The Association of Economic Conditions, Tourism Expansion and Corporate Performance of Tourist Companies: The Case of Turkey

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Submitted to the
Institute of Graduate Studies and Research
In partial fulfillment of the requirements for the Degree of

Master of Science
in
Banking and Finance

Eastern Mediterranean University
June 2012
Gazimagusa, North Cyprus

Approval of the Institute of Graduate Studies and Research

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ABSTRACT

Over the past two decades Turkey has flourished prominently in terms of tourism expansion as well as economic development. The incorporation of economy and tourism have brought Turkey up to be ranked 7th in the world in number of international tourist arrivals by 2012. The aim of this thesis therefore, is to empirically investigate the association of economic conditions, tourism development and the operational performance measures of tourist-related companies in Turkey. This has been done via time series regression analysis and causality tests over a number of selected companies' related to the tourism industry. The representative measures for economic condition and tourism expansion are GDP and number of international tourist arrivals (TA), respectively. As well the proxy variables for corporate performance include return on assets (ROA), return on equity (ROE), stock return and the overall financial performance measured by a comprehensive score. The major finding in this study reveals a long-run level (and statistically significant) relationship between economic conditions, tourism expansion and corporate performance of tourism companies. The results offer some constructive implications for Turkish government policy makers as well as owners and directors of major companies in tourism industry.

Keywords: Economic growth, Tourism expansion, Co-integration, Causality, Bounds test, Turkey

ÖZ

Son yirmi yılda Türkiye ekonomik kalkınma ve turizm gelişimi açısından belirgin bir ilerlemeye sahiptir. 2012'de ekonomi ve turizm işbirliği Türkiye'yi uluslararası turist sayısında dünyada 7. sıraya yerleştirmiştir. Bu nedenle bu tezin amacı, Türkiye'de ekonomik koşullar ve turizm genişlemesinin turizm şirketlerinin performans ölçüleri üzerindeki etkisini ampirik olarak incelemektir. Bu analiz turizm sektöründen seçilen belirli sayıda şirketlere uygulanan zaman serisi regresyon analizi ve nedensellik testleri ile gerçekleştirilmiştir. Ekonomik koşullar ve turizm gelişimi için kullanılan temsili ölçekler sırasıyla gayri safi yurtiçi hasıla ve uluslararası turist sayısıdır. Bunun yanında kurumsal performans için proxy değişkenleri varlık getirisi, özkaynak getirisi, hisse senedi getirisi ve faktör analizine dayanan kapsamlı bir skor ile ölçülen genel finansal performanstır. Bu çalışmadaki temel bulgu, ekonomik koşulların, turizm gelişiminin ve turizm şirketlerinin kurumsal performanslarının uzun dönemli ve statistiksel olarak anlamlı bir ilişki içerisinde olduğudur. Bu çalışmanın sonucu Türk hükümetine ve turizm sektöründeki büyük şirketlerin yönetici ve sahiplerine bazı yapıcı politik uygulamalar önermektedir.

Anahtar Kelimeler: Ekonomik Gelişme, Turizm Büyümesi,Bounds test, eş-bütünleşme, nedensellik, Türkiye

ACKNOWLEDGEMENT

I would like to offer my sincere gratitude to my advisor Dr. Salih Turan Katircioglu for his copious support and constructive recommendations. Without his abundant patience and encouragements I wouldn't be able to carry on my thesis.

My Heartfelt appreciation belongs to Dr. Nilgun Hancioglu for her appreciable help in developing my academic writing skills.

Special thanks to Miss Canay Ataoz, chief of technical services department of Eastern Mediterranean University's library, for her wonderful recommendations about the most updated references and research sources.

Last but not least, many thanks and love to my dear parents for their emotional support and encouragements over the period of my studies far away from my home country.

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LIST OF ABBREVIATIONS

ADF	Augmented Dickey-Fuller
AIC	Akaike Information Criteria
ARDL	Auto Regressive Distributed Lag
AYCES	Altin Yunus Cesme
CAGR	Compound Annual Growth Rate
CR	Current Ratio
DE	Debt-Equity Ratio
DF	Dickey-Fuller
ECM	Error Correction Models
GDP	Gross Domestic Product
GS	General to Specific
IMKB	Istanbul Menkul Kiymetler Borsasi
ISE	Istanbul Stock Exchange
MAALT	Marmaris Altin Yunus Turistik
MARTI	Marti Oteler Isle
METUR	Metemtur Otelercilik ve Turizi
NTTUR	Net Turizm Ticaret ve Sanayi a.s
OLS	Ordinary Least Square
QR	Quick Ratio
ROA	Return on Asset
ROE	Return on Equity

SAM	Social Accounting Matrix
SHGM	Directorate General of Civil Aviation
SR	Stock Return
T&T	Tourism and Travel Industry
TA	Tourism Arrival
TAT	Total Asset Turnover
THY	Turkish Airlines
TLG	Tourism-led Growth Hypothesis
TUIK	Turkish Statistical Institute
WTO	World Tourism Organization
ZA	Zivot Andrews

Chapter 1

INTRODUCTION

In today's highly correlated economic and financial environment, firms of variety kind of industries are markedly affected by global economic events (Oxelheim, 2003) . In other words, their corporate performance is highly dependent to the state of economy which repeatedly goes through cycles of expansion and deterioration with irregular timing periods (see Chen, 2007b). In transitions of the economy within peak to through in business cycles, the effectiveness of the companies' performance is changing respectively (Bodie et al., 2008). That is, companies which belong to cyclical industries (Industries which are intensely sensitive to the state of economy), perform deficiently in periods of recession as opposed to a glorious performance in recovery spans. Defensive industries however, are those with less sensitivity to the economic business cycle (Bodie et al., 2008).

Finacial performance has been frequently considered to explain the corporate performance (Chen, 2007b). One of the most prominent indicators of financial performance is the firm's stock price (Heiman, 1988).

In cyclical industries, since economic conditions affect corporate earnings and dividends, firm's stock prices tend to move in the same direction with economic positive/negative signals (Bodie et al, 2008; Mishkin and Eakins, 2003; Chen, 2007b).

However, in some occations it is likely to happen that the investor's assumptions about systematic risk and hence corporate future earnings turn out to be incorrect. In this case the company's stock value would not be a correct indicator of the real financial performance (Chen, 2007b; Heiman, 1988).

Other studies regard profitability ratios such as return on asset (ROA) or return on equity (ROE) as corporate performance indicators (Athanasoglou et al., 2008; McNamara and Duncan, 1994). However, profitability by itself explains the firm's financial condition in the short term and can not be used as a single measure to demonstrate the overall financial state of the company (Haber and Reichel, 2005). Stock return is mentioned to be the other determinant of corporate performance (Chen, 2010).

According to Bodie et al. (2008) industry analysis is as important as macroeconomic analysis. Satisfactory operation in a failing economy is burdensome for an industry; as well it is difficult for a firm to execute appropriately in a troubled industry. Some firms are influenced to a greater extent by macroeconomic and industry conditions in terms of profits than their performance within the industry.

Hotel industry is categorized as a cyclical industry (Chen, 2010). The reason is that they burden higher fixed costs (costs which does not change according to the level of business activity) than variable costs (Expenses that vary according to the increase or decrease in business output). With this situation, in economic downturns, their sales will dramatically fall down. In other words the revenue will decrease, but they cannot reduce their fixed costs. Therefore, their profit is highly dependent to their sales movements. Therefore, hotels' profitabily are profoundly sensitive to economic ups and downs. As a result, having a high fixed cost, hotels are required to maintain their revenue as high as possible to be able to generate adequate profit (Graham and Harris, 1999).

Tourism growth has significant potential benefits for the economy such as foreign exchange earnings, increase in employment and tax. Tourism expansion and activities have strong impact on the financial operations of the hotel firms by increasing their sales receipts. It has already discussed by Chen (2007b) that tourism growth promotes the economic wellbeing and therefore lifts the financial operation of the firms in tourism and hospitality related sectors.

1.1 The Main Objective of the Study

The principal aim of this thesis is to investigate the association of economic conditions, tourism augmentation and the financial operation of the tourism companies in Turkey.

Precisely, this thesis is expected to make the following contributions to the tourism literature:

First, tourism sector currently plays a very leading role in Turkey as well as the global world. Turkey ranks 7th in attracting international visitors, 10th in generating tourism receipts and Antalya in specific, ranks 4th among the other major cities of this country in attracting international tourists (WTO, 2012). Therefore, since both tourism and financial sector are highly cyclical industries, generating a link between tourism growth, financial performance and the economy is an interesting research topic in the case of such major tourist destination country.

Second, this topic is quite rare in the relevant literature and deserves considerable attention. Therefore, results of this study will be momentous for policy makers and for the existing literature to understand and analyze the interaction between corporate performance of tourism firms and macroeconomic fundamentals.

Third, as also mentioned by Katircioglu (2009), contemporary econometric techniques are not yet adequately used in the tourism related studies. The present study will employ the latest econometric techniques in time series settings and based on the selected companies with this respect.

1.2 Turkish Economy and Tourist Statistics

Turkey is one of the most attracting countries in terms of its beautiful nature, marvelous Mediterranean coast line, breath taking sceneries and ancient history and culture which make it a very desirable touristic destination especially to western European countries.

Turkey has been ranked 7th among 181 countries in terms of tourism arrivals and total receipts in 2012 (WTO, 2012).

Top 10 Most Visited Countries in 2009

Country / Continent		2009	2008	2007	2006
France	Europe	74.2 million	79.2 million	80.9 million	77.9 million
USA	North America	54.9 million	57.9 million	56 million	51 million
Spain	Europe	52.2 million	57.2 million	58.7 million	58 million
China	Asia	50.9 million	53 million	54.7 million	49.9 million
Italy	Europe	43.2 million	42.7 million	43.7 million	41.1 million
United Kingdom	Europe	28 million	30.1 million	30.9 million	30.7 million
Turkey	Europe	25.5 million	25 million	22.2 million	18.9 million
Germany	Europe	24.2 million	24.9 million	24.4 million	23.6 million
Malaysia	Asia	23.6 million	22.1 million	21 million	17.5 million
Mexico	North America	21.5 million	22.6 million	21.4 million	21.4 million

Source: World Tourism Organization

Figure 1.2.1

Tourism industry as one of the most significant economic stimulators has brought up numerous advantages for Turkey over the last two decades; such as reduction in unemployment, increase in gross domestic product and improvement in country's balance of payments. In 2009, combined with the travel sector, the industry generated TL 95.3 billion of economic activity (approximately 10.2% of Turkey's GDP) with an employment of approximately 1.7 million people (7.2% of total employment)(The T&T, World Economic Forum, 2009).

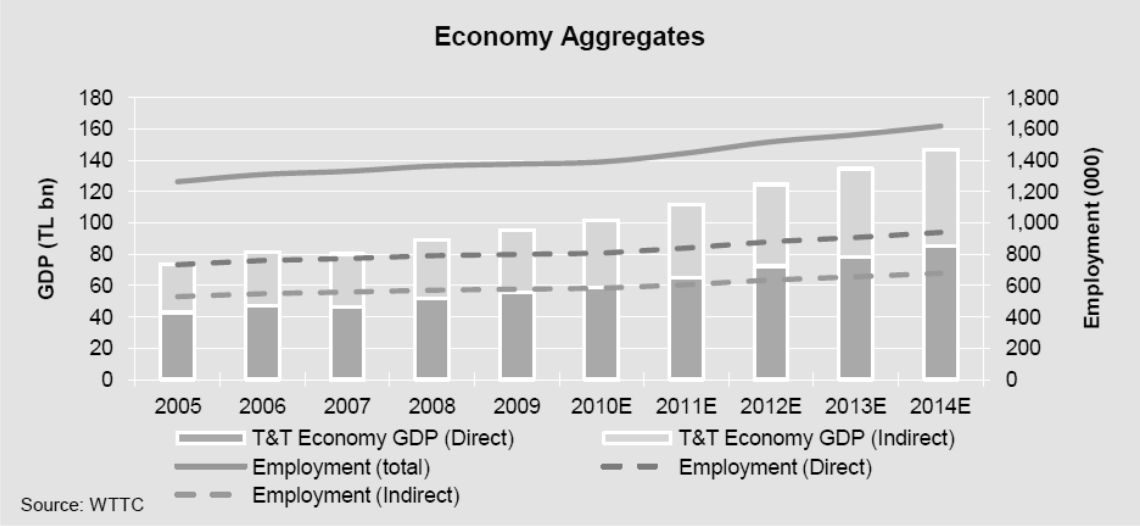

Figure 1.2.2

The number of foreign tourists entering to the country and their receipts has increased considerably over recent decades. As a result the Turkish tourism industry is booming faster than other peer countries. From 1990 till 2008 the number of tourist arrivals and receipts has increased from 1.1% to 2.7% and from 1.2% to 2.3% respectively (Tourism Highlights, UNWTO, 2009).

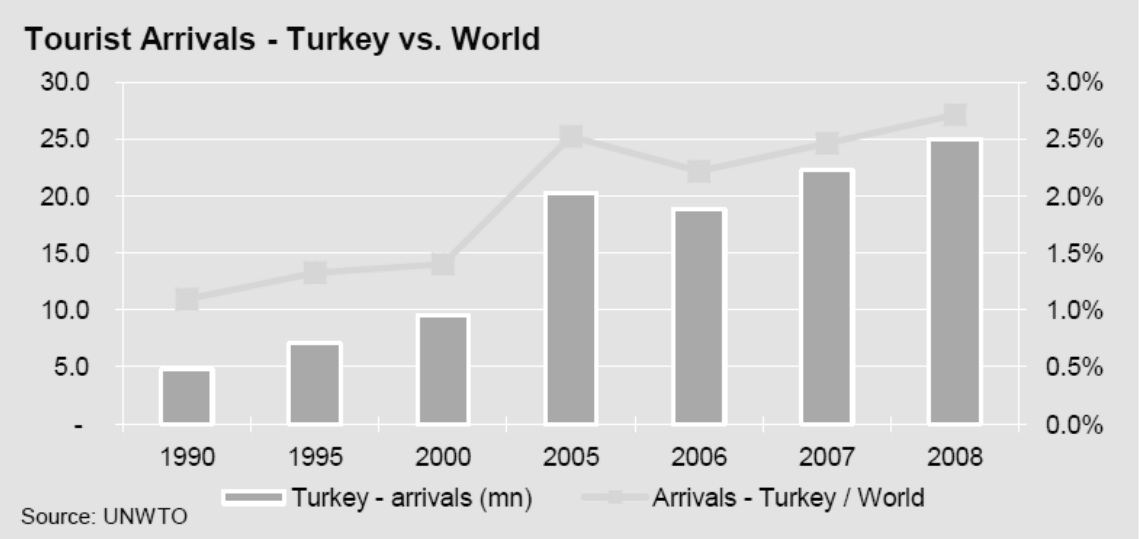

Figure 1.2.3

Tourism industry in Turkey has followed a constant growth pattern since 2000 and the only exception which interrupted this pattern was 2006 world cup in Germany. Despite the global economic and financial crisis in 2008, Turkey blossomed in terms of tourism arrivals in approximately 3o million arrivals of foreign as well as domestic tourists (Ministry of Culture and Tourism, 2009).

Top 10 Countries' Tourism Revenues in 2009

Country	2009	2008	2007	2006
USA	$94.2 billion	$110.1 billion	$97.1 billion	$85.8 billion
Spain	$53.2 billion	$61.6 billion	$57.6 billion	$51.1 billion
France	$48.7 billion	$55.6 billion	$54.3 billion	$46.3 billion
Italy	$40.2 billion	$45.7 billion	$42.7 billion	$38.1 billion
China	$39.7 billion	$40.8 billion	$37.2 billion	$33.9 billion
Germany	$34.7 billion	$40 billion	$36 billion	$32.8 billion
United Kingdom	$30.1 billion	$36 billion	$38.6 billion	$34.6 billion
Australia	$25.6 billion	$24.8 billion	$22.3 billion	$17.8 billion
Turkey	$21.3 billion	$22 billion	$18.5 billion	$16.9 billion
Austria	N/A	$21.8 billion	$18.9 billion	$16.6 billion

Source: World Tourism Organization

Figure 1.2.4

1.2.1 Turkish Hotel Industry

There are some major cities in Turkey which are dominant in terms of hotels and tourist arrivals that are Istanbul, Ankara and Izmir as three major cities and Antalya, Mugla and Aydin as popular holiday destinations. Mainly the Mediterranean coastline is the most absorbant region to attract tourist and the bed capacity of hotels in 2008, are 83% of

operational and 10% for holiday villages. Apartment hotels are also become very common places to stay for tourists and huge number of them is under construction at the moment.

Figure 1.2.5

The lands on which many hotels are built are the Turkish government's properties which are under extendable lease contracts for around 50 years. International hotel chains have tremendously invested in Turkish tourism industry since 1970's with the frequency of 9 out of 10 (Turkey Hotel Market Overview, Pamir and Soyuer, 2009).

1.2.2 Turkish Aviation Industry

Turkey has withnessed a considerable development in its aviation market since 2002. Untill 2002; there was a monopoly in aircraft operation by Turkish airlines as the national operator which owned 150 aircrafts but afterwards Turkey opened the market for competition and therefore, five more operators started to independently function (owning 270 aircrafts). This led to a considerable increase in the number of domestic as

well as international passengers between 2002 and 2008 with the compound annual growth rate of passengers reported to be 25% and 8.5% respectively (SHGM, Directorate General of Civil Aviation, 2009).

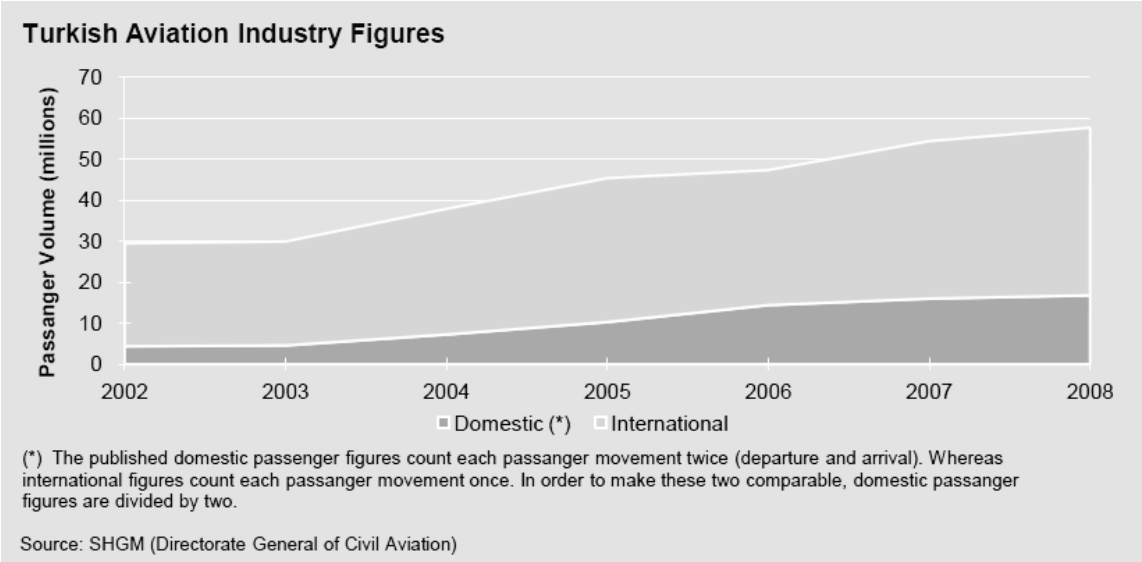

Figure 1.2.6 Turkish Aviation Industry

1.3 Thesis Structure

The remaining part of the thesis is structured as the following sections:

Chapter 2 reviews the previous empirical research achievements in the literature. Chapter 3 delineates the data and methodology undertaken in this study. Chapter 4 describes the time series regression models and test results and finally conclusion and further discussions are represented in Chapter 5.

Chapter 2

LITERATURE REVEIEW

In today's fluctuating economic environment, managers of successful corporations, especially in cyclical industries (i.e. Hotel companies), utilize their cognitive and perceptual skills to accurately scan the business conditions for an intelligent future performance. Since, their prosperity is assumed to be highly related to the business climate. With this regard there are relatively few studies about the association of economic conditions and corporate performance of hotel companies in tourism industry literature (Chen, 2010).

Choi et al. (1999) created a comprehensive model for the US hotel industry's business cycle which presents the industry's growth expanse. The model, defines industry business cycles as observed variations of total receipts. This model presented in a time when there was not any other common hotel industry cycle model in the US public domain. Therefore, their model could be used as an effective benchmark in the hotel industry (Chen, 2010).

Some stream of researches identified number of major economic variables useful to outline the economic states and its ipmpact on financial operations of the companies in tourism market. The main focus in financial performance measurement in these examinations has been on stock return.

Barrows and Naka (1994) investigated the relationship between economic factors and stock price movements in US hospitality industry over the course of twenty seven years. They investigated that inflation rate and growth rate of money supply and domestic consumption can significantly explain hospitality stock yields.

Chen et al. (2005) aimed to replicate the same pattern of study for Asian stock market. They examined and the impacts of macro economic and nonmacro economic factors on the Taiwanese hotel stock returns. He made a comparison on the significance of each factor on explaining the stock prices. Their results which were consistent with findings of Barrows and Nakka (1994), impliy that change in unemployment and money supply growth as two macroeconomic factors have a significant impact on the Taiwanese stock yields. They observed a similar performance between the hotel stock returns in Taiwanese and US stock market.

As well, non-economic variables such as presidential election, natural disaster, sport mega events, wars and terrorist attack are influential on hotel stock returns.

Chen (2007c) also carried out a similar research for the case of China. In this study, he prominently included the growth rate of total foreign tourist arrivals as a significant macroeconomic factor to explain the hotel stock yields in China. He observed that this factor has an insignificant but positive effect on Chinese hotel stock return.

Chen (2007a) carried out an evaluation of hotel stock behavior in Taiwan, under expansive and restrictive monetary policies. The empirical results exhibited that hotel

stocks have a higher mean return and reward to risk ratio in the time of expanding fiscal periods.

Chen (2007b) investigated long-term bidirectional causality between economy and financial performance of companies operating in Chinese and Taiwanese tourism industry. He empirically realized that an expanding economic situation promotes the companies' sales and income or let's say bring up a better financial performance for the company. An economic down turn on the other hand, deteriorates the corporate earnings and thus leads the stock of the company to fall in price (Harvey, 1991). On the contrary, a financially successful business can provide the economy with higher financial turnover, taxes and employment opportunities (Jeon et al., 2004).

Tourism industry as one of the most significant affecting factors in economic development especially in developing countries like Turkey (Gunduz and Hatemi, 2005) has been a prominent subject for a wide stream of researches since many years ago.

One of the most debating issues in this area is the tourism-led growth hypothesis (TLG) (Katircioglu, 2009; Gunduz, and Hatemi, 2005) which demonstrates the contribution of tourism expansion with economic growth. Therefore, a large amount of papers and researches focused on scrutinization of the validity of this hypothesis in different countries especially in Turkey.

Balaguer and Cantavella-Jorda (2002) assessed the coerelation between tourism growth and economic development for the case of Spain. With this respect, the authors

perceived that Spain, as a large recipient of international tourist receipts, tourism remarkably inflows the foreign currency which can be used for importing capital goods. Thus, tourism can be considered as a significant source of financing capital goods import. Therefore, tourism plays a fundamental role in economic development. Their empirical analysis based on co-integration and causality tests supported this hypothesis. Co-integration tests demonstrated a long-term relationship between tourism receipts and GDP, and causality tests results indicated that tourism expansion can cause economic development.

Dritsakis (2004) empirically examined the long run economic impact of tourism in Greece, by applying a multivariate autoregressive VAR model for the period 1960:2000 and real gross domestic product, real effective exchange rate and international tourism revenue as the variables. He found a "strong Granger causal" between international tourism earnings and economic growth or in other words, a bi-directional causality relationship between tourism receipt and GDP.

Gunduz and Hatemi (2005) assert that Turkey (like other developing countries) gave priority to tourism as a part of its economic growth strategy(Chen, 2010).Since tourism is the second important source of foreign currency earning in turkey and it has a great contribution to the GDP growth. Therefore, they examined the interaction between tourism and economic growth by conducting a leveraged boot-strap causality test. The results showed an empirical support for applicability of the tourism-led growth hypothesis.

Ongan and Demiroz (2005) analyzed the impact of international tourism receipts on the long run economic growth of Turkey through utilizing co-integration and Granger causality testing. Their empirical results proposed that there are bidirectional causal relationships between the two variables in both short and long run.

Katircioglu (2009) investigated long-term equilibrium relationship between international tourism and real GDP by employing the bounds test and the Johansen technique for co-integration for the case of Turkey. The empirical results rejected the tourism-led growth hypothesis for Turkey.

Ulusoy and Inancli (2011) examined the real and monetary effects of tourism industry (as a labor-intensive foreign exchange earner) on Turkish economy. The authors mentioned the tourism industry's revenue as an important source of foreign currency revenue which is being used as debt repayment and current accounts deficits recovery. As well he believed that tourism revenue has direct and indirect effect on employment and hence growth in national income level.

The explorations made by Ulusoy and Inancli (2011) are almost identical with the research conducted by Akal (2010) regarding the contribution of tourism sector to economic growth and to development of Turkey.

In brief, most of the studies regarding the affects of tourism expansion on economic development and the tourism led growth hypothesis reveal that tourism growth, especially in countries with high tourist absorbent potentials, can boost the economy and

hence promote the financial performance of tourism related businesses such as hotel companies by increasing the sales and earnings.

Chapter 3

DATA AND METHODOLOGY

This thesis examines the association of economic conditions, tourism expansion and the corporate operation of tourism companies in terms of their overall financial performance. This section will define data, sources, and empirical methodology for the present study.

The data used in this study consists of accounting and financial variables of six major companies operating in Tourism industry in Turkey which are comprise of large five-star hotel chain companies and Turkish Airlines.These companies are the only ones which their stocks are publicly traded in Istanbul Stock Exchange (IMKB) (See Chen, 2010). The data covers 11-year quarterly basis period from 1999 to 2010 (44-quarters). The selected companies are as follows: Altin Yunus Cesme (AYCES), Marmaris Altin Yunus Turistik (MAALT), Marti Otel Isle (MARTI), METEMTUR OTELCILIK VE TURIZI (METUR), Net Turizm Ticaret ve Sanayi a.ş (NTTUR) and Turkish Airlines (THY). The data has been collected from Thomson Reuters Data-stream databank, World Bank and Istanbul Stock Exchange (ISE).

3.1 Data definition

3.1.1. Return on Assets (ROA)

ROA is the profitability measure of the company which is calculated as the company's net income divided by its average total assets.

$$\text{ROA} = \frac{\text{Net Income}}{\text{Average Total Assets}}$$

ROA indicates how efficient the company's management utilizes assets to generate profit, thus it is also being employed as the corporate performance measure (Gonzalez-Hermosillo et al., 1997; Persons, 1999).

3.1.2 Return on Equity (ROE)

ROE is the companies' very important profitability metrics (Athanasoglu et al., 2008). It demonstrates how much profit the company has been earned relative to total amount of shareholders equity. It is derived from dividing net income by average total equity:

$$\text{ROE} = \frac{\text{Net Income}}{\text{Average Total Equity}}$$

According to Liu and Hung (2006), ROA and ROE are being employed as both profitability and earning quality metrics of companies.

3.1.3 Stock Return (SR)

Stock return indicates the appreciation or depreciation of the capital. It is being calculated as changes in the stock price over the initial price:

$$SR_t = \ln\left(\frac{\text{Stock price(t)}}{\text{Stock price(t}-1)}\right)$$

Stock price is considered as one of the most prominent factors of the company's financial success among several other indicators (Heiman, 1988). The stock return is

commonly employed in studies as one of the corporate performance measures (Chen, 2007b).

3.1.4 The Overall Financial Performance (SCORE):

This variable measures the overall financial performance of the companies as a combination of financial and accounting ratios such as short term liquidity ratios (Current ratio and quick ratio), long term solvency ratio (Debt to equity ratio), profitability ratios (Return on assets and return on equity) and asset management (Total asset turnover) which altogether demonstrate six dimensions of the corporation performance: Capital adequacy, asset quality, management, earnings, liquidity and sensitivity to market risk (Persons, 1999; Thomson, 1991). The data of these ratios have been collected from Thomson Reuters' Data Stream data bank from the first quarter of 1998 to the third quarter of 2010. Two major steps have been undertaken in order to calculate the SCORE. The first step was the proper selection of the ratios which has been done according to previous studies by (Boubakri et al., 2005; Kesner, 1987; Liu and Hung, 2006; Otchere and Chan, 2003). The selected financial/accounting variables are as follows:

3.1.4.1 Total Asset Turnover (TAT):

TAT indicates the management's ability to employ short and long term assets effectively to generate sales (Weygandt, Kieso, and Kimmel, 2006):

$$\text{TAT} = \frac{\text{Operating revenues}}{\text{Total assets}}$$

A high ratio represents successful and proficient asset utilization by the company whereas a low ratio implies an inefficient use of assets. This ratio is functional for growing companies to check if they are generating revenues proportionally with their assets. This provides the companies with a measure to check if they are compensating for the costs incurred by acquiring their assets as well as the future performance of the same assets.

3.1.4.2 Current Ratio (CR):

Current ratio also known as liquidity ratio is a broadly used metric for assessing a company's liquidity and short term debt paying ability (Weygandt et al., 2006):

$$\mathrm{CR} = \frac{\text{Current assets}}{\text{Current liabilities}} * 100\%$$

3.1.4.3 Quick Ratio (QR)

Quick ratio is a measure of a company's immediate short term liquidity (Weygandt et al., 2006):

$$\mathrm{QR} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}}$$

Quick ratio is more sensitive than current ratio in terms of liquidity as it does not include the inventory in the calculation. Therefore it represents a more liquid position of the companies. Comparing quick ratio with the current ratio indicates the degree of the dependency of the company's current assets to the inventory (higher CR more dependency and vise versa).

3.1.4.4 Debt-Equity Ratio (DE)

DE is a measure of the capital contributed by creditors relative to capital invested by shareholders:

$$\text{DE} = \frac{Total\ debt}{Total\ equity} * 100\%$$

This variable indicates the capital adequacy in the company. That is, if the company maintains sufficient capital to control their risk exposure (Liu and Hung, 2006).

Firms with favorable environmental conditions for growth take require less leverage and make use of more equity capital (Barton and Gordon, 1987).

After selection of ratios the second step is the calculation of the SCORE via Factor analysis (Choi and Chu, 2001and 2000). Through using factor analysis, we reach a composition of correlated variables from the six selected accounting ratios which help us to identify the most variances among the ratios (Chu and Choi, 2000).

3.1.5. The Economy and Tourism Growth

3.1.5.1 Gross Domestic Product (GDP)

GDP represents the size of the economy or in other words the total value of all goods and services produced over a specific period of time. This variable has been taken as proxy for economic condition and is at 2000 US constant prices.

In cyclical industries such as tourism, the state of the economy has a prime impact on the performance of the companies. Shifts from contraction towards the expansion can fortify corporate earnings and profits whereas movements to recession diminish the

functioning. As a result our assumption is operating performance of the tourist companies has a positive relationship with the economic condition.

3.1.5.2. Tourist Arrivals (TA)

Total number of international tourist arrivals has been considered to present the industry factor.Tourism growth boosts the financial operation of tourism companies either directly through increasing their earnings and profit or, based on the previous empirical examinations (mentioned in Chapter2), via enhancing the economy elevates the corporate functional capabilities.

3.2. Methodology

3.2.1. Unit-Root Tests

The basic assumption in standard regressions that employ ordinary least square (OLS) approach is that series or variables need to be stationary. In other words, their mean, variance and auto covariance (at various lags) should be constant at any point in time (Gujarati, 2004; Glynn et al., 2007). If either one of these three conditions is not satisfied, that variable becomes non-stationary containing unit-root. When series are stationary, they swing in the vicinity of a constant long-run mean, indicating a finite variance independent from time. On the other hand, non-stationary series do not return to their long run deterministic path and therefore variance of them changes over time. Incorporation of unit root variables in estimating regression equations leads to spurious regression with wrong inferences. Most of typical macroeconomic variables being used in regression analysis are non-stationary (Nelson and Plosser, 1982). Therefore, carrying out the unit root test before any regression analysis is of prime importance.

There are various methods for testing unit roots. Augmented Dickey-Fuller (ADF-test) (Dickey and Fuller, 1979 and 1981) is popular and classical approach for testing the unit root (Glynn et al., 2007). However, ADF type tests are likely to have serial correlation problems. That is the breaks (shocks) in the series affect the long run trend in the series. There are universally accepted unit root tests in the econometrics literature that take those shocks or breaks into consideration: Perron (1989) and Zivot and Andrews (1992) are two of them. According to Perron (1989), in the persistence of structural breaks, the ADF type tests will be likely to accept the null hypothesis of a unit root that in fact it should be rejected; this is to say that ADF type unit root tests might lead to a wrong decision on the hypothesis in the existence of sharp changes (declines) in the series. Perron (1989) is a revised Dickey-Fuller (DF) test for unit roots which adds dummies to account for a single break in the series.

However, this thesis will utilize Zivot and Andrews's (ZA) (1992) unit root test that is a variation of Perron's(1989) test in which the time of the break is estimated rather than known as an exogenous event (Pahlavani, 2005). The null hypothesis in this model indicates the existence of unit root with drift without any structural break:

$$H0: Y_t = \mu + Y_{t-1} + \varepsilon_t \qquad (3.3.1)$$

The alternative hypothesis evinces that the series is stationary with trend with onetime break occurring at an unknown point in time (Pahlavani, 2005).Based on alternative hypothesis two A and C models are being presented as follows:

$$Y_t = \mu + \beta t + \delta_2 DVU_t + \varepsilon_t \quad \text{(Model A) (3.3.2)}$$

$$Y_t = \mu + \beta t + \delta_3 DVT_t + \varepsilon_t \quad \text{(Model B) (3.3.3)}$$

And

$$Y_t = \mu + \beta t + \delta_2 DVU_t + \delta_3 DVT_t + \varepsilon_t \quad \text{(Model C) (3.3.4)}$$

Where DVTt = 0 if t ≤ Tb and DVTt = t if t > Tb and DVU=0 if t ≤ Tb DVU=1 t > Tb+1 and Tb is the breakpoint.

Model C is the least restricted model which adjusts to the possibility of a change in the intercept as well as a trend break. In model A, a structural break impacts only intercept, and only trend in model B.

As far as model C is the most general model and it covers both A and B models, we utilize this model in our empirical study.

Zivot and Andrews (1992) define a $\lambda = T_b/T$ which is chosen in such a way so as to minimize the one sided‘t’ type statistic for testing the null of unit root. Consequently, large negative values lead to its rejection. When we plot the variables we observe that all exhibit a change in trend slope across time so model C is chosen as the most appropriate.

3.2.2. Level Relationships (Bounds Test) and ECM Estimations

Utilizing the Pesaran et al.'s (2001) bounds tests based on standard F-statistics, the existence of a long term relationship among the variables was investigated irrespective of the variables` integration orders (I(0) or I(1) or any mixed of them).

The autoregressive distributed lag (ARDL) system will be adopted to estimate the error correction model provided below:

$$\Delta \ln Y_t = \delta_{0_Y} + \sum_{k=1}^{n} \theta_{i_Y} \Delta \ln Y_{t-k} + \sum_{k=0}^{n} \eta_{i_Y} \Delta \ln X_{t-k} + \sum_{k=0}^{n} \phi_{i_Y} \Delta \ln Z_{t-k} + \lambda_{1_Y} \ln Y_{t-1} + \lambda_{2_Y} \ln X_{t-1} + \lambda_{3_Y} \ln Z_{t-1} + \mu_{1t} \quad (3.4.1)$$

Where

- Δ : Differencing the series,
- $\ln Y_t$: Logarithm of regressand,
- $\ln X_t$: Logarithm of regressors,
- μ_{1t}: Error disturbance

Taking lnY as regressand, the null-hypothesis states no relationship at level:

H_0: $\lambda_{1Y} = \lambda_{2Y} = \lambda_{3Y} = 0$

Whereas the alternative-hypothesis confirms a relationship at level:

H_1: $\lambda_{1Y} \neq \lambda_{2Y} \neq \lambda_{3Y} \neq 0$

F-statistics have non-standard asymptotic distributions under the null hypothesis and are analysed against two sets of critical value bounds that cover all possible classification of the regressors into purely I(0), purely I(1) or a mixture of I(0) and I(1) variables(Pesaran et al., 2001). If the computed F-statistics falls outside the lower critical band, we fail to

reject the null hypothesis and if the computed value of F falls outside the upper critical band, then we reject the null hypothesis and conclude that there exist a level relationship between our variables of interest. On the other hand, if the computed F-statistics falls within the bounds, then no conclusive decision can be made without first knowing the orther of integration of the variables.

Before calculation of F-statistics, the optimum lag for each variable in ARDL model should be selected using a general to specific (GS) testing pattern suggested by Campbell and Perron (1991) and Hall (1994); therefore, Akaike Information Criterion (AIC) has been used for optimum lag selection throughout the ARDL models of the current study.

After confirmation of a level relationship from the above equation, the next step is to estimate both the long term and the short term coefficients, and the ECM term by using conditional ECM under the ARDL approach.

Additionally, as also offered in the original article of Pesaran et al. (2001), the related variables (ROE, ROE, SR) can be transformed into their logarithm and estimate the EC (p) (error correction at p lag levels which will be different for different regressors) models through the ARDL mechanism. The ARDL mechanism is augmented with deterministic variables such as intercept and trends. Therefore, the conditional ECM in the present thesis can be stated as:

$$\Delta \ln Y_t = \Delta\beta_0 + \sum_{k=1}^{\rho-1} \gamma_j \Delta \ln Y_{t-k} + \sum_{k=0}^{n} \beta_{k_0} \Delta \ln X_{kt} + \sum_{k=0}^{n} \sum_{l=0}^{\rho-1} \beta_{kl} \Delta X_{k,t-l} + \delta \Delta Z_t + \alpha(1,\rho) ECT_{t-1} + \varepsilon_t \quad (3.4.2)$$

where γ_j, β_{kl}, and δ are the parameters of the short-run coefficients in the model`s convergence to the long run equilibrium. The parameter of $\alpha(1, \rho)$ shows the degree of adjustment. Econometrics theory suggest that the sign of ECT are expected to be negative.

3.2.3. Conditional Granger Causality Tests

Based on the Bounds testing approach, if the existence of a level or long term relationship between regressand and its regresors is approved, then, there might be a disequilibrum in short term period towards its long term. Therefore, Granger causality tests need to be carried out by using the ECM approach again in order to deal with this disequilibrium and correct for the long term period. We can tie the short-run deviations to the long-run movements using error correction term (Gujarati, 2004).

The following model spesifies the ECM which is conditional upon using the ARDL mechanism to test for the direction of causality among the series:

$$\Delta \ln Y_t = \beta_0 + \beta_{11}^{p}(L)\Delta \ln Y_t + \beta_{12}^{q}(L)\Delta \ln X_t + \beta_{13}^{r}(L)\Delta \ln Z_t + \phi ECT_{t-1} + \varepsilon_{1t} \qquad (3.5.1)$$

$$\Delta \ln X_t = \beta_0 + \beta_{21}^{p}(L)\Delta \ln X_t + \beta_{22}^{q}(L)\Delta \ln Y_t + \beta_{23}^{r}(L)\Delta \ln Z_t + \phi ECT_{t-1} + \varepsilon_{2t} \qquad (3.5.2)$$

Where

$$\beta_{11}^{p}(L) = \sum_{i=1}^{P_{11}} \beta_{11,i}^{p} L^i \qquad \beta_{12}^{p}(L) = \sum_{i=0}^{P_{12}} \beta_{12,i}^{p} L^i \qquad \beta_{13}^{p}(L) = \sum_{i=0}^{P_{13}} \beta_{13,i}^{p} L^i$$

$$\beta_{21}^{p}(L)=\sum_{i=1}^{P_{21}}\beta_{21,i}^{p}L^{i} \qquad \beta_{22}^{p}(L)=\sum_{i=0}^{P_{22}}\beta_{22,i}^{p}L^{i} \qquad \beta_{23}^{p}(L)=\sum_{i=0}^{P_{23}}\beta_{23,i}^{p}L^{i}$$

Δ : Differencing the series,

L: Optimum lag length as set by Akaike Information Criterion

ECT_{t-1} : Error correction coefficient at lagged level which is gathered from the long-run model, ε_{1t} and ε_{2t} : error disturbances in the causality models.

Finally, significant *t ratios* equations (3.5.1) and (3.5.2) for ECT_{t-1} would enable us to reject the null hypothesis of no Granger causality among the series in the long term period and significant F statistics would enable us to reject that hypothesis in the short term period.

Chapter 4

Interpretatoin of Empirical Results

In this chapter we are going to present the empirical results and analyze the findings. Since time series analysis has been carried out on company basis, analysis of every tourism company under consideration will be done separately in this chapter using time series quarterly data.

4.1 Unit-root Test Results

We should note that regression analysis on the non stationary and/or non co-integrated series has sporious results. In addition, bounds testing results are only true when the variables are integrated of order 0 or 1. Thus, in case of I(2) or higher levels of integration this approach would not be applicable to use.Therefore, we carry out the unit-root test to indetify the level of integration. Being aware that both ADF and PP unit root tests are not robust when series confront structural break(s), we carried out Zivot Andrews one break unit root test.

Table 4.1.1 through table 4.1.6 demonstrate unit root test results for five tourism company as well as Turkish airlines using Zivot-Andrews (1992) approach. As the table results imply, variables of the study are integrated of mixed order since the null of a unit root can be rejected in some tests while it cannot in the others (See Zivot and Andrews, 1992). That is, in the first table (AYCES), ROA, ROE, SIZEs (size),

stock returns (SR), and SCORE are integrated of order one, I (0), while GDP of Turkey (Table 4.1.2) and tourist arrivals are integrated of order one, I (1).

Table 4.1.1 ZA Unit Root Test for AYCES

Statistics (Levels)	ROA	Lag	ROE	Lag	SIZE	Lag	SR	Lag	SCORE	Lag
τ_T (ZA)	-9.23	0	-9.78	2	-5.63	0	-6.56	3	-6.93	3
τ_μ (ZA)	-5.83	3	-6.05	3	2.54***	1	-4.52*	3	-5.03	3
τ (ZA)	-8.52	2	-9.46	3	-5.74	0	-5.18*	0	-5.21*	3

Table 4.1.2 ZA Unit Root Test for GDP and Tourism Arrival

Statistics (Levels)	GDP	Lag	TA	Lag
τ_T (ZA)	-4.15***	2	-5.01*	3
τ_μ (ZA)	-3.05***	1	-4.86*	3
τ (ZA)	-3.48***	0	-5.45*	3

Table 4.1.3 ZA Unit Root Test for MAALT

Statistics (Levels)	ROA	Lag	ROE	Lag	Size	Lag	SR	Lag	SCORE	Lag
τ_T (ZA)	-7.91	0	-7.87	1	-4.98***	2	-5.19***	0	-4.46*	2
τ_μ (ZA)	-3.16*	1	-3.23*	1	-3.34*	1	-3.24*	1	-4.58***	2
τ (ZA)	-7.96	0	-7.78	1	-5.35*	0	-6.25	2	-7.43	3

ROA, ROE, SR and the SCORE are integrated in level form whereas Size is integrated of order 1, I (1) in the case of MAALT.

Table 4.1.4 ZA Unit Root Test for METUR

Statistics (Levels)	ROA	Lag	ROE	Lag	Size	Lag	SR	Lag	SCORE	Lag
τ_T (ZA)	-3.91*	0	-3.25*	3	0.48*	0	-4.99***	0	-5.23***	3
τ_μ (ZA)	-3.13*	1	-3.01*	1	-4.41**	0	0.19*	0	-3.61*	2
τ (ZA)	-5.48***	2	-2.58*	0	-5.93	0	-1.45*	0	-2.55*	0

For METUR, the only stationary variable is SIZE while others are integrated of order one.

Table 4.1.5 ZA Unit Root Test for NTTUR

Statistics (Levels)	ROA	Lag	ROE	Lag	SIZE	Lag	SR	Lag	SCORE	Lag
τ_T (ZA)	-4.83***	3	-4.33*	2	-4.66**	2	-5.08***	3	-6.95	3
τ_μ (ZA)	-4.41**	2	-4.08*	2	-2.35*	1	-4.40**	2	-6.09	3
τ (ZA)	-6.00	3	-5.63	3	-3.07*	1	5.28***	2	-6.89	3

ROA, ROE and SCORE are level form integrated variables of NTTUR while SIZE and SR are integrated of order one, I (1).

Table 4.1.6 ZA Unit Root Test for THY

Statistics (Levels)	ROA	Lag	ROE	Lag	Size	Lag	SR	Lag	SCORE	Lag
τ_T (ZA)	-7.87	0	-8.23	0	-2.30*	3	-7.29	0	-4.81***	2
τ_μ (ZA)	-6.50	0	-4.68***	2	-4.24**	2	-6.88	3	-4.14**	2
τ (ZA)	-5.17***	3	-4.95**	0	-4.12*	2	-7.17	0	-5.10***	1

As well, in table of Turkish airlines, there is a mixed order of integration for variables. That is, ROA, ROE and SR are I (0), while SIZE and SCORE are integrated of order one I (1).

4.2 Bounds Test Results for Level Relationship

ZA (1992) unit root test have provided mixed results for integration level of variables. This implies that all of the series are not in natural long term relationship; therefore, further tests for long term relationship is needed in this case. But, since ZA (1992) unit root tests have provided mixed orders of integration of various series across tourism companies in Turkey, classical cointegration tests including Engel and Granger (1987) and Johansen approach (Johansen 1990; Johansen and Juselius, 1991) cannot also be adapted in the present study (see also Gujarati, 2004; Pesaran et al, 2001).

Therefore, in the next step bounds test for level relationships will be employed to investigate the long run level relationship between the economy (proxied by GDP), tourism expansion (proxied by foreign tourist arrivals) and corporate performance of tourism companies for Turkey using the ARDL modeling approach as suggested by Pesaran et al., (2001).

Table 4.2.1 through table 4.2.6 present bounds tests results under three scenarios: (F_{IV}) Unrestricted intercept and restricted trend, (F_V) Unrestricted intercept and trend, (F_{III}) Unrestricted intercept and no trend as suggested by Pesaran et al (2001). Our focus was on the four models for the hotel industry and Turkish airlines in Turkey. These four models are also presented in those tables mentioned above. If summarized, bounds test results suggest that there exists long term relationship between dependent variables and their regressors in all models and tourism companies selected in the present study. This is because the null hypotheses of no level relationship (H_0: $\sigma_{1Y} = \sigma_{2Y} = \sigma_{3Y} = 0$) can be rejected and its alternative can be accepted in different scenarios suggested by Pesaran et al. (2001) and mentioned previously in this thesis. This implies that there exists long term relationship between financial performance of the selected companies and the economy as well as tourism expansion in Turkey.

Table 4.2.1 The Bounds Test for Level Relationships (AYCES)

Variables	With Deterministic Trends			Without Deterministic Trend		Conclusion
	F_{IV}	F_V	t_V	F_{III}	t_{III}	
						H_0
(1) ROA						
F_y (roa/loggdp,logta,size)						Rejected
p = 2*		--	--	2.65a	-2.97b	
3		3.70b	-3.58b	3.85b	-3.47c	
4		5.62c	-4.54c	5.79c	-4.32c	
(2) ROE						
F_y (roe/loggdp,logta,size)						Rejected
p = 2*		--	--	2.70a	-3.02b	
3		3.81b	-3.63b	3.92b	-3.53c	
4		5.91c	-4.65c	5.99c	-4.42c	
5		6.03c	-1.27a			
(3) SR						
F_y (sr/loggdp,logta,size)						Rejected
p = 2*		--	--	1.18a	-1.54a	
3		4.85c	-3.91c	1.27a	-1.60a	
4		22.41c	-8.69c	1.37a	-1.79a	
5		17.88c	-1.04a			
(4) Score						
F_y(score/loggdp,logta,size)						Rejected
p = 2*	4.40b	5.35c	-3.32b	3.38b	-2.18a	
3	4.85b	5.01c	-3.33b	3.76b	-2.18a	
4	5.73c	5.47c	-3.82c	3.46b	-2.22a	
5	3.70a	4.49c	-3.50b	1.44a	-1.74a	

*Notes: * denotes optimum lag selected by AIC.The term "a" stands for accepting the null hypothesis, "b" for indecision case for the null hypothesis, and "c" for rejecting the null hypothesis.*

Table 4.2.2 The Bounds Test for Level Relationships (MAALT)

Variables	With Deterministic Trends			Without Deterministic Trend		Conclusion
	F_{IV}	F_V	t_V	F_{III}	t_{III}	
						H0
(1) ROA						
Froa						
(roa/loggdp,logta,size)						
p = 2*		4.55c	-3.78c	4.01c	-3.60c	Rejected
3		5.84c	-4.44c	5.06c	-4.18c	
4		6.53c	-4.66c	6.75c	-4.90c	
5		12.36c	-1.82a	6.83c	-4.08c	
(2) ROE						
Froe						
(roe/loggdp,logta,size)						
p = 2*		5.01c	-4.08c	4.69c	-4.01c	Rejected
3		7.28c	-5.08c	6.76c	-4.93c	
4		10.96c	-6.28c	11.46c	-6.49c	
5		16.95c	-1.73a	6.10c	-3.48c	
(3) SR						
Fsr (sr/loggdp,logta,size)						
p = 1*		4.28c	-1.79a	5.24c	-1.85a	Rejected
2		2.09a	-2.47a	1.74a	-2.20a	
3		2.33a	-2.64a	1.59a	-2.18a	
4		2.84a	-2.65a	1.17a	-1.72a	
(4) SCORE						
Fsc(sr/loggdp, logta,size)						
p = 2*	2.52a	3.11a	-2.68a	3.04b	-2.51a	Rejected
3	2.35a	2.90a	-2.72a	2.67a	-2.46a	
4	1.64a	1.99a	-2.07a	1.88a	-1.88a	
5	44.35c	49.60c	1.54a	14.46c	1.95a	

*Notes: * denotes optimum lag selected by AIC.The term "a" stands for accepting the null hypothesis, "b" for indecision case for the null hypothesis, and "c" for rejecting the null hypothesis.*

Table 4.2.3 The Bounds Test for Level Relationships (MARTI)

	With Deterministic Trends			Without Deterministic Trend		
Variables	F_{IV}	F_V	t_V	F_{III}	t_{III}	Conclusion
						H0
(1) ROA						
F_{roa}						
(roa/loggdp,logta,size)						
p = 2*		3.45b	-3.60b	1.57a	-2.37a	Rejected
3		4.61c	-4.04c	2.06a	-2.55a	
4		6.13c	-4.63c	2.48a	-2.74a	
5		2.37a	-2.29a	2.31a	-2.05a	
(2) ROE						
Froe						
(roe/loggdp,logta,size)						
p = 2*		3.45b	-3.61b	1.63a	-2.44a	Rejected
3		4.70c	-4.09c	2.25a	-2.75b	
4		6.52c	-4.80c	3.06b	-3.16b	
5		3.79b	-2.91a	3.89b	-3.13b	
(3) SR						
Fsr (sr/loggdp,logta,size)						
p = 1*		2.53a	-1.66a	2.62a	-1.70a	rejected
2		3.25b	-1.98a	3.35b	-2.02a	
3		3.56b	-2.08a	3.59b	-2.02a	
4		9.57c	-1.18a	13.8c	-0.71a	
(4) SCORE						
Fsc(sr/loggdp, logta,size)						
p = 2*	1.54a	1.81a	-1.79a	1.90a	-1.66a	Accepted
3	1.59a	2.11a	-2.06a	2.08a	-2.06a	
4	1.29a	1.71a	-1.81a	1.67a	-1.90a	

*Notes: * denotes optimum lag selected by AIC.The term "a" stands for accepting the null hypothesis, "b" for indecision case for the null hypothesis, and "c" for rejecting the null hypothesis.*

Table 4.2.4 The Bounds Test for Level Relationships (METUR)

	With Deterministic Trends			Without Deterministic Trend		
Variables	FIV	FV	tV	FIII	tIII	Conclusion
						H0
(1) ROA						
Froa						
(roa/loggdp,logta,size)						
p = 1*	2.09a	2.47a	-0.03a	2.32a	0.25a	Accepted
2	1.49a	1.85a	-1.00a	2.07a	-0.94a	
3	2.50a	2.88a	-0.82a	3.63b	-1.46a	
(2) ROE						
Froe						
(roe/loggdp,logta,size)						
p = 1*	5.91c	3.21b	-1.19a	7.97c	-1.04a	Rejected
2	2.37a	2.39a	-1.43a	3.24b	-1.41a	
3	2.92a	2.90a	-0.69a	4.37c	-1.73a	
(3) SR						
Fsr (sr/loggdp,logta,size)						
p = 1*	3.14a	2.61a	0.91a	3.75b	-0.94a	Inconclusive
2	1.35a	1.59a	-0.52a	1.77a	0.40a	
3	2.39a	3.17b	-0.45a	3.05b	1.76a	
(4) SCORE						
Fsc(sr/loggdp, logta,size)						Inconclusive
p = 1*	2.55a	2.54a	-0.35a	3.04b	-0.07a	
2	1.70a	2.00a	-1.14a	2.34a	-1.07a	
3	2.64a	2.93a	-0.82a	3.90b	-1.55a	

*Notes: * denotes optimum lag selected by AIC.The term "a" stands for accepting the null hypothesis, "b" for indecision case for the null hypothesis, and "c" for rejecting the null hypothesis.*

Table 4.2.4 shows that bounds tests results for METUR are mixed compared to the other companies. For example, when ROA is dependent, and GDP, tourist arrivals, and company size are regressors, the null hypothesis of no level relationship cannot be rejected. Furthermore, when stock returns of METUR and overall performance (SCORE) of METUR are dependent variables respectively in models (3) and (4) and again GDP, tourist arrivals, and company size are their regressors, bounds tests are inconclusive. To summarize, the only long term relationship has been obtained in the

second model of METUR where ROE is dependent and GDP, tourist arrivals, and company size are regressors; and further analyses will not be proceeded for models (1), (3), and (4) in Table 4.2.4 as a long term forecasting (See Gujarati, 2004). It is important to mention that these mixed results are mainly due to the small number of observations since METUR is a new company established in 2005.

Table 4.2.5 The Bounds Test for Level Relationships (NTTUR)

	With Deterministic Trends			Without Deterministic Trend		
Variables	FIV	FV	tV	FIII	tIII	Conclusion
						H0
(1) ROA						
Froa						
(roa/loggdp,logta,size)						
p = 2*		3.20b	-3.30b	3.04b	-3.20b	Rejected
3		4.61c	-4.04c	3.70b	-3.60c	
4		12.12c	-6.57c	3.80b	-3.59c	
5		9.59c	-0.04a			
(2) ROE						
Froe						
(roe/loggdp,logta,size)						
p = 2*		2.48a	-3.06a	2.44a	-2.99b	Rejected
3		3.11a	-3.42b	2.88b	-3.22c	
4		4.57c	-4.08c	2.70a	-3.01b	
5						
(3) SR						
Fsr (sr/loggdp,logta,size)						
p = 2*		1.70a	-1.84a	1.76a	-1.86a	Rejected
3		1.90a	-1.93a	2.03a	-1.93a	
4		3.25b	-2.74a	2.14a	-1.73a	
5		11.97c	-0.30a	12.57c	-0.16a	
(4) SCORE						
Fsc(sr/loggdp, logta,size)						Rejected
p = 4*	11.59c	15.35c	-6.65c	15.91c	-6.85c	
5	10.05c	11.08c	-2.27a	3.14b	-2.97b	
6	5.19c	6.59c	-3.30b	3.82b	-3.35c	
7	6.60c	8.41c	-3.78c	5.28c	-3.91c	

*Notes: * denotes optimum lag selected by AIC.The term "a" stands for accepting the null hypothesis, "b" for indecision case for the null hypothesis, and "c" for rejecting the null hypothesis.*

Table 4.2.6 The Bounds Test for Level Relationships (THY)

	With Deterministic Trends			Without Deterministic Trend		
Variables	FIV	FV	tV	FIII	tIII	Conclusion
						H0
(1) ROA						
Froa						
(roa/loggdp,logta,size)						
p = 2*		3.52b	-3.53b	4.29c	-3.60c	rejected
3		4.46c	-3.73c	5.41c	-3.92c	
4		4.74c	-3.76c	5.35c	-3.87c	
5		9.68c	-1.73a	8.64c	-1.31a	
(2) ROE						
Froe						rejected
(roe/loggdp,logta,size)						
p = 2*		4.04c	-3.99b	4.31c	-4.02c	
3		4.88c	-4.20c	5.29c	-4.35c	
4		4.91c	-4.18c	5.08c	-4.22c	
5		3.91b	-0.79a	3.28b	-0.47a	
(3) SR						
Fsr (sr/loggdp,logta,size)						rejected
p = 1*		2.70a	-2.63a	2.92b	-3.33c	
2		2.92a	-2.76a	2.68a	-2.53b	
3		4.09c	-2.95a	3.93b	-2.79b	
4		4.32c	-2.91a	4.47c	-2.95b	
(4) SCORE						
Fsc(sr/loggdp, logta,size)						Rejected
p = 2*	3.46a	4.55c	-3.62b	4.07c	-3.40c	
3	3.77b	5.03c	-3.84c	4.65c	-3.70c	
4	3.15a	4.20c	-3.49b	4.08c	-3.47c	
5	1.77a	2.10a	-0.70a	0.42a	-1.04a	

*Notes: * denotes optimum lag selected by AIC.The term "a" stands for accepting the null hypothesis, "b" for indecision case for the null hypothesis, and "c" for rejecting the null hypothesis.*

4.3 Error Correction Model (ECM)

In the next step, short term coefficients and speed of adjustment will be estimated for the four models under level relationship established in Table 4.3.1 through table 4.3.6 since they showed evidence from long term relationship.

Table 4.3.1. The ARDL Error Correction Model for AYCES (4,1,1,1)*-ROA and ROE (4, 1, 1, 1)

ROA				ROE			
Regressor	**Coefficient**	**Standard Error**	**p-value**	**Regressor**	**Coefficient**	**Standard Error**	**p-value**
DROA(-1)	0.566105	0.112740	0.0000	DROE(-1)	0.565528	0.110466	0.0000
DROA(-2)	0.492618	0.131778	0.0010	DROE(-2)	0.495486	0.128878	0.0008
DROA(-3)	0.467797	0.132802	0.0017	DROE(-3)	0.471214	0.129836	0.0013
DLOGGDP	50.25872	15.18185	0.0029	DLOGGDP	59.49635	17.75868	0.0027
DSIZE	-0.000729	0.000157	0.0001	DSIZE	-0.000900	0.000182	0.0000
DLOGTA	24.20863	7.776254	0.0047	DLOGTA	28.58799	9.044810	0.0042
C	0.131291	0.241912	0.5923	C	0.151086	0.282487	0.5977
ECMT(-1)	-0.841153	0.114882	0.0000	ECMT(-1)	-0.857522	0.114047	0.0000
Adj. R^2= 0.766, S.E. of Regr. = 0.963, AIC = 2.976, SBC = 3.343, F-stat. = 11.226, F-prob. = 0.000, D-W stat. = 2.478				Adj. R^2= 0.70, S.E. of Regr. = 1.12, AIC = 3.28, SBC = 3.65, F-stat. = 11.69, F-prob. = 0.000, D-W stat. = 2.49			

*Note: * indicates p lag structures in each model.*

As table 4.4.1 illustrates, ROA and ROE converge to their long term equilibrium level by 84.11and 85.75 percent as contributed by their regressors: GDP, Tourist Arrivals, and Total Assets. These coefficients are statistically significant and negative as expected. Short term coefficients of regressors are also statistically significant. As far as short term coefficients are concerned, real income (GDP) and tourist arrivals have positive impact on ROA and ROE of AYCES.

Table 4.3.2. The ARDL Error Correction Model for AYCES -SR (4, 4, 4, 4)* andSCORE (4, 1, 1, 1)*

SR				SCORE			
Regressor	Coefficient	Standard Error	p-value	Regressor	Coefficient	Standard Error	p-value
DSR(-1)	0.844187	0.091807	0.0000	DSCORE(-1)	0.311932	0.113551	0.0112
DSR(-2)	0.854909	0.113616	0.0000	DSCORE(-2)	0.265672	0.122523	0.0403
DSR(-3)	0.860534	0.121409	0.0000	DSCORE(-3)	0.275807	0.123755	0.0355
DLOGGDP	-3191.555	206.8481	0.0000	DLOGGDP	-402.4364	65.41097	0.0000
DLOGGDP(-1)	2643.872	388.5993	0.0000	DSIZE	-0.003953	0.000765	0.0000
DLOGGDP(-2)	2607.081	442.2361	0.0000	DLOGTA	199.9498	39.68063	0.0000
DLOGGDP(-3)	2596.808	419.6916	0.0000	C	-5.14E-09	1.374041	1.0000
DSIZE	0.007304	0.002682	0.0157	ECMC(-1)	-0.375815	0.081190	0.0001
DSIZE(-1)	0.029996	0.003396	0.0000				
DSIZE(-2)	0.031031	0.003900	0.0000				
DSIZE(-3)	0.030458	0.004211	0.0000				
DLOGTA	549.7419	90.55479	0.0000				
DLOGTA(-1)	-1584.301	159.7589	0.0000				
DLOGTA(-2)	-1671.870	191.6802	0.0000				
DLOGTA(-3)	-1700.176	212.0455	0.0000				
C	25.13323	3.601068	0.0000				
ECMT(-1)	-0.684870	0.144665	0.0000				
Adj. R^2= 0.95, S.E. of Regr. = 9.58, AIC = 7.66, SBC = 8.44, F-stat. = 42.23, F-prob. = 0.000, D-W stat. = 1.67				Adj. R^2= 0.74, S.E. of Regr. = 4.63, AIC = 6.11, SBC = 6.48, F-stat. = 13.81, F-prob. = 0.000, D-W stat. = 1.73			

*Note: * indicates p lag structures in each model.*

According to Table 4.3.2 results, ECTs are statistically significant and negative in both SR and SCORE. The ECT value for stock return is -1.6025 and for comprehensive SCORE is -0.3758. This indicates that the dependent variables converge reasonably high (by 160.25 for SR and 37.58 percent in SCORE) to its long term equilibrium level. The short term coefficients are statistically significant indicating the positive effect of GDP and tourism expansion on SR and SCORE for AYCES.

Table 4.3.3. The ARDL Error Correction Model for MAALT -ROA (4, 0, 4, 0)* and ROE (4, 0, 4, 4)*

ROA				ROE			
Regressor	Coefficient	Standard Error	p-value	Regressor	Coefficient	Standard Error	p-value
DROA(-1)	0.493423	0.120057	0.0002	DROE(-1)	0.579004	0.109054	0.0000
DROA(-2)	0.372314	0.134028	0.0090	DROE(-2)	0.485366	0.122617	0.0004
DROA(-3)	0.249700	0.136896	0.0772	DROE(-3)	0.383430	0.128666	0.0057
DLOGGDP	-39.06709	22.90293	0.0974	DLOGGDP	-55.24386	35.27021	0.1278
DSIZE	-0.000192	0.000159	0.2347	DSIZE	-0.000161	0.000239	0.5052
DSIZE(-1)	0.000535	0.000199	0.0112	DSIZE(-1)	0.001131	0.000304	0.0008
DSIZE(-2)	0.000455	0.000205	0.0336	DSIZE(-2)	0.001046	0.000315	0.0024
DSIZE(-3)	0.000417	0.000200	0.0446	DSIZE(-3)	0.001044	0.000309	0.0020
DLOGTA	18.21756	11.06022	0.1090	DLOGTA	45.82883	18.48192	0.0190
C	0.487273	0.492568	0.3297	DLOGTA(-1)	-20.63528	16.38634	0.2176
ECMT(-1)	-0.822504	0.145325	0.0000	DLOGTA(-2)	-27.22715	16.43589	0.1080
				DLOGTA(-3)	-29.90596	15.47472	0.0628
				C	-0.101033	0.969440	0.9177
				ECMT(-1)	-0.696901	0.152312	0.0000
Adj. R^2= 0.60, S.E. of Regr. = 2.34, AIC = 4.75, SBC = 5.20, F-stat. = 7.67, F-prob. = 0.000, D-W stat. = 1.64				Adj. R^2= 0.68, S.E. of Regr. = 3.51, AIC = 5.60, SBC = 6.17, F-stat. = 8.18, F-prob. = 0.000, D-W stat. = 1.25			

*Note: * indicates p lag structures in each model.*

Table 4.3.3 results show a negative but high value of ECT for both models. That is 82.25 for ROA and 112.52 for ROE. The short term coefficients of total asset and tourist arrival for ROA and ROE models as well as GDP for ROE model are not statistically significant. Therefore, the short term impact of real income and tourism arrivals on ROA and ROE of MAALT is inconclusive.

Table 4.3.4. The ARDL Error Correction Model for MAALT -SR (2, 2, 1, 1)* and SCORE (2, 2, 1, 1)*

SR				SCORE			
Regressor	Coefficient	Standard Error	p-value	Regressor	Coefficient	Standard Error	p-value
DSR(-1)	0.529009	0.108312	0.0000	DSCORE(-1)	0.511609	0.116132	0.0001
DLOGGDP	-649.8880	264.8000	0.0187	DLOGGDP	-160.8429	64.93503	0.0177
DLOGGDP(-1)	747.7550	261.9996	0.0069	DLOGGDP(-1)	177.8739	64.75838	0.0091
DSIZE	-0.001944	0.001162	0.1024	DSIZE	-0.000471	0.000273	0.0917
DLOGTA	-238.8767	107.5556	0.0322	DLOGTA	-52.73327	26.23906	0.0514
C	2.530652	4.865057	0.6059	C	0.778995	1.195358	0.5184
ECMT(-1)	-0.198434	0.053264	0.0006	ECMT(-1)	-0.268051	0.074065	0.0008
Adj. R^2= 0.55, S.E. of Regr. = 22.84, AIC = 9.23, SBC = 9.51, F-stat. = 10.28, F-prob. = 0.000, D-W stat. = 2.24				Adj. R^2= 0.52, S.E. of Regr. = 5.53, AIC = 6.40, SBC = 6.67, F-stat. = 9.39, F-prob. = 0.000, D-W stat. = 2.27			

*Note: * indicates p lag structures in each model.*

Table 4.3.4 illustrates statistically significant and negative ECTs for both SR and SCORE. The ECT value for stock return is -0.1984 and for comprehensive SCORE is -0.2680. This indicates that the dependent variables converge reasonably high (by 19.84 for SR and 26.80 percent in SCORE) to its long term equilibrium level. The short term coefficients are statistically significant except total asset for ROA model. However, GDP and tourism expansion have positive effect on SR and SCORE for MAALT.

Table 4.3.5. The ARDL Error Correction Model for MARTI -ROA (4, 2, 2, 0)* and ROE (4, 2, 2, 0)*

ROA				ROE			
Regressor	Coefficient	Standard Error	p-value	Regressor	Coefficient	Standard Error	p-value
DROA(-1)	0.432157	0.093571	0.0000	DROE(-1)	0.415403	0.090561	0.0000
DROA(-2)	0.175387	0.062312	0.0077	DROE(-2)	0.196735	0.062467	0.0032
DROA(-3)	0.157979	0.063590	0.0175	DROE(-3)	0.181093	0.064778	0.0081
DLOGGDP	164.1005	13.83672	0.0000	DLOGGDP	378.7138	33.06312	0.0000
DLOGGDP(-1)	-52.21957	25.29406	0.0458	DLOGGDP(-1)	-110.1315	59.79675	0.0733
DSIZE	0.000381	4.01E-05	0.0000	DSIZE	0.000841	9.45E-05	0.0000
DSIZE(-1)	-0.000147	5.92E-05	0.0175	DSIZE(-1)	-0.000286	0.000135	0.0405
DLOGTA	2.612521	5.162050	0.6157	DLOGTA	10.83291	11.89335	0.3681
C	-0.584826	0.444781	0.1964	C	-1.561208	1.024042	0.1357
ECMT(-1)	-0.416431	0.078659	0.0000	ECMT(-1)	-0.466284	0.082888	0.0000
Adj. R^2= 0.90, S.E. of Regr. = 1.14, AIC = 3.29, SBC = 3.68, F-stat. = 48.09, F-prob. = 0.000, D-W stat. = 2.10				Adj. R^2= 0.90, S.E. of Regr. = 2.68, AIC = 4.99, SBC = 5.38, F-stat. = 48.88, F-prob. = 0.000, D-W stat. = 2.05			

*Note: * indicates p lag structures in each model.*

Table 4.3.5 indicates ROA and ROE converge to their long term equilibrium level by 41.64 and 46.62 percent as contributed by their regressors: GDP, Tourist Arrivals, and Total Assets. These coefficients are statistically significant and negative as expected. Short term coefficients of regressors are also statistically significant. As far as short term coefficients are concerned, real income (GDP) and tourist arrivals have positive impact on ROA and ROE of MARTI.

Table 4.3.6. The ARDL Error Correction Model for MARTI- SR (4, 2, 2, 0)* and SCORE (2, 2, 0, 2)*

SR				SCORE			
Regressor	Coefficient	Standard Error	p-value	Regressor	Coefficient	Standard Error	p-value
DSR(-1)	0.725863	0.089719	0.0000	DSCORE(-1)	0.228683	0.100575	0.0282
DLOGGDP	-2977.068	206.0398	0.0000	DSIZE	-4.91E-05	0.000133	0.7148
DLOGGDP(-1)	2415.643	309.5878	0.0000	DSIZE(-1)	4.25E-05	0.000152	0.7805
DSIZE	-0.002158	0.000533	0.0002	DLOGGDP	-252.9878	39.92419	0.0000
DSIZE(-1)	0.001724	0.000632	0.0093	DLOGTA	16.70761	18.42941	0.3698
DLOGTA	194.9976	80.08633	0.0193	DLOGTA(-1)	-5.012461	16.17548	0.7582
DLOGTA(-1)	-217.7040	77.00745	0.0072	C	1.053114	0.874730	0.2354
C	-0.071681	4.404736	0.9871	ECMT(-1)	-0.107738	0.038093	0.0071
ECMT(-1)	-0.087341	0.025966	0.0017				
Adj. R^2= 0.89, S.E. of Regr. = 15.30, AIC = 8.45, SBC = 8.79, F-stat. = 53.12, F-prob. = 0.000, D-W stat. = 2.53				Adj. R^2= 0.68, S.E. of Regr. = 3.83, AIC = 5.67, SBC = 5.97, F-stat. = 16.29, F-prob. = 0.000, D-W stat. = 1.50			

*Note: * indicates p lag structures in each model.*

Table 4.3.6 indicates ROA and ROE converge to their long term equilibrium level by 8.73 and 10.77 percent as contributed by their regressors: GDP, Tourist Arrivals, and Total Assets. These coefficients are statistically significant and negative as expected. Short term coefficients of regressors are statistically significant for ROA model. However, for ROE model, the short term coefficients such as total assets and tourist arrivals (in both level and first difference forms) as well as GDP, are insignificant. As a result GDP has a significant but negative short term effect on stock returns of MARTI and tourism arrivals impacts SR positively in short run. But, the effect of these variables on overall financial SCORE of MARTI in short-term, is insignificant.

Table 4.3.7. The ARDL Error Correction Model for METUR- ROE (3, 2, 2, 0)*

ROE			
Regressor	Coefficient	Standard Error	p-value
DLOGGDP	-659.039	250.720	0.017
DLOGTA	-69.590	92.541	0.461
DSIZE	-0.008	0.005	0.101
C	-0.541	2.679	0.842
ECMC(-1)	-0.201	0.048	0.000
Adj. R^2= 0.813, S.E. of Regr. = 10.192, AIC = 7.67, SBC = 7.91, F-stat. = 19.60, F-prob. = 0.000, D-W stat. = 1.51			

*Note: * indicates p lag structures in each model.*

ROE as Table 4.3.7 exhibits, converge to its long term equilibrium level by 20.1 percent as contributed by its regressors: GDP, Tourist Arrivals, and Total Assets. The short term coeeficient for GDP is statistically significant while coefficients of tourist arrivals and company's SIZE are not. Therefore, we infer a negative significant impact from GDP to the ROE of the METUR company.

Table 4.3.8. The ARDL Error Correction Model for NTTUR- ROA (4, 0, 4, 0)* and ROE (3, 2, 2, 0)*

ROA				ROE			
Regressor	Coefficient	Standard Error	p-value	Regressor	Coefficient	Standard Error	p-value
DROA(-1)	0.478636	0.098713	0.0000	DROE(-1)	0.537065	0.121905	0.0001
DROA(-2)	0.409620	0.113590	0.0010	DROE(-2)	0.230245	0.121593	0.0663
DROA(-3)	0.393365	0.116834	0.0019	DLOGGDP	-697.9591	320.6062	0.0361
DLOGGDP	83.85582	49.35380	0.0987	DLOGGDP(-1)	631.7378	302.8478	0.0441
DSIZE	0.000356	5.61E-05	0.0000	DSIZE	0.001475	0.000344	0.0001
DSIZE(- 1)	0.000162	0.000103	0.1244	DSIZE(-1)	-0.000855	0.000452	0.0664
DSIZE(-2)	0.000194	9.79E-05	0.0560	DLOGTA	8.140747	125.6305	0.9487
DSIZE(-3)	0.000185	8.91E-05	0.0458	C	-0.779902	5.820413	0.8942
DLOGTA	75.15360	20.82621	0.0010	ECMC(-1)	-0.212215	0.054534	0.0004
C	-2.0001	0.957430	0.0445				
ECMT(-1)	-0.9161	0.114095	0.0000				
Adj. R^2= 0.83, S.E. of Regr. = 4.32, AIC = 5.97, SBC = 6.42, F-stat. = 22.27, F-prob. = 0.000, D-W stat. = 1.54				Adj. R^2= 0.65, S.E. of Regr. = 27.74, AIC = 9.66, SBC = 10.02, F-stat. = 11.57, F-prob. = 0.000, D-W stat. = 2.27			

*Note: * indicates p lag structures in each model.*

Table 4.3.8 shows ROA and ROE converge to their long term equilibrium level by 91.61 and 21.22 percent as contributed by their regressors: GDP, Tourist Arrivals, and Total Assets. These coefficients are statistically significant and negative as expected. Short term coefficients of regressors are also statistically significant except tourist arrival for ROE model. Real income (GDP) has a positive short term effect on ROA and ROE of NTTUR. Tourist arrival on the other hand only has positive effect on ROA.

Table 4.3.9 The ARDL Error Correction Model for NTTUR- SR (4, 2, 2, 0)* and SCORE (4, 1, 4, 0)*

SR				**SCORE**			
Regressor	Coefficient	Standard Error	p-value	Regressor	Coefficient	Standard Error	p-value
DSR(-1)	0.569309	0.114521	0.0000	DSCORE(-1)	0.595144	0.110799	0.0000
DLOGGDP	-1810.673	299.5926	0.0000	DSCORE(-2)	0.501450	0.133333	0.0007
DLOGGDP(-1)	1428.686	355.8211	0.0003	DSCORE(-3)	0.456641	0.144413	0.0034
DSIZE	-8.55E-06	0.000220	0.9691	DLOGGDP	374.2895	191.5632	0.0592
DLOGTA	262.7285	123.0718	0.0393	DSIZE	0.000784	0.000224	0.0014
DLOGTA(-1)	-270.0070	119.6124	0.0298	DSIZE(-1)	-0.000651	0.000296	0.0351
C	0.207618	5.320279	0.9691	DSIZE(-2)	-0.000516	0.000312	0.1073
ECMT(-1)	-0.136201	0.051628	0.0120	DSIZE(-3)	-0.000540	0.000297	0.0779
				DLOGTA	22.82751	81.10325	0.7801
				C	-0.682380	3.679167	0.8540
				ECMT(-1)	-0.833246	0.118367	0.0000
Adj. R^2= 0.62, S.E. of Regr. = 23.06, AIC = 9.27, SBC = 9.58, F-stat. = 11.88, F-prob. = 0.000, D-W stat. = 2.30				Adj. R^2= 0.67, S.E. of Regr. = 17.91, AIC = 8.82, SBC = 9.26 , F-stat. = 9.86, F-prob. = 0.000, D-W stat. = 1.82			

*Note: * indicates p lag structures in each model.*

Table 4.3.9 shows SR and SCORE converge to their long term equilibrium level by 13.62 and 83.32 percent as contributed by their regressors: GDP, Tourist Arrivals, and Total Assets. These coefficients are statistically significant and negative as expected. Short term coefficients of regressors are also statistically significant except tourist arrival for SCORE model and total assets for SR. Real income (GDP) has a negative

short term effect on stock returns (SR) and a positive impact on overall financial SCORE of NTTUR. Tourist arrival on the other hand only has positive effect on SR.

Table 4.3.10. The ARDL Error Correction Model for THY-ROA (4, 1, 1, 2)* and ROE (3, 2, 1, 2)*

ROA				**ROE**			
Regressor	Coefficient	Standard Error	p-value	Regressor	Coefficient	Standard Error	p-value
DROA(-1)	0.288488	0.108370	0.0112	DROE(-1)	0.332820	0.099921	0.0019
DROA(-2)	0.160199	0.111405	0.1584	DROE(-2)	0.225497	0.087627	0.0139
DROA(-3)	0.172614	0.091636	0.0671	DLOGGDP	-321.2356	66.55347	0.0000
DLOGGDP	-28.41107	11.95015	0.0224	DLOGGDP(-1)	167.1908	69.04894	0.0201
DSIZE	2.77E-06	5.80E-07	0.0000	DSIZE	1.24E-05	2.55E-06	0.0000
DLOGTA	22.23630	5.731097	0.0004	DLOGTA	67.57560	27.04655	0.0167
DLOGTA(-1)	-8.678672	4.727344	0.0740	DLOGTA(-1)	-54.24646	27.89178	0.0588
C	0.121365	0.272559	0.6586	C	0.688658	1.110151	0.5386
ECMT(-1)	-0.183120	0.026438	0.0000	ECMT(-1)	-0.200156	0.029908	0.0000
Adj. R^2= 0.82, S.E. of Regr. = 1.12, AIC = 3.24, SBC = 3.59, F-stat. = 29.57, F-prob. = 0.000, D-W stat. = 2.17				Adj. R^2= 0.83, S.E. of Regr. = 5.03, AIC = 6.23, SBC = 6.58, F-stat. = 30.58, F-prob. = 0.000, D-W stat. = 2.08			

*Note: * indicates p lag structures in each model.*

As can be seen from 4.4.10, ROA and ROE converge to their long term equilibrium level by 18.31and 20.01 percent as contributed by their regressors: GDP, Tourist Arrivals, and Total Assets. These coefficients are statistically significant and negative as expected. Short term coefficients of regressors are also statistically significant. As far as short term coefficients are concerned, real income (GDP) has negative impact on ROA and ROE of THY and Tourism arrival (TA) has positive impact on ROA and ROE of THY.

Table 4.3.11. The ARDL Error Correction Model for THY-SR (2, 2, 2, 1)* and SCORE (2, 2, 2, 2)*

SR				SCORE			
Regressor	Coefficient	Standard Error	p-value	Regressor	Coefficient	Standard Error	p-value
DSR(-1)	0.620024	0.079833	0.0000	DSCORE(-1)	0.587713	0.086714	0.0000
DLOGGDP	-654.1543	98.70666	0.0000	DLOGGDP	-226.3490	25.09461	0.0000
DLOGGDP(-1)	590.1728	102.4761	0.0000	DLOGGDP(-1)	169.3581	31.05071	0.0000
DSIZE	9.91E-06	4.27E-06	0.0251	DSIZE	6.97E-06	1.09E-06	0.0000
DSIZE(-1)	-1.17E-05	4.16E-06	0.0074	DSIZE(-1)	-4.36E-06	1.37E-06	0.0027
DLOGTA	-105.8815	36.48082	0.0059	DLOGTA	8.661916	9.889674	0.3862
C	0.756361	1.764030	0.6703	DLOGTA(-1)	-20.09862	9.987915	0.0508
ECMT(-1)	-0.163156	0.045016	0.0008	C	0.239684	0.359436	0.5086
				ECMT(-1)	-0.147660	0.035189	0.0001
Adj. R^2= 0.86, S.E. of Regr. = 7.39, AIC = 6.98, SBC = 7.29, F-stat. = 47.83, F-prob. = 0.000, D-W stat. = 2.45				Adj. R^2= 0.84, S.E. of Regr. = 1.81, AIC = 4.18, SBC = 4.53, F-stat. = 35.25, F-prob. = 0.000, D-W stat. = 2.43			

*Note: * indicates p lag structures in each model.*

According to Table 4.3.11, SR and SCORE converge to their long term equilibrium level by 16.31 and 14.76 percent as contributed by their regressors: GDP, Tourist Arrivals, and Total Assets. These coefficients are statistically significant and negative as expected. Short term coefficients of regressors are also statistically significant except tourist arrival for SCORE model. Real income (GDP) has a negative short term effect on stock returns (SR) and overall financial SCORE of NTTUR. Tourist arrival on the other hand only has negative effect on SR.

4.4. Granger Causality Test

Finally, conditional Granger causality tests are employed in order to investigate the direction of long term and short term causalities among dependent variables and their regressors.

Table 4.4.1. Conditional Granger Causality Test for AYCES

(With deterministic trend) For ROA

Dependent Variable	F-statistics [probability values]				
	logGDP	SIZE	logTA	ROA	t-stat (prob) for ECT_{t-1}
logGDP	--	0.01953 [0.9998]	0.2159 [0.9997]	0.2441 [0.9996]	0.2740 [0.7910]
SIZE	0.1603 [0.9704]	--	4.4484** [0.0310]	0.3425 [0.8734]	-0.8418 [0.4243]
logTA	0.09341 [0.9908]	1.6939 [0.2416]	--	1.7428 [0.2309]	-0.6472 [0.5356]
ROA	1.7949 [0.2201]	4.6151** [0.0281]	4.4535** [0.0309]	--	-4.0334* [0.0037]

Note: p-values are given in parantheses

Table 4.4.1 suggests that when ROA is dependent, there exists long term unidirectional causality that runs from GDP, SIZE, and tourist arrivals towards ROA since t ratio in this model is negative and statistically significant. It is said to be unidirectional because the other three models did not reveal statistically significant t ratios. In the same table, there are also some short term causations as denoted by F-ratios. For example, short term causalities that exist from tourist arrivals to SIZE and from SIZE and tourist arrivals towards ROA of AYCES have been investigated.

Table 4.4.2. Conditional Granger Causality test for AYCES

(Without deterministic trend) For ROE

Dependent Variable	F-statistics [probability values]				
	logGDP	SIZE	logTA	ROE	t-stat (prob) for ECT_{t-1}
logGDP	--	0.0471 [0.9981]	0.01081 [0.9873]	0.1331 [0.9800]	0.8365 [0.4271]
SIZE	0.9725 [0.9900]	--	4.0194** [0.0403]	0.1872 [0.9593]	-0.2849 [0.7830]
logTA	0.04114 [0.9986]	1.3819 [0.3253]	--	1.8379 [0.2116]	-0.0778 [0.9398]
ROE	1.5302 [0.2286]	3.9417** [0.0423]	3.8039** [0.0463]	--	-3.4163* [0.0091]

Note: p-values are given in parantheses

Table 4.4.2 reveals that ROE as a dependent variable in this model has a negative and statistically significant t ratio. Therefore, a long term unidirectional causality that runs from GDP, total assets, and tourist arrivals towards ROE exist in this model. This is since the other three models did not reveal statistically significant t ratios. In the same table, there are also some short term causations as denoted by F-ratios. For example, short term causalities that exist from tourist arrivals to Size and from Size and tourist arrivals towards ROE of AYCES have been investigated.

Table 4.4.3. Conditional Granger Causality test for AYCES

(Without deterministic trend) For SR

Dependent Variable	F-statistics [probability values]			SR	t-stat (prob) for ECT_{t-1}
	logGDP	SIZE	logTA		
logGDP	--	0.6976 [0.6404]	1.1183 [0.4219]	1.5445 [0.2781]	2.0014*** [0.0803]
SIZE	2.2424 [0.1483]	--	13.2903* [0.0011]	2.9926*** [0.0816]	0.6234 [0.5504]
logTA	0.6506 [0.6699]	1.5136 [0.2865]	--	1.0661 [0.4444]	1.3623 [0.2101]
SR	4.4649** [0.0307]	3.6538*** [0.0511]	3.8039** [0.0463]	--	-2.0114*** [0.0791]

Note: p-values are given in parantheses

Table 4.4.3 indicates a negative and statistically significant t ratio for SR as a dependent variable and for GDP as an independent variable in this model. As a result, long term bidirectional causality runs from GDP, to SR and a unidirectional causality exists from SIZE, and tourist arrivals towards SR. In the same table, there are also some short term causations as denoted by F-ratios. For example, short term causalities that exist from tourist arrivals and SR to Size and from GDP, Size and tourist arrivals towards SR of AYCES have been investigated.

Table 4.4.4. Conditional Granger Causality test for AYCES

(Without deterministic trend) For SCORE

Dependent Variable	F-statistics [probability values]			SCORE	t-stat (prob) for ECT_{t-1}
	logGDP	SIZE	logTA		
logGDP	--	0.4250 [0.8195]	0.8023 [0.5781]	0.9661 [0.4912]	1.8686*** [0.0986]
SIZE	1.4106 [0.3163]	--	9.2187* [0.0036]	1.6708 [0.2469]	0.5482 [0.5985]
logTA	0.3345 [0.8785]	1.0773 [0.3495]	--	0.9571 [0.4956]	1.1393 [0.2875]
SCORE	3.7279** [0.0487]	3.8347** [0.0454]	4.0563** [0.0394]	--	-2.3298*** [0.0482]

Note: p-values are given in parantheses.

Table 4.4.3 demonstrates a negative and statistically significant t ratio for SCORE as a dependent variable and for GDP as an independent variable in this model. As a result, long term bidirectional causality runs from GDP, to SCORE and a unidirectional causality exists from SIZE and tourist arrivals towards SCORE. In the same table, there are also some short term causations as denoted by F-ratios. For example, short term causalities that exist from tourist arrivals to Size and from GDP, Size and tourist arrivals towards SCORE of AYCES have been investigated.

Table 4.4.5. Conditional Granger Causality test for MAALT

(With deterministic trend) For ROA

Dependent Variable	F-statistics [probability values]				
	logGDP	SIZE	logTA	ROA	t-stat (prob) for ECT_{t-1}
logGDP	--	1.1200 [0.3815]	1.5224 [0.2276]	0.7531 [0.5936]	-1.6568 [0.1132]
SIZE	6.2105* [0.0012]	--	5.1922* [0.0032]	1.5109 [0.2310]	0.9311 [0.3629]
logTA	0.3665 [0.8654]	16.8102* [0.0000]	--	0.8825 [0.5107]	0.3688 [0.7161]
ROA	0.5261 [0.7538]	5.1403* [0.0034]	4.0614** [0.0105]	--	-3.0642* [0.0061]

Note: p-values are given in parantheses.

Table 4.4.5 reveals that ROA as a dependent variable in this model has a negative and statistically significant t ratio. Therefore, a long term unidirectional causality that runs from GDP, total assets, and tourist arrivals towards ROA exists in this model. This is since the other three models did not reveal statistically significant t ratios. In the same table, there are also some short term causations as denoted by F-ratios. For example, short term causalities that exist from tourist arrivals to Size and from Size and tourist arrivals towards ROA of MAALT have been investigated.

Table 4.4.6. Conditional Granger Causality test for MAALT

(Without deterministic trend) For ROE

Dependent Variable	F-statistics [probability values]				
	logGDP	SIZE	logTA	ROE	t-stat (prob) for ECT_{t-1}
logGDP	--	0.9329 [0.4808]	1.354412 (0.2829)	0.605008 (0.6969)	-1.51002 (0.14668)
SIZE	5.820492* (0.0018]	--	4.104803** (0.0100)	1.325925 (0.2935)	0.59084 (0.56125)
logTA	0.437216 (0.8173)	15.43348* (0.0000)	--	0.613571 (0.6908)	-0.27611 (0.78530)
ROE	0.185867 (0.9646)	7.801792* (0.0003)	5.351054* (0.0028)	--	-2.62881** (0.01609)

Note: p-values are given in parantheses.

As Table 4.4.6 presents ROE as a dependent variable in this model has a negative and statistically significant t ratio which means a long term unidirectional causality that runs from GDP, total assets, and tourist arrivals towards ROE in this model. This is since the other three models did not reveal statistically significant t ratios. Also, there are some short term causations as denoted by F-ratios. Such as short term causalities that exist from GDP and tourist arrivals to Size and from Size to tourist arrivals, Also from Size and tourist arrivals towards ROE of MAALT.

Table 4.4.7. Conditional Granger Causality test for MAALT
(Without deterministic trend) For SR

Dependent Variable	F-statistics [probability values] logGDP	SIZE	logTA	SR	t-stat (prob) for ECT_{t-1}
logGDP		0.542012	0.794178	1.952845	0.93757
	--	[.7423]	[.5665]	[.1302]	[.35965]
SIZE	4.138978*		3.403829**	0.775497	-1.44835
	[.0096]	--	[.0219]	[.5787]	[.16302]
logTA	2.402171***	28.48733*		0.975810	2.61610
	[.0734]	[.0000]	--	[.4564]	[.01654]
SR	0.760661	1.284122	6.872203*		-3.32401*
	[.5886]	[.3097]	[.0007]	--	[.00338]

Note: p-values are given in parantheses

Table 4.4.7 presents a negative and statistically significant t ratio for SR as a dependent variable. As a result, a long term unidirectional causality exists from GDP, SIZE, and tourist arrivals towards SR. This is since the other three models did not reveal statistically significant t ratios. In the same table, there are also some short term causations as denoted by F-ratios. For example, short term causalities that exist from GDP and tourist arrivals to Size and from GDP and Size to tourist arrivals and finally from tourist arrivals towards SR of MAALT.

Table 4.4.8. Conditional Granger Causality test for MAALT

(Without deterministic trend) For SCORE

Dependent Variable	F-statistics [probability values]			SCORE	t-stat (prob) for ECT_{t-1}
	logGDP	SIZE	logTA		
logGDP		0.200781	0.442463	1.528986	1.12530
	--	[0.9584]	[0.8136]	[0.2256]	[0.27378]
SIZE	5.373319*		4.015247**	1.608119	-1.52770
	[0.0027]	--	[0.0110]	[0.2036]	[0.14225]
logTA	1.803028	21.48192		1.015462	2.41199**
	[0.1580]	[0.0000]	--	[0.4347]	[0.02559]
SCORE	0.444870	2.4988***	8.9392*		-2.63064**
	[0.8119]	[0.0650]	[0.0001]	--	[0.01603]

Note: p-values are given in parantheses.

Table 4.4.8 demonstrates a negative and statistically significant t ratio for SCORE as a dependent variable and for tourist arrival as an independent variable in this model. As a result, long term bidirectional causality exists between TA and SCORE and a unidirectional causality runs from GDP and SIZE towards SCORE. In the same table, there are also some short term causations as denoted by F-ratios. For example, short term causalities that exist from GDP and tourist arrivals to Size and from GDP, Size and tourist arrivals towards SCORE of MAALT have been investigated.

Table 4.4.9. Conditional Granger Causality test for MARTI

(With deterministic trend) For ROA

Dependent Variable	F-statistics [probability values]				
	logGDP	SIZE	logTA	ROA	t-stat (prob) for ECT_{t-1}
logGDP		0.306909	0.730764	0.201988	-0.45366
	--	[0.9039]	[0.6074]	[0.9585]	[0.65415]
SIZE	2.2510***		0.182831	0.989877	0.43669
	[0.0819]	--	[0.9664]	[0.4446]	[0.66624]
logTA	2.8720**	2.6989**		2.8589**	-0.4972
	[0.0360]	[0.0451]	--	[0.0366]	[0.62351]
ROA	1.23626	0.77235	0.36684		-1.9771***
	[0.3232]	[0.5790]	[0.8662]	--	[0.05963]

Note: p-values are given in parantheses.

The results in Table 4.4.9 shows that ROA as a dependent variable in this model has a negative and statistically significant t ratio. Therefore, a long term unidirectional causality that runs from GDP, total assets, and tourist arrivals towards ROA exists in this model. This is since the other three models did not reveal statistically significant t ratios. In the same table, there are also some short term causations as denoted by F-ratios. For example, short term causalities exist from GDP to Size and from GDP, Size and ROA towards tourist arrivals of MARTI have been investigated.

Table 4.4.10. Conditional Granger Causality test for MARTI

(Without deterministic trend) For ROE

Dependent Variable	F-statistics [probability values]				
	logGDP	SIZE	logTA	ROE	t-stat (prob) for ECT_{t-1}
logGDP		0.7241	0.8749	0.2176	-0.84796
	--	[0.6120]	[0.5126]	[0.9515]	[0.40484]
SIZE	0.986389		0.086942	0.4182	-0.60550
	[0.4465]	--	[0.9936]	[0.8314]	[0.55053]
logTA	2.2813***	2.1716***		1.6832	-1.13416
	[0.0786]	[0.0911]	--	[0.1770]	[0.26793]
ROE	1.5909	1.1556	0.2504		-3.09124*
	[0.2007]	[0.3593]	[0.9354]	--	[0.00499]

Note: p-values are given in parantheses.

As Table 4.4.10 indicates ROE as a dependent variable in this model has a negative and statistically significant t ratio which means a long term unidirectional causality that runs from GDP, total assets, and tourist arrivals towards ROE in this model. This is since the other three models did not reveal statistically significant t ratios. Also, there are some short term causations as denoted by F-ratios. Such as short term causalities that exist from GDP and Size to tourist arrivals.

Table 4.4.11. Conditional Granger Causality test for MARTI

(Without deterministic trend) For SR

Dependent Variable	F-statistics [probability values] logGDP	SIZE	logTA	SR	t-stat (prob) for ECT_{t-1}
logGDP	--	0.1606 [0.9745]	1.8640 [0.1384]	2.3865*** [0.0683]	-0.1365 [0.89254]
SIZE	1.462206 [0.2389]	--	0.419244 [0.8307]	0.813541 [0.5517]	-0.17855 [0.85979]
logTA	0.135952 [0.9824]	0.358320 [0.8718]	--	0.356135 [0.8732]	0.52632 [0.60350]
SR	0.233461 [0.9440]	1.073486 [0.3997]	0.225759 [0.9477]	--	-0.72433 [0.47587]

Note: p-values are given in parantheses

Table 4.4.11 reveals no statistical significant t ratio for stock return of MARTI. This indicates that there is no long term causality among stock return as dependent variable and GDP and tourist arrivals. Also other three models did not reveal statistically significant t ratios. The only short term causation as denoted by F-ratios is from stock return to GDP for this company.

Table 4.4.12. Conditional Granger Causality test for MARTI

(Without deterministic trend) For SCORE

Dependent Variable	F-statistics [probability values]			SCORE	t-stat (prob) for ECT_{t-1}
	logGDP	SIZE	logTA		
logGDP		0.812505	0.282335	0.294448	-0.17630
	--	[0.5524]	[0.9182]	[0.9113]	[0.86154]
SIZE	1.316769		1.618270	1.621230	-0.58777
	[0.2904]	--	[0.1933]	[0.1926]	[0.56217]
logTA	0.315187	0.105939		0.367851	-0.00960
	[0.8989]	[0.9899]	--	[0.8655]	[0.99242]
SCORE	4.478938*	0.759864	0.439152		-0.71545
	[0.0050]	[0.5875]	[0.8167]	--	[0.48123]

Note: p-values are given in parantheses.

As can be seen from Table 4.4.12 there is no statistical significant t ratio for stock return of MARTI implying that there is no long term causality among over financial SCORE of MARTI as dependent variable and GDP and tourist arrivals. As well there is no statistically significant t ratio for other three models. The only short term causation as denoted by F-ratios is from GDP to SCORE for this company.

Table 4.4.12. Conditional Granger Causality test for MARTI

(Without deterministic trend) For SCORE

Dependent Variable	F-statistics [probability values]			SCORE	t-stat (prob) for ECT_{t-1}
	logGDP	SIZE	logTA		
logGDP		0.812505	0.282335	0.294448	-0.17630
	--	[0.5524]	[0.9182]	[0.9113]	[0.86154]
SIZE	1.316769		1.618270	1.621230	-0.58777
	[0.2904]	--	[0.1933]	[0.1926]	[0.56217]
logTA	0.315187	0.105939		0.367851	-0.00960
	[0.8989]	[0.9899]	--	[0.8655]	[0.99242]
SCORE	4.478938*	0.759864	0.439152		-0.71545
	[0.0050]	[0.5875]	[0.8167]	--	[0.48123]

Note: p-values are given in parantheses.

Table 4.4.13. Conditional Granger Causality test for METUR

(Without deterministic trend) For ROE

Dependent Variable	F-statistics [probability values]			t-stat (prob) for ECT_{t-1}
	logGDP	logTA	ROE	
logGDP		1.650	12.959	-0.999
	--	[0.528]	[0.207]	[0.500]
logTA	65.76***		61.543***	1.252
	[0.093]	--	[0.096]	[0.428]
ROE	1014545.*	185588.*		-1.235
	[0.000]	[0.001]	--	[0.433]

Note: p-values are given in parantheses.

As illustrated in Table 4.4.13, t ratio for ROE is not statistically significant therefore there is no long term causality from GDP and tourist arrivals toward ROE. However, there are short term causalities, as denoted by statistically significant F-ratios, from

tourit arrivals and GDP to ROE as well as from from ROE and GDP towards tourist arrivals.

Table 4.4.14. Conditional Granger Causality test for NTTUR

(Without deterministic trend) For ROA

Dependent Variable	F-statistics [probability values]			ROA	t-stat (prob) for ECT_{t-1}
	logGDP	SIZE	logTA		
logGDP		2.1776***	6.0165*	0.8033	1.2848
	--	[0.0976]	[0.0015]	[0.5605]	[0.21353]
SIZE	0.4200		1.2577	0.4696	-0.4822
	[0.8292]	--	[0.3203]	[0.7943]	[0.63484]
logTA	0.8216	2.1328		0.5977	1.8505***
	[0.5487]	[0.1033]	--	[0.7021]	[0.07906]
ROA	2.2320***	3.7117**	4.3083*		-2.6280**
	[0.0910]	[0.0154]	[0.0080]	--	[0.01612]

Note: p-values are given in parantheses.

Table 4.4.14 demonstrates a negative and statistically significant t ratio for ROA as a dependent variable and for TA as an independent variable in this model. As a result, long term bidirectional causality exists between ROA and TA and a unidirectional causality exists from GDP and SIZE towards ROA. In the same table, there are also some short term causations as denoted by F-ratios. For example, short term causalities that exist from Size and tourist arrivals to GDP and from GDP, Size and tourist arrivals towards ROA of NTTUR have been investigated.

Table 4.4.15. Conditional Granger Causality test for NTTUR

(Without deterministic trend) For ROE

Dependent Variable	F-statistics [probability values]				
	logGDP	SIZE	logTA	ROE	t-stat (prob) for ECT_{t-1}
logGDP	--	4.00826** [0.0111]	5.993421* [0.0015]	1.443281 [0.2522]	1.9325*** [0.06758]
SIZE	1.369093 [0.2776]	--	2.2788*** [0.0858]	1.944790 [0.1315]	1.03109 [0.31481]
logTA	2.156269 [0.1003]	0.357606 [0.8713]	--	6.324507* [0.0011]	0.08597 [0.93234]
ROE	8.674573* [0.0002]	9.748292* [0.0001]	3.720169** [0.0153]	--	-2.65222** [0.01529]

Note: p-values are given in parantheses.

ROE as a dependent and GDP as an independent variable have negative and statistically significant t ratios. This indicates long term bidirectional causality between GDP and ROE. Other two models did not reveal statistically significant t ratios; therefore, the causation from Size and TA towards ROE is unidirectional. Also, there are some short term causations as denoted by F-ratios. Such as short term causalities that exist from Size and tourist arrivals to GDP and from tourist arrivals to Size, Also from ROE to tourist arrivals and finally from GDO, Size and TA towards ROE of NTTUR.

Table 4.4.16. Conditional Granger Causality test for NTTUR

(With deterministic trend) For SR

Dependent Variable	F-statistics [probability values] logGDP	SIZE	logTA	SR	t-stat (prob) for ECT_{t-1}
logGDP	--	5.221067* [0.0032]	3.676915** [0.0160]	1.184338 [0.3517]	0.17330 [0.86416]
SIZE	3.004593** [0.0350]	--	3.905693** [0.0124]	2.6933*** [0.0511]	0.43668 [0.66702]
logTA	0.824682 [0.5468]	2.6954*** [0.0510]	--	0.491030 [0.7790]	-0.34551 [0.73332]
SR	0.978869 [0.4547]	3.0904** [0.0316]	0.390387 [0.8495]	--	-1.7697*** [0.09202]

Note: p-values are given in parantheses

Table 4.4.16 represents a negative and statistically significant t ratio for SR as a dependent variable. As a result, a long term unidirectional causality exists from GDP, SIZE, and tourist arrivals towards SR. This is since the other three models did not reveal statistically significant t ratios. In the same table, there are also some short term causations as denoted by F-ratios. For example, short term causalities that exist from Size and TA to GDP, from GDP, tourist arrivals and SR to Size, from Size to TA and gradually from Size to stock return in NTTUR.

Table 4.4.17. Conditional Granger Causality test for NTTUR

(Without deterministic trend) For SCORE

Dependent Variable	F-statistics [probability values]			SCORE	t-stat (prob) for ECT_{t-1}
	logGDP	SIZE	logTA		
logGDP		7.593742*	5.017594*	1.426672	1.29596
	--	[0.0004]	[0.0039]	[0.2577]	[0.20975]
SIZE	1.613080		1.926702	1.017084	-0.62234
	[0.2023]	--	[0.1347]	[0.4338]	[0.54075]
logTA	1.747974	4.236278 *		1.137946	-1.49530
	[0.1697]	[0.0087]	--	[0.3730]	[0.15045]
SCORE	2.8713**	1.945431	0.362965		-3.91791*
	[0.0411]	[0.1314]	[0.8678]	--	[0.00085]

Note: p-values are given in parantheses.

As Table 4.4.17 depicts, t ratio for SCORE is negative and statistically significant. As a result, a long term unidirectional causality exists from GDP, SIZE, and tourist arrivals towards SCORE. This is since the other three models did not reveal statistically significant t ratios. In the same table, there are also some short term causations as denoted by F-ratios. For example, short term causalities that exist from Size and tourist arrival to GDP and from Size toward tourist arrivals.

Table 4.4.18. Conditional Granger Causality test for THY

(With deterministic trend) For ROA

Dependent Variable	F-statistics [probability values]				t-stat (prob) for ECT_{t-1}
	logGDP	SIZE	logTA	ROA	
logGDP		0.286912	0.778920	0.728711	-0.63421
	--	[0.9156]	[0.5746]	[0.6088]	[0.53194]
SIZE	0.152572		0.677706	0.395608	0.82219
	[0.9772]	--	[0.6445]	[0.8469]	[0.41906]
logTA	0.106631	0.168345		0.072602	-0.58244
	[0.9898]	[0.9718]	--	[0.9958]	[0.56570]
ROA	0.312949	0.888399	1.282600		-2.88903*
	[0.9003]	[0.5042]	[0.3039]	--	[0.00807]

Note: p-values are given in parantheses.

Table 4.4.18 shows that ROA as a dependent variable in this model has a negative and statistically significant t ratio. Therefore, a long term unidirectional causality that runs from GDP, total assets, and tourist arrivals towards ROA exists in this model. This is since the other three models did not reveal statistically significant t ratios. However, there are no short term causations as denoted by F-ratios.

Table 4.4.19. Conditional Granger Causality test for THY

(Without deterministic trend) For ROE

Dependent Variable	F-statistics [probability values]				
	logGDP	SIZE	logTA	ROE	t-stat (prob) for ECT_{t-1}
logGDP		0.726942	0.903928	0.209246	0.49748
	--	[0.6100]	[0.4947]	[0.9553]	[0.62338]
SIZE	0.295379		0.405463	0.076558	1.00882
	[0.9107]	--	[0.8402]	[0.9952]	[0.32312]
logTA	0.044927	0.212519		0.170106	0.61133
	[0.9987]	[0.9538]	--	[0.9712]	[0.54673]
ROE	0.462153	0.982920	3.347466**		-2.59750**
	[0.8004]	[0.4485]	[0.0196]	--	[0.01579]

Note: p-values are given in parantheses.

As Table 4.4.19 presents ROE as a dependent variable in this model has a negative and statistically significant t ratio which means a long term unidirectional causality that runs from GDP, total assets, and tourist arrivals towards ROE in this model. This is since the other three models did not reveal statistically significant t ratios. Also, there are some short term causations as denoted by F-ratios. Such as short term causalities that exist from tourist arrivals to ROE.

Table 4.4.20. Conditional Granger Causality test for THY

(Without deterministic trend) For SR

Dependent Variable	F-statistics [probability values] logGDP	SIZE	logTA	SR	t-stat (prob) for ECT_{t-1}
logGDP	--	5.024666* [0.0027]	1.924069 [0.1275]	5.477020* [0.0017]	3.03964* [0.00565]
SIZE	3.012230** [0.0300]	--	1.366665 [0.2717]	3.844648** [0.0106]	-0.45268 [0.65484]
logTA	0.875791 [0.5120]	0.718972 [0.6155]	--	0.952577 [0.4658]	2.37630** [0.02581]
SR	2.049329 [0.1076]	1.257486 [0.3142]	0.619228 [0.6864]	--	-3.87285* [0.00073]

Note: p-values are given in parantheses

Table 4.4.20 presents statistically significant t statistics for GDP, TA and a negative and statistically significant t ratio for SR as a dependent variable. This indicates a bidirectional long term causality between GDP, tourist arrivals and stock return in THY. The table also illustrates some short term causations as denoted by F-ratios. For example, short term causalities that exist from Size and stock return to GDP as well as from GDP and SR toward Size.

Table 4.5.21. Conditional Granger Causality test for THY

(Without deterministic trend) For SCORE

Dependent Variable	F-statistics [probability values]			SCORE	t-stat (prob) for ECT_{t-1}
	logGDP	SIZE	logTA		
logGDP		3.157815**	1.387579	2.3233***	0.63990
	--	[0.0249]	[0.2641]	[0.0743]	[0.52830]
SIZE	2.2409***		0.394639	1.620109	0.96272
	[0.0830]	--	[0.8476]	[0.1929]	[0.34529]
logTA	0.281504	0.463790		0.405329	1.17388
	[0.9187]	[0.7992]	--	[0.8403]	[0.25196]
SCORE	0.743020	0.639261	0.935812		-1.9438***
	[0.5990]	[0.6720]	[0.4756]	--	[0.06373]

Note: p-values are given in parantheses.

Overall financial SCORE as a dependent variable in this model (as demonstrated by Table 4.4.21) has a negative and statistically significant t ratio as expected. As far as other independent variables in this model don't reveal any statistical significant t ratios, Therefore, there is a long term unidirectional causality which runs from GDP, SIZE and tourist arrivals towards SCORE. Also, as F statistic values represent, there are some short term causalities from SCORE and Size to GDP and from GDP to Size for THY.

As tables 4.5.1 through 4.5.20 illustrate almost for all companies, a long term causality relationship between economic and industrial factors (GDP and Tourist Arrivals) and corporate performance measures (ROA, ROE, SIZE and SR) has been investigated which in some model even this relationship is bidirectional impact.

Chapter 5

CONCLUSION

In this chapter, concise synopsis and obtained results will be reviewed in both theoretical and econometric context. Afterward, the conclusions and policy implications would be recommended. Finally, some limitations during the study would be scrutinized and possibilities for further research in this topic will be discussed.

5.1 Summary of the Study

This thesis empirically examined the association of the economic and industry factors on financial performance of tourist companies in Turkey. Gross domestic product (GDP) is employed as representative for change in economic situation, whereas the number of foreign tourist arrivals (TA) as substitute for tourism expansion, plays the industry factor's role. The performance measures for tourist companies under consideration comprise return on assets (ROA), return on equity (ROE), stock return (SR) and a comprehensive score. ROA and ROA are the corporate profitability indicators whereas stock return measures the stock performance of the companies. The comprehensive score is derived from six major financial and accounting ratios such as total asset turn over, return on assets, return on equity, current ratio, quick ratio and debt to equity ratio based on factor analysis approach. Score evaluates the overall financial performance of the companies instead of just a single measure of stock performance or profitability. In fact it is a combination of asset management, profitability, short term liquidity and long

term solvency. Based on time series regression approaches the impacts of change in economic conditions (GDP) and tourism growth (TA) on corporate performance of the tourist companies in Turkey are investigated by employing the collected data from five publicly traded hotel companies in Turkey as well as Turkish Airlines.

5.2 Summary of Empirical Results

From one company to other, time series regression analyses represent different results. This is due to different number of observations from each company. However, the general findings reveal that a long term equilibrium relationship exists between economic growth (GDP), international tourist arrivals and financial performance measures of the tourism companies in Turkey. The long term and short term impacts of economic growth and tourism expansion on corporate performance factors are generally and statistically significant. Results reveal that financial performance of tourism companies in Turkey converge to its long term economic level by the contribution of the general economic conditions and industrial factors. This finding is important in econometrics science. Moreover, results indicate a unidirectional (interestingly in some cases even bidirectional) causality relationship from economic growth and tourism expansion toward corporate performance in both long and short terms of the economic operations of tourism firms in Turkey. This is to say that economic wellbeing and tourism expansion in Turkey are catalyst for corporate performance in the tourism companies. Therefore, the chief finding in this study is that economic growth and tourism proliferation have significant effect on the improvement of corporate performance of tourism sector companies in Turkey.

5.3. Major Implications

This study demonstrates a close relationship between corporate performance in tourism industry and the state of the economy and tourism expansion. In addition, based on the available studies which confirm the tourism led growth hypothesis, economic growth is highly affected by tourism expansion. In other words, there is a long run bidirectional causality relationtionship between economic development and tourism in Turkey. We can infer that the economy and tourism sector promote each other. Since these two also have a significant effect on the financial and corporate functioning of the tourist industry companies, it is of prime importance for Turkish government and major policy makers to develop an incentive long run strategic plan for the international tourism arrivals and therefore, stimulating the economic growth and boosting the corporate performance of tourist related companies. This study proved that real income and tourism growth in Turkey are major long term determinants of company performances; therefore, specially large tourism companies should develop their long term plans in accordance with developments and expectations on the Turkish economy and tourism sector as a whole. For example, five-year development plans and annual reports published by the Turkish governments should be closely followed by administrations in the tourism and hotel industry in Turkey.

The graphical as well as empirical results clearly approve the fact that a stable economic environment in terms of major macroeconomic factors such as inflation rate, real exchange rate and GDP is very vital in efficient operation of firms in cyclical industries and specifically tourism sector. This condition attracts and encourages for more foreign investments which are mutually profitable for both parties in such a stable condition.

This recommends Turkish government to more vigorously keep track of economic stablization and regulation system.

5.4 Limitations and Further Research

The major limitation in this thesis was relatively small number of observations from the companies under consideration. One reason is most of these companies are recent in terms of starting the operation. These created some difficulties in empirical estimations of the present research. For example, estimation of the panel regression analysis has been omitted from the study. Therefore, we performed time series regression analysis separately for each company and as result some findings deviate to some extend from the logical expected results as also can be mainly seen from the results of the company "METUR". Further research can be replicated by gathering more detailed data and by adding more companies. This study can also be replicated for the tourism sectors in the other major tourist destination countries over the world.

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