# Economic Growth, Industry Expansion and Performance of Sri Lankan Corporate Hotels

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**Abstract**

The hotel industry is the core of the tourism industry since it is essential for all other tourism services to be provided. However, the hotel industry is increasingly facing various challenges due to the uncertainty and instability in the business environment. The purpose of this study, therefore, is to evaluate the impact of economic growth and tourism expansion on the performance of the hotel industry in Sri Lankan. To reach the aforementioned research objective, listed hotel corporations were selected and data pertaining to their financial performance, through annual reports, was abstracted from 2012 to 2018. In order to ascertain sustainable performance, we systematically combined six individual financial performance measures with the use of entropy-based TOPSIS into one comprehensive measure. Findings which emerge from the study suggest that the macroeconomic factors alone can account for 6% variance in return on assets and 2% variation in return on equity. However, these macroeconomic factors are key drivers of the overall financial performance that can explain 30% variation in hotels' overall performance. More specifically, growth in tourist arrivals and inflation found to have a positive and significant impact on the corporate hotels performance, while, the interest rate affects significantly negatively. Research findings with regard to the impact of GDP growth on hotels' performance remain inconclusive.

***Keywords:*** Corporate hotels, Determinants, Economy, Financial performance, Industry, Sri Lanka

# 1. Introduction

With the exponential growth in the number of visitor arrivals and burgeoning foreign exchange income, the tourism industry is the most dynamic and robust sector of the Sri Lankan economy (Jayawardhana, Silva, & Athauda, 2015). A satisfactory political and economic stability, which was sustained in the country following the end of 30 years' tragic war in 2009, coupled with country's growing reputation has triggered the tourism industry to grow at a rate which has never been attained in the history (Jayawardhana, Silva, & Athauda, 2015; Kularatne, Wilson, Mansson, Hoang, & Lee, 2018). According to the Annual Statistical Reports(2017)of Sri Lanka Tourism Developing Authority (SLTDA),which is a government organization, the total number of tourist arrival in 2017 was nearly 2.12 million. This was almost a 320 percent increase compared to the total tourists' arrival of 0.44 million in 2008. Similarly, foreign exchange earnings from tourism have also risen from 319.5 million USD in 2008 to 3,924.9 million USD in 2017. Furthermore, the SLTDA report (2017) indicates that the employment generated in the tourism sector (both direct and indirect) has been increased from 123,124, in 2008 to 359,215, in 2017. Hotel sector as the core of the tourism industry has also shown a considerable growth in term of infrastructure development during the last decade. SLTDA report (2017)shows that the number of Tourist Hotels has increased from 245 in 2008 to 401 in 2017. Similarly, number of rooms has also been tripled during the last decade. Apart from the tourist hotels, the other supplementary establishments which provide accommodation facility have also increased from 513 units in 2008 to 1693 units in 2017.

However, despite the robust growth of the tourism industry over the last decade, the corporate hotel sector which consists of 39 companies listed in Colombo Stock Exchange (CSE) in Sri Lanka has languished in term of financial performance over the last years. That is to say, according to our preliminary investigation, more than 20 percent of companies have reported a loss before income tax during the last ten years continuously (see table 3). Moreover, our preliminary investigation reveals that the corporate hotel sector not only consists of 39 companies but also controls more than 100-star graded hotel directly or indirectly as subsidiaries. Thus, the financial performance of listed companies does not merely reflect the performance of 39 companies, but it reflects the performance of almost all the tourist hotels operate in Sri Lanka. However, previous studies investigating the relationship between tourism growth and corporate hotel performance argue that, since the hotel industry is tightly related to the economy, the tourism growth leads to a higher performance of hotel companies (Chen, 2007a, 2007b, 2010; Kim, Chen, & Jang, 2006; Ko, Tsai, & Chen, 2013). Therefore, it draws our skepticism towards the generalizability of extant findings regarding link between economy, industry and firm performance and thus worthwhile to carry out a study spawning the empirical evidence in this regard.

Given the importance of the present situation prevail among the Sri Lankan corporate hotels, the main purpose of our study is to examine the relative importance of the growth of the economy, growth of tourism industry on the corporate hotels' performance in Sri Lanka. Drawing from the existing literature, this study examines the association between corporate hotels performance (i.e., return on assets, return on equity and overall financial performance) (Al-Najjar, 2015; Ben Aissa & Goaied, 2016; Chen, 2010)and the growth of Gross Domestic Product (GDP)(Athanasoglou, Sophocles, & Matthaios, 2005; Chen, 2010), growth of the number of Foreign Tourist arrivals(Chen, 2010), real interest rate(Barrows & Naka, 1994), and the inflation(Athanasoglou et al., 2005; Barrows & Naka, 1994). We believe that such examination would uncover the ongoing relationship between economy, industry and hotels' performance and would provide important insight to the stakeholders.

This paper makes a number of contributions to the extant tourism literature. First, it makes a comprehensive analysis of macro determinants of corporate hotels' performance providing new evidence that the impact of economic and industry factors is more pronounced in overall financial performance. Second, we ascertain the overall financial performance using a new methodology that has not previously been used in the tourism literature for the same purpose. Motivated by Chen (2010)and following several previous studies (Bulgurcu, 2013; Chang, Lin, Lin, & Chiang, 2010; Ertuğrul & Karakaşoğlu, 2009; Kaynak, Altuntas, & Dereli, 2017; Kumar, 2016), we calculate comprehensive financial performance score incorporating five accounting ratios namely assets growth, revenue growth, return on assets, return on capital employed, and current ratio. The accounting ratios were selected based on factor analysis and the performance score was obtained using Entropy based TOPSIS. Last, our study provides insightful findings that are equally important to the tourism stakeholders and to the academia.

## 2. Literature Review

### 2.1. The Effect of Macroeconomic Factors on Corporate Performance

The term Macroeconomic refers to a discipline of study which focuses on the behavior of regional, national or international economy by its entirety(Phelps & Aghion, 2003). Macroeconomic factors consist of various pertinent variables such as Gross Domestic Product (GDP), Inflation, Interest rate, Employment and Unemployment, National Saving, International trade balance, etc. Since one of the objectives of this study is to examine the impact of the behavior of macroeconomic factors on the corporate hotel performance, we selected few economic variables, following a factor analysis, that are tightly related to the tourism industry namely GDP growth, Inflation, Real interest rate, and the growth number of foreign tourist arrivals.

Number of previous studies has well documented the impact of macroeconomic condition on the performance of various industries in developing and developed countries(Ahmad, Daud, & Marzuki, 2009; Barrows & Naka, 1994; Chintha, 2018; Glogowski, 2008; Issah & Antwi, 2017; Krauss & Walter, 2009; Kukalis, 2009; Oxelheim, 2002, 2003, 2008; Pradhan & Paneru, 2017; Walter & Krauss, 2008; Yakubu, 2016; Zeitun, Tian, & Keen, 2007). Similarly, there are a number of studies on the impact of the tourism growth as a macro factor on the performance of corporate hotel sector (Balaguer & Cantavella-Jordá, 2002; M.-H.Chen, 2007a, 2010, 2013, 2015; Choi, Olsen, Kwansa, & Tse, 1999; Kim et al., 2006). However, to our knowledge, relatively a little attention has been paid to the South Asian region particularly in Sri Lanka less is done to examine the influence of macroeconomic condition including tourism industry growth on corporate performance especially on hotel sector.

Drawing the evidence from literature related to other industries such as banking, it can be noted that the demand of the firm assets is affected by upward and downward movements in the GDP growth. The declining GDP growth lowers the demand for credits and it, in turn, affects the financial performance of firms negatively and on the other hand a positive GDP growth can have a favorable effect on the firm's financial performance(P P Athanasoglou et al., 2005). Athanasoglou et al. (2005) also stated that the relationship between firms' profitability and inflation remain unclear in relation to the Greek situation. Vong & Chan (2009) examined the impact of macroeconomic factors along with bank characteristics and financial structure on the performance of the Macao banking industry. They found no significant relationship between GDP and bank performance. however, the findings of Vong & Chan (2009)indicate that there is a significant relationship between the rate of inflation and banks' performance. Chen( 2007a, 2007c)revealed that there is a long-run link between the stock performance of tourism firm and business condition in China and Taiwan using GDP and stock price as proxies for the business condition and financial performance of tourism firm respectively. This study further highlighted improved macroeconomic condition positively affects the stock performance of tourism firm and it, in turn, could boost business development.

Chen ( 2010)investigated the impact of the state of the economy and tourism growth on the Taiwanese tourist hotel performance. He revealed that the changes in the economic factors (i.e., real GDP growth rate and changes in GDP) and tourism expansion as measured the changes in foreign tourist arrivals have a positive and significant impact on the occupancy rate of Taiwanese tourist hotels. In his study, however, he did not find a significant impact of economic factors on hotel performance as measured ROA and ROE. Another study carried out by Chen ( 2015)found to have a positive relationship between inbound tourism market growth and growth of sales of hotel companies in Taiwan. Moreover, the quintile regression tests conducted in his study reveal that the growth of foreign tourist arrival has a significant

impact on the growth of sales at the different quantiles of growth of sales which was failed to find in OLS regression.

While much of the tourism literature has included GDP as a macroeconomic variable to investigate economic effect upon the financial performance of hotel companies, limited attention has been paid to examine the effect of other macroeconomic variables, i.e. inflation and real interest rate, on the financial performance of hotel companies. Barrow and Naka (1994)examined the influence of five macroeconomic variables including inflation and term structure of interest rate on the stock performance of three different industries namely restaurant, lodging and industrial in the US. They revealed that three out of five selected macroeconomic variables viz. expected inflation rate, money supply and domestic consumption are statistically significant. Moreover, the results of the Barrow and Naka (1994) indicated that there is a negative relationship between expected inflation rate and the stock return of restaurant industry. They argue that this negative relationship is resulted from general movement of investment into bond and other market during high inflationary period due to investors' desire for lower risk. However, the study by Barrow and Naka (1994) did not establish any significant relationship between term structure of interest rate and the stock return of restaurant industry in the US.

Tan (2017)examined the hotel-specific, industry specific and macroeconomic determinates of financial performance of London hotels. GDP and inflation were included as macroeconomic determinants and tested for the possible impact on the profitability of the London hotels. The results of the GMM system estimator showed that GDP and inflation has a significant positive influence on the ROA and ROE. However, he concluded that the results are inconsistent since the GDP and Inflation have significant and negative impact when ROCE is used as the measure of the profitability. These conflicting results show that there is no consensus among the prior studies regarding the impact of macroeconomic variables on hotel performance.

One of the most important aspects of the economy which has obvious impact on the hotel performance is the growth of the tourism industry. Extant studies have shown that the expansion of tourism industry has the ability to enhance the state of economy and thereby improving the performance of hotels (Balaguer & Cantavella-Jordá, 2002b; M.-H.Chen, 2007b, 2010, 2015; Jayathilake, 2013; Kim et al., 2006; Rahman, Dayang-Affizzah, & Edman, 2012; Zeitun et al., 2007). By employing Co integration and Causality tests Balaguer and Cantavella-Jorda ( 2002b)showed that there is a long-term relationship between tourism growth and GDP indicating that tourism expansion can enhance the development of economy. The same vein of study conducted by Kim, et.al (2006) in Taiwan also showed that increase in foreign tourist arrivals could improve the economic condition. However, they revealed that there is bi-directional long-run link between GDP growth and tourism

expansion as proxied by growth of foreign tourist arrivals. The same phenomenon was also evidenced by Jayathilaka (2013) in Sri Lankan context. Obtaining 44 years' data on GDP, foreign tourist arrivals and real effective exchange rate, the co intergration procedure reveled that there is a long-run relationship between the variables. However, Granger is causality test showed unidirectional causality suggesting that the tourism expansion can cause the growth of economy.

# 3. Methodology

## 3.1. Measures of Corporate Hotel Performance

Accounting-based financial performance measures are widely used in accounting, finance, and strategic management literature regardless of their limitations. The commonly used financial performance measures such as Return on Assets (ROA), Return on Equity (ROE), Sales Growth, and Return on Investment (ROI) are subject to several limitations as accounting numbers are often manipulated by managers and are affected when intangible assets are undervalued (Fisher, 1987; Watts & Zimmerman, 1990). However, opponents of this idea argue that the use of accounting-based measures is more popular since data are readily available and managers regularly use them in strategic decision making of the businesses. Moreover, accounting measures of firm performance are widely used to assess the short-term performance, i.e., to identify and eliminate unnecessary cost and nonproductive assets indicating its appropriateness in determining the performance(Morrow, Johnson, & Busenitz, 2004).

As an accounting based measure, among others, ROA has been extensively used in prior studies to measure profitability and it is frequently taken as the dependent variable in financial performance regression (Al-Najjar, 2013; Ben Aissa & Goaied, 2016; M.-H.Chen, 2010; Issah & Antwi, 2017; Oxelheim, 2008). ROA reflects the efficiency of assets utilization by management in producing profits, hence it is a representation of short-term financial performance(Panayiotis P Athanasoglou, Brissimis, & Delis, 2008). In line with this notion, this study uses ROA as one of the measures of corporate hotel performance. In addition, ROE is also used to capture different aspect of financial performance of hotel companies. Lui and hung (2006) stated that ROE can measure the firms' earning quality and it indicates how efficiently the shareholders' funds have been utilized in generating profits of the company.

### 3.1.1. *Comprehensive Financial Performance Score (CFPS)*

Although many studies have used ROA and ROE as measures of financial performance of firms, it is debatable whether or not these two ratios alone can represent the actual

performance of firms(Hsu, 2013). A successful assessment of financial performance should, therefore, include different measures which could assimilate different aspects of performance such as profitability, efficiency, leverage, growth, and market performance of a company. Review of previous studies shows many researchers use a combination of several financial ratios to evaluate the financial performance of various industries. For instance, Seme, Bayrakdaroglu, & Kahraman, (2009)evaluated the bank's financial performance using 27 financial ratios. Another study carried out by Wang ( 2009) clustered 21 financial ratios in assessing financial performance to avoid the repetition. Chen (2010) used the overall financial performance "SCORE" combining six different financial ratios namely ROA, ROE, Assets Turnover, Current ratio, Quick ratio, and Debt-Equity ratio. He calculated a single comprehensive score for each hotel for each period using factor analysis. Then, the calculated scores for each hotel were regressed on several economic and company-specific variables to identify the effect of the economy and tourism growth on the financial performance of Taiwanese hotels.

Use of Multiple Criteria Decision Making (MCDM) methods such as, Analytical Hierarchy Process (AHP) Technique for Order Performance by Similarity to Ideal Solution (TOPSIS), Data Envelop Analysis (DEA) is popular in performance evaluation literature. Hsu (2013)used the TOPSIS method to propose an evaluation model for investment analysis based on various financial ratios. Initially, he selected 21 indicators as variables for financial measures and later reduced them to ten most representative variables using dimension reduction methodology. Similarly, Deng, Yeh, & Willis (2000), Wang (2009), Seçme et al.(2009) used the TOPSIS method for financial and non-financial performance assessment in various industries. A number of other studies have also used TOPSIS method as MCDM approach for assessing, evaluating and ranking financial and non-financial performance (Bulgurcu, 2013; Chang et al., 2010; Ertuğrul & Karakaşoğlu, 2009; Kaynak et al., 2017; Kumar, 2016). In light of the previous studies, we calculated the Comprehensive Financial performance score (CFPS) using the TOPSIS method.

The application of the TOPSIS method to compute CFPS values in this study involves three different steps. First, with the review of the literature we identified a set of financial ratios that could exhibit different dimensions of corporate performance and reduced them to 5 most important ratios, namely assets growth, revenue growth, return on assets, return on capital employed, and current ratio employing a factor analysis. The result of the factor analysis is reported in the appendix A. Second, appropriate weights for each criterion considered in the performance evolution process need to be determined. For this purpose, entropy method as proposed by Shannon (1948) was used. Entropy method is one of the most popular methods for determining weights for indicators (Hsu, 2013). Employing entropy method needs to follow certain steps as mentioned below.

Step 1: Normalization of $m$ x $n$ evaluating matrix

$$A = [x_{ij}]_{mxn} \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1n} \\ x_{21} & x_{22} & \dots & x_{2n} \\ x_{31} & x_{32} & \dots & x_{3n} \\ \cdot & \cdot & \dots & \cdot \\ \cdot & \cdot & \dots & \cdot \\ \cdot & \cdot & \dots & \cdot \\ x_{m1} & x_{m3} & \dots & x_{mn} \end{bmatrix} \quad (1)$$

*Where,*

*m = Number of alternatives, i=1, 2....., m*

*n = Number of criteria, j = 1, 2....., n*

*$x_{ij}$ = the performance indicator of $i^{th}$ alternative with respect to $j^{th}$ criteria*

The original matrix A = ($x_{ij}$) should be normalized to the evaluation matrix R = ($r_{ij}$), where $r_{ij}$ is the normalized valued of $i^{th}$ alternative with respect to $j^{th}$ criteria, and $r_{ij} \in [0,1]$. The initial values can be normalized using one of below mentioned methods(Chang et al., 2010)below depending on the nature of the data.

For the positive values:

$$r_{ij} = \frac{max_i x_{ij} - x_{ij}}{max_i x_{ij} - min_i x_{ij}}, \quad (2)$$

For the negative values:

$$r_{ij} = \frac{x_{ij} - min_i x_{ij}}{max_i x_{ij} - min_i x_{ij}}, \quad (3)$$

For the moderate value:

$$r_{ij} = \frac{|x_{ij} - x_{obj}|}{max_i x_{ij} - x_{obj}}, \quad (4)$$

Consequently, we have followed normalized evaluation matrix

$$R = \begin{bmatrix} r_{11} & r_{12} & \dots & r_{1n} \\ r_{21} & r_{22} & \dots & r_{2n} \\ r_{31} & r_{32} & \dots & r_{3n} \\ . & . & \dots & . \\ . & . & \dots & . \\ . & . & \dots & . \\ r_{m1} & r_{m3} & \dots & r_{mn} \end{bmatrix}$$

(5)

Step 2:Calculation of weights for each criteria was based on entropy.

Weights can be calculated as follows according to Chang et al., (2010);

- Compute the $p_{ij}$ values using formula (6)

$$p_{ij} = -k \frac{X_{ij}}{\sum_{n=1}^{m} p_{ij}}, lnp_{ij}, \forall j$$

(6)

- computed the $d_i$ value using formula (7)

$$d_i = 1 - E_j, \forall j$$

(7)

- Calculated weights ($w_j$) for each criteria using formula (8). One condition must be satisfied, $\sum_{j=1}^{n} w_j = 1$.

$$w_j = \frac{d_{ij}}{\sum_{j=1}^{n} d_{ij}}, \forall j$$

(8)

Third, we calculated the TOPSIS score for each alternatives (each company) for each period (2012- 2018) using entropy weights obtained in the step 2 above. TOPSIS score is representative of the best alternative from a set of finite alternative. The best alternative is decided based on the closeness to the positive ideal solution and farthest to the negatives ideal solution.

Following is the procedure for TOPSIS score calculation:

Step 1: Obtain the original matrix as shown in equation (1) for each period from 2012 to 2018.

Step 2: Constrict the normalized matrix$[r_{ij}]_{mxn}$.

Since data for each evaluation criteria contained in the original matrix does not have a uniform dimension, we normalized the data using following procedures in line with Y.-J.Wang (2009) and Y.-J.Wang & Lee (2007).

Cost criteria are normalized as:

$$r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{n=1}^{m} x_{ij}^2}}, \tag{9}$$

Benefits criteria are normalized as:

$$r_{ij} = \frac{\frac{1}{x_{ij}}}{\sqrt{\sum_{n=1}^{m} (\frac{1}{x_{ij}})^2}}, \tag{10}$$

Step 3: The normalized decision matrix $[r_{ij}]_{mxn}$ is converted to weighted normalized decision matrix as follows.

$$V = (v_{ij})_{mxn} = \begin{bmatrix} w_1 r_{11} & w_2 r_{12} & \dots & w_n r_{1n} \\ w_1 r_{21} & w_2 r_{22} & \dots & wnr_{2n} \\ w_1 r_{31} & w_2 r_{32} & \dots & w_n r_{3n} \\ \cdot & \cdot & \dots & \cdot \\ \cdot & \cdot & \dots & \cdot \\ \cdot & \cdot & \dots & \cdot \\ w_1 r_{m1} & w_2 r_{m3} & \dots & w_n r_{mn} \end{bmatrix} \tag{11}$$

Where, $w_j$, $j$ =1,2,....,n. is entropy weights for each criterion calculated from equation (8), and $\sum_{j=1}^{n} w_j = 1$.

Step 4: Determined the positive ideal solution and negative ideal solution by using equation (12) and (13) respectively.

$$A^+ = \{v_1^+, v_2^+, \dots, v_n^+\} = \{(max_i v_i j | j \in J), (min_i v_i j | j \in J)\} \tag{12}$$

$$A^- = \{v_1^-, v_2^-, \ldots, v_n^-\} = \{(max_i v_i j | j \in J), (min_i v_i j | j \in J)\}$$

(13)

Step 5:Calculated distance (separate measures) for each company for each period from positive ideal solution, $d_a^+$ and negative ideal solution, $d_a^-$ is as follows:

$$d_a^+ = \sqrt{\sum_{n=1}^{n} (v_{ai} - v_i^+)^2}, a = 1, \ldots, m,$$

(14)

$$d_a^- = \sqrt{\sum_{n=1}^{n} (v_{ai} - v_i^-)^2}, a = 1, \ldots, m,$$

(15)

Step 6:Closeness coefficients for each company for each period separately were calculated by using the following formula.

$$C_i = \frac{d_i^-}{d_i^+ + d_i^-} \qquad a = 1,\ldots,m$$

(16)

Step 7: We consider $c_i$ values as the comprehensive financial performance score (CFPS) for the multivariate analysis.

The calculated value of $c_i$ is indicative of multi dimensional financial performance for each hotel company in our sample. The higher value of $c_i$ indicates higher overall financial performance whereas lower value of$c_i$indicates lower overall financial performance.

## 3.2. Measures of Macroeconomic Variables

Based on the literature analysis and following leading theories which identify the measures of economic activities, we list out 54 macroeconomic variables which might have an impact on the corporate performance. However, to avoid multi-collinearity problem and to identify the least set of variables which convey the essential information the Principal Component Analysis (PCA) was applied. PCA helps us to derive the underline factor to which the

variability of similar set macroeconomic variables is related. The Eigenvalues are shown in Table 1.

Table 1:Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 34.56 | 63.999 | 63.999 | 34.56 | 63.999 | 63.999 | 28.879 | 53.481 | 53.481 |
| 2 | 6.276 | 11.623 | 75.622 | 6.276 | 11.623 | 75.622 | 8.953 | 16.58 | 70.061 |
| 3 | 5.539 | 10.257 | 85.879 | 5.539 | 10.257 | 85.879 | 5.191 | 9.614 | 79.675 |
| 4 | 2.92 | 5.407 | 91.285 | 2.92 | 5.407 | 91.285 | 4.404 | 8.156 | 87.831 |
| 5 | 1.922 | 3.559 | 94.845 | 1.922 | 3.559 | 94.845 | 2.61 | 4.833 | 92.664 |
| 6 | 1.258 | 2.33 | 97.175 | 1.258 | 2.33 | 97.175 | 2.436 | 4.511 | 97.175 |
| 7 | 0.809 | 1.498 | 98.672 | | | | | | |

Extraction Method: Principal Component Analysis.

Six factors were extracted based on the eigenvalue, where eigenvalue is greater than 1 for each factor as shown in table 2. Those six factors account for 97 percent of the variability of the initial space indicating that the loss of initial information is only 3 percent. The rotated component matrix was also calculated applying Varimax procedure and the results are presented in Table 2.

Table 2: Rotated Component Matrix

| | Component | | | | | |
|---|---|---|---|---|---|---|
| Macroeconomic Variables | 1 | 2 | 3 | 4 | 5 | 6 |
| International tourism, receipts (% of total exports) | 0.973 | | | | | |
| International tourism, receipts for travel items (current US$) | 0.973 | | | | | |
| International tourism, receipts (current US$) | 0.972 | | | | | |
| International tourism, number of arrivals | 0.962 | | | | | |
| Real interest rate (%) | | | | | | 0.814 |
| Taxes on international trade (% of revenue) | | | | | 0.757 | |

| | | | |
|---|---|---|---|
| Inflation, consumer prices (annual %) | | | 0.778 |
| GDP growth (annual %) | | 0.853 | |
| Food exports (% of merchandise exports) | 0.934 | | |

Although the first factor is highly correlated with international tourism receipt, the number of tourist arrivals (*ΔTOURIST*) were included in the regression analysis due to two reasons. The first reason is that all four variables related to the tourism are highly correlated and hence cannot be included in the regression analysis. Second, most of the previous studies have considered tourist arrivals as a proxy for tourism growth or expansion (see for example, among others, M.-H.Chen, 2010; H. J. Kim et al., 2006). Furthermore, the Taxes on International Trade and the Food Export were also excluded from the regression analysis having failed to establish, following a literature review, any relationship between these variables and hotels performance. Consequently, the macroeconomic factors that are included in regression analysis were GDP growth (*ΔGDP)*, Inflation (*INFLATION*), Real interest rate (*INTEREST*), and growth of number of foreign Tourist arrivals (*ΔTOURIST)*.

### 3.3. Sample and data

Initially, we consider all 39 companies listed under the Hotels and Travels sector in the Colombo Stock Exchange (CSE) in Sri Lanka. However, four (04) companies with financial year ending on 31st December had to be excluded from the sample since the financial statements of those companies for the year 2018 had not been published at the time of data collection. In addition, another six (06) companies were also excluded from the final sample due to unavailability of data for some variables under consideration (see table 3 for additional information). This process ended up with final sample of 29 companies. Our study period was limited to 7 years spanning from 2012 to 2018 due to the fact that the annual reports, the main and only source of financial information in Sri Lanka, of the sample companies are available only from 2012 at the official website of CSE. All the financial data, ownership information, location details and other corporate information were hand-collected with the help of research assistants. However, the reliability of data was assured in the following manner. All four authors re-collected all the data from a sample of 3 randomly selected companies during the whole study period and matched it against the data collected by research assistants. This procedure resulted in re-collecting all the data from at least 12 companies per year for the entire study period and made sure that same data has been collected by research assistants. We collected macroeconomic data from the World Bank website. This web site provided the data for various economic indicators including GDP, Inflation, real interest rate and tourism industry related data.

Table 3: Performance of Hotels Listed in CSE During 2012-2018 and Composition of Final Sample

| Year | No. of Hotels | No. of Hotels reported Loss | No. of Hotels reported Loss (%) | No. of Hotel in the Final Sample | No. of Hotel in the Final Sample (%) |
|---|---|---|---|---|---|
| 2012 | 33 | 9 | 27 | 29 | 88 |
| 2013 | 35 | 8 | 23 | 29 | 83 |
| 2014 | 36 | 7 | 19 | 29 | 81 |
| 2015 | 36 | 12 | 33 | 29 | 81 |
| 2016 | 36 | 9 | 25 | 29 | 81 |
| 2017 | 37 | 11 | 30 | 29 | 78 |
| 2018 | 39 | 10 | 26 | 29 | 74 |

### 3.4. Multivariate Panel Regression

We used the linear panel regression test to identify the influence of macroeconomic, firm-specific and contextual variables on the financial performance of corporate hotels in Sri Lanka. The panel regression was performed employing a balanced panel of 29 companies over a period of 7 years spanning from 2012 to 2018.

According to Baltagi and Hsiao (as cited in M.-H. Chen, 2010)panel regression test can overcome several problems associated with longitudinal data which cannot be addressed using cross sectional or pure time series data analysis. The Panel regression test allowed us to control unobserved heterogeneity (i.e. omitted variables that are correlated with independent variables) among individual hotels. Moreover, use of a panel data procedure can reduce the collinearity among independent variables and can specify the time-varying relationship among explanatory and response variables.

We performed pooled ordinary least square, fixed effect (FE) model or random effect (RE) model where appropriate following the relevant diagnostic tests. The fixed-effect model can control unobservable time-invariant factors (for example management capabilities, certain business practices, policies, skilled employees, reputation of owners) of individual hotels that are correlated with explanatory variables and hence eliminating the omitted variable biases. Therefore, fixed-effect model estimates unbiased coefficients for the explanatory variables (Stock and Watson, 2003). The F-test results, which is a part of the output of STATA command *"xtreg, fe",* were used to assess the appropriateness of the FE model over pooled

ordinary least square estimation. The random effect model is desirable when the unobserved variables within individual hotels are assumed to be uncorrelated or statistically independent with/from explanatory variables (i.e. observed variables). We tested the suitability of RE model over pooled ordinary least square estimation employing The Breusch-Pagan Lagrange Multiplier test (1980). Further, the Hausman's Specification test (1978)provided us the guidance to decide between RE model over FE model. The Hausman's test is based on the assumption that there is no correlation between individual effect and regressors and therefore the estimators of FE and RE model ($\hat{\beta}_{RE} - \hat{\beta}_{FE} = 0$) should not differ systematically(Green, 2008). When this assumption is not hold, viz., the rejection of null hypothesis, FE model should be used. The results of all the diagnostic tests for each equation 17-19 are reported at the bottom of table 7.

*Macroeconomic Model*

Macroeconomic model is estimated to examine the influence of macroeconomic and industry variables on financial performance of corporate hotels in Sri Lanka. To capture different aspects of financial performance, we used three different measures namely, return on assets (ROA), return on equity (ROE) and comprehensive financial performance score (CFPS). We repeated the macroeconomic model for each of these measures of financial performance as shown in equations 17-19.

$$ROA_{it} = \beta_0 + \beta_1 \Delta GDP_{it} + \beta_2 \Delta TOURIST_{it} + \beta_3 INTEREST_{it} + \beta_4 INFLATION_{it} + \mu_i + \varepsilon_{it} \quad (17)$$

$$ROE_{it} = \beta_0 + \beta_1 \Delta GDP_{it} + \beta_2 \Delta TOURIST_{it} + \beta_3 INTEREST_{it} + \beta_4 INFLATION_{it} + \mu_i + \varepsilon_{it} \quad (18)$$

$$CFPS_{it} = \beta_0 + \beta_1 \Delta GDP_{it} + \beta_2 \Delta TOURIST_{it} + \beta_3 INTEREST_{it} + \beta_4 INFLATION_{it} + \mu_i + \varepsilon_{it} \quad (19)$$

Where $\Delta GDP_{it}$ is a percentage change in Annual Gross Domestic Product, $\Delta TOURIST_{it}$is a percentage change in the number of foreign tourist arrivals,$INTEREST_{it}$is an annual real interest rate, $INFLATION_{it}$is an annual inflation, $\beta_1$to$\beta_n$is the coefficient to be estimated for independent variables. $\mu_i$is the unobservable individual effect for each hotel?$\varepsilon_{it}$denotes the independent and identically distributed error term, $i$ and $t$ represent the firm and year respectively.

# 4. Data Analysis, Results and Discussion

## 4.1. Descriptive Statistics

In table 4, we report sample descriptive statistics for all variables used in the panel regression analysis. For our analysis, we included 03 variables representing financial performance, 04 macroeconomic variables yielding 07 variables in total. *ROA* has a mean of 4.776% and a median of 5.071% indicating low profitability among corporate hotels in Sri Lanka. Nevertheless, *ROA's* of sample hotels vary between -27.301% and 26.300% with a standard deviation of 6.753. This high heterogeneity in *ROA* signifies that some hotel companies have seized the growing opportunity in the tourism industry while the rest of companies has failed to do so. Consistent with *ROA*, mean (median) of *ROE* is 4.085% (5.245%). However, it ranges from -80.978% to 28.590% with relatively higher standards deviation of 10.933. The lowest *ROE* (i.e., -80.987%) belongs to a company included in our sample with high gearing ratio and comparatively higher negative income. *CFPS* is a score (i.e. entropy based TOPSIS score) on a range 0-1 has a mean (median) of 0.452 (0.457). The *CFPS* closer to1 infers the higher overall financial performance of hotel and vice versa. The higher variability of financial performance among corporate hotels in Sri Lanka is further evidenced by minimum and maximum (0.009 and 0.961) values of *CFPS* with standard deviation of 0.144. The average *GDP* growth (*ΔGDP*) of Sri Lanka during the period of 2012-2017 is 5.498%. The highest (lowest) *ΔGDP* during our sample period is 9.144% (3.112%). The prolonged drought since early 2016 and heavy floods in mid-2017 had an adverse impact on the country's agriculture sector and resulted in the lowest *ΔGDP* (i.e., 3.112%) in 2017. The prevailed weather-related shocks also had an adverse impact on tourism industry reaching the lowest (i.e., 3.147) growth in the number of foreign tourist arrivals (*ΔTOURIST*) in 2017.

Table 4: Descriptive Statistics for All Variables

| Variable | N | Mean | Median | Std. Dev. | Min | Max |
|---|---|---|---|---|---|---|
| *ROA* | 203 | 4.776 | 5.071 | 6.753 | -27.301 | 26.300 |
| *ROE* | 203 | 4.085 | 5.245 | 10.933 | -80.978 | 28.590 |
| *CFPS* | 203 | 0.452 | 0.457 | 0.144 | 0.009 | 0.961 |
| *ΔGDP* | 203 | 5.498 | 4.960 | 2.191 | 3.112 | 9.144 |
| *ΔTOURIST* | 203 | 16.766 | 16.348 | 7.094 | 3.147 | 26.840 |
| *INTEREST* | 203 | 5.253 | 5.851 | 1.336 | 2.214 | 6.267 |
| *INFLATION* | 203 | 5.682 | 6.716 | 1.817 | 3.179 | 7.7 |

## 4.2. Correlation analysis

Table 5 presents the Spearman's correlation coefficient for continuous variables. The *ΔGDP* is positively and significantly correlated with two of our financial performance measures (i.e., *ROA* and *ROE*), indicating that improved economic condition can enhance the profitability of hotel companies. The *ΔTOURIST* is also has a significant relationship with *ROE* and *CPFS*. However, the growth in the number of foreign tourist arrivals is not significantly correlated with ROA albeit it has a positive relationship. This insignificant association between *ROA* and *ΔTOURIST* appears to contradict with prior studies (Chen, 2010; Al-Najjar, 2013). Nonetheless, most of the other results of Spearman's correlation are consistent with prior literature (Chen, 2010; Al-Najjar, 2013; Ben Aissa & Goaied 2016). The *ΔTOURIST* is positively and significantly correlated with ΔGDP, supporting tourism-led growth hypothesis by Balaguer & Cantavella-Jordá (2002) and in line with prior studies (Jayathilaka, 2013; Chen, 2010; Al-Najjar, 2013).

Table 5: Correlation coefficient matrix of variables

| | *ROA* | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| *2_ROE* | 0.975 | | | | | | |
| *3_CFPS* | 0.482 | 0.479 | | | | | |
| *4_ΔGDP* | 0.195 | 0.217 | 0.065 | | | | |
| *5_ΔTOURIST* | 0.119 | 0.149 | 0.139 | 0.357 | | | |
| *6_INTEREST* | -0.141 | -0.155 | -0.050 | -0.464 | -0.321 | | |
| *7_INFLATION* | 0.041 | 0.026 | 0.318 | -0.214 | -0.357 | -0.179 | |

## 4.3. Empirical Results and Discussion

Table 7 presents the results from panel regression based on equations (17) to (19). We named these models as macroeconomic models since it estimates the impact of macroeconomic factors on the financial performance of hotel companies. As shown in table 6, we estimated a fixed effect model for all measures (i.e., *ROA*, *ROE,* and *CFPS*) of financial performance as recommended by the results of diagnostic tests. The F-test (fixed) results are in favor of FE model whereas the RE model is favored by the results of the LM test (for all models from (17) - (19)). However, the results of the Hausman's test for all models (17) to (19) reject the null hypothesis that there is no difference between the estimation of coefficients of FE and RE models and hence fixed model is used. While we use the FE model as it was supported by the relevant test, we estimated Feasible Generalized Least Squares (FGLS) model to robust the heteroskedasticity and autocorrelation (for example, Modified Wald statistics for group-wise heteroskedasticity (29) = 3751.23, highly significant with a p-value of 0.000 and Wooldridge

test for serial correlation in panel data F (1, 28) = 8.763, highly significant with a p-value 0.001 for model (17)). The results of which are presented in table 6 column ii, iv, and vi.

Although the coefficients of *ΔGDP* and *ΔTOURIST* are positive ($\boldsymbol{\beta_1}$= 0.408, $\boldsymbol{\beta_2}$ = 0.174), the *p*-values of these do not indicate a significant impact on *ROA* as per the FE model (see column i). The association between *ROE* and macroeconomic variables *(ΔGDP, ΔTOURIST, INTEREST, and INFLATION)* is also not statistically significant as per the FE model (see column iii). However, we found that robust estimates of coefficients of *ΔGDP, ΔTOURIST,* and *INFLATION* as per FGLS model are positive and significant with *ROA* in column ii ($\boldsymbol{\beta_1}$ =0.242, $\boldsymbol{\beta_2}$=0.041, $\boldsymbol{\beta_4}$ =0.265), and only *ΔTOURIST* and *INFLATION* have a positive and significant impact on *ROE*(see column iv). FGLS models estimated for *ROA* and *ROE* indicate that *INFLATION* is highly significant ($\boldsymbol{\beta_4}$=0.265, *p*=0.001 and $\boldsymbol{\beta_4}$=0.282, *p*=0.004) suggesting that the hotels' performance is better under relatively higher inflation. The findings are consistent with Tan (2017) where inflation was positively and significantly associated with London hotels' performance.

Our findings could be due to the ability of the hospitality industry to a speedy adjustment of prices with the seasonal effect of demand for hospitality services (Gričar & Bojnec, 2013). Surprisingly, the coefficients of *ΔGDP, INTEREST* and *INFLATION* are highly significant and positive ($\boldsymbol{\beta_1}$=0.031, *p*=0.000, $\boldsymbol{\beta_3}$=0.0568, *p*=0.000 and $\boldsymbol{\beta_4}$=0.032, *p*=0.000) in model equation 19 in column (v) where the macroeconomic variables were regressed on *CFPS*, which suggest a strong influence of selected macroeconomic variables, except *ΔTOURIST,* on overall financial performance of corporate hotels in Sri Lanka.

Table 6: Regression Results of Macroeconomics Models (Equation 17-19)

| | *ROA* (17) | | *ROE* (18) | | *CFPS* (19) | |
|---|---|---|---|---|---|---|
| Explanatory Variables | (i) | (ii) | (iii) | (iv) | (v) | (vi) |
| | Fixed | FGLS | Fixed | FGLS | Fixed | FGLS |
| *ΔGDP* | 0.209 | 0.242** | 0.336 | 0.226 | 0.031*** | 0.035*** |
| | (0.408) | (0.033) | (0.484) | (0.103) | (0.000) | (0.000) |
| *ΔTOURIST* | 0.071 | 0.041* | 0.135 | 0.081** | 0.0002 | -0.001 |
| | (0.174) | (0.099) | (0.178) | (0.011) | (0.870) | 0.564 |
| *INTEREST* | -0.171 | 0.002 | 0.438 | 0.082 | 0.0568*** | 0.066*** |
| | (0.652) | (0.989) | (0.543) | (0.686) | (0.000) | (0.000) |
| *INFLATION* | 0.184 | 0.265*** | 0.131 | 0.282*** | 0.032*** | 0.037*** |
| | (0.316) | (0.001) | (0.707) | (0.004) | (0.000) | (0.000) |
| Constant | 2.273 | 1.341 | -3.081 | -0.213 | -0.205** | -0.287*** |
| | (0.483) | (0.950) | (0.616) | (0.901) | (0.019) | (0.000) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Observation | 203 | 203 | 203 | 203 | 203 | 203 |
| R-square | 0.06 | | 0.02 | | 0.30 | |
| F-statistics | 2.880** | | 1.170 | | 18.450*** | |
| | (0.024) | | (0.324) | | (0.000) | |
| Wald- statistics | | 29.520*** | | 21.680*** | | 164.390** |
| | | (0.000) | | (0.000) | | (0.000) |
| F-test (Fixed) | 10.14*** | | 5.85*** | | 1.85*** | |
| | (0.000) | | (0.000) | | (0.009) | |
| LM Test | 193.100*** | | 100.340** | | 6.780*** | |
| | (0.000) | | (0.000) | | (0.004) | |
| Hausman Test | 11.480** | | 13.480*** | | 3.450*** | |
| | (0.022) | | (0.009) | | (0.002) | |
| Heteroskedasticity | 3751.230*** | | 37064.440*** | | 612.660** | |
| | (0.000) | | (0.000) | | (0.000) | |
| Autocorrelation | 8.760*** | | 4.764** | | 1.080 | |
| | (0.006) | | (0.038) | | (0.306) | |

Note: This table presents panel regression estimates of macroeconomic variables on financial performance (based on equation 17-19) and the results of other diagnostic tests. *ROA* is return on assets, *ROE* is return on equity, *CFPS* is comprehensive financial performance score calculated using entropy based TOPSIS. *ΔGDP* is the percentage change in Annual Gross Domestic Product, *ΔTOURIST* is the percentage change in the number of foreign tourist arrivals, *INTEREST* is the annual real interest rate, *INFLATION* is the annual inflation. F-test (fixed) is a test of significance of fixed effect model over pooled least square model. The Breusch-Pagan Lagrange Multiplier test (LM test) is test for aptness of random effect model over pooled least square model. The Hausman test is used to decide between random effect model and fixed effect model. Heteroskedasticity is the Modified Wald statistics for group-wise heteroskedasticity. The Wooldridge test for serial correlation is used to detect possible presence of autocorrelation order (1). The values in parenthesis are *p*-values.

***, **, and * indicate significance at the 0.01, 0.05, and 0.10 level.

Moreover, 30% of the variation in the *CFPS* is explained by the selected macroeconomic variables in the FE model ($R^2$= 0.30 in column v). Our results are partially consistent with Chen (2010), who found to have a positive and significant relation between GDP growth and overall financial performance of Taiwanese Hotels. Nonetheless, our finding of an

insignificant relationship between *ΔTOURIST* and overall financial performance seems to contradict with Chen (2010).

Overall, our results indicate that the macroeconomic variables have least impact (or no significant impact) on *ROA* and *ROE* when those variables are regressed alone with the financial performance of corporate hotels in Sri Lanka. Nevertheless, the overall financial performance (i.e., *CFPS*) of corporate hotels is highly influenced by the GDP growth (*ΔGDP),* Inflation (*INFLATION*), and Real interest rate (*INTEREST*), and implies that the state of the economy has a profound impact on the corporate hotel sector. These findings are also reflective in the prevailed economic recession during 2016-2017 due to drought and flood, where the second highest number of hotels (i.e. 11 hotels out of 37) reported negative earnings during our sample period (see table 3 for more details). Thus, and important research implication for the Sri Lankan hoteliers that there is no guarantee of higher financial performance even during an economic upsurge since financial performance (especially short term) is driven by various internal and contextual factors such as managerial efficiency, the scale of the business, location, and affiliation to a wider business network.

## 5. Conclusion

The purpose of this research is to evaluate the role of economic growth and tourism expansion towards the sustainability of the hotel industry. Specifically, by using a sample of 29 hotel companies over a 7-year period, we examined the impact of change in the macroeconomic variable (GDP growth, change in the number of foreign tourist arrivals, real interest rate, and inflation) on performance of the hotels industry. The result of the panel regression reveals that economic growth and inflation have a significant and positive impact on the overall financial performance of the hotel industry.

This study contributes to the literature by using a multidisciplinary approach (i.e., information science, statistics, economics, finance, CSR) to evaluate the impact of economic growth, tourism expansion, inflation, and real interest rate on financial performance of corporate hotel industry in Sri Lanka. This study is the first to analyze the performance of the hotels using entropy-based TOPSIS in the context of econometric analysis. By doing so, we filled the contextual gap by proving evidence on the impact on economic growth and tourism expansion on the performance of hotel industry from an emerging country; Sri Lanka. We also confirm the findings of previous studies [6,8,16] that reveal a significant and positive relationship between economic growth, tourism expansion, and hotel performance.

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