

2004

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Recommended Citation

Ryu, Kisang and Jang, Shawn (2004) "Performance Measurement Through Cash Flow Ratios and Traditional Ratios: A Comparison of Commercial and Casino Hotel Companies," *Journal of Hospitality Financial Management*: Vol. 12 : Iss. 1 , Article 3.
Available at: <https://scholarworks.umass.edu/jhfm/vol12/iss1/3>

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PERFORMANCE MEASUREMENT THROUGH CASH FLOW RATIOS AND TRADITIONAL RATIOS: A COMPARISON OF COMMERCIAL AND CASINO HOTEL COMPANIES

Kisang Ryu

and

Shawn Jang

ABSTRACT

This study examines the performance of commercial hotel and casino hotel companies by employing both cash flow ratios and traditional financial ratios over the past five years. Using the financial database from the Hotel and Motel section of the Mergent Online with SIC 7011, independent sample t-tests were used for the analysis. The performance of the commercial hotel and casino hotel companies was measured using liquidity, solvency, and operational efficiency indicators. Results show that traditional ratios generated different results from cash flow ratios in liquidity. Casino hotel companies were found to have significantly higher liquidity ratios than commercial hotel companies, indicating a possibility that the difference may be caused by the type of hotel.

Introduction

An important development in accounting for the hospitality industry was made as early as 1926, with the publication of uniform systems of accounting for key sectors of the industry, such as hotels, restaurants, and clubs in the United States (Harris & Brown, 1998). More recently, the US Financial Accounting Standards Board (FASB) announced in November, 1987, that all annual financial statements should include the statement of cash flows (SCF) as one of its components in addition to the traditional income statement and balance sheet (DeFranco & Schmidgall, 1998; Geller, Ilevto, & Schmidgall, 1990; Giacomino & Mielke, 1993; Harris & Brown, 1998). Since then, the SCF and the topic of cash flow have received attention in the hospitality industry not only due to the importance of cash in the operations, but also due to the cash flow crunch experienced by the industry in the past years because of overbuilding, recession, and the September 11th terrorist attacks (DeFranco & Schmidgall, 1998).

Information for financial ratios has traditionally been obtained from income statements and balance sheets. In recent years, however, ratios from the SCF have also gained attention from academicians and industry practitioners (DeFranco & Schmidgall, 1998; Schmidgall, Geller, & Ilevto, 1993), since cash flow ratios provide supplementary information in understanding the "real" operational status of a business.

Previous studies have provided substantial evidence supporting the application and usefulness of cash flow approaches in financial ratio analysis (DeFranco & Schmidgall, 1998; Mills & Yamamura, 1998; Zeller & Stanko, 1994). Despite the fact that the SCF is becoming increasingly important, limited efforts have been made to investigate financial

performance using the SCF in the hospitality industry. Thus, this study was aimed at filling the research niche by providing performance measurement of hotel companies by cash-basis accounting as well as traditional accrual-basis accounting. The objective of this study was to examine and compare the financial performance of commercial and casino hotel companies, using cash flow ratios as well as traditional financial ratios from income statements and balance sheets. The outcome of this study will provide a general picture of cash flow ratios and traditional ratios including liquidity, solvency, and operations. The results of this study will also be helpful to the hospitality industry in understanding the differences in business performance between commercial and casino hotel companies.

Literature Review

In almost every business, large or small, cash is not only an essential element for a successful business, but also a continued crucial requirement for business survival (DeFranco & Schmidgall, 1998). Previous studies have discussed cash flow as being crucial for many businesses in a variety of industries (Beck, 1994; Bohannon & Edwards, 1993; Casey & Bartczak, 1985; DeFranco & Schmidgall, 1998; Epstein & Pava, 1994; Mills & Yamamura, 1998; Schmidgall, Geller, & Ilvento, 1993; Sylvestre & Urbancic, 1994). Beck (1994) expressed cash as "king" and noted that cash reflects the difference between successful operations and closure.

Cash Flow Ratios

Financial ratio analysis has been extensively employed to assess the financial performance of operations for a long time by investors, creditors, and managers. It permits them to obtain more valuable information from financial statements than they can receive simply from reviewing the absolute numbers reported in the documents (Andrew & Schmidgall, 1993). Originally developed as short-term credit analysis techniques, financial ratios can be traced as far back as the late nineteenth century. Since then, analysts have developed many financial ratios that practitioners and academicians use widely (Giacomino & Mielke, 1993).

According to Mills and Yamamura (1998), a business's true economic health can no longer be fully measured with an accrual basis accounting system alone. For years, lenders, rating agencies, and Wall Street analysts have been using cash flow ratios in evaluating risks associated with their investments. Previous research has claimed that the SCF has provided creditors, investors, and managers with even more useful information for analyzing the financial structure of an operation when compared to traditional income statement and balance sheet (DeFranco & Schmidgall, 1998; McGowne, 1989; Mills & Yamamura, 1998; Zeller & Stanko, 1994). For instance, a study done by Mills and Yamamura (1998) showed empirical evidence that the operating cash flow ratio signaled a unique aspect of a retail firm's activity. Traditional ratio analysis often fails to reveal the severe liquidity problems that result in a bankruptcy filing (Zeller & Stanko, 1994). In addition, shareholders have become more aware of the value in financial reports, and they also believe that the SCF is increasingly important these days (Epstein & Pava, 1994).

Performance Assessment

Both traditional ratios and cash flow ratios are discussed in this section. However, since this study attempts to stress the importance of the SCF, cash flow ratios are explained in more detail by adding how cash flow ratios overcome the weaknesses of traditional ratios.

Liquidity. When it comes to liquidity analysis, cash flow information is more reliable than balance sheet or income statement information. Balance sheet data are static due to the measurement of only a single point in time while the income statement contains many arbitrary non-cash allocations (e.g., depreciation and amortization). In contrast, the cash flow statement records the changes in the other statements and nets out the bookkeeping artifice, focusing on what shareholders really care about: cash available for operations and investments (Coltman & Jagels, 2001; Mills & Yamamura, 1998).

The current and quick ratios are calculated at a particular point in time. If the financial statement accounts are unusually large or small on that date, those ratios may not reflect a normal situation. Cash flows from operations to current liabilities, an SCF-based ratio, overcomes this deficiency, because it requires the comparison of a cash-flow value from a period of time to the average of current liabilities (Mills & Yamamura, 1998; Schmidgall, Geller, & Ilvento, 1993). This ratio measures a company's ability to generate resources to meet current liabilities. The higher the ratio is, the greater the firm's liquidity (Coltman & Jagels, 2001).

As a rule of thumb, current assets should exceed current liabilities on a ratio of two to one, which implies \$2.00 of current assets is available for each \$1.00 of current liabilities (Jagels & Coltman, 2004). However, this general rule does not apply to the lodging industry, since the largest inventories held by hotels are food and beverage services. These current inventories account for a small portion of current assets. Therefore, hotels can operate with a current ratio of 1.5 or less (Jagels & Coltman, 2004).

Solvency. Solvency ratios are used to evaluate a company's ability to pay its bills in the long run. Lenders, investors, and credit-rating agencies are very concerned about a company's ability to meet its operational commitments. Cash flow ratios are useful to measure a company's strength on an ongoing basis (Mills & Yamamura, 1998).

One of the most commonly used solvency ratios, total assets to total liabilities, is calculated at a single point in time in the balance sheet statement, while the cash flow from operations to average total liabilities ratio covers a period of time. Thus, the latter is considered more useful than the former. Moreover, the total assets to total liabilities ratio ignores the varying liquidity of assets for covering various levels of debt. The cash flow from operations to total liabilities ratio gets over that deficiency by focusing directly on cash flow (Coltman & Jagels, 2001; Schmidgall, Geller, & Ilvento, 1993; Mills & Yamamura, 1998). The lower this ratio is, the lower the financial flexibility and the higher the potential for default. In other words, the higher this ratio is, the better is the operation's ability to pay off its debts with cash. It is suggested that a minimum ratio of 20 percent is acceptable in the lodging industry (Davidson, Stickney, & Weil, 1988; Schmidgall, Geller, & Ilvento, 1993).

The cash flow–interest coverage ratio is similar to the times interest earned ratio whose purpose is to look at the margin of safety in meeting debt interest payments. Since interest expense is paid with cash, the cash flow–interest coverage ratio may be more realistic than the times interest earned ratio. Moreover, the cash flow–interest coverage ratio can provide a more obvious warning that an inability to pay interest may be on the horizon than does the traditional interest coverage ratio (Coltman & Jagels, 2001; Schmidgall, Geller, & Ilvento, 1993). The higher this ratio is, the better the company's ability to cover its debt. Thus, an operation's creditors will be more comfortable with a higher ratio.

Operations. The primary concern of management is operations (Jagels & Coltman, 2004; Schmidgall, Geller, & Ilvento, 1993). Two useful cash flow ratios that focus on operations are cash flow margin and cash flow from operations to net income. The cash flow margin is similar to the profit margin whose purpose is to reveal the profits (i.e., the amount of cash) generated per dollar sales. Since the customers spend dollars (i.e., cash), not profits (net income), in the hotel industry, the cash flow margin should be a more useful ratio than profit margin (Coltman & Jagels, 2001; Schmidgall, Geller, & Ilvento, 1993). The cash flow margin shows the percentage of cash flows from operation activity per dollar of revenue. The higher this ratio is, the better, since this ratio evaluates the company's ability to translate sales into cash.

The ratio of cash flow from operations to net income is indirectly related to operation performance (Schmidgall, Geller, & Ilvento, 1993). Net income alone cannot appropriately explain how well hotel companies are operated because its calculation involves subjective judgments in accruals, expense allocation, and valuation. Since cash flow from operations is pure cash, hotel managers might prefer to compare CFO to net income in order to determine the relationship between the two. The higher the ratio is, the better.

Commercial and Casino Hotel Companies

As one of the objectives, this study attempted to compare the financial performance of different types of hotel companies (commercial and casino hotel companies) in order to enhance understanding of the operational difference in the two groups of hotels. According to Mills and Yamamura (1998), commercial hotel companies have some characteristics that make them differ from many other industries: 1) working-capital position in the commercial hotel segment is low; 2) the current portion of long-term debt is relatively high; 3) inventory and accounts receivable are lower than many other industries. Because commercial hotel companies are labor intensive, they experience a large liability for accrued wages payable.

Similar to commercial hotel companies, the casino hotel segment also has many characteristics different from other industries. It is labor and capital intensive and highly leveraged. Moreover, there has been a recent trend toward expansion through consolidation and merger and acquisition, leading to larger firms. For instance, MGM consolidated The Mirage, Bellagio, Treasure Island at The Mirage, New York–New York Hotel and Casino, The Golden Nugget, and so forth. In addition, casinos don't carry much

inventory that is mostly perishable foods. Moreover, gaming companies carry practically no receivables because gaming is generally a cash business (Mills & Yamamura, 1998).

Commercial and casino hotel companies have different aspects in marketing strategies, major sources of income, and business profitability (Jang & Yu, 2002). The major sources of income of commercial and casino hotels especially show a distinct difference. U.S. lodging industry database (Jang & Yu, 2002; U.S. Lodging Industry, 1998) indicated that commercial hotels made 54.4 percent of their sale revenues from room sales, and 31.4 percent from food and beverage sales over the past five years. On the other hand, Harrah's Entertainment, Inc., as a typical casino hotel company, derived about 80% of its total revenues from casino operations, 11.8 percent from food and beverage sales, and 7.3 percent from the room sales. The other 10 representative companies in Las Vegas such as Mirage reported 52 to 77 percent of their income from casino operations (Jang & Yu, 2002; Norman & Mayer, 1997). However, the composition of the major sources of income has somewhat changed over time. For instance, Harrah's Entertainment, Inc., reported 86.19 percent of its total revenues from casino operations, 14.3 percent from food and beverage sales, and 7.98 percent from the room sales over the past five years (Mergent Online, 2003). MGM Mirage, as the biggest casino hotel in the United States, derived 55.4 percent of total revenue from casino operation, 20.39 percent from room sales, and 17.34 percent from food and beverage portion from 1998 to 2002. The main sources of total revenue clearly differ between commercial hotel companies and casino hotel companies.

As Jang and Yu (2002) categorized hotel companies in their study, commercial hotels in this study were defined as those whose incomes from room sales and food and beverage operations are more than 50 percent of their total revenues over the past five years. In contrast, hotels whose incomes from casino operations were more than 50 percent of total revenues over the past five years were classified as casino hotels. The commercial and casino hotels in this study consist of one or more properties. For instance, Harrah's Entertainment, Inc., includes 12 land-based casinos, 10 riverboat casinos, and three casinos on Indian reservations hotel properties in the United States as of December 31, 2001 (Mergent Online, 2003).

Methodology

Data Collection

The population of this study was commercial and casino hotel companies in the United States. Financial statements were obtained from the Mergent Online database. Eighty-five hotel companies were found in the database with the SIC code of 7011 (hotel and motel section). This study analyzed five-years' financial statements: 1998 to 2002.

A few steps were taken to screen the database and to decide the final sample for subsequent data analysis. First, as defined earlier, those hotel companies whose incomes from room sales and food and beverage sales were more than 50 percent of their total revenues over the past five years were categorized as commercial hotels, whereas those whose incomes from casino operations were more than 50 percent of total revenues over

the past five years were defined as casino hotel companies. Companies whose income composition did not fit into these two categories were eliminated. For example, Blue Ridge Real Estate Co. generated its main income from ski operations and real estate management rather than from casino operations or room sales. Second, a few companies did not have enough data to meet the targeted sample period of the last five years, and those companies were deleted. Third, the company that had more than three missing data out of 10 variables used in this study was also deleted from the database. Fourth, some companies in the database had extremely high or low ratios when compared to mean ratios. This study screened out those outliers. Four standard deviation (4 S.D.) was employed to detect those. If the value of ratios did not fall within a range of acceptable deviations of ± 4 S.D. in both traditional ratios and cash flow ratios, those values were eliminated from the database. As a result, the sample for analysis was 42, which consisted of 19 commercial hotel companies and 23 casino hotel companies.

Analysis

Table 1 presents a summary of the financial ratios employed in this study. It shows the formulas for five traditional ratios and five cash flow ratios. The performance evaluations of the hotel firms in this study were made in liquidity, solvency, and operations measures. The performance of liquidity was measured by current ratio, quick ratio, and cash flow from operations to current liabilities. Solvency was assessed by total assets to total liabilities, times interest earned, cash flow from operations to total liabilities, and cash flow-interest coverage. Finally, the performance of operations was evaluated using cash flow margin and cash flow from operations to net income.

Table 1
Description of traditional ratios and cash flow ratios

Ratio Category	Ratio	Formula	Measure
Traditional	Current Ratio	CA/CL	Liquidity
	Quick Ratio	(CA-inventories-prepaid expenses) / CL	Liquidity
	TA to TL Ratio	TA / TL	Solvency
	Times Interest Earned Ratio	EBIT/Interest expense	Solvency
	Profit Margin	Net income/Total Revenue	Profitability
Cash flow	CFO to CL	CFO/Average CL	Liquidity
	CFO to TL	CFO/Average TL	Solvency
	Cash flow-interest coverage	(CFO + interest expense)/ Interest expense	Solvency
	Cash-flow margin	CFO/Total revenue	Profitability
	CFO to Net Income	CFO/Net income	Profitability

Note: CA = current assets; CL = current liabilities; TA = total assets; TL = total liabilities; EBIT = earnings before interest and income tax; CFO = cash flow from operations

Independent sample t-tests were used to identify the statistical differences in performance between two hotel segments: commercial and casino hotel companies.

Results and Discussions

Table 2 presents the results of the analysis. Two traditional liquidity ratios (current ratio and quick ratio) showed statistically significant differences between commercial and casino hotel companies. Because current assets and liabilities can be converted into cash or be due within the following 12 months, the current ratio (CR) is a measure of short-term liquidity. As shown in Table 2, the commercial hotel segment had \$0.95 in current assets (CA) for every \$1 in current liabilities (CL), while casino hotel segment had \$1.34 in CA for every \$1 in CL. Creditors and potential creditors prefer to see a high CR, because it provides a positive indicator of a business operation's capability of repaying its debt obligation. CR of at least one is expected because a CR of less than one would mean that net working capital is negative. The results indicated that commercial hotel companies remained a little below the recommended level of one, while casino hotel companies seemed to be more healthy in terms of CR. The quick ratio (QR) for commercial hotel companies is 0.65 times, showing there was \$0.65 of quick assets for every \$1 of CL, while the QR for casino hotel companies is 1.14 times, indicating that there was \$1.14 of quick assets for every \$1 of CL. The results suggested that the casino hotel companies were at the better liquidity status than commercial hotel companies. Creditors generally prefer high liquidity ratios, while owners and equity investors do not prefer too high ratios. Thus, management should balance between the creditors' viewpoints and owners' viewpoints. The cash flow liquidity ratio (cash flow from operations to current liabilities) did not show significant difference. Even though the ratio was found not significant in cash flow ratios, cash flow from operations to current liabilities as well as current and quick ratios indicated that casino hotel companies had been in better liquidity position than commercial hotel companies.

Table 2
Performance of commercial and casino hotels by traditional and cash flow ratios

Ratio	Mean of Commercial Hotels (A)	Mean of Casino Hotels (B)	Difference (A - B)	t-value	Sig.
CR	0.95 times	1.34 times	-0.39 times	-2.054	.047*
QR	0.65 times	1.14 times	-0.49 times	-3.668	.001**
TA / TL	2.02 times	2.02 times	0 times	0.029	.977
TIE	1.09 times	1.57 times	-0.48 times	-0.425	.674
PM	-1.54 %	2.02 %	-3.56 %	-1.009	.319
CFO/CL	0.42 times	0.68 times	-0.26 times	-1.459	.153
CFO/TL	0.06 times	0.13 times	-0.07 times	-1.596	.122
CF-IC	2.08 times	2.92 times	-0.84 times	-1.081	.289
CFM	10.84 %	9.34 %	1.5 %	0.566	.576
CFO / NI	34.22 %	66.21 %	-31.99 %	-0.273	.787

Note: a. CR: current ratio; QR = quick ratio; TA = total asset; TIE = times interest earned; PM = profit margin; CFO = cash flow from operations; CL = current liabilities; TL = total liabilities; CF-IC = cash flow- interest coverage; CFM = cash flow margin; NI = net income.

b. Independent sample t-tests were used for type differences.

c. All variables are five-year average values.

d. * $p < 0.05$, ** $p < 0.001$.

None of the solvency and profitability ratios demonstrated statistically significant differences between commercial and casino hotel companies. However, in terms of practical aspects, the results showed that casino hotels had been in the better situation in terms of six out of seven solvency and profitability ratios. For example, the casino companies' cash flow from operations to total liabilities (0.13) was more than two times higher than that of commercial hotel companies (0.06). Since the higher the ratio, the better will be the operation's solvency, the results showed that casino hotel companies seemed to outperform commercial hotel companies in practical aspects.

The findings of this study could be somewhat debatable in assessing both commercial and casino hotel companies' healthiness in liquidity and solvency performance. The current ratio (commercial hotel companies = 0.95; casino hotel companies = 1.34) showed that both commercial and casino hotel companies did not exceed the ratio of 1.5, and suggested that they have not been operated at 'super' healthy statuses. In contrast, commercial and casino hotel companies could be considered to have had very healthy statuses through the aspect of cash flow ratios. Cash flow from operations to current liabilities were higher than desirable minimum ratio of 40 percent for a healthy firm (commercial hotel companies = 42 percent; casino hotel companies = 68 percent). In terms of solvency

performance, CFO to total liabilities showed that both commercial and casino hotel companies were not at a reasonable level because the ratios were lower than desirable minimum ratio of 20 percent or 0.2 times (commercial hotel companies = 0.06 times; casino hotel companies = 0.13 times).

Profit margin (commercial = -1.54 percent; casino = 2.02 percent) also indicated that both hotel companies had not performed well for the last five years. Commercial hotel companies had suffered from loss, while casino hotel companies generated a small profit. The reason for the low performance level of both commercial and casino hotel companies might be attributed to economic downturn, overbuilding, and the September 11th terrorist attacks that had occurred in the last few years.

Conclusion

In summary, the results of this study suggest that casino hotel companies have been in better liquidity, solvency, and profitability condition than commercial hotel companies over the past five years, although only two traditional liquidity ratios (current ratio and quick ratio) showed statistically significant differences. Even though this study did not attempt to prove whether the type of hotel causes a difference in hotel performance, the results indicated that the type of hotel might be one of the influencing factors on differentiating financial liquidity of the hotel companies.

Major findings of this study can be derived from the aspects of liquidity performance. First, as mentioned earlier, two traditional liquidity ratios showed that there were statistically significant differences between commercial hotel companies and casino hotel companies. Therefore, this finding proposes a possibility that type of hotel might be a factor that significantly affects the financial liquidity performance of hotel companies. Second, both traditional liquidity ratios indicated that the commercial hotel sector was not in a healthy liquidity condition. On the other hand, interestingly, the cash flow from operating activities to current liabilities ratio implied that the commercial hotel sector was in a healthy status over the last five years. The current and quick ratios are calculated at a particular point in time. If the financial statement accounts (e.g., current asset accounts, current liability accounts) are unusually large or small on that particular date, those liquidity ratios are not expected to represent a normal financial situation for the businesses. However, cash flows from operations to current liabilities—an SCF-based ratio—overcomes this deficiency, given that it requires the comparison of a cash flow value from a period of time to the average of current liabilities (Mills & Yamamura, 1998; Schmidgall, Geller, & Ilvento, 1993). Thus, in terms of liquidity, both hotel sectors in the United States might not have had liquidity problems based on the cash flow ratios, although traditional liquidity ratios indicated that commercial hotel companies had not been in a good liquidity condition.

The results of this study cannot be generalized because the low performance of both hotel sectors should be moderated by unusual event such as the September 11th terrorist attacks. It might be interesting to compare the hotel segment's performance before and after the September 11th terrorist attacks. The lodging industry has many characteristics

that differ from other industries. Hotel companies generally have low inventory and accounts receivables. Moreover, they are labor intensive and highly leveraged. Therefore, future research can be conducted in other segments of the hospitality business (e.g., hotel companies and restaurant companies) to ascertain if the results of this study can be described as a general industry trend or strictly for the hotel companies.

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