International Journal of Hospitality Management 28 (2009) 359–366

Contents lists available at ScienceDirect

International Journal of Hospitality Management

journal homepage: www.elsevier.com/locate/ijhosman

Financial features of dividend-paying firms in the hospitality industry: A logistic regression analysis

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ARTICLE INFO

Keywords:
Dividend payout
Hospitality firms
Logistic regression
Firm size
Profitability
Investment opportunities

ABSTRACT

The purpose of this study was to identify the financial features that distinguish dividend-paying firms from non-dividend-paying companies in the U.S. hospitality industry. The logistic regression model shows that firm size and profitability are significant drivers of dividend payout, whereas investment opportunities deter dividend payout. In the U.S. hospitality industry, larger hospitality firms with higher profitability but fewer investment opportunities are more likely to pay out dividends to their shareholders.

1. Introduction

Gordon's (1959) dividend relevance theory suggests that investors consider current dividends to be less risky than future dividends or capital gains, indicating that paying dividends at present has a positive impact on firm value. More recently, Gitman and Madura (2001) and Van Horne and Wachowicz (2001) posited that paying out dividends can reduce investors' uncertainty, causing them to discount the firm's earnings at a lower required rate of return and hence increase the stock value. Conversely, if the firm reduces or stops paying dividends, investors' uncertainty will increase, thus raising their required rate of return and lowering the stock value. Many research studies (Cornell and Shapiro, 1987; Peterson and Branesh, 1983; Prezas, 1988; Ravid, 1988) have found that dividend policy can affect the firm value via its interactions with investment and financing policies. In particular, Gitman and Madura (2001) observed that, in practice, both managers and stockholders tend to support the belief that firm dividend policy indeed affects stock prices.

Since the dividend relevance theory (Gordon, 1959) was first proposed, numerous studies (Alli et al., 1993; Amidu and Abor, 2006; Chen and Steiner, 1999; Dickens et al., 2003; Holder et al., 1998; Jensen et al., 1992; Omran and Pointon, 2004; Ooi, 2001; Zeng, 2003) have investigated the factors that affect the levels of dividends paid. On the other hand, some studies have concentrated on the financial characteristics of dividend-paying firms or factors that affect the dividend payout decision itself rather than levels of dividends (Fama and French, 2001; Mancinelli and Ozkan, 2006). In the hospitality industry, while some firms pay dividends to their shareholders, many other firms distribute no dividends at all. What are the particular financial features of those dividend-paying hospitality firms, and what are the reasons for hospitality firms' decisions to distribute or not to distribute dividends? While the corporate dividend payout decision has been widely examined in the general finance literature, it is a thinly investigated area in hospitality financial management.

The hospitality finance literature contains reports of studies on the information signaling value of dividends (Canina et al., 2001) and the impact of dividend initiation or dividend increase on hospitality stock investment return (Sheel, 1998; Borde et al., 1999; Sheel and Zhong, 2005). However, to the best of our knowledge, no study has been conducted to investigate the financial characteristics of dividend-paying hospitality firms. According to Fama and French (2001), at the time of their study, the proportion of U.S. firms paying dividends was around 21%. However, the COMPUSTAT database (2005) showed that about 41% of U.S. hospitality firms distributed dividends. The much higher proportion of dividend-paying firms in the hospitality industry suggests that hospitality firms' dividend policy may have some unique features that deserve our investigation.

Following the studies by Fama and French (2001) and Mancinelli and Ozkan (2006), this study attempted to identify financial features that distinguish dividend-paying hospitality firms from their non-dividend-paying counterparts, thus determining factors that affect hospitality firms' dividend payout

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doi:10.1016/j.ijhm.2008.12.003

decisions. Those financial features, if identified, will shed light on the drivers behind hospitality firms' dividend payout decisions. The findings should help hospitality researchers to better understand why some hospitality firms pay dividends while other firms distribute no dividends and why hospitality firms are more prone to dividend distributions than U.S. corporations in general, thus enriching the hospitality finance literature from the dividend policy perspective. On a practical basis, our findings may assist pro-dividends investors and portfolio managers to identify hospitality companies that have the potential to pay out dividends, better suiting their needs for hospitality investment.

2. Literature review

2.1. Theoretical overview of the dividend policy

There is considerable debate on how dividend policy affects the firm values. While some researchers believe that dividend payout increases shareholder's wealth (Gordon, 1959), some argue that dividend payout may decreases shareholder's wealth (Litzenberger and Ramaswamy, 1979), and some others posit that the amount of dividends is irrelevant to firm value (Miller and Scholes, 1978). The theoretical principles underlying corporate dividend policy can be described either in terms of information asymmetries, the tax-adjusted-theory, or behavioral factors (Amidu and Abor, 2006).

The information asymmetries between managers and shareholders in the context of dividend policy cover three aspects including signaling models, agency cost, and the free cash flow hypothesis (Amidu and Abor, 2006; Frankfurter and Wood, 2002). The signaling theory suggests that firms pay dividends to signal their future prospects. Since dividends are good predictors of the future earnings, the announcement of dividend increase is viewed as good news and accordingly the stock price reacts favorably, and vice versa (Alli et al., 1993). Thus, dividend payments may signal information to shareholder and reduce the information asymmetries. In terms of agency costs, the dividend payment may serve as a mechanism to reduce cash flows under management control, and thus help mitigate the agency problems (Frankfurter and Wood, 2002). If managers have much cash flow under their control, they have incentive to increase their compensation by enlarging the firm size beyond the optimal level because executive compensation is often related to firm size (Wang et al., 1993). Jensen (1986) asserts that for a firm with large amount of free cash flow, increasing dividend payments will reduce the agency costs associated with overinvestment and increase the firm's market value. If the firm reduces funds under management control by paying out dividends, managers are more likely to go to the capital markets for external financing where monitoring of management decisions is less costly (Easterbrook, 1984).

The tax-adjusted-theory posits that high dividend payout ratios raise the investor's required rate of return and decrease the market value of a firm's stocks (Brennan, 1970; Frankfurter and Wood, 2002; Litzenberger and Ramaswamy, 1979). This argument is based on the relative tax disadvantage of dividends compared to capital gains. The tax-adjusted-theory leads to the division of investors into dividend tax clienteles. Masulis and Trueman (1988) suggest that investors with different tax liabilities will not be uniform in terms of ideal firm dividend policy. The tax clientele hypothesis suggests that different tax clienteles prefer different dividend policies, and investors may invest in the firms that have dividend policies appropriate to their tax circumstances (Zeng, 2003). For instance, investors with dividends taxed at a lower rate than capital gains may prefer higher dividend payout ratio. On the other hand, investors with dividend receipts taxed at a higher rate than capital gains may prefer low or zero payout ratio.

Many researchers suggest that behavioral factors may affect the corporate dividend policy. Shiller (1984) asserts that since investor behavior can be significantly influenced by social norms and attitudes, including these influences in dividend policy models can enrich the development of corporate dividend theory. According to Frankfurter and Wood (2002), corporate dividend policy will be better explained by the addition of social economic-behavior paradigm into dividend policy models. Dividends could be viewed as the social-economic repercussion of corporate evolution and the information asymmetry between managers and shareholders cause dividends to be paid to increase the attractiveness of equity issues. Michel (1979) argues that managers may be influenced by the actions of corporate executives of competitive firms when determining dividend payout levels. Frankfurter and Lane (1992) assert that dividends are partially a tradition and partially a way to dispel investor anxiety. Dividends are paid because shareholders expect continued dividend growth and managers believe that investors want to receive them. According to Frankfurter and Wood (2002), managerial views of dividend policy are essentially unchanged since Lintner's (1956) survey of the views of corporate chief executive officers and chief financial officers about their perception of dividend policy. Corporate managers believe that dividend payments are necessary to maintain or increase share price and to attract new investors.

2.2. Previous studies on determinants of dividend policy

Studies of corporate dividend policy have focused on either the reasons or motivations for dividend payout or the factors that determine the amounts of the dividends. Most of the empirical studies have employed multiple regression analysis (Agrawal and Jayaraman, 1994; Amidu and Abor, 2006; Chen and Steiner, 1999; Dickens et al., 2003; Holder et al., 1998; Omran and Pointon, 2004; Ooi, 2001; Wang et al., 1993; Zeng, 2003) to investigate the factors affecting levels of dividends, or have utilized logistic regression analysis (Fama and French, 2001; Mancinelli and Ozkan, 2006) to identify the financial features of dividend-paying companies. In those studies, firm size, liquidity, investment opportunities, profitability, debt leverage, growth, and earnings variability are the variables commonly referred to as having an impact on corporate dividend policy.

The association between firm size and dividend policy has been widely investigated in previous studies. Firm size was measured by either total assets (TA) (Alli et al., 1993; Fama and French, 2001; Mancinelli and Ozkan, 2006; Omran and Pointon, 2004; Ooi, 2001) or total sales (Barclay et al., 1995; Dickens et al., 2003; Holder et al., 1998; Zeng, 2003). A positive effect of size on dividend policy has been proposed. According to Holder et al. (1998), larger firms are more mature and thus have easier access to capital markets, which reduces their dependence on internally generated earnings for new financing and allows for dividend payout. Dickens et al. (2003) suggested a positive effect of firm size on dividend policy from the sales perspective. They argued that the firms with greater sales revenue should have lower bankruptcy probability and hence are more likely to pay higher dividends. Empirical findings are unanimous on the positive relationship between firm size and amounts of dividends (Alli et al., 1993; Dickens et al., 2003; Holder et al., 1998; Omran and Pointon, 2004; Ooi, 2001; Zeng, 2003). In particular, the logistic regression models developed by Fama and French (2001) and Mancinelli and Ozkan (2006) both found firm size to be a significant variable positively associated with dividend payout decisions.

Firm liquidity is another factor that has been hypothesized to positively impact dividend payouts. According to Amidu and Abor (2006), poor liquidity means a cash shortage and thus fewer or no dividends, whereas good liquidity implies sufficient cash for large

dividends. Since dividends are paid in cash, the firm's liquidity position should have a direct bearing on its ability to pay dividends. Empirical results on the relationship between liquidity and levels of dividends are mixed. Amidu and Abor (2006) and Holder et al. (1998) found liquidity to be positively correlated with dividends. On the other hand, Omran and Pointon (2004) failed to find a significant relationship between the two.

In previous studies, investment opportunities have been hypothesized to be one factor deterring dividend payout. Researchers (Agrawal and Jayaraman, 1994; Dickens et al., 2003; Ghosh and Sirmans, 2006; Mancinelli and Ozkan, 2006; Ooi, 2001; Rozeff, 1982) have argued that a firm with greater investment opportunities often limits dividends in order to conserve cash for those investments. Similarly, the pecking order theory (Myers and Majluf, 1984) suggests that firms whose high proportion of market value is accounted for by investment opportunities should retain more earnings in order to minimize the need to raise costly new external equity. Empirical studies (Amidu and Abor, 2006; Barclay et al., 1995; Dickens et al., 2003; Mancinelli and Ozkan, 2006; Ooi, 2001; Wang et al., 1993) have found a negative association between investment opportunities, measured by market-to-book value ratio, and dividends paid. Fama and French (2001) found that firms that had never paid dividends had the best investment opportunities.

A positive relationship between profitability and dividend payouts has been proposed. Myers and Majluf (1984) suggested that higher profitability can result in higher dividends because greater profitability implies a greater availability of internal funds for dividend distributions. Dickens et al. (2003) asserted that higher profitability helps firms to stabilize operating cash flows and lowers the probability of business failure, and thus allowing them to pay out dividends. Empirical results on the relationship between the two are mixed. While Amidu and Abor (2006), Jensen et al. (1992), Pruitt and Gitman (1991), and Wang et al. (1993) found high profitability to be associated with high dividends, Ooi (2001) and Chen and Steiner (1999) failed to find a significant association between profitability and dividends.

Mancinelli and Ozkan (2006) hypothesized that debt leverage exerts a negative influence on dividend payout. Heavily leveraged firms are expected to commit themselves to no or lower dividend payouts because their cost of external financing and default risk are likely to be higher. They may choose to accumulate a greater amount of cash balances by paying no or low dividends to avoid cash deficits and reduce default probability. Previous research used a variety of ratios to measure debt leverage, yet the most commonly used ones are debt ratio and long-term debt to total assets ratio. While a majority of empirical studies (Bradley et al., 1998; Chen and Steiner, 1999; Jensen et al., 1992; Mancinelli and Ozkan, 2006; Ooi, 2001) found a negative relationship between debt leverage and dividends, Ghosh and Sirmans (2006) and Wang et al. (1993) reported a positive association between the two.

A negative relationship between growth and dividend payout has been suggested in previous studies. Amidu and Abor (2006) proposed a negative impact of growth on dividend payout. They suggested that growing firms are expected to need more funds to finance their growth and thus will refrain from paying dividends. Similarly, Rozeff (1982) and Holder et al. (1998) suggested that firms that are experiencing high growth are more likely to pay no or lower dividends to reduce the need for costly external financing. Many previous empirical studies (Alli et al., 1993; Amidu and Abor, 2006; Chen and Steiner, 1999; Holder et al., 1998; Ooi, 2001) showed growth to be negatively associated with dividend payout. However, Wang et al. (1993) and Omran and Pointon (2004) failed to find a significant negative relationship between the two.

Earnings variability has been hypothesized to have a negative impact on dividend payout because firms tend to avoid the commitment to higher dividends when uncertainty about earnings is high (Jensen et al., 1992). Amidu and Abor (2006) suggested that a firm with stable earnings is more likely to pay a higher percentage of its earnings as dividends than a firm with fluctuating earnings because the former is able to predict future earnings. Empirical studies have commonly used the standard deviation of net income or operating income to measure earnings variability when examining its impact on dividend policy. The findings are unanimous in reporting a negative relationship between earnings variability and dividends paid (Amidu and Abor, 2006; Dickens et al., 2003; Jensen et al., 1992; Pruitt and Gitman, 1991).

In summary, studies on corporate dividend payout determinants generally suggest that firm size, liquidity, and profitability have a positive impact on dividend payout, whereas investment opportunities, debt leverage, growth, and earnings variability may negatively affect dividend payout. Empirical results have unanimously confirmed the positive impact of firm size and the negative impact of investment opportunities and earnings variability on dividend payout. Empirical findings on the impacts of liquidity, profitability, debt leverage and growth on dividend payout have been inconclusive.

3. Data and methodology

The study sample consisted of hospitality firms traded in U.S. capital markets in 2005, the most recent year for which financial information was available from the COMPUSTAT database. The single-year data were used to control for the macro impacts of economic or market cycle, if any, on hospitality firms' dividend decisions. The sample was determined based on the availability of financial data from the COMPUSTAT database. After removal of firms with incomplete financial data, a sample of 69 publicly traded hospitality firms was created. Among the 69 firms, 25 firms were drawn from the restaurant industry, and the other 44 firms were hotel firms which include both regular hotels (14 firms) and casino hotels (30 firms).

The focus of this study was to investigate the financial features that distinguish dividend-paying hospitality firms from their non-dividend-paying counterparts, thus identifying factors that affect hospitality firms' dividend payout decisions. Based on the information provided by the COMPUSTAT database, the hospitality firms that paid regular dividends in 2005 on a quarterly or semi-annual basis were classified into the dividend-paying group (or Group 1), while firms that paid no regular dividends in 2005 were classified into the non-dividend-paying group (or Group 2). Among the 69 hospitality firms in the sample, 28 firms were classified into the dividend-paying group (or Group 1) and the other 41 firms belonged to the non-dividend-paying group (or Group 2).

Like the studies by Fama and French (2001) and Mancinelli and Ozkan (2006) on factors affecting dividend payout decisions, our study employed logistic regression analysis, also called the logit model, to identify the factors influencing the dividend payout decisions among the hospitality firms. Logistic regression analysis is a form of regression that is used when the dependent variable is dichotomous (SPSS, 2006). Taking its cue from previous studies reviewed earlier, our research selected firm size, liquidity, investment opportunities, profitability, debt leverage, growth, and earnings variability as the potential variables that might affect the dividend payout decisions among hospitality firms.

For firm size, as in previous studies (Alli et al., 1993; Fama and French, 2001; Mancinelli and Ozkan, 2006; Omran and Pointon, 2004; Ooi, 2001), this study used total assets in natural logarithm. The logarithm was taken to reduce the significant assets variance across firms. To measure liquidity, this study employed current ratio as in Omran and Pointon's (2004) study. Current ratio (CR) is the ratio of a firm's current assets to current liabilities. It indicates a

firm's ability to pay off short-term liabilities. Many studies (Amidu and Abor, 2006; Barclay et al., 1995; Dickens et al., 2003; Mancinelli and Ozkan, 2006; Ooi, 2001; Wang et al., 1993) used the market-to-book value ratio (MTBVR) as an indicator of investment opportunities when examining their impact on dividend policy. The same ratio was utilized in our study to measure hospitality investment opportunities. It was a ratio of market value per share to book value per share at the end of 2005, measuring how the market valued the firm's investment opportunities.

Return on assets (ROA) was used to represent profitability in this study. Amidu and Abor (2006), Chen and Steiner (1999), Ooi (2001) and Wang et al. (1993) used the ratio as a profitability measure in their studies of dividend payouts. The ratio was derived by dividing net income by total assets and indicates a firm's profitability relevant to total investment. Like the studies by Mancinelli and Ozkan (2006), Ooi (2001), and Wang et al. (1993), this study used the debt ratio (DR), which is total liabilities divided by total assets, to measure the debt leverage, or a hospitality firm's degree of indebtedness. For the growth, annual percentage changes in total sales (APCSALES) over the 2004–2005 period was used in this study. Sales growth was commonly used in previous studies (Amidu and Abor, 2006; Agrawal and Jayaraman, 1994; Chen and Steiner, 1999; Holder et al., 1998; Jensen et al., 1992) when examining the impact of growth on dividend payout.

Previous studies (Amidu and Abor, 2006; Omran and Pointon, 2004) used standard deviations of net income to measure earnings variability. Considering that our sample encompassed two hospitality sectors with large size variance, this study employed coefficient of variation of quarterly net income (CVQNI), which is a ratio of the standard deviation of quarterly net income to the mean of quarterly net income of a firm. In our opinion, a relative measure of net income variability, such as CVQNI, can reflect earnings variability across firms with widely different sizes in a fairer way. Sample firms' financial data for 2005 in the COMPUSTAT database were used to derive the values of the independent variables, except for sales growth percentage and coefficient of variation. Quarterly net incomes from 2001 to 2005 from the same database were used to derive CVQNI for each company in the sample.

Besides the previously mentioned seven potential variables identified in previous studies as having impacts on dividend payout decisions, the sector dummy variable (SDV) was added to control for possible sector effect on dividend payout decisions among hospitality firms. The sample of this study covers 25 firms from the restaurant sector and 44 firms from the hotel sector. Even though both belong to the hospitality industry, their market dynamics and business risks may be quite different. Thus, a dummy variable was added to control for possible sector effect, with restaurant firms assigned the value of 1 and hotel firms assigned the value of 0 for the sector variable.

Table 1 provides descriptive statistics for the non-dummy independent variables. The mean of TA of sample firms is $1,985.93 million with a standard deviation of $3,902.10 million indicating wide size variance across firms and the necessity of taking the natural logarithm. CR has a mean of 1.342, suggesting that an average hospitality firm's current assets were 1.342 times greater than its current liabilities. MTBVR for an average hospitality firm is 2.325, implying that the market was valuing the hospitality firm at a premium over the acquisition value of its assets (Eakins, 2002). The average ROA, at 0.053, indicates a net income of 5.3 cents for every dollar invested in total assets. DR has a mean value of 0.633, indicating that hospitality firms on average relied more on debt rather than on equity for financing. APCSALES from 2004 to 2005 has a mean of 19.20%, indicating a decent growth over the 2004–2005 period. Finally, the earnings variability measured by CVQNI has a mean value of −1.472, indicating that many firms had negative quarterly net incomes during the 2001–2005 period.

Table 1
Descriptive statistics of non-dummy independent variables.

Variable	*N*	Mean	STD	Maximum	Minimum
TA ($, in millions)	69	1,985.903	3,902.100	20,699.420	0.860
CR	69	1.342	1.092	5.401	0.134
MTBVR	69	2.325	1.489	8.412	−1.628
ROA	69	0.053	0.276	1.875	−0.929
DR	69	0.633	0.282	1.483	0.207
APCSALES	69	0.192	0.659	4.966	−0.994
CVNI	69	−1.472	6.788	3.817	−48.703

Note: TA, total assets; CR, current ratio; MTBVR, market-to-book value ratio; ROA, return on assets; DR, debt ratio; APCSALES, annual percentage changes in total sales; CVNI, coefficient of variation of quarterly net income.

4. Comparison of two groups' variables

Prior to estimating the logistic regression model that can identify the factors distinguishing dividend-paying firms from non-dividend-paying firms, a comparison of the non-dummy independent variables for the two groups was made for an initial examination. Their mean values and independent sample *T*-test statistics and related *P*-values are presented in Table 2. As shown in the table, at the 0.05 significance level, the two groups differ in three variables—TA, MTBVR, and ROA. The mean values of the three variables show that dividend-paying firms had more TA, lower MTBVR, and a higher ROA. It is interesting to note that CVQNI for Group 1 is small and positive, while that for Group 2 is negative and large, implying that non-dividend-paying firms mostly had negative and more volatile net income. However, the *P*-value of the *T*-test suggests that the difference in the coefficients of CVQNI between the two groups is not significant at the 0.05 level. For the rest of three variables, namely CA, DR, and APCSALES, the *P*-values also showed no significant cross-group differences at the 0.05 level. While TA, MTBVR, and ROA are shown to differ significantly across the two groups, whether or not they can distinguish dividend-paying firms from non-dividend-paying firms needs to be further investigated in the logistic regression analysis.

5. Estimated logistic regression model

The logistic regression model is a statistical model to distinguish two groups based on some distinguishing variables and has been used in hospitality studies (Kim and Gu, 2006a,b) and non-hospitality studies (Fama and French, 2001; Mancinelli and Ozkan, 2006). In our study, when estimating the logistic regression model to identify factors that distinguish the two groups, the dependent value is a dummy, with 0 representing dividend-paying firms and 1 representing non-dividend-paying firms. According to

Table 2
Comparison of non-dummy independent variables of the two groups using independent *T*-test.

Variable	Mean (Group 1)	Mean (Group 2)	*T*-value	*P*-value
TA ($, in millions)	3,156.870	1,205.300	1.967	0.039
CR	1.432	1.283	0.543	0.589
MTBVR	1.838	3.056	−3.427	0.001
ROA	0.094	−0.018	2.923	0.005
DR	0.658	0.616	0.614	0.542
APCSALES	0.170	0.207	−0.361	0.795
CVQNI	0.094	−2.517	1.913	0.062

Note: Group 1, dividend-paying firms; Group 2, non-dividend-paying firms; TA, total assets; CR, current ratio; MTBVR, market-to-book value ratio; ROA, return on assets; DR, debt ratio; APCSALES, annual percentage changes in total sales; CVQNI, coefficient of variation of quarterly net income.

Liao (1994), the logistic regression with a dichotomous dependent variable can be expressed in terms of logit or probability form. From the logistic regression model, the estimated value of the dependent variable can be interpreted as the predicted probability of an event occurring, which lies between 0 and 1 (Liao, 1994). In this study, the estimated value of the dichotomous dependent variable was defined as the predicted probability of being a dividend-paying firm or $P(D)$. When expressed in logit form, the "odds" are defined as the ratio of the probability of paying dividends to not paying dividends or $P(D)/(1-P(D))$. When expressed in logit form, the model is specified as a linear function of the firm's independent variables.

$$\mathrm{Log}\left[\frac{P(D)}{(1-P(D))}\right] = \beta_0 + \beta_1 X_{i1} + \cdots + \beta_n X_{in} \quad (1)$$

where $P(D)$ is the probability of paying dividends for the ith hospitality firm; β_0 is an intercept; X_1–X_n are the potential variables; β_1–β_n are the coefficients of the nth potential variables.

As it is suggested by Liao (1994), Eq. (1) can be transformed into a specification of the logistic regression model of event probability. By solving $P(D)$ through the Eq. (1), the predicted probability of paying dividends is described as:

$$P(D) = \frac{1}{[1+e^{-y}]} \quad (2)$$

where e is the base of the natural logarithm; $y = \beta_0 + \beta_1 X_{i1} + \ldots + \beta_n X_{in}$.

Table 3 demonstrates the logistic regression model with all eight independent variables. As shown in the table, TA is the dominant factor that affects dividend payout decisions as indicated by its highest statistical significance level at 0.008. The positive sign of TA suggests that large hospitality firms are more likely to pay out dividends. The next dominant variable in the model is MTBVR as shown by its statistical significance level at 0.012. The negative sign of MTBVR conforms that the hospitality firms with greater investment opportunities are less likely to pay out dividends. The third and last significant variable in the model is ROA as indicated by its statistical significance level at 0.031. On the other hand, the coefficients of the other five variables – CA, DR, APCSALES, CVQNI, and SDV – are not significant at the 0.05 level in the model, indicating that they should not be regarded as factors that influence dividend payout decisions.

To arrive at a refined model that includes only significant variables to identify the factors that affect hospitality firms' dividend payout decisions, forward stepwise selection procedure was used, with the cutoff statistical significance selected at the 0.05 level. Forward stepwise selection procedure is useful when the researcher attempts to consider a relationship between large numbers of independent variables for inclusion in the function (Hair et al., 1998). In this procedure, the significance of the score statistics and the probability of a likelihood-ratio statistic based on the maximum partial likelihood estimates are used to determine which variables to enter or drop from the model (SPSS, 2006).

Table 4 presents the refined model. Only three variables – TA, MTBVR, and ROA – entered the model through forward stepwise regression procedure. With the cutoff significance level set at 0.05, the other five variables, including the dummy for sector, were excluded from the model. Two tests were performed to evaluate the overall goodness-of-fit for the refined model. As shown in Table 4, the Hosmer and Lemeshow Test's Chi-square (χ^2) value of 6.718, which is not significant at the 0.05 level, indicates that the model fits the data well because there is no significant discrepancy between the observed and predicted classification. The significance level (0.000) associated with the Chi-square value for the model (25.122) is less than 0.01, indicating that the overall fitness of the model is significant. The statistics of the two goodness-of-fit tests demonstrate that the three-variable logistic regression model could identify dividend-paying firms from their non-dividend-paying peers in a statistically significant manner.

The Wald statistic is commonly used to test the significance of the individual coefficient for each independent variable in a logistic regression model (Hair et al., 1998). It is the ratio of the unstandardized logit coefficient to its standard error. Table 4 shows that TA, MTBVR, and ROA were statistically significant at least at the 0.05 level. The coefficients of TA and ROA are positive, suggesting that firm size and profitability exert a positive impact on hospitality firms' dividend payout decisions. The negative coefficient of MTBVR in the model shows investment opportunities' negative influence on dividend payout decisions. The estimated logistic regression model suggests that large hospitality firms with greater profitability but fewer investment opportunities are more likely to pay out dividends to stockholders. Based on the forward stepwise regression results, the estimated logistic regression model for predicting dividend paying can be written

Table 3
Logistic regression models with all potential variables.

Variable	*B*	SE	Wald statistic	Significance
TA	0.569	0.214	7.084	0.008
CR	−0.405	0.344	1.381	0.240
MTBVR	−0.796	0.318	6.280	0.012
ROA	6.828	3.173	4.632	0.031
DR	−0.648	1.284	0.254	0.614
APCSALES	1.489	1.031	2.084	0.149
CVQNI	−0.179	0.140	1.628	0.202
SDV	−0.837	0.871	0.925	0.366
Constant	7.179	2.262	10.071	0.002
−2 Log likelihood	61.900			
Cox and Snell R^2	0.370			
Nagelkerke R^2	0.500			

	χ^2	df	Significance
Hosmer and Lemeshow Goodness-of-Fit Test	8.737	8	0.365

Omnibus test of model coefficients	χ^2	df	Significance
Step	32.322	8	0.000
Block	32.322	8	0.000
Model	32.322	8	0.000

Note: TA, total assets (in natural logarithm); CR, current ratio; MTBVR, market-to-book value ratio; ROA, return on assets; DR, debt ratio; APCSALES, annual percentage changes in total sales; CVQNI, coefficient of variation of quarterly net income; SD, sector dummy variable.

Table 4
Forward-selection logistic regression model.

Variable	*B*	SE	Wald statistic	Significance
TA	0.464	0.186	6.199	0.013
MTBVR	−0.725	0.270	7.239	0.007
ROA	2.720	1.252	4.717	0.030
Constant	5.240	1.393	14.166	0.000
−2 Log likelihood	39.101			
Cox and Snell R^2	0.449			
Nagelkerke R^2	0.547			

	χ^2	df	Significance
Hosmer and Lemeshow Goodness-of-Fit Test	6.718	8	0.567

Omnibus test of model coefficients	χ^2	df	Significance
Step	3.586	1	0.049
Block	25.122	3	0.000
Model	25.122	3	0.000

Note: TA, total assets (in natural logarithm); MTBVR, market-to-book value ratio; ROA, return on assets.

in terms of the logit (y) as follows:

$$\text{Logit}(y) = 5.240 + 0.464X_1 - 0.725X_2 + 2.720X_3 \quad (3)$$

where X_1 = total assets (in natural logarithm); X_2 = market-to-book value ratio; X_3 = return on assets.

6. Prediction results

The logit (y) value for each sample firm was calculated based on Eq. (3) and then applied to the probability function, $P(D) = 1/[1 + e^{-y}]$, to obtain the predicted probability of paying out dividends. The estimated probability of paying dividends, or $P(D)$, was compared with the cutoff probability of 0.5 to determine the firms' status. Firms with $P(D)$ values above 0.5 were classified into the dividend-paying group (Group 1) and the firms with $P(D)$ values below 0.5 were classified into the non-dividend-paying group (Group 2). The classification accuracy of the model was measured by comparing the actual status with the predicted status.

Table 5 is a summary of the in-sample classification results. The table shows that among the 28 dividend-paying firms, 20 were correctly predicted and 8 were misclassified. Among the 41 non-dividend-paying firms, 36 were correctly predicted and 5 were misclassified. Taken together, our logistic regression model was able to correctly classify the in-sample companies into dividend-paying and non-dividend-paying groups with a 81.16% accuracy rate. This accuracy rate is similar to the in-sample classification accuracy rates of the five logistic regression models developed by Mancinelli and Ozkan (2006) for non-hospitality industries, with those rates ranging from 78.42% to 80.58%.

To test the predictive power of the estimated logistic regression model, this study further tested the prediction accuracy of the model using the out-of-sample. The overall economic environment in the U.S. in 2006 was quite similar to that of 2005. According to the U.S. Bureau of Economic Analysis (2008), the average of seasonally adjusted annual real GDP growth rate in 2006 was 2.45%, very close to the GDP growth rate in 2005 at 2.67%. As the market condition in 2006 was similar to that of 2005, 48 hospitality firms with available 2006 data were used as out-of-sample observations to test the predicative accuracy of the refined model estimated from the 2005 observations or the in-sample firm observations. In terms of dividend payout status, the 48 firms in 2006 were not all the same as those of 2005 used for model estimation. As the 2006 firms' data were not used for model estimation, applying them to the model to predict dividend-paying status and comparing the results with actual status would indicate the predictive power of the estimated model.

The probabilities of paying dividends, $P(D)$, of the 48 firms were computed based on Eq. (3) and compared to the cutoff probability of 0.5 to predict their dividend-paying status. Table 6 is a summary of the out-of-sample prediction results. The table shows that among 19 firms that actually paid out regular dividends in 2006, 15 were correctly predicted and 4 were misclassified. Among the 29 firms that did not pay out dividends in 2006, 23 were correctly identified and 6 were misclassified. Taken together, the classification results imply a prediction accuracy rate of 79.17% for the out-of-sample hospitality firms.

Table 5
Classification summary matrix for in-sample firms.

Actual group	Number of observations	Predicted group	
		Group 1	Group 2
Group 1	28	20	8
Group 2	41	5	36
Overall percentage of observations classified correctly: 81.16% = [(20 + 36)/69]			

Note: Group 1, dividend-paying firms; Group 2, non-dividend-paying firms.

Table 6
Classification summary matrix for out-of-sample firms.

Actual group	Number of observations	Predicted group	
		Group 1	Group 2
Group 1	19	15	4
Group 2	29	6	23
Overall percentage of observations classified correctly: 79.17% = [(15 + 23)/48]			

Note: Group 1, dividend-paying firms; Group 2, non-dividend-paying firms.

7. Discussion

Three variables – TA, MTBVR, and ROA – were retained in the logistic regression model using the forward stepwise selection procedure, implying that the three variables together can best distinguish dividend-paying hospitality firms from their non-dividend-paying peers. The exclusion of SDV from the model indicates that there was no significant cross-sector difference between restaurant firms and hotel firms regarding dividend payout decisions.

Our results showed that the dividend payout decision of hospitality firms is significantly influenced by firm size. The positive sign of TA in our logistic regression model suggests that a large hospitality firm tends to have a larger logit (y) value and thus a higher probability of paying dividends. The finding supports the argument by Holder et al. (1998) that it is easier and cheaper for large firms to raise external funds, making them less dependent on internal funds and able to pay dividends to shareholders. On the other hand, Omran and Pointon (2004) asserted that smaller firms have greater need to retain earnings for growth. It is possible that due to their growth necessity, small hospitality firms refrain from paying dividends because they need to keep the earnings for internal financing.

In our study, MTBVR is an indicator of the firm's investment opportunities. The negative coefficient of MTBVR in the model shows that a larger MTBVR will lead to a smaller logit (y) and a lower probability of paying dividends, suggesting that hospitality firms with greater investment opportunities are less likely to pay out dividends. This finding supports Myers and Majluf (1984)'s pecking order theory that firms with a high proportion of their market value accounted for by investment opportunities should retain more earnings in order to reduce reliance on costly external equity capital. Hospitality firms are fixed assets-intensive and investment opportunities would require large amounts of new capital. Retained earnings are associated with the lowest cost of capital in the pecking order of financing and are thus the first choice for funding new investments (Myers and Majluf, 1984). Hospitality firms with more investment opportunities need to retain earnings for those investments and are likely to avoid paying out dividends.

The significant and positive coefficient of ROA in the estimated logistic regression model suggests that higher ROA will lead to a larger logit (y) and a high probability of paying dividends. The positive relationship between ROA and dividend-paying probability found in this study lends support to Myers and Majluf (1984)'s proposition that profitable firms are more likely to pay dividends because more internal funds are available. The finding is also consistent with the assertion by Dickens et al. (2003) that higher profitability helps firms to stabilize operating cash flows and lowers the probability of business failure, thus allowing them to pay dividends.

To our surprise, the earnings variability measured by CVQNI was not included as a distinguishing variable in the logistic regression model. Previous studies are unanimous in reporting a negative relationship between earnings variability and dividends paid (Amidu and Abor, 2006; Dickens et al., 2003; Jensen et al., 1992; Pruitt and Gitman, 1991). The variable's non-inclusion in the model indicates that the dividend payout decision in the hospitality industry is less sensitive to cross-firm variation in earnings stability. This may be due to less variation in earnings stability across firms in the hospitality industry as compared with other industries. As the *T*-test shows (Table 2), no significant difference was found in earnings variability between the dividend-paying and non-dividend-paying hospitality firms. The insignificant cross-industry variation in earnings volatility led to different results in this study than in previous studies for other industries.

8. Conclusions and suggestions for future studies

This study attempted to identify the financial features that distinguish dividend-paying firms from non-dividend-paying companies in the hospitality industry. It examined eight variables – firm size, liquidity, investment opportunities, profitability, debt leverage, growth, earnings variability, and sector dummy – to determine if they play a significant role in hospitality firms' dividend payout decisions. A logistic regression model was estimated and three variables – TA, MTBVR, and ROA – were identified as significant financial features that can differentiate dividend-paying from non-dividend-paying firms in the hospitality industry. The estimated logistic regression model showed that large and profitable firms with fewer investment opportunities are more likely to pay out dividends. Small and less profitable firms with more investment opportunities are less likely to distribute dividends.

Our findings could help explain why some hospitality firms pay dividends while other firms distribute no dividends. Large hospitality firms may have reached a mature stage with few new investment opportunities. Therefore, when they are profitable, they tend to distribute the profits, at least partially, as dividends. On the other hand, small hospitality firms are likely in their early growth stage with many new investment opportunities. They need to keep profits, if any, within the firms as retained earnings for new investments and hence they are less likely to pay out dividends. Especially, the investment opportunities may well explain why most of casino hotels in our sample did not pay out dividends. In our sample, while 41% of the sample firms had dividend payouts, only 13% of casino hotels paid out dividends. Over the past decade (1996–2007), U.S. casino hotels have grown significantly with an average annual revenue growth rate of 12.50% (Upneja et al., 2000; Price Waterhouse Cooppers, 2007). According to a report published by American Gaming Association (2008), U.S. casino industry is offering positive investment opportunities for investors because compliance with regulations and taxation makes the industry's business dealings completely transparent. Also, the many U.S. casino hotels are growing by pursuing investment opportunities in emerging foreign markets such as Macau and Singapore. The good investment opportunities of U.S. casino hotels make them less likely to distribute dividends in the future.

With regard to the importance of investment opportunities in dividend payout decisions, our findings may also provide some clue to why hospitality firms are more likely to distribute dividends as compared to companies in the U.S. in general. The market-to-book value ratios of the U.S. restaurant and hotel industries, an indicator of investment opportunities, are 2.30 and 1.84 at present compared with 4.86 of the overall market represented by S&P 500 (Reuters, 2008). Hospitality firms are more likely to payout dividends probably due to their relatively fewer investment opportunities as compared with U.S. firms in general. Of course, a thorough ratios' comparison between the hospitality industry and non-hospitality industries is needed before final conclusions can be drawn on the issue and this could be the task for a follow-up research study.

Size, investment opportunities, and profitability are significant factors affecting dividend payout decisions in the hospitality industry. As revealed in this study, their impacts on the dividend payout decisions are consistent with findings for other industries in earlier studies. Unlike in other industries, earnings variability is not a significant financial feature differentiating dividend-paying and non-dividend-paying firms in the hospitality industry. Investors and portfolio managers looking for hospitality firms with good dividend-paying potentials need to pay more attention to other financial features, such as size, investment opportunities, and profitability of hospitality firms to identify targets.

Large hospitality firms are inclined to pay out dividends because they have easier and more cost-effective access to the capital market than do small firms, thus reducing their dependence on internal financing (Holder et al., 1998). Their lower reliance on internal financing should motivate them to pay out dividends. In contrast, small hospitality firms' less favorable access to the capital market makes internal financing more important, thus deterring them from dividend distributions.

Hospitality firms with greater investment opportunities tend not to pay dividends because they need to conserve cash to fund opportunities. To ensure a firm's ability to finance investment opportunities, retaining earnings as internal equity is preferable to raising funds externally due to the expensive flotation costs associated with raising external funds (Holder et al., 1998) and the costs associated with information asymmetry when raising new equity in the capital market (Myers and Majluf, 1984).

Finally, profitable hospitality firms have a higher probability of paying out dividends because greater earnings are available for shareholders (Myers and Majluf, 1984). Also, firms with good earnings can generate large cash flows from operations and therefore may intend to pay out dividends (Dickens et al., 2003). Profitable hospitality firms are likely to have more operation-generated cash flows to back up dividend payouts. In the event of few investment opportunities, the likelihood of paying out dividends increases.

A limitation of this study is its use of cross-sectional only one year of data to examine the factors that may affect dividend payout decisions while using single-year data can help controlling economic or market cycle effects, if any, on dividend payout decisions, it limits the number of observations for the sample. Use of a cross-time sample, called panel data, could significantly increase samples size, thus making the findings more reflective of the reality of dividend payout decisions in the hospitality industry in the long run. Future research may consider using several years of data to enlarge the sample size. In the meantime, new variables will need to be created to control for the impact of economic or market cycle on dividend payouts. With a cross-time sample that contains more observations, classification accuracy and the predictive power of the logistic regression model may improve further.

Train (2003) documents that the standard logistic regression model, which was employed by this study, has the following three limitations: (1) it cannot represent random taste variation; (2) it exhibits restrictive substitution patterns due to the independence from irrelevant alternatives (IIA) property; (3) it cannot be used with panel data when unobserved factors are correlated over time. While this study uses observations in one year rather than panel data and thus can avoid the problem of overtime correlation of unobserved factors, it may still be subject to first two limitations as presented by Train (2003). Therefore, future studies may use more

flexible discrete choice models such as the probit regression and mixed logistic regression, which are free from the three limitations of the standard logistic regression, when further examining the factors affecting hospitality firms' dividend payout decisions, especially if panel data is to be used.

This study examined only the factors affecting hospitality firms' decisions to pay or not to pay dividends. To gain a more thorough understanding of hospitality firms' dividend policy, it is necessary to identify not only the financial characteristics of dividend-paying firms, but also those factors affecting the amounts of dividends paid out. Therefore, future studies should investigate the factors that influence levels of dividends, thereby helping to establish a more comprehensive understanding of hospitality firm dividend policy.

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