

# Determinants of Profitability and Value Creation in International Airlines listed on the New York Stock Exchange

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**Abstract:** This study is based on the top 12 airline firms of the NYSE to evaluate the profit and value drivers across the sector taking into account internal variables and market conditions. Limited research is currently available linking the performance drivers of profit and value and identifying the determinants for each. The airline sector is a specifically important focus for current and future studies as the frequency of both commercial and freight air-travel is important for the economy. In order to determine and measure the effect of each critical industry-specific and market-based variable on a firm's profit and value, a panel data regression is utilized. Results from the model show that return on equity is positively correlated with operating margin and negatively correlated with current ratio and the level of revenue, while gearing is positively correlated but not significant. Therefore, the profitability for firms in the airline sector grows as each of the independent variables mentioned above increases or decreases. In the next part of the study which studied the relationship between profitability and market value, it was found that profitability feeds into market value and the latter measure is higher for the companies with higher market capitalization. The coefficients of the oil price and inflation were positive and negative respectively, though these were not significant. The importance of prudent management of operating expenses and working capital policies is clear. Accounting profitability is also higher at airlines with a lower revenue. Value creation, as measured by market to book ratio, is positively and significantly correlated with profitability and market capitalization. Value creation is also positively correlated with oil prices and negatively correlated with inflation though the relationship is not significant with the latter two variables. Overall the goal of the study was successfully met by pinpointing the determinants which most maximize profitability and value creation in firms across the airline sector of the NYSE and presenting the implications of these findings.

**Keywords:** New York Stock Exchange, profitability, value creation, dynamic panel

**JEL classification:** G1,G2,G3

## 1. Introduction

### 1.1. Background

The primary motivation of any firm is to create long-term value through stable growth, consistent profits, and the maximization of shareholder wealth. The search for wealth and success drives management teams of a company to adopt corporate strategies and identify specific financial factors that will guarantee future success. Companies, which fail to detect and enhance corporate attributes that generate value, will cease to exist. Because of this underlying goal for all firms in a market-driven economy, there is an archive of studies that attempt to identify the significant determinants of company value and profitability. However, few studies combine both measures of performance.

### 1.2. Rationale

Profitability and Value Creation are often used interchangeably. However, one measure can exist without the other. Although an increase in either variable is beneficial to a company, their definitions are ultimately based on different measures. According to Masa'deh *et al.* (2015), profitability can be defined as the revenue a company generates after paying expenses, while value creation refers to actions that increase the worth of assets, services, and the firm as a whole. A profitable business is essential to the immediate survival of a company; creating value is what ultimately ensures a secure future. A volume of literature, including those of Al-Jafari and Al Samman (2015), have shown proof of a strong, positive relationship between profitability and value creation measured through earnings and stock value. As a result, the focus of this study will be on identifying the significant financial determinants that increase both shareholder value and profitability for the selected companies in the airline sector of the NYSE.

### 1.3. Aim of the research

The aim of this research is to ascertain the determinants of profitability and also the links between profitability and value creation in International Airlines listed on the NYSE. The airline sector was chosen due to the limited coverage in current literatures and the rising demand for commercial air transportation of both passengers and freight. According to Baltaci *et al.* (2015), air transportation is not only the preferred method of travel by consumers, it is also a necessary resource for developing countries supporting their economic globalization, accessibility, and international trade volumes. However, despite the growth in airline transportation, the NYSE Arca Airline Index has shown a decreasing trend over the past year, proving a

market need for the identification of airline industry-specific performance drivers.

#### **1.4. Structure of the work**

This study has been divided into six sections. The background and aim of this study have been covered in the first section. The second section reviews previous studies and their findings in order to develop a hypothesis, the parameters of interest, and the novelty within this study. The third section provides a detailed methodology behind the data selection and empirical models estimated. The fourth section presents the results from running the empirical models, including all charts and tables used in the analysis. The fifth section provides a more grounded explanation and interpretation of the results with comparisons to previous studies. Finally, the sixth section reviews the key findings and concludes the study.

## **2. Literature Review**

This section reviews previous research related to the topic on hand. Due to the desire of prosperity for a firm, there is a clear demand for studies identifying the determinants of value creation in numerous industries. However, the conclusions of most studies have varying results due to the choice of both the model and the dependent variables used to measure a firm's performance. The inconsistencies and gaps in literature leaves demand for a new study to compare the previous findings with more recent data in order to better quantify the critical determinants for a companies' value and profitability.

### ***Value Creation and FX Rate, Interest Rate, and Oil Prices***

The performance of any firm is not only affected by their choice of characteristics and structure but also by the conditions of the market around it. It has been shown through various studies including those of Kumar (2015), Samy *et al.* (2002) and Pandey (2006) that market risk can negatively influence the value and profits of a firm. Other common forms of external risk that may also alter a firm's performance include interest rate risk and foreign exchange risk. Interest rate risk is defined as the loss of market value of a firm due to unfavourable fluctuations in interest rates, while foreign exchange risk refers to the losses faced by a company in operational costs and accounting measures due to changes in exchange rates (Bessis, 2015).

The study of Chan *et al.* (2002) documents that changes in foreign exchange rates affect firm value because they have a direct impact on the current and future cash flows of a firm. Similarly, interest rates have an

impact on a firm's future growth and value creation. Yashodha *et al.* (2016) advocate that lower interest rates in the market also cause a decrease in debt payment rates for a firm. Lesser debt payments support the growth and profitability of new firms as they can partake in more investment opportunities with the available funding, thus generating firm value. Yashodha *et al.* (2016) also find that the airline industry, in particular, is sensitive to FX changes as they have a large portion of their expenses and income denominated in foreign currency. Therefore, if the home currency of an airline depreciates, the operating costs for any assets in a foreign currency will rise, destroying the value of a firm with it. Similarly, if the exchange rate decreases, the expected profits from international ticket sales will also decrease. Berghofer and Lucey (2014) also postulate on airline-specific risks which negatively affect the performance of firms in the industry claiming that foreign exchange rate, interest rate, and fuel price fluctuations have the most substantial impact on an airlines performance. The study indicates that over a third of operational costs in the airline industry are based around fuel prices, therefore when these prices spike due to high demand, the future profits of a company drops as more money is used on expenses of commodities. The external economic factors and levels of risk in the market strongly influence the market value of a firm. Therefore managing these costs are essential to the growth and profitability of a firm.

### ***Profitability***

Following the trend of previous studies, in some literature, a profitability measure is chosen to analyse the properties that intensify the success for a firm. For instance, Al-Jafari and Al Samman (2015) utilize regressions of profit margin (PM) and return on assets (ROA) to capture the profitability of 17 industrial companies listed on the Muscat Securities Market against various traits. The selected traits include average tax rate, size, growth, fixed asset ratio, financial gearing, and working capital. Results of the investigation conducted by Al-Jafari and Al Samman (2015) reveal a direct and statistically significant relationship between firm size, growth, fixed assets, working capital, and profitability. In contrast, a negative relationship is identified when the average tax rate and leverage are modelled on profitability. Similarly, Chowdhury and Amin (2007) also inspect variables that affect profitability measured by ROA for pharmaceutical companies on the DHAKA stock exchange. The study finds that working capital does have a significant relationship with profitability. In fact, a lack of working capital is the most fatal flaw a company encounters according to Chowdhury and Amin (2007). The study of Alipour (2011) also confirms a significant

link between working capital and profitability based on a multiple regression analysis of 1063 companies from the Tehran stock exchange.

Nunes, Serrasqueiro, and Sequeira (2009) focus on profitability studies in the Portuguese service industry and conclude that size and growth are both direct determinants of firm profitability. They also find that lower levels of debt and leverage are beneficial to profitability, in correlation with Al-Jafari and Al Samman (2015). However, unlike the study of Al-Jafari and Al Samman (2015), Nunes, Serrasqueiro, and Sequeira (2009) record a negative relationship between profitability and fixed asset ratio. Continuing experiments with similar explanatory variables, Charumathi (2012) provides evidence of a positive correlation between size, liquidity, and profitability based on Indian life insurance companies. Similar to previous studies, results from the study also prove that leverage has a significant negative impact on profitability. In contrast, Keith (1998) uses accounts data to sample a population of 38 small manufacturing firms located in the Tayside Region and documents that firm characteristics such as total assets, total sales, growth, and age have limited value in explaining profitability. Furthermore, Malik (2011) investigates the determinants of profitability in Pakistan insurance companies using the profitability measure of ROA. Malik also finds that age does not affect the profitability of a company. However, like previous studies, the results of Malik (2011) highlight that there is a significantly positive association between the size of the company, volume of capital, and profitability. Results also show that leverage and profit/loss ratio has a significant negative relationship with profitability.

### ***Profitability and Value Creation***

Samy *et al.* (2002) state that the explanatory variables which were found to be significant determinants of value creation in firms are also significant to a firm's profitability. This shows that there is a noteworthy relationship between the measures of profitability and value creation; thus the determinants of one performance measure are a proxy of the other. Similarly, Pandey (2006) examines firm value using the measurement of the market-to-book ratio and finds that both profitability and growth are essential components of value creation. Varaiya *et al.* (1987) use of Tobin's Q alongside the market-to-book value of equity ratio to also empirically prove that shareholder value is composed of both profitability and growth. The study of Ekonomisi and Dergisi (2014) confirms that current profit and current growth are highly correlated, again providing a vital link between the economic analysis of profitability, growth, and long-term value creation. Davidsson *et al.* (2009) documents that the success of a firm is aided by firm growth, also supporting the conjunction between profitability, value, and

growth. Therefore, the determinants that increase value for a company should also increase profitability for a company.

### **Summary**

Profitability and Value creation are important metrics for stakeholders and other market participants. Although these measures are widely accepted as important performance drivers, few previous works in the literature are industry specific or fail to provide the full picture behind successful firms, as the financial variables mentioned above are not jointly paired with external market forces. Without the inclusion of current economic conditions, the outcome of a firm's performance drastically differs. For example, a retail company may have optimal capital structure and management techniques, however, in an economic downturn, the purchase of dispensable object will decrease, causing the retail company to suffer. Therefore, the following paper combines well-known performance variables with external variables, capturing industry-specific risks and current market conditions. Another novelty to this study is the joint inclusion of profitability and value creation through three different dependent variables (return on equity, market to book ratio, and share price). Past literature has focused on only one performance measures, either value or profit, rather than combining and linking the two. Utilizing both measures of performance in this paper will better capture optimal company structure. Further, most of the papers previously published only target small geographical regions and emerging countries, providing a limited application for widespread use. The selection of the New York Stock Exchange for this study ensures that findings have global relevance since the companies listed on the NYSE are multinational. Finally, the airline sector of the NYSE was specifically chosen due to the lack of current pieces of literature and the growing use of air-transportation. Therefore, the justification for this study is well defined, as it will help to pinpoint and link firm-specific attributes of value creation and profitability in the Airline Industry, while also taking into account current market conditions.

### **3. Methodology and Data**

For this research, there is a volume of extant literature on profitability and value creation, but across a wide range of industries. A range of literature on profitability and value creation was reviewed in the previous section and relevant internal and external variables were identified. For this secondary data was obtained from reliable sources (mostly, Bloomberg) and no ethical issues arise as all data drawn are drawn from publicly available sources. Finally, the study uses panel data regressions on EVIEWS, a financial modelling software.

This study utilizes readily available, secondary data via the annual reports and financial statements of the top 12 companies listed in the Airline sector of the NYSE. The complete list of airline stocks trading on the NYSE as of 2019 are as follows: Alaska Air Group, Avianca Holdings S.A., Azul S.A., China Eastern Airlines Corporation Ltd., China Southern Airlines Company Limited, Controladora Vuela Compania de Aviacion, Copa Holdings S.A., Delta Air Lines, Gol Linhas Aereas, LATAM Airline Group S.A., Southwest Airlines Company, Spirit Airlines. Data following the financial records and historic prices of each of these 12 companies over the selected period of time is drawn from the Bloomberg terminal in USD currency. The justification for choosing the Airline sector is due to several factors. First, this industry is globally dominant, therefore, identifying value and performance determinants of the top airline companies listed on the NYSE includes a diverse range of internationally traded airline stock. This ensures the study is applicable beyond only the United States. Second, there is a need for a study to be conducted in the airline industry due to a lack of current literature and a continuously increasing trend for air transportation.

Collection and use of data following the most recognized and valued companies in the airline sector listed on the NYSE were sought after as these companies contain the most complete financial information and help to ensure the best sample base was used in the study. However, one of the listed companies, Azul S.A., only provided a limited record of financial data over the desired period and was thus removed from the sample to reduce random error.

The desired sample period covers the years 2010 to 2018. This sample period was thoughtfully selected for two reasons: to capture current market conditions in order to best predict determinants of profitability and value creation in future market conditions, and to exclude the extreme conditions under the stock market crash which would distort profitability and value creation. The chosen sample period covers a total of 9 years while the surviving financial records cover 11 companies, summing up to a total of 99 observations and providing sufficient data for the study to draw conclusions from.

### ***Model Selection, Data Description, and Analysis Method***

Based on the review of previous literature, a set of explanatory variables consisting of both microeconomic (internal) factors and market and macroeconomic (external) factors have been chosen to ascertain their effect on the performance and value of a firm. The set of independent variables selected for further analysis is as follows: growth (change in revenue), size (overall assets, revenue), gearing ratio, current ratio, asset turnover, market

cap, operating margin, historic crude oil price, FX rate (USD to SDR), inflation, interest rate, and systematic risk (beta). The final set of independent variables should flow into the dependent variables market to book ratio, and return on equity with limited overlap and represent the main determinants for value creation and profitability in the airline sector of the NYSE. The list of surviving independent variables, which was inputted into financial modelling software, can be seen in Table 1 below.

**Table 1: List of variables**

Marker	Variable Name	Code	Descriptive measurement
Internal Variables			
X1	Growth	Rgrowth	(Rev(t+1) - Rev(t))/Rev(t)
X2	Size	LTASS	Log(Total Assets)
X3	Gearing Ratio	GFAR	Total Debt/Equity
X4	Current Ratio	CR	Current Assets/Current Liabilities
X5	Asset Turnover	ATO	Sales/Total Assets
X7	Market Capitalization	LMCAP	Log(Price Per Share x No of Shares)
X8	Operative Margin	OM	Operating Earnings
X9	Revenue	LREV	Revenue
External Variables			
X10	Oil Prices	OIL	Historic Crude Oil Prices (USD)
X11	Foreign Exchange Rate	USDTOSDR	Exchange rate USD to SDR
X11	Inflation	INF	Change in Consumer Price Index (CPI)
X12	Interest Rate	INT	Interest Rate

Source: Authors' work

Using a panel regression model, the specified characteristics from Table 1 were weighted against the dependent variable in the equation below on an initial preliminary basis in order to evaluate the determinants of a firm's profitability:

$$Y = \alpha + \beta X + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_7 + \beta_7 X_8 + \beta_8 X_9 + \beta_9 X_{10} + \beta_{10} X_{11} + \beta_{11} X_{12} + \mu \quad (1)$$

Where:

Y is the Firms' Performance Measure (ROE)

$X_1, X_2, \dots, X_{12}$  are the proposed explanatory variables

$\beta, \beta_1, \dots, \beta_{12}$  are the estimated coefficients of the independent variables

The formula for calculating ROE (return on equity) is

ROE = Profit after tax / Equity





#### 4. Data Analysis and Findings

Specifically, the data set under investigation originally contained nine internal variables and four external variables. The potential for multicollinearity was examined among the variables via the correlation matrix check (Table 2).

Table 2: Correlation matrix of variables

Variable	ATO	OM	LREV	LTASS	LMCAP	CR	GEAR	RGWTH
ATO	1.0000	0.0666	-0.5131	-0.6747	-0.3366	0.5368	-0.2853	0.2514
OM	0.0666	1.0000	-0.1160	-0.1058	0.3431	0.4126	-0.3771	0.0295
LREV	-0.5131	-0.1160	1.0000	0.9762	0.7826	-0.7132	0.2694	-0.1730
LTASS	-0.6747	-0.1058	0.9762	1.0000	0.7583	-0.7363	0.2922	-0.1802
LMCAP	-0.3366	0.3431	0.7826	0.7583	1.0000	-0.3827	-0.0383	-0.0142
CR	0.5368	0.4126	-0.7132	-0.7363	-0.3827	1.0000	-0.3573	0.1745
GEAR	-0.2853	-0.3771	0.2694	0.2922	-0.0383	-0.3573	1.0000	-0.0103
RGWTH	0.2514	0.0295	-0.1730	-0.1802	-0.0142	0.1745	-0.0103	1.0000

Source: Authors' work

After inspection of the variables and looking at multicollinearity and redundant variable issues, the independent variables selected for the estimations of ROE are CR, OM, Gear and LREV. Their descriptive statistics are presented in Table 3 below.

#### Descriptive statistics of selected variables

Table 3  
Descriptive statistics of Internal variables

Variable	ROE	CR	GEAR	OM	LREV
Mean	15.04533	0.8179	161.7607	9.8571	8.828
Median	14.0034	0.7016	111.3288	8.3500	8.687
Maximum	251.1384	2.2013	1700.3340	23.7745	10.702
Minimum	-124.2627	0.2032	0.0000	-11.1755	6.661
Std. Dev.	35.3519	0.4675	207.4068	6.6580	1.064
Skewness	2.5211	1.0048	5.1092	-0.0216	-0.1031
Kurtosis	27.9563	3.6021	37.2183	3.0901	1.998
Jarque-Bera	2295.85	15.59	4516.72	0.04	3.970
Probability	0.0000	0.0004	0.0000	0.9825	0.1373
Observations	85	85	85	85	87

Source: Authors' work

The industry (as represented by these Airlines), has a reasonable level of profitability (mean 15.04%, median 14.00%); an average current ratio less than one (mean 0.82, median 0.70), gearing ratios typically over 1 (mean

161.76%, median 111.32%); the mean operating margin is 9.86% (max 23.77%, minimum -11.18%); Log of Revenues (mean 8.83, median 8.69). Apart from OM and LREV, the other Internal variables do not appear to be normally distributed.

Among the potential list of external variables, the following variables were selected for MTBR estimation, after some trials, keeping in mind that macroeconomic variables are exogenous. The descriptive statistics of the selected variables are given in Table 4 below.

**Table 4: Descriptive statistics of External variables**

<i>Variable</i>	<i>LMCAP</i>	<i>MTBR</i>	<i>OIL\$</i>	<i>INF</i>
Mean	8.5512	2.39	69.29	1.69
Median	8.6126	2.01	60.42	1.70
Maximum	10.6114	11.73	98.83	3.00
Minimum	6.2320	0.39	37.04	0.70
Std. Dev.	1.0726	1.71	23.51	0.66
Skewness	-0.0362	2.51	0.12	0.21
Kurtosis	2.5425	12.73	1.32	2.64
Jarque-Bera	0.7776	434.56	10.41	1.09
Probability	0.6779	0.00	0.01	0.58
Observations	87	87	87	87

*Source:* Authors' work

LMCAP is an external measure of size and the mean and median are close the mean being (\$8.55 bn); MTBR ratio is typical for the industry; Oil prices and interest rates have showed substantial variation in the period (Oil prices, averaged \$69.29/barrel (range \$37.04 to \$98.83), while inflation has varied 0.7% pa to 3.0% pa averaging at 1.69%.

### **Econometric Estimations**

The motive behind this paper was to identify common variables, which are the determinants of value creation and profitability in the airline sector. This study utilized two measurements for a firms performance: return on equity and market to book ratio. Initial postulations based on previous works of literature and airline- specific variables led to a large subset of variables available for testing. This ensured that there was sufficient coverage to capture final driving models. Specifically, the data set under investigation originally contained eight internal variables and four external variables which ensured ample and balanced coverage across well-known performance variables and industry-specific attributes under current market conditions. Moving forward, EViews software was utilized to remove

redundant variables, identify the appropriate approximation method, and check the statistical significance of the models as a whole. The result included two final equations, which demonstrated what drives performance and value creation on listed airline stocks in NYSE.

Econometric estimations are made using dynamic panels with the Generalised Method of Moments method.

### Profitability

The equation estimated for ROE is as below:

**Table 5**  
Estimated equation for ROE

Dependent Variable: ROE				
Method: Panel Generalized Method of Moments				
Transformation: First Differences				
Sample (adjusted): 2012 2018				
Periods included: 7				
Cross-sections included: 11				
Total panel (unbalanced) observations: 62				
White period instrument weighting matrix				
White period standard errors & covariance (d.f. corrected)				
Instrument specification: @DYN(ROE,-2)				
Constant added to instrument list				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
ROE(-1)	0.460266	0.101172	4.549356	0.0000
OM	1.208531	0.295545	4.089162	0.0001
GEAR	0.009346	0.023518	0.397412	0.6925
CR	-21.03066	7.765996	-2.708044	0.0089
LREV	-12.28576	5.376487	-2.285091	0.0260
Effects Specification				
Cross-section fixed (first differences)				
Root MSE	10.51233	Mean dependent var	-1.933022	
S.D. dependent var	11.62869	S.E. of regression	10.96371	
Sum squared resid	6851.562	J-statistic	7.364954	
Instrument rank	11	Prob(J-statistic)	0.288411	

Source: Authors' work

Arellano-Bond Serial Correlation Test

Equation: ROE

Sample: 2010 2018

Included observations: 62

Test order	m-Statistic	rho	SE(rho)	Prob.
AR(2)	-1.0915	-1553.8290	1423.5299	0.2750

Source: Authors' work

The equation is well specified with an acceptable value for the J statistic showing that the instrumental variable is uncorrelated to some set of residuals and the acceptance of the null of no second order serial correlation in the residuals through the Arellano-Bond Serial Correlation Test.

The equation shows that Return on Equity is strongly and negatively influenced by the Current Ratio by 21.03 times (p value of the coefficient 0.0089) and very strongly and positively influenced by the Operating Margin by 1.21 times (p value of the coefficient 0.0001), and negatively by the Sales Volume, LREV (p value 0.0260) while the coefficient of Gearing is positive but insignificant. The implication is that smaller airline companies, with better working capital management policies and higher operating margin (lower operating expenses) are seen to have higher profitability.

### Value Creation

The equation estimated for MTBR is as below

**Table 6**  
**Estimated equation for MTBR (Market to Book ratio)**

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
MTBR(-1)	0.173192	0.201004	0.861637	0.3924
ROE	0.034178	0.017039	2.005845	0.0495
OIL\$	0.008070	0.005763	1.400284	0.1667
INF	-0.304126	0.206036	-1.476082	0.1452
LMCAP	0.840533	0.466704	1.800998	0.0768

  

Effects Specification			
Cross-section fixed (first differences)			
Mean dependent var	-0.022670	S.D. dependent var	1.014263
S.E. of regression	1.030066	Sum squared resid	62.60108
J-statistic	10.17876	Instrument rank	28
Prob(J-statistic)	0.990116		

Source: Authors' work

Arellano-Bond Serial Correlation Test

Equation: MTBR

Sample: 2010 2018

Included observations: 64

<i>Test order</i>	<i>m-Statistic</i>	<i>rho</i>	<i>SE(rho)</i>	<i>Prob.</i>
AR(2)	-0.556082	-3.594758	6.464437	0.5782

Source: Authors' work

The equation is well specified with an acceptable value for the J statistic showing that the instrumental variable is uncorrelated to some set of residuals and the acceptance of the null of no second order serial correlation in the residuals through the Arellano-Bond Serial Correlation Test.

The market to book ratio (MTBR) is positively and strongly influenced by the coefficient of ROE (accounting profitability) and weakly by the market size (LMCAP), while the coefficient of Oil is positive but not significant; and the coefficient of inflation is negative and insignificant. It means companies the market attributes a higher value creation to Return on Equity and larger market capitalization.

## 5. Discussions

The focus of this paper was the identification of value and profit drivers for the airline sector of the New York Stock Exchange. The increasing use of air travel, limited current literature, and competitive nature between airline companies creates a demand for the airline sector to be a focus for the study. The airline industry is exposed to many price fluctuations dependent on season, energy prices, and market downturn, therefore, this study includes both internal and external variables to determine performance drivers. According to the research of Masa' deh *et al.* (2015), as well as other pieces of literature, the use of ratios and other financial measures is particularly useful in establishing a trend over a time period, valuing the strength of a company, and comparing the advantages of different firms. This is key since shareholders, who place importance on the strength of a company when deciding whether an investment is sound, drive future value and profit for a firm. Therefore, as previously mentioned, the study included one measure of profitability (that is, ROE) and one measure of value creation (that is, MTBR) to research whether there is a link between the two measures. After looking at correlations between variables, three external variables representing market conditions (that is, oil price, market capitalisation, inflation), and four internal variables representing a companies' management, competitive strategies, and resources (operating margin, gearing, current ratio, revenues) were

identifies for estimations. The results presented two final equations in which each dependent variable was maximized based on the combined input of independent variables.

The results of Table 2 suggest that current ratio, gearing, and operating margin are all key attributes, which determine an airline's profitability, as measured by ROE. The dependent variable of return on equity was selected because it is a fundamental signal of company strength and a commonly used benchmark for shareholders to view how well a firm is utilizing its money in order to create additional wealth and increase stock price (Law, 2011).

According to the results, from Table 5, Airlines have a higher return for shareholders when they have lower current ratios and higher operating margins. This finding is in line with prudent working capital policies and management of operating expenses. An increase in operating margin was also found to aid in profitability increases measured by ROE. This is also similar to the findings of Al-Jafari and Al Samman (2015) who presented a significant relationship between profitability and the comparable margin measure of 'profit margin'. The other finding is that while the coefficient of gearing is positive, it is not significant. As debt is cheaper than equity, the general expectation is that higher gearing will increase profitability, at least upto the point of optimal capital structure. Profitability is also higher in the smaller Airline companies.

Lastly, the results from Table 6 show that ROE and market capitalization are statistically significant variables when regressed with market to book ratio, while oil prices and inflation are not. According to Stickney *et al.* (2007), a market ratio, such as the MTBR is a "very special and informative number" because it reflects the aggregate expectations of all of the market participants following that particular stock. It summarizes the "aggregate information the market participants have about the firm, and the aggregate expectations for the firm's future profitability and growth" (Stickney *et al.*, 2007). Therefore, market to book ratio is a commonly used performance measure for a firm, calculated by dividing the market value at a specific point in time by its balance sheet book value.

As mentioned in section 4, ROE was introduced as an independent variable in the MTBR regression in order to reduce confounding variables that were previously identified as significant in the study and to link the overall determinants profitability and value creation in airline industries. Overall Table 6 indicated that value creation in the airline industry is associated with an increase in a firm's profitability based on internal ratios and the value of market capitalisation ie financial measurements, as well

as external current market conditions. These findings are in agreement with those of Samy *et al.* (2002), Pandey (2006), and Kumar (2015), whom all address the remarkable consequence that market risks and external factors may have on the future profit and value of a company.

An interesting feature is that in the regression on the market to book ratio, the coefficient of the oil variable is positive and the coefficient of the inflation variable is negative though neither is significant. The interpretation is that crude oil prices rise when the economy is in a growth stage. The negative sign for the inflation coefficient is in line with the results presented by both Yashodha *et al.* (2016) and Berghofer and Lucey (2014). The positive sign convention between oil price and MTBR may be explained by companies efficiently identifying the high-risk exposure to fuel price changes early on and therefore hedging against its rises accordingly. Appropriate hedging strategies may also account for a lack of relationship between foreign exchange rate and market to book ratio that was previously noted as an important characteristic in the studies of Berghofer and Lucey (2014) and Yashodha *et al.* (2016).

## 6. Conclusions

This paper provides an outline for enhancing the performance of a firm by identifying the most significant airline-specific variables contributing to value creation and profitability for international airlines listed on the New York Stock Exchange. Due to the collection of data across international companies, the key findings from this research have a global impact and may be scaled to aid performance of airline corporations outside the NYSE.

The utilization of panel data regression allowed for comparisons to be made between companies within the same industry across the specified period of time, leading to the overall key performance determinants. It was found that the return on equity is positively and significantly correlated with the operating margin and negatively and significantly correlated with the current ratio and level of revenue.

Therefore, the profitability of a firm may be most amplified when concentration is placed on prudent working capital management and management of operating expenses, with companies with lower revenue showing higher profitability. Market to book ratio was found to be positively and significantly related to profitability and market capitalisation, while the sign of the oil price variable was positive and that of the inflation variable was negative. Airline companies should, therefore, continue to identify key exposures to hedge against and be aware of market fluctuations that may negatively affect the long-term value of the company.



Importantly, MTBR was also positively linked with ROE proving a strong dependency between profit and value creation. As mentioned by Samy *et al.* (2002), Pandey (2006), Varaiya *et al.* (1987), and the works of others previously noted, value creation and profitability are two separate measures, however, the two often rise and fall in line with each other. Thus, utilizing determinants that increase profitability will also increase value creation. Of course, as stated by Masa'deh *et al.*, "no single measure of performance can account for all value added and profitability increases of a firm" (Masa'deh *et al.*, 2015).

Even within the same industry, different companies have distinct strengths, weaknesses, corporate strategies, and target audiences. Their wants and needs differ, proving there is not one single variable that will lead to infinite sustainability of a firm. However, this study is beneficial to airline industries as the two final equations highlighted above provide an ample list of crucial industry-specific determinants which can be used to maximize profit and value creation. Using a combination of significant variables identified in the study and focusing on certain market ratios and financial indicators, the decision makers and company managers can better achieve an optimal level of performance.

### **Limitations of Previous Studies**

Previous works of literature have attempted to define key characteristics for increasing either value added or profit for companies. Other literatures have analyzed the positive relationship between profitability and value creation. However, few studies are industry-specific or combine the strategies since past studies have focused on a measurement variable falling into the category of either value or profit. For example, the study of Narang and Kaur (2014) used three different performance measures to support their credibility in identification of significant determinants, however, each dependent measure was only value creation metric. Further, comparing the findings of previous literatures with similar intent leads to varied determinants and inconclusive results overall. This can be seen in the studies of Nunes, Serrasqueiro, and Sequeira (2009) and Keith (1998) who both utilize a profitability measure as the dependent variable, but find conflicting results on the significance of the firm attributes of growth and size.

Another problem with previous papers on this topic is the lack of external or industry-specific variable inclusion. Most studies have only focused on figures presented by a company in their financial statements. In reality, the reported earnings and changes of a company financials are highly dependent on market conditions. This paper, therefore, included variables which have captured current economic conditions (such as inflation and oil prices) and also financial indicator variables of airline companies.

### Final Remarks

Overall the success of a firm is broken into two main categories, those being, profitability ratios and market value ratios. Masa'deh *et al.* (2015) define the use of each as "the profitability of a firm in the recent past provides information to help the analyst to project its future profitability, and the expected return from investing in the firm's equity securities while the second technique is to compare the firm's market value to the firm's fundamentals of growth" (Masa'deh *et al.* 2015). A combination of both methods for valuing firm performance as in this study is better as it captures the overall success of a firm from different financial measurements. Ultimately, the goal of this study was met by providing a clearer understanding of the firm-specific attributes which create profit, and the links with value creation.

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