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# DETERMINANTS ON PROFITABILITY OF SRI LANKAN INSURANCE COMPANIES

Gamlath G R M

Vavuniya Campus of the University of Jaffna, Vavuniya, Sri Lanka

muthugamlath@vau.jfn.ac.lk

## ABSTRACT

**The Insurance Sector is one of the major financial services providers in Sri Lanka. This research aims to find out the impact of determinants on companies' profitability, Sri Lanka insurance companies with the empirical research findings. This research measures the independent variable (determinants) in terms of Firm Size, Leverage Ratio, Tangibility of Assets, Liquidity Ratio, Loss Ratio, Managerial Efficiency, Economic Growth and Inflation Rate, whereas, the dependent variable (profitability) is measured in terms of Return on Assets. The population of this study is considered 27 insurance companies, and 17 companies were selected based on a convenient sampling method. The secondary data was collected from the audited financial statements of the selected insurance companies published in the annual reports and analyzed through the statistical tools; Descriptive statistics, Pearson Correlation Matrix, and Multiple Regression Analysis for a period of ten years from 2010 to 2019. Findings of the study revealed that firm size and tangibility of assets have positively correlated to the profitability, while gross domestic product has negatively correlated to profitability of Sri Lankan insurance companies. Further the findings revealed that Sri Lankan insurance companies are to be in practice to implement their business strategy to maintain the optimal profitability with concentrating; keeping the sustainable firm image through proper business expansion and**

**effective utilization of tangible assets with concentrating the other determinants so as to emphasize the macro-economic base concerning the economic contribution to the country. In addition, this research is important to the investors, managers, stakeholders and policymakers in the Sri Lankan Insurance Industry for the purpose of overseeing the industry with a view of adopting market based strategy to improve the profitability indeed. Moreover, this study recommended conducting future research on the impact of other factors not depicted in the regression model on the profitability in a comparative manner pertaining to the Sri Lankan insurance industry.**

**Keywords – Determinants, insurance companies, profitability, Sri Lanka**

## 1. INTRODUCTION

In real-world profitability for any business attached to the firm business performance. Performance is a difficult concept in terms of definition and evaluation. It is defined as an output, and the proper measure selected to assess corporate performance is considered according to the organization type and objectives of the evaluation. Research in strategic management has offered a variety of models that can be used to analyze financial performance. Profitability, defined as a proxy of financial performance, is one of the main objectives of an insurance company's management (Burca & Batrinca, 2014). Profit is a crucial prerequisite for the increasing competitiveness of a company that operates in a market. At the microeconomic level, performance is the direct result of managing various economic resources and of their efficient use within operational, investment, and financing activities. To optimize economic results, special attention should be given to the proper grounding of managerial decisions (Malik, 2011). These should be based on complex information regarding the evolution of all types of activities within the company. A synthetic picture of the company's financial position and its performance is found in the annual financial statements, which therefore become the main information sources that allow the qualitative analysis of how resources are used during the process of creating value.

As per the emphasis by Malik (2011), the profitability of private insurance companies was analyzed through micro and macroeconomic level, is determined both by internal factors represented by specific characteristics of the company which is totally under the hand of the corporate management system, and external factors regarding the connected industry and macroeconomic environment in general which also not under the hand of the corporate management. Identifying and knowing its directions and magnitude helped to develop the strategy to get the opportunity or to minimize the threat.

In a competitive marketplace, private insurance companies essentially absorb to achieve a satisfactory level of profitability (Malik, 2011).

The performance of any firm not only plays the role to increase the market value of that specific firm but also leads towards the growth of the whole industry which ultimately leads towards the overall prosperity of the economy. The financial system comprises financial institutions, financial instruments, and financial markets that provide an effective payment, credit system, and risk transfer and thereby facilitate channelizing of funds from savers to the investors of the economy. According to Mishkin and Stanley (2018), financial markets and institutions not only affect our everyday life but also involve huge flows of funds – trillions of dollars-throughout our economy, which in turn affect business profits, the production of goods and services, and even the economic well-being of countries other than the United States. Indeed, well-functioning financial markets and institutions like insurance companies are one of the most important key factors in producing high economic growth, and poorly performing financial markets and institutions is one of the reasons that many countries in the world remain desperately poor (Mishkin & Stanley, 2018). Insurance companies are not only providing the mechanism of risk transfer but also helps to channelize the funds in an appropriate way to support the business activities in the economy.

Insurance companies have importance both for businesses and individuals as they indemnify the losses and put them in the same positions as they were before the occurrence of the loss. In addition, insurers provide economic and social benefits in the society i.e. prevention of losses, reduction in anxiousness, fear, and increasing employment. Therefore, the current business world without insurance companies is unsustainable because risky businesses do not have the capacity to retain all types of risk in the current extremely uncertain environment (Insurance Board of Sri Lanka, 2018).

A study done by Lire and Tegegn (2016) explored that private insurance companies should reduce the impact of underwriting risk by improving their underwriting performance through techniques like risk and product selections with geographical and different pricing strategy, private insurance company should improve underwriting in favor of economic growth of the country via identifying the potential and priority direction of the overall economic activity and growth of the country. The private insurance companies should also increase their company assets. According to Eling et al., (2008), insurers' profitability is determined first by underwriting performance (losses and expenses, which are affected by the product pricing, risk selection, claims management, and marketing and administrative expenses); and second, by investment performance, which is a function of asset allocation and asset management as well as asset leverage. A study conducted by Ahmed (2008),

who examined the determinants of insurers' profitability indicated that size, the volume of capital, leverage & loss ratio are significant determinants of profitability. Bilal et al., (2013) investigate that leverage, size, earnings volatility, and age of the firm are significant determinants of profitability while growth opportunities and liquidity are not significant determinants of profitability. Other studies (Curak et al., 2011; Shiu, 2004) conducted in the area of insurers' profitability verified that there is a direct association between the profitability of insurance companies and it's both internal and external determinants. Even though all these and other researchers conducted studies on this area, but, the determinants of profitability have been debated for many years and unexplained issues in the insurance-finance literature.

**Problem Statement**

The insurance sector in Sri Lanka has progressed over the last few decades after the liberalization of the economy in 1977 and has expanded its operations. In the beginning, there were very few companies in operation; however, new companies came into operation recently. Shawar and Siddiqui (2019) emphasized that the competition among them has gained largeness as the products and services offered to its consumers have extended. In the case of expanding the firm capital with earning more benefits is the central reason for the perpetually presence of any firm or related industry. That is the reason benefit is one of the principal and vital variables of monetary administration to quantify and make future arranging and techniques of handling the basic circumstances. Shawar and Siddiqui (2019) and Hifza (2011) reiterated that a vacillation amid the period from 2005 to 2009 of the money related yearly reports of back up plans of Pakistan and base on that the investigation was directed and further proposed that it is essential to discover the variety among Insurance Company's benefit. To decide the execution of the insurer is a critical task for the strategy creators and controllers to help the insurance area in achieving the achievement and flawlessness. The pattern of the insurance segment is expanding step by step because of the basic circumstance of the nation, increment in risk, and vulnerability.

Profit is the utmost rewarding progress measurement for any business (Gamlath & Rathiranee, 2015) Therefore, profit maximization is the first objective of financial management because one and the second objective of financial management is to maximize the owner`s wealth and profitability is a very important determinant of performance (Perera, 2007). The annual reports of insurance companies in Sri Lanka show large fluctuations in profits. This variation of profits among insurance companies suggests that firm-specific factors play a crucial role in influencing insurance companies` profitability. It is therefore essential to identify what are these factors and how they help insurance companies to take actions that will increase their profitability and

investors to forecast the profitability of insurance companies in Sri Lanka. Literature shows that most of the studies conducted on the banking firms were both public and private commercial banking institutions and focused on determinants of profitability. With the expansion of the insurance industry in Sri Lanka, the whole market is segmented into the separatism that profit for each firm is competitively moved in line. At this juncture, the insurance firms in Sri Lanka have emerged to extend their profit level and keep firms sustain maximizing profit determining the various fluctuated reasons. Ultimately, this is vital to explore key determinants of Insurance firms' profitability for investors, managers, allied stakeholders, policymakers, strategy creators, re-insurers, actuarial firms, and industry experts to help the creation and implementation of the sustainable insurance industry in Sri Lanka achieving the development and hardness which eventually prompts the general achievement of the industry as well as the whole economy.

Hence, the profitability has received significant attention from researchers in various segments of businesses. Since profitability has an imperative effect on an organization's health and survival. Higher profitability reflects management effectiveness and efficiency in making use of a firm's resources and this, in turn, contributes to the country's economy at large (Hailegebreal, 2016). During the period of the study annual reports of the Sri Lankan insurance companies showed large fluctuations in profit. This variation of profits demonstrates that internal factors or company-specific factors play an essential role in influencing insurance companies' profitability. It is therefore important to determine which of these factors can help insurance companies to take action for increasing their profitability and help investors to forecast the profitability of these insurance companies. In Sri Lanka, there are some researches or studies that examined factors that affect profitability in the banking, manufacturing, and other sectors listed in the Colombo Stock Exchange. However, very few studies have been conducted particularly in the insurance sector in the past. But, there are many unfavorable economic and business impacts from the long-term civil war during a thirty years period up to 2009, so that there is a downward trend in the profitability of all listed and non-listed companies. After that, the insurance companies also made efforts to increase their profits by adopting profit-driven strategies. Thus, the present study intends to carry out this research in order to fulfill the need for such study for the identification of factors that affect the profitability and help to avoid losses.

In order to fulfill the above research gap, the aim of this research is to find out the impact of the determinants on the profitability of Sri Lankan insurance companies during the period of ten years from 2010 to 2019. This research consists of six sections. Section 3 reviews the literature relating to the research. Section 4 discusses the research methodology. Section 5 designs the

conceptual framework and to formulate hypotheses which are deduced from the literature. Section 6 presents the data analysis and interprets the findings of the study. Finally, the conclusion, implications, and directions for future research are brought in section 7.

## 2. LITERATURE REVIEW

The monetary system comprises monetary institution, monetary instrument and monetary market that give an effectual imbursement, praise scheme and risk move and thus make easy channelizing of money from saver to the investor of the financial system (Boadi et al., 2013). As a fraction of monetary organization, community wellbeing shaped by Indemnity Company is indisputable. A well- urbanized and evolved insurance division is a benefit for financial development as it provides long-term funds for infrastructure development at the same time intensifying the risk captivating aptitude of the country (Charumathi, 2012). Chen and Wong (2004) also suggest that a physically powerful and fit assurance subdivision is of greatest significance for every one group and sector of the financial system. Cover serves a figure of precious financial function that is alike and largely separate from other types of monetary mediators. According to Malik (2011), insurance plays a crucial role in development of commercial and infrastructural businesses. From the latter perspective, it promotes financial and social stability; mobilizes and channels savings; supports trade, commerce and entrepreneurial activity and improves the quality of the lives of individuals and the overall well being in a country. Michael Koller as cited in Abate (2012) suggests that insurance companies are playing the role of transferring risk and channeling funds from one unit to the other (financial intermediation). This implies that insurance companies are helping the economy of a country one way by transferring and sharing risk which can create confidence over the occurrences of uncertain events and in another way insurance companies like other financial institutions play the role of financial intermediation so as to channel financial resources from one to the other. Even if there are numerous types of insurances it can be divided into two broad categories based on their role to the economy. Those are general insurance companies and life insurance companies. General insurance companies and life insurance companies are different from each other in terms of operation, investment activities, vulnerability and duration of liabilities. Life insurers are said to function as financial intermediaries while general insurers function as risk takers (Chen & Wong, 2004).

Insurance profitability is influenced by both internal and external factors. Whereas internal factors focus on an insurer's specific characteristic, the external factors concern both industry features and macroeconomic variables. However, in most literature, profitability with regard to insurance companies

is frequently expressed as a function of internal determinants. Besides internal determinants, this research included a set of macroeconomic determinants (Central bank of Sri Lanka, 2019; Peleckienė et al., 2019; Derbali & Jamel, 2018; Sumaira & Amjad, 2013; Boadi et al., 2013; Jian-Shen et al., 2013; Charumathi, 2012). The relevant literature may be categorized as: the effects of firm specific factors on profitability and the effects of macroeconomics factors on profitability. The following are the variables used in research concerning profitability of insurance companies and related financial institutions. In this scenario, the empirical findings on the determinants of firm specific factors effect on profitability aligning with the research hypotheses are explained as follows.

### 2.1 Firm size

Several studies have been conducted to examine the effect of firm size on firm profitability (Malik, 2011). Abate (2012); Mehari and Aemiro (2013); and Sumaira and Amjad (2013) are among other researchers who investigate the effect of size on firm profitability. However, the results are inconsistent. In many literature, it has been suggested that company size is positively related to financial performance. For instance, Charumathi (2012) examined the factors determining the profitability of life insurers operating in India taking return on assets as dependent variable and the results of the study indicate that profitability of life insurers is positively and significantly influenced by size. Almajali (2012) conducts a study with the aim of investigating the factors that mostly affect financial performance of Jordanian Insurance Companies. Similarly the results showed a positive statistical effect of Size on the financial performance of Jordanian Insurance Companies. Malik (2011) also found a significantly positive association between size of the company and profitability. In the research done by Sumaira and Amjad (2013), it has suggested the firm size as a significant determinant on profitability. Additionally, Abate (2012) and Mehari and Aemiro (2013) in their study based on the regression results identified size as the most important determinant factors of profitability and it is positively related. The main reasons behind this summarized as follows. First, large insurance companies normally have greater capacity for dealing with adverse market fluctuations than small insurance companies do. Second, large insurance companies usually can relatively easily recruit able employees with professional knowledge compared with small insurance companies. Third, large insurance companies have economies of scale in terms of the labor cost, which is the most significant production factor for delivering insurance services. However, by drawing a framework from the financial economics literature and utilizing a dynamic panel data design covering 2004-2009, Olaosebikan (2012) examines the profitability of micro-life insurers in Nigeria. The results

indicate that the profitability of micro-life insurers is not influenced by factors such as size of firms.

### 2.2 Leverage ratio

In the trade-off theory, it suggests a positive relationship between profitability and leverage ratio and justified by taxes, agency costs and bankruptcy costs push more profitable firms towards higher leverage. Hence more profitable firms should prefer debt financing to get benefit from the tax shield. In contrast to this pecking order theory of capital structure is designed to minimize the inefficiencies in the firms' investment decisions. Due to asymmetric information cost, firms prefer internal finance to external finance and, when outside financing is necessary, firms prefer debt to equity because of the lower information costs.

The pecking order theory states that there is no optimal capital structure since debt ratio occurs as a result of cumulative external financing requirements. Insurance leverage could be defined as reserves to surplus or debt to equity. Naveed, et al., (2011) examines the impact of firm level characteristics (size, leverage, tangibility, risk, growth, liquidity and age) on performance of listed life insurance companies of Pakistan over seven years from 2001 to 2007. The results of Ordinary Least Square (OLS) regression analysis indicate, in addition to size and risk, leverage are important determinants of performance of insurance companies of Pakistan. In addition to Naveed et al., (2011) study was conducted to examine the effect of leverage on firm profitability. However, the results are inconsistent.

In the research studies of Charumathi (2012); Malik (2011) and Abate (2012), leverage has negatively and significantly influenced the insurance companies profitability. But in the study of Almajali (2012); Boadi et al., (2013) and Mehari and Aemiro (2013) the leverage has positively and significantly influenced the insurance company profitability. Although, the results of Olaosebikan (2012) with regards to leverage indicates that the profitability of micro-life insurers is not influenced by leverage.

### 2.3 Loss ratio

Organizations that engage in risky activities are likely to have more volatile cash flows than entities whose management is more averse to risk-taking. As a consequence, insurers that underwrite risky business will need to ensure that good standards of management are applied to mitigate their exposure to underwriting losses ex-ante and maximize returns on invested assets ex- post. This could improve annual operational performance by encouraging managers to increase cash flows through risk taking. On the other hand, excessive risk-taking could adversely affect the annual performance of insurers and

reinsurance companies. Furthermore, higher annual insurance losses will tend to increase the level of corporate management expenses ex-post (e.g., claims investigation and loss adjustment costs) that could further exacerbate a decline in reported operational performance. In contrast, insurers and reinsurance companies with lower than expected annual losses are likely to have better operational performance because, for example, they do not incur such high monitoring and claims handling costs (Mehari & Aemiro, 2013). Most researchers, which investigate the effect of risk on profitability, have the same opinion with negative and significant effects of risk on profitability. Jian-Shen et al (2006) provided evidence regarding the influence of capital structure and operational risk on profitability of life insurance industry in Taiwan. The finding shows that the operational risk exerts a negative and significant effect on profitability. Malik (2011) investigated firm specific factors (age of company, size of company, volume of capital, advantage ratio and loss ratio) determinants of profitability in insurance companies of Pakistan. Regarding the Loss ratio it also finds negative but significant relationship with profitability.

### 2.4 Tangibility of asset

Tangibility has two conflicting effects on profitability. On the one hand, according to Himmelberg and Hubbard (1999), tangibility of assets has a positive effect on profitability and they show that tangible assets are easily monitored and provide good collateral and thus they tend to mitigate agency conflicts between shareholders and creditors. On the other hand, tangibility of assets may have a negative correlation, because firms with high levels of tangible assets tend to be less profitable.

Firms with high levels of intangible assets (in form of liquidity) have more investment opportunities in the long term, innovation and research and development (Nucci et al., 2005; Deloof, 2003). Some studies have been conducted to examine the effects of Tangibility of assets on insurance companies profitability, however, the results are conflicting. The general objective of the Boadi et al., (2013) study was to find out the determinants of the profitability of insurance firms in Ghana by using Secondary data on financial reports collected from sixteen insurance firms in Ghana for the period 2005 to 2010. This study discovered a negative relationship between tangibility and profitability. On the other hand, Mehari and Aemiro (2013) conduct a study to investigate the impact of firm level characteristics on performance of insurance companies in Ethiopia and its result show statistically significant and positive relation of tangibility with return on total asset. In the study of Abate (2012), tangibility of assets is not significantly related with profitability.

## 2.5 Liquidity ratio

Liquidity from the context of insurance companies is the probability of an insurer to pay liabilities which include operating expenses and payments for losses/benefits under insurance policies, when due then shows us that more current assets are held and idle if the ratio becomes more which could be invested in profitable investments. For an insurer, cash flow (mainly premium and investment income) and liquidation of assets are the main sources of liquidity (Chen & Wong 2004). According to Daneiel and Tilahun (2013), companies with more liquid assets are less likely to fail because they can realize cash even in very difficult situations. It is therefore expected that insurance companies with more liquid assets will outperform those with less liquid assets. However, according to the theory of agency costs, high liquidity of assets could increase agency costs for owners because managers might take advantage of the benefits of liquid assets (Adams & Buckle, 2000). In addition, liquid assets imply high reinvestment risk since the proceeds from liquid assets would have to be reinvested after a relatively short period of time. Unquestionably, reinvestment risk would injure the profitability of a company. In this case, it is, therefore, likely that insurance companies with less liquid assets outperform those with more liquid assets. Empirical evidence with regard to liquidity revealed almost inconsistent results. For instance, Charumathi (2012) examined the factors determining the profitability of life insurers operating in India taking return on assets as the dependent variable. Their results indicate that profitability of life insurers is positively and significantly influenced by liquidity. Almajali (2012) conducts a study with the aim of investigating the factors that mostly affect financial performance of Jordanian Insurance Companies and results showed that liquidity has a positive statistical effect on the financial performance of Jordanian Insurance Companies. Boadi et al., (2013) study also found a positive relationship between liquidity and profitability of insurance firms in Ghana. On the contrary, Abate (2012) reported a negative but significant relation between liquidity ratios with profitability. On the other hand, the results of Mehari and Aemiro (2013) and Sumaira and Amjad (2013) studies revealed that liquidity has a statistically insignificant relationship with ROA.

## 2.6 Managerial efficiency

Almajali (2012) study aimed at investigating the factors that mostly affect financial performance of Jordanian Insurance Companies. The study population consisted of all insurance companies' enlisted at Amman stock Exchange during the period (2002-2007) which count (25) insurance companies. The results showed that the Management competence index has a positive statistical effect on the financial performance of Jordanian Insurance Companies. This is also called as the firm growth, which is measured by the percentage change in total assets of insurance companies or sometimes it is

measured by percentage change in premiums of insurance companies. Insurance companies having more and more assets over the years have also a better chance of being profitable for the reason that they do have internal capacity though it depends on their ability to exploit external opportunities (Abate, 2012).

Derbali and Jamel (2018) examined the impact of firm-specific characteristics (size, advantage, tangibility, risk, growth, liquidity and age) on the performance of eight insurance companies in Tunisia over a period of 8 years (2005-2012). The analysis of the results from a regression on panel data indicates that the variables size, age and premium growth are the most important determinants of the performance of insurance companies measured by ROA ratio. Ayele (2012) examined the effects of firm specific factors (age of company, size of company, volume of capital, leverage ratio, liquidity ratio, growth and tangibility of assets) on profitability proxies by ROA in Ethiopia. Similar studies of Derbali and Jamel (2018), and Abate (2012) identified that the regression results predicted the managerial efficiency as the most important determinant on profitability and positively related with profitability.

## 2.7 Gross domestic product

In a recent research done by Peleckienė et al., (2019), they revealed that the insurance sector development is higher in economically rich countries, such as the UK, Denmark, Finland, Ireland, France and The Netherlands; a positive statistically significant relationship between insurance dispersion and economic growth has been detected in Luxembourg, Denmark, The Netherlands and Finland. Besides, a negative statistically significant relationship has been identified in Austria, Belgium, Malta, Estonia and Slovakia; Granger test has shown unidirectional causality running from gross domestic product to insurance in Luxembourg and Finland; and unidirectional causality from insurance to gross domestic product in The Netherlands, Malta and Estonia. The case of Austria has shown bidirectional causality between the variables. The analysis has presented the absence of causality between insurance and economic growth in Slovakia.

## 2.8 Inflation rate

Inflation rate is a key determinant used to measure the economic performance of a firm as well as a one of the major determinants in making the economic policies for the country's development. So that, the impact of this rate is affected ultimately to attain the level of profitability in the insurance sector in the country as well (Central Bank of Sri Lanka, 2019)

## 2.9 Profitability

Profit is what is left over from income earned after you have deducted all costs and expenses related to earning the income and it is one of the main reasons for the continued existence of every business organization and also it is expected so as to meet the required return by owners and other outsiders. Profitability means ability to make profit from all the business activities of an organization, company, firm, or an enterprise. It shows how efficiently the management can make profit by using all the resources available in the market. According to Kaguri (2013), profitability is the ability of a given investment to earn a return from its use.

Profitability is an index of efficiency; and is regarded as a measure of efficiency and management guide to greater efficiency. Profitability is one of the most important objectives of financial management because one goal of financial management is to maximize the owner` s wealth and profitability is a very important determinant of performance (Malik 2011).

Profitability ratios are an indicator for the firm's overall efficiency (Majed & Qabajeh, 2012). It's usually used as a measure for earnings generated by the company during a period of time based on its level of sales, assets, capital employed, net worth and earnings per share. Profitability ratios measure the earning capacity of the firm, and it is considered as an indicator for its growth, success and control. Accordingly, the term 'profitability' is a relative measure where profit is expressed as a ratio, generally as a percentage.

According to Majed and Qabajeh (2012), there are different ways to measure profitability such as: Return on assets (ROA) ratio, Return on owner's equity (ROE) ratio and return on investment (ROI). ROA ratio is calculated as net profit after tax divided by the total assets. This ratio measures the operating efficiency for the company based on the firm’s generated profits from its total assets whereas ROE ratio is calculated as net profit after tax divided by the total shareholders’ equity. This ratio measures the shareholders rate of return on their investment in the company.

Activity ratios are another group of ratios; it's usually used to measure the ability to optimize the use of the available resources. These ratios are other measures of operational efficiency and performance. Among this group of ratios is the turnover to capital employed or return on investment (ROI) ratio. ROI ratio is calculated as net profit after tax divided by the total paid in capital. It measures the firm's efficiency in utilizing invested capital. In other words, this ratio expresses a company's ability to generate the required return (expected return) based on using and managing the invested resources by the shareholders. Majed and Qabajeh (2012) also suggest that ROA and ROE are the most used profitability ratios in the analysis. Al-Shami (2008) similarly

argued that ROA, return on equity (ROE) and return on invested capital (ROIC) are measurements of profitability.

However, most researchers in the field of insurance and their profitability stated that the key indicator of a firm's profitability is ROA defined as the before tax profits divided by total assets. Malik (2011) are among others, who have suggested that although there are different ways to measure profitability it is better to use ROA. According to the study by Swiss Re (2008), Profits are determined first by underwriting performance (losses and expenses, which are affected by product pricing, risk selection, claims management, and marketing and administrative expenses); and second, by investment performance, which is a function of asset allocation and asset management as well as asset leverage.

The first division of the decomposition shows that an insurer's ROE is determined by earnings after taxes realized for each unit of net premiums (or profit margin) and by the amount of capital funds used to finance and secure the risk exposure of each premium unit (solvency). That is why most researchers use ROA as a measure of profitability in financial institutions.

**Conceptual Model and Hypotheses Development**

Deducing from the empirical findings from the literature (which were derived from the theoretical understandings and originality of those researches) linking their implications, the following conceptual framework is formulated;

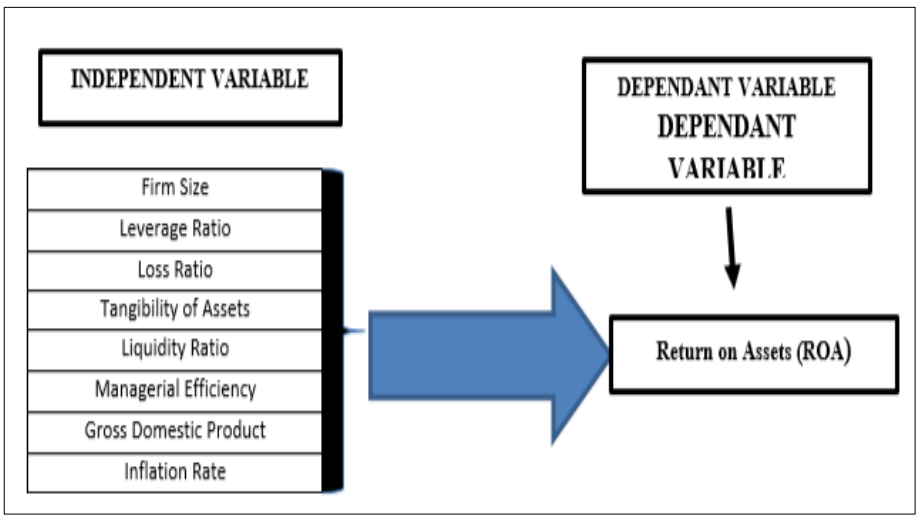


**Figure 1: Conceptual model**

Source: Author Developed

The conceptual framework is built-up to give details on the determinants of profitability. By abbreviation preceding study, firm size, leverage, loss ratio, tangibility of assets, liquidity, managerial efficiency, firm growth, economic growth, and inflation are selected to be incorporated as independent variables that predictable to influence insurance companies' profitability as measured by Return on Assets (ROA)

Hypothesis means a supposition or proposed explanation made on the basis of limited evidence as a starting point for further investigation. Review of related literature indicates that potential variables that influence the profitability are firm size, leverage ratio, loss ratio, tangibility of assets, liquidity, managerial efficiency, gross domestic product and inflation rate. There are many various ways to measure profitability. In this study, the return on equity (net income to total assets) was used to measure profitability.

The researcher has chosen these variables constructed as per the above literature reviewed from the section.3, because they are the most suitable determinants to the Sri Lankan insurance market and can be easily measured by using data that is afforded by Sri Lankan insurance companies. Therefore, the subsequent hypotheses are formulated to be tested by the research as follows;

H1- Firm size has a significant impact on profitability of insurance companies

H2- Leverage ratio has a significant impact on profitability of insurance companies

H3- Loss Ratio has a significant impact on profitability of insurance companies

H4- Tangibility of assets has a significant impact on profitability of insurance companies

H5- Liquidity ratio has a significant impact on profitability of insurance companies

H6- Managerial Efficiency has a significant impact on profitability of insurance companies

H7- Gross Domestic Product has a significant impact on profitability of insurance companies

H8- Inflation rate has a significant impact on profitability of insurance companies

However, although determinants of profitability have been extensively studied in other sectors in the Sri Lankan context as well as global context, very few studies can be found for impact of the insurers' return on assets as a

profitability measure (Shawar & Siddiqui, 2019; Daniel & Tilahun, 2013). Literature review supports the idea that financial and non-financial factors, such as firm size, leverage ratio, loss ratio, tangibility of assets, liquidity ratio, managerial efficiency, gross domestic product, and inflation rate have an influence on firms' profitability.

The researcher has chosen these variables because they are the most appropriate factors for the Sri Lankan insurance sector and the impact of above-mentioned determinants on profitability can be measured by using the published data in the Sri Lankan insurance market.

## 3. METHODOLOGY

### 3.1 Research design

Research design refers to the strategy a researcher formulates to progress this research. It includes determining the nature of the research, along with selecting appropriate methods to approach and collect information. It also includes the specification of sample size and type while discussing the way in which that collected information is analyzed and presented in the form of results. Furthermore, it reflects on the methods and techniques used to draw a conclusion or to validate or reject the hypothesis of the research (Lewis, 2015). However, the research design is formulated after understanding the requirement of the research in order to produce results that are relevant and valid.

In this research, a dependent variable is profitability evaluated on the basis of the impact of firm size, leverage ratio, loss ratio, tangibility of assets, liquidity ratio, managerial efficiency, economic growth and inflation rate that are independent variables.

### 3.2 Sample size

Sample size is considered as a pool of entities that reflect an entire population. There were twenty seven (27) listed insurance companies and non-listed insurance operated in Sri Lanka. Out of these insurance companies, the sample size for this research includes seventeen (17) insurance companies by using a convenient sampling method.

Secondary data was collected through their annual reports that were presented during the last 10 years that was 2010-2019. The annual reports of these insurance companies are available on the internet (including the website of the Colombo Stock Exchange). In addition, all the relevant reports were accessed from the official websites of the companies. The Table 1 shows the selected insurance companies for the data collection.

**Table 1: List of insurance companies in Sri Lanka**

| No | Insurance Companies | Types |
|---|---|---|
| 01 | Ceylinco Life Insurance PLC (CINS) | Life insurance |
| 02 | AIA Insurance Lanka PLC (AIA | Life insurance |
| 03 | Union Assurance PLC (UAL) | Life insurance |
| 04 | Janashakthi Insurance Company PLC (JINS) | Life insurance |
| 05 | HNB Assurance PLC (HNB) | Life insurance |
| 06 | LOLC Life Assurance Limited (LOLC) | Life insurance |
| 07 | Allianz Life Insurance Lanka Ltd (ALLI) | Life insurance |
| 08 | Amana Takaful Life PLC (AMA) | Life insurance |
| 09 | Life Insurance Corporation Lanka Ltd (LIC) | Life insurance |
| 10 | Coop life Insurance Limited (Coop life) | Life insurance |
| 11 | Ceylinco General Insurance Ltd (CINS) | General Insurance |
| 12 | National Insurance Trust Fund (NITF) | General Insurance |
| 13 | Allianz General Insurance Lanka Ltd (ALLI) | General Insurance |
| 14 | LOLC General Insurance Ltd (LOLC) | General Insurance |
| 15 | Cooperative Insurance Company Ltd (Co-op | General Insurance |
| 16 | HNB General Insurance Ltd (HNB) | General Insurance |
| 17 | Amana Takaful PLC (AMA) | General Insurance |

Source: Researcher's data collection, 2020

### 3.3 Measurement of variables

According to Al-Shami (2008), there are three important measures of a firm's performance that are profitability, size, and survivorship. Profitability indicates the firm's ability to achieve the rate of return on a company's assets and investment funds. With regard to size, it is a firm's ability to expand its size that could be a reflection of its success as earnings are reinvested and external funding could be easily found. Whereas survivorship indicates the ability to earn sustainable development concerning competitive advantages beyond initial opportunities like an economic upturn or the early growth stage of the industry. The following indicators and measurements were used to calculate the ratios to be analyzed in this research.

#### Firm size

In this study business, size was on purpose by whole advantage in the log worth.

Firm size = Usual log of whole assets

**Leverage ratio**

Leverage is the quantity of debt used to finance a company's assets. A company with considerably more debt than equity is careful to be extremely leveraged. The leverage in this study was deliberate by total debt to total equity value of the corporation.

LEV = Total debt /Total equity

**Loss ratio**

This variable is measured as the ratio of incurred claims to earned premiums. It is measured as:

Loss ratio = Net claims incurred / Net Earned Premiums

**Tangibility of assets**

Tangibility is defined in respect to this study as the ratio of fixed assets to total assets.

Tangibility ratio = Fixed assets /Total assets

**Liquidity ratio**

Liquidity of the insurance companies in this study was measured by the ratio of current assets to Current liabilities.

Liquidity ratio = Current assets / Current liabilities.

**Managerial efficiency (Firm growth)**

In this study enlargement of the insurance company is deliberate by the percentage alter in total assets of insurance companies decision-making competence The ratio of in service expense to operating profits was used to measure managerial efficiency and the senior the ratio the inferior the managerial efficiency.

Managerial efficiency = Operating expense / Operating income

**Economic growth**

The yearly real Gross Domestic Product (GDP) growth rate was used.

**Inflation rate**

The annual inflation rate was used.

**Profitability**

Present are a lot of dissimilar habits to calculate profitability, as exposed in preceding studies. In this study net profits previous to tax to sum possessions (ROA) was used to gauge profitability, since the majority of the study

concerning the topic used this ratio to decide the profitability of the cover company. The ROA was calculated as a ratio of the operating results and employed (invested) capital.

ROA = Net income /Total assets

Accordingly, the operationalization of all independent and dependent variables is tabulated as follows;

**Table 2 - Operationalization of variables**

| | Variables | Indicators | Mathematical Expression | Reference |
|---|---|---|---|---|
| **Dependent Variable** | Return on Assets (ROA) | Ratio | Net Income / Total Assets | (Masood & Ashraf, 2012) |
| **Independent Variable** | Firm Size (SIZE) | Ratio | Log of Total Assets | (Almazari, 2014) |
| | Leverage Ratio (LEV) | Ratio | | (Charumathi, 2012) |
| | Loss Ratio (LOS) | Ratio | Net Claims Incurred / Net Earned Premiums | (Malik, 2011) |
| | Tangibility of Assets (TOA) | Ratio | Fixed Asset / Total Assets | (Abate, 2012) |
| | Liquidity Ratio (LR) | Ratio | Cash and Cash Equivalent / Total Assets | (Almazari, 2014) |
| | Managerial Efficiency (ME) | Ratio | Operating Expense / Operating Income | (Almajali, 2012) |
| | Gross Domestic Product (GDP) | Percentage | Growth rate of Gross Domestic Product | (Weerasinghe & Perera, 2019) |
| | Inflation Rate (IR) | Percentage | Consumer Price Index | (Spaseska, et al., 2017) |

Source: Based on survey data

## Data Analysis

Data were analyzed by using the statistical tools; Descriptive Statistics, Pearson Correlation Matrix, and Multiple Regression Analysis. The data analysis model in this research takes the following format.

$$Y_i = \beta 0 + \beta 1\ SIZE + \beta 2\ LEV + \beta 3\ LOS + \beta 4\ TOA + \beta 5\ LQ + \beta 6\ MGE + \beta 7\ GDP + \beta 8\ IR + ei$$

Where;

| | | | |
|---|---|---|---|
| Y i | Dependent variable Profitability through Return on Assets (ROA) | | |
| SIZE: | Firm Size; | LEV: | Leverage ratio |
| LOS: | Loss Ratio | TOA: | Tangibility of assets |
| LQ: | Liquidity Ratio | MGE: | Managerial efficiency |
| GDP: | Gross Domestic Product | IR: | Inflation Rate |
| ei: | Randomized error | | |

## 4. RESULTS

The following tests are related to the above data analysis model of data, which are tested in the following sections. Descriptive statistics, Correlation Matrix, and Multiple regression model specification tests were tested to make the reliable results, and make the model fit for the data. These tests were mandated to confirm the estimation technique of the data analysis model as follows.

### 4.1 Descriptive Statistics

This research was purely secondary in nature. In this research, the data was collected from the annual reports which are uploaded in the official websites of particular firms as well as audited financial statements presented in the annual reports in the official website of the Colombo Stock Exchange. In Table 2, the researcher presents a descriptive analysis of the concerned variables associated with Sri Lankan insurance companies. In fact, in this study, it considers ROA as a dependent variable (profitability) expressed in terms of specific determinants of insurance companies such as firm size, leverage ratio, loss ratio, tangibility of assets, liquidity ratio, managerial efficiency, gross domestic product, and inflation rate (independent variables). Mainly this analysis is helpful to identify the overall description of the variables used in the model. The summary of descriptive statistics contains the no. of observations, mean, standard deviation, minimum and maximum of the dependent variable, and eight independent variables. The mean value is the sum of the observations divided by the total number of observations. The standard deviation is the square root of the variance and furthermore, it shows how close the data is to the mean. The variance describes the spreading of the data from the mean. It is the simple mean of the squared distance from the mean. Furthermore, the above table shows the average indicators of variables computed from the financial statements and the standard deviation that shows how much dispersion exists from the average value. Brooks, (2008) revealed that a low standard deviation indicates that the data point tends to be very close to the mean, whereas a high standard deviation indicates that the data point is spread out over a large range of values.

**Table 3 - Descriptive statistics**

| Variable | Observations | Mean | Std. Dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| ROA | 164 | 0.413 | 0.079 | -0.384 | 0.488 |
| SIZE | 164 | 7.527 | 1.214 | 5.437 | 9.925 |
| LEV | 164 | 0.479 | 0.269 | 0.016 | 0.945 |
| LOS | 164 | 0.382 | 0.248 | 0.005 | 0.959 |
| TOA | 164 | 0.098 | 0.186 | 0.001 | 0.915 |
| LQ | 164 | 2.284 | 4.980 | 0.006 | 43.262 |
| MGE | 164 | 3.290 | 6.573 | -31.556 | 40.339 |
| GDP | 164 | 5.334 | 2.163 | 3.209 | 9.145 |
| IR | 164 | 5.070 | 1.848 | 2.240 | 7.540 |

Source: Authors calculations based on survey data

As presented in Table 3 that, the mean values of all the variables range from a minimum of 0.097(approx.) for TOA as measured by the ratio of Tangibility of assets to a maximum of 7.53 (approx.) for SIZE as expressed by the natural logarithm of the total assets of the insurance companies. The minimum and maximum rates of return on assets of selected insurance companies are -0.38 (approx.) and 0.49 (approx.) respectively. Also, the above results show the mean values of Firm Size (SIZE), Leverage Ratio (LEV), Loss Ratio (LOS), Tangibility of Assets (TOA), Liquidity (LQ), Managerial Efficiency (MGE), Gross Domestic Product (GDP), and Inflation Rate (IR) are 7.53, .48, .38, .10, 2.28, 3.29, 5.33 and 5.07, whereas the mean value of dependent variable Return on assets (ROA) is 0.41 (approx.). This indicates on average Sri Lankan insurance companies' generated 4% profit on assets employed in the company. When observing the standard deviation on the Firm Size (SIZE), Leverage Ratio (LEV), Loss Ratio (LOS), Tangibility of Assets (TOA), Liquidity (LQ), Managerial Efficiency (MGE), Gross Domestic Product (GDP), and Inflation Rate (IR) and dependent variable ROA showed average of 0.08 (approx.), which implies that the volatility of ROA varies from the mean by 8% only.

### 4.2 Correlation Analysis

The researcher has used correlation analysis to measure the strength and direction of the linear relationship between the independent variables and the dependent variable. Table 4 shows the correlation analysis

**Table 4 - Correlation matrix**

| | ROA | SIZE | LEV | LOS | TOA | LQ | MGE | GDP | IR |
|---|---|---|---|---|---|---|---|---|---|
| **ROA** | 1.0000 | | | | | | | | |
| **SIZE** | 0.140***<br>0.072 | 1.000 | | | | | | | |
| **LEV** | 0.117<br>0.134 | -0.495*<br>0.000 | 1.000 | | | | | | |
| **LOS** | 0.093<br>0.234 | 0.188**<br>0.015 | 0.091<br>0.246 | 1.000 | | | | | |
| **TOA** | 0.132***<br>0.090 | -0.021<br>0.785 | 0.173**<br>0.026 | -0.050<br>0.520 | 1.000 | | | | |
| **LQ** | -0.059<br>0.453 | 0.289*<br>0.0002 | -0.234*<br>0.002 | -0.037<br>0.633 | -0.041<br>0.595 | 1.000 | | | |
| **MGE** | 0.008<br>0.913 | 0.058<br>0.459 | -0.105<br>0.179 | -0.043<br>0.579 | -0.094<br>0.226 | 0.095<br>0.225 | 1.000 | | |
| **GDP** | -0.141<br>0.071*** | -0.128<br>0.101 | 0.110<br>0.158 | -0.059<br>0.446 | -0.001<br>0.984 | -0.082<br>0.297 | -0.034<br>0.664 | 1.000 | |
| **IR** | 0.017<br>0.822 | -0.057<br>0.466 | 0.069<br>0.379 | -0.060<br>0.441 | -0.001<br>0.984 | -0.210*<br>0.007 | -0.265*<br>0.0006 | 0.462<br>0.000 | 1.000 |

*. Correlation is significant at the 0.01 level (2-tailed).
**. Correlation is significant at the 0.05 level (2-tailed)
***. Correlation is significant at the 0.1 level (2-tailed)

Source: Authors calculations based on survey data

According to correlation analysis in Table 3, it shows that correlation between firm size (SIZE) and returns on assets (ROA) is 0.1405 with a p-value of 0.0727, which implies that there is a positive significant relationship between firm size and ROA at a 10% significant level. Then the correlation between Tangibility of Assets (TOA) and return on assets (ROA) is 0.1326 with a p-value of 0.0904, which implies that there is a positive significant relationship between tangibility of assets and ROA at 10% significance level. Also, then the correlation between Gross Domestic Product (GDP) and return on assets (ROA) is 0.1413 with a p-value of 0.0711, it implies there is a negative significant relationship between GDP and ROA at a 10% significant level. Except the above, all the correlations of leverage ratio, loss ratio, liquidity, managerial efficiency and inflation rate between ROA are 0.1173, 0.0934, -0.0591, 0.0086 and 0.0176, which imply that the relationships are insignificant relationships. Even though, most of the determinants are

correlated except gross domestic product (as recorded a negative correlation) with the profitability of the insurance companies in Sri Lanka.

In summary, the correlation analysis shows the direction and degree of associations between variables. It does not allow the researcher to make cause and inferences regarding the relationship between the identified variables in this study. Hence, regression analysis which is discussed in the next subsection of the study gives assurance to overcome the particular shortcomings in examining the effects of selected proxies of the independent variable on the dependent variable.

### 4.3 Multiple Regression Analysis

The previous section presented the results highlighting the descriptive statistics and pairwise correlation analysis. This section uses a panel regression analysis to test the developed research hypotheses. This panel regression analysis was undertaken to examine the impact of the determinants on profitability of the insurance companies in Sri Lanka. Multiple Regression analysis is used to test the impact of determinants on profitability of the listed Insurance companies in CSE. As the researcher mentioned in mode of analysis, two models were formulated and the results as follows.

**Table 5 - Multiple regression analysis: results summary**

| **Source** | **SS** | **df** | **MS** | **Number of observations** | = 164 |
|---|---|---|---|---|---|
| Model | .113 | 8 | .014 | **F ( 8, 154)** | = 2.460 |
| Residual | .884 | 154 | .006 | **Prob > F** | = 0.015 |
| Total | .997 | 162 | .006 | **R-squared** | = 0.114 |
| | | | | **Adj. R-squared** | = 0.067 |
| | | | | **Root MSE** | = 0.078 |

| **Variable** | **Coefficient** | **Std. Error** | **t** | **p>t** |
|---|---|---|---|---|
| SIZE | .015 | .006 | 2.42 | .017 |
| LEV | .070 | .027 | 2.62 | .010 |
| LOS | .014 | .025 | 0.55 | .581 |
| TOA | .041 | .033 | 1.24 | .216 |
| LQ | -.001 | .001 | -0.79 | .433 |
| MGE | .000 | .001 | 0.43 | .671 |
| GDP | -.007 | .003 | -2.24 | .027 |
| IR | .004 | .004 | 0.93 | .353 |
| _cons | -.091 | .055 | -1.66 | .098 |

Source: Authors calculations based on survey data

According to the data analysis model as constructed above for ROA, the Table3 shows the analyzed results in order to find the impact of predictors (SIZE, LEV, LOS, TOA, LQ, MGE, GDP, and IR) and the profitability in ROA. According to R squared value, it shows the variation in the dependent variable that is predicted by the other independent variables. R squared value shows how far the model is the best fit. According to the above results, the value of R2 is 0.1135 and it indicates the 11.4% variance in the profitability. It can be concluded that the model is a weaker one.

Accounting to the F-value, the above table indicates that the regression model predicts the dependent variable ROA significantly well. This indicates the statistical significance of the regression model that was run. Here the P-value is 0.0154 which is less than 0.05, and indicates that the regression model statistically significantly predicts the dependent variable. This means that it is a good fit for the data.

The coefficients of Table 5 provides us with the necessary information to predict ROA from SIZE, LEV, LOS, TOA, LQ, MGE, GDP, and IR as well as to determine whether SIZE, LEV, LOS, TOA, LQ, MGE, GDP, and IR contribute statistically significantly to the model. When considering ROA, the beta coefficient values of SIZE, and LEV, are 0.015 and 0.07 respectively, whereas the beta coefficient of GDP is -0.01. Among these variables; SIZE, and LEV, are positively significantly associated with ROA at a 5% significance level. Also, GDP is negatively significantly associated with ROA at a 5% significance level. Out of these three significant variables, all other variables are insignificant. According to the t values of SIZE, LEV, and GDP are 2.42, 2.62 and -2.24, which are more than 2 or less than -2.

By referring to the Beta coefficients, the regression model can be of the following firm.

ROE = -0.09 +0.01 SIZE+0.07 LEV+0.01 LOS+0.04 TOA-0.00 LQ+0.00 MGE-0.01GDP+0.00 IR +Ɛ

**Multicollinearity Test**

The Variance Inflation Factor (VIF) measures the impact of collinearity among the variables in a regression model. The Variance Inflation Factor (VIF) is 1/Tolerance, it is always greater than or equal to 1. There is no formal VIF value for determining presence of multicollinearity. Values of VIF that exceed 10 are often regarded as indicating multicollinearity, but in weaker models values above 2.5 may be a cause for concern. Therefore, the researcher has used a multicollinearity test to examine whether the multicollinearity problem exists or not.

**Table 6 - Variance Inflation Factor (VIF)**

| Variable | VIF | 1/VIF |
|---|---|---|
| SIZE | 1.52 | 0.658063 |
| LEV | 1.45 | 0.689569 |
| LOS | 1.41 | 0.711575 |
| TOA | 1.28 | 0.784244 |
| LQ | 1.16 | 0.859245 |
| MGE | 1.12 | 0.896164 |
| GDP | 1.11 | 0.900512 |
| IR | 1.06 | 0.946107 |
| Mean VIF | 1.26 | |

Source: Authors calculations based on survey data

By referring to the above table it is possible that no VIFs are greater than 10 and the mean VIF is greater than 1, but not deviating much. It is pointed out that there is no multicollinearity issue between independent variables utilized to run this multiple regression model. According to the above table, all VIF values are less than 10, and tolerance (1/VIF) values are within the range of 0.2 and 1 (Field, 2009). It showed the direction for the researcher that independent variables are not highly correlated. So, it asserted the absence of multicollinearity issues.

### 4.4 Hypothesis Testing

Assessment of the research hypotheses were made based on the relationship of dependent variable and the explanatory variables. Consequently, the succeeding sections in connection with hypothesis testing and the explanation of the regression result explained above.

**Table 7 - Summary of the hypotheses tested**

| Hypotheses no | Impact between two Variables | P Value | Outcome |
|---|---|---|---|
| Hypothesis 1 | SIZE on ROA | 0.017 P < 0.05 | Supported |
| Hypothesis 2 | LEV on ROA | 0.010 P < 0.05 | Supported |
| Hypothesis 3 | MGE on ROA | 0.671 P > 0.05 | Not Supported |
| Hypothesis 4 | TOA on ROA | 0.216 P > 0.05 | Not Supported |
| Hypothesis 5 | LQ on ROA | 0.433 P > 0.05 | Not Supported |
| Hypothesis 6 | LOS on ROA | 0.581 P > 0.05 | Not Supported |
| Hypothesis 7 | GDP on ROA | 0.027 P < 0.05 | Supported |
| Hypothesis 8 | IR on ROA | 0.353 P > 0.05 | Not Supported |

Source: Based on survey data

According to the hypothesis testing in this study, only three hypotheses namely H1 -SIZE, H2 - LEV and H7GDP are supported. Other hypotheses are not supported.

## 5. CONCLUSION, IMPLICATIONS AND DIRECTIONS FOR FUTURE RESEARCH

### 5.1 Conclusion

This research was performed on Sri Lankan insurance companies insurance in order to find out the impact of the determinants on profitability of such companies. The profitability of any business industry needs to be evaluated in certain time periods for the purpose of assessing and monitoring its growth and gathering maximum benefits out of it. Profitability is important to measure as it has the tendency to play a pivotal role in concentrating into practice the modern technological innovations and organizational changes by making use of motivated derivatives for enhancing the profitability and other measurements to evaluate progress toward success. Therefore, an in-depth analysis was conducted to explore, understand and assess the profitability of the insurance sector of Sri Lanka by using the determinants of its profitability. The profitability of insurance sector was measured in terms of return on assets as the dependent variable: and eight specific determinants was measured in terms Firm Size (SIZE), Leverage Ratio (LEV), Loss Ratio (LOS), Tangibility of Assets (TOA), Liquidity (LQ), Managerial Efficiency (MGE), Gross Domestic Product (GDP), and Inflation Rate (IR) as independent variables.

The findings of the study show that three determinants; firm size, leverage, and gross domestic product have correlated with the profitability of Sri Lankan insurance companies. Out of these three, the first two, firm size and leverage are positively significantly correlated with the profitability of Sri Lankan insurance companies, so that these results are consistent with the findings of Sumeira and Amjad (2013), Mehari and Aemiro (2013), and Abate (2012). Also, the gross domestic product is negatively correlated with the profitability of insurance companies. This is inconsistent with findings of Peleckienė et al., (2019). Out of these, all the correlations of leverage ratio, loss ratio, liquidity, managerial efficiency and inflation rate between ROA, which imply that the relationships are insignificant. In addition, the regression analysis indicated that the factors; firm size, leverage ratio, and gross domestic product have significant impact on profitability, whereas, loss ratio, tangibility of assets, liquidity ratio, managerial efficiency, and inflation rate have insignificant impact on profitability of Sri Lankan insurance companies. As in Sri Lanka the pattern of investing is becoming faster because of policy wise investment strength of the government in terms of regaining the country with a view to build up on a theme of prosperity is superior to in this decade

and the insurance industry is frequently put some part of sophisticated approach in activities of investment to create more benefit to the customers, shareholders, staff and other existing and potential investors. In last, after considering the effect of determinant franked variables, the findings reveal that firm size is a key determinant to increase the business efficiency by expanding their firm plus business density all over the country with foreign intervention or investment to increase their profitability within the insurance industry. Also, the leverage ratio is a key determinant on profitability in the insurance sector as well. Because, in insurance leverage ratio is a core determinant of an industry to keep the balance between the owned capital and debt capital invested in order to sustain the optimal financial structure of such companies. Also, the insurance industry is a key contributable industry to economic development, so that the insurance companies are likely to operate their business activities concentrating on the growth of the country in order to keep an optimal profitability. Finally, it is emphasized that a set of seven determinants except gross domestic product is averagely contributed to determine the optimum level of profitability of the Sri Lankan insurance industry with concentrating other determinants which would be found beyond in the market.

### 5.2 Implications

Surprisingly, the performance on macro-economic factors in Sri Lanka with structural changes in the insurance sector would definitely show tangible improvements while improving financial strength of the insurance industry as well. The application and diversification of sophisticated insurance services have very constructive implications for the insurance sector's profitability. The increase in profitability by declining the interest expense of the insurance sector also plays a significant role. With huge increases in profitability associated with these services, the risk exposure in shape of emerging liquidity constraints and rising maturity also poses a threat. That risk can be overcome by increased capital requirements somewhat, the insurance company needs to think of innovative ideas to mobilize its long term deposit in fruitful investments and further breakthrough in liability products.

In recent times, the Sri Lankan insurance industry has been subjected to improvements in size and structure through running reform processes and strong macroeconomic fundamentals. Insurance industry in Sri Lanka has witnessed a swift yet major shift of aggregated assets from the public to private sector. This resulted in decreased asset concentration in this sector. Privatization is the main reason for these massive improvements and has impacted the performance of Sri Lankan insurance companies and other developing nations in the long run. Despite the privatization of insurance companies, intermediation spread has not reduced. Implying asset

concentration has also found to be an important determinant of the intermediation spread. It further implies that improvement in asset concentration would improve the efficiency of the insurance sector significantly. Therefore, the research findings are focused on the entire insurance industry in Sri Lanka as a whole. These results would be beneficial for the insurance companies as well as to the managers to utilize the resources and assets in the most optimum manner.

### 5.3 Directions for future research

For reliability and the authenticity of the results, it is recommended that future researchers can conduct or expand the extensive research or studies to compare the Sri Lankan insurance industry with the extent of other countries to realize the better correlation and impact between the internal and external determinants on the profitability of Sri Lankan insurance companies. Further, it is authoritative to discover endogenous and exogenous factors which may, straightforwardly and in some way, affecting the model. Furthermore, conducting essential research on strengthening industrial performance towards global economic trends and/or hazards that would be affected for the profitability of the insurance industry may concentrate for the future research as well.

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