay Resort Group	Casinos (except casino hotels)
Marriott International, Inc. (New)	Hotels (except casino hotels) and motels
McDonald's Corp.	Limited-service restaurants
MGM Mirage	Amusement and theme parks
Prime Hospitality Corp.	Hotels (except casino hotels) and motels
Royal Caribbean Cruises Ltd. (Liberia)	Tour operators
Six Flags, Inc.	Amusement and theme parks
Trump Hotels & Casino Resorts, Inc.	Casino hotels
Vail Resorts, Inc.	All other amusement and recreational industries

Each of the 35 hospitality debt securities was matched with one or more non-hospitality debt securities. Matching was done based on the timing of the issue. All non-hospitality securities were issued within a week of a hospitality security, with the majority issued in one day. The final sample includes 35 securities from the hospitality industry and 85 securities not from the hospitality industry, for a total of 120 security issues (see Table 3).

Table 3  
Sample descriptive characteristics

Characteristic	Total Sample	Hospitality Securities	Non-Hospitality Securities
Number of issues	120	35	85
Date of first issue	1/27/97	1/27/97	1/27/97
Date of last issue	9/12/00	9/12/00	9/12/00
Mean maturity (years)	11.41	9.93	12.02
Standard deviation of maturity	7.72	6.09	8.25
Mean size (\$ millions)	292	\$244	\$311
Standard deviation of size	299.45	167.23	338.21
Mean coupon rate	8.03%	8.47%	7.85%
Median bond rating	Baa	Baa	Baa
Aa	3 (3%)	1 (3%)	2 (2%)
A	24 (20%)	3 (9%)	21 (25%)
Baa	44 (37%)	14 (40%)	30 (35%)
Ba	19 (16%)	4 (11%)	15 (18%)
B	28 (23%)	13 (37%)	15 (18%)
Caa	2 (2%)	0 (0%)	2 (2%)
Call provisions	89 (74%)	25 (71%)	64 (75%)
Immediately callable	50 (42%)	13 (37%)	37 (44%)
Make-whole provision	48 (40%)	13 (37%)	35 (41%)

A call feature is present on 89 of the 120 security issues in the sample, including 25 hospitality bonds and 64 non-hospitality bonds. Of the 25 hospitality bonds, 13 are immediately callable with a make-whole call feature, and 37 of the 64 callable non-hospitality bonds are immediately callable; 35 of these have a make-whole call feature. It is interesting that all the bonds with a make-whole call are immediately callable and only two immediately callable bonds do not have a make-whole call feature. There are two possible explanations for this: first, this could indicate investors' negative perception of immediately callable bonds and thus the need for a make-whole call provision to satisfy investors (an immediately callable bond without a make-whole call provision might require a prohibitively high yield to compensate investors for the inherent risk); second, this observation could indicate the low cost to the corporation of structuring a make-whole call provision so as to be immediately callable. If a corporation is concerned about preserving its ability to redeem a bond early for reasons other than coupon savings, it can use a make-whole call. Once a decision is made to use a make-whole call, the cost of making it immediately callable versus deferring the call several years may be negligible.

Casual observation of the data in Table 3 provides some initial insight into the impact of industry characteristics on the cost of debt. The coupon rate on debt securities from the hospitality industry averages 62 basis points higher ( $8.47\% - 7.85\% = 0.62\%$ ) than the coupon rate on non-hospitality issues. This suggests that hospitality firms pay a premium to issue their debt securities compared with other firms. Of course, the failure to control for all factors expected to influence yield differences limits the confidence we can place in this initial evidence. For example, the average maturity on hospitality securities is shorter than that of non-hospitality firms. This would generally cause the coupon rate to be lower. And although both samples have a median default rating of Baa, the hospitality sample has proportionately far fewer high-rated A issues and also proportionately far more low-rated B issues. This would tend to cause hospitality coupon rates to be higher. Also, though Table 3 does not show yield differences, only coupon rate differences, we certainly expect yield and coupon rate to be *highly* correlated but not *perfectly* correlated. Thus, a cross-sectional regression model is developed to estimate the impact of the hospitality industry on the cost of debt as measured by yield, not coupon rate.

### Model

The empirical model developed in this section is used to estimate the impact of the hospitality industry on the cost of new-issue corporate debt securities over the 1997 to 2000 period. By limiting the analysis to a relatively short time period, we minimize the difficulties of controlling for major structural shifts in the capital markets. Cross-sectional multiple regression analysis is used to explain the impact of several variables (a single dependent variable and six independent variables) on a new bond issue's yield to maturity. The dependent variable (Y) is the new-issue yield to maturity of the bond measured as a percentage. The six independent variables include the U.S. Treasury rate at the time of issue, the industry type, the debt security default rating by Moody's, the natural logarithm of issue size in millions of dollars, a description of each bond's callability, and a variable indicating whether each bond had a make-whole call provision.

The interest cost of a debt security is a function of the level and term structure of interest rates at the time of issue, industry type, default rating, size of the issue, the maturity of the issue, and the nature of the each issue's call provisions. In this model, six independent variables were evaluated for the study. The model may be stated in its functional form as follows:

$$Y = f(\text{Treasury rate, industry, rating, Lnsize, call, make-whole call})$$

$$Y = \text{new-issue yield to maturity}$$

Treasury rate = the yield on a U.S. Treasury security having the same approximate maturity as the sample bond from Security Data Corporation

Industry = hospitality industry (1), non-hospitality industry (0)

Rating = investment grade (Aa, A, Baa = 1), and junk bond (Ba, B, Caa = 0)

$\text{Lnsize}$  = natural logarithm of issue size in millions of dollars.

$\text{Call} = 1 - (\text{call deferment divided by maturity}),$

(immediately callable = 1, callable with deferment  $0 < \text{call} < 1$ , non-callable = 0)

$\text{MWC}$  = make-whole call provision (yes = 1, otherwise = 0)

A positive relationship is expected between the Treasury rate variable and the yield to maturity on the bonds. This variable is defined as the secondary market yield on a U.S. Treasury security of the same maturity as the sample bond, measured on the date the sample bond is issued. This variable controls both for current market conditions at the time each bond is issued and for the maturity of the bonds (Chatfield & Moyer, 1986).

The effect of the industry variable on bond yields is the principal focus of this study. At this point, we are not aware of theoretical arguments that would lead us to expect a certain positive or negative impact. However, a study by Chatfield and Moyer (1986) found that the industry of an issuing company did, indeed, influence debt yields. Also, as previously noted, the gaming industry's impact on investors' rates of return has been researched by Atkinson and LeBruto (1995-1996). The hospitality industry in some respects is quite different from other industries, and the model presented here provides empirical evidence of this impact on bond yields.

Default ratings are a well-accepted measure of default risk. Investment grade bonds (Baa and higher) are more highly rated and thus have lower default risk than junk bonds (Ba and lower). The default rating binary variable is expected to have a negative impact on bond yields, since it is measured relative to the junk bond (Ba, B, Caa = 0) omitted class, and lower risk (more highly rated) bonds should have a lower cost or yield.

The effect of issue size on bond yields is difficult to pre-specify. There are good arguments for both a negative and a positive relationship (Benson, Kidwell, Koch, & Ragowski, 1981, and Yawitz & Marshall, 1981). The increased supply effect of a larger issue size may cause yields to increase. However, the larger size could be an indication of greater marketability, causing lower yields.

Our call variable was one minus the call deferment divided by maturity. If a bond is not callable, the maturity is used for the deferment. This means that the call variable will be 0 for a non-callable bond, 1 for an immediately callable bond and somewhere between 1 and 0 for a callable bond with a deferment. The shorter the deferment, the closer the call will be to 1; the longer the deferment, the closer the call will be to 0. An immediately callable bond should have the highest yield to compensate investors for call risk. A non-callable bond should have the lowest yield, since investors have no call risk. For a callable bond with a deferment, the shorter the deferment (call approaches 1), the higher the yield should be. Therefore we expect a positive sign on the call variable. Given the construct of the call variable, this is consistent with callable bonds having higher yields than non-callable bonds.

The make-whole call provision should reduce the positive impact of a call feature on bond yield. In our model, a bond with a make-whole call provision will have a 1 for the



make-whole call variable. Callable bonds without a make-whole call provision and non-callable bonds will have a 0 for the make-whole call variable. The make-whole call should have a negative impact on bond yield, as the make-whole provision of the call feature should reduce the positive impact of the call.

### Results of the Study

The results in Table 4 show an  $R^2$  of 0.615, and the F-test for overall regression model is significant ( $F = 30.121$ ,  $p < 0.0005$ ). Four independent variables—Treasury rate, rating, call, and make-whole call (MWC)—are significant at the 5% level; and all the independent variables, including the industry and Lnsiz, are significant at the 10% level. Treasury rate has a positive coefficient (as expected), indicating it has a positive impact on bond yield. Industry is positive and significant at the 10% level, indicating that a hospitality bond will pay a higher yield than an otherwise equivalent non-hospitality bond. Rating has a negative coefficient (also as expected), since junk bonds are coded as 0 and investment grade bonds are coded as 1. That means a higher rated investment-grade bond will pay a lower yield than a lower-rated junk bond. The Lnsiz also has a negative coefficient. This means the larger the issue size of the bond, the lower the bond yield. This could be caused by the possible greater marketability of a larger security. The call variable coefficient is positive, indicating that a callable bond pays a higher yield than a non-callable bond and that the shorter the deferment on a callable bond, the higher the yield. Finally, the make-whole call coefficient is negative, indicating that a make-whole provision on a call feature will reduce the positive impact of the call feature on bond yield.

Table 4  
New bond yield to maturity regression results

Dependent Variable = New Bond Yield To Maturity	Unstandardized Coefficients		Beta	t	Significance
	B	Std. Error			
Constant	0.12500	0.035		3.530	0.002
Treasury rate	0.58600	0.225	0.160	2.601	0.011
Industry	0.00439	0.002	0.115	1.936	0.055
Rating	-0.02205	0.003	-0.618	-8.691	0.000
Lnsiz	-0.00298	0.002	-0.123	-1.866	0.065
Call	0.01091	0.005	0.255	2.159	0.033
MWC	-0.00940	0.005	-0.265	-1.995	0.048
$R^2 = 0.615$					
$F(6, 113) = 30.122 (p = 0.000)$					

There is an obvious problem with multicollinearity between the call and make-whole call variables. All 48 of the bonds with a make-whole call feature are immediately callable, and all but two of the 50 immediately callable bonds have a make-whole call feature. This caused us to question our results with respect to the call and make-whole call coefficients, since the correlation is obviously high between these two variables. To check on the impact of this multicollinearity on our results, we ran the regression model on two subsets of our sample. First, we eliminated all the non-callable bonds and ran the regression model on the 89 remaining callable bonds. That left 48 bonds with a make-whole call feature and 41 callable bonds without the make-whole call feature. Since all the bonds are callable in this sample, the call variable was eliminated, thus eliminating the multicollinearity problem between the call and make-whole call variables. The make-whole call coefficient is still negative and significant, but the significance is at the 1% level this time.

Second, we eliminated the 48 bonds with a make-whole call feature. That left 41 callable bonds and 31 non-callable bonds, for a total sample of 72 bonds. Since none of the bonds had a make-whole call in this sample, the make-whole call variable was eliminated, which eliminated the multicollinearity problem between the call and make-whole call variables. The call coefficient is still positive and significant at the 5% level.

The multicollinearity problem between the call and make-whole call variables, therefore, does not significantly affect our results. Once we eliminate the multicollinearity problem on subsets of our sample, the coefficient signs remain the same and the coefficients—at the 5% level—are still significantly different from 0.

## Conclusion

The statistical results explaining the new-issue cost of debt in the hospitality industry are generally consistent with past studies of debt securities. The overall F-test is significant, indicating that 61.5% ( $R^2$ ) of the variance in debt yield is explained by the six variables. Studies have found some industry effects on debt cost, but not in all cases. In this case, during the four-year period, 1997 to 2000, the new-issue cost of hospitality debt securities was found to be higher (p-value is 5.5%) than that for non-hospitality securities. The 10% significance level was used because of the exploratory nature of this study, which was aimed at finding out if there is an industry effect on the new-issue yield of hospitality debt securities. The results show a 94.5% probability that hospitality bonds pay higher interest on debt than those of other industries when other factors are constant. There are possible multicollinearity problems with the statistical analysis, owing to the high correlation between the call and make-whole call variables. This correlation is unavoidable, since both variables impart important information to the analysis. Additional analysis indicated that this multicollinearity did not appreciably affect our results. Further study may include examining the impact of different segments of the hospitality industry on bond yields, as well as an examination of the very high use of financial leverage by many hospitality firms.

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Hyun Kyung Chatfield is a Ph.D. candidate in the William F. Harrah College of Hotel Administration, University of Nevada, Las Vegas. Robert E. Chatfield is a Professor in the Department of Finance, College of Business, University of Nevada, Las Vegas.