DETERMINANTS OF PROFITABILITY OF EGYPTIAN INSURANCE COMPANIES LISTED IN STOCK OF EXCHANGE

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Abstract

Profitability is one of the most important objectives of financial management because one essential goal of financial management is to maximize the owner's wealth and profitability. This study aimed to investigate the factors that mostly affect the profitability of listed insurance companies in Egyptian stock exchange. Specifically, this study examines the effect of insurance firm specific factors as independent variables (age of company, size of company, leverage ratio, liquidity, capital adequacy, loss ratio, and inflation rate) on profitability proxied by return on assets (ROA) which is defined as the before-tax profits (BTP) divided by total assets (TA). The population in this study includes two Egyptian insurance companies listed in the Egyptian stock of exchange during the period of 1995/1996 – 2013/2014. The findings show that there is no relationship between profitability and age of the company and there is significantly positive relationship between size of the company and profitability. The result also shows that the size of capital is significantly and positively related to profitability. Loss ratio and leverage ratio showed negative but significant relationship with profitability.

Keywords: Insurance Companies, Stock of Exchange, Profitability, Determinants.

INTRODUCTION

The performance of any insurance company not only plays an essential role to increase the market value of that specific company but also leads to the growth of the whole industry which plays a significant role in enhancing the country economy.

Although, insurance industry has minor stake in the growth of the Egyptian economy , no one can undermine their vital role since they facilitate the businesses in obtaining of assets through easy periodic payments. Insurance firms provide critical services for people**.** It plays an important role for both businesses and individuals as they indemnify the losses and put them in the same positions prior to the occurrence of the loss. In addition, insurers provide economic and social benefits in the society such as prevention of losses, reduction in fear and increasing employment.

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However, profitability has been widely investigated in the Egyptian manufacturing industries but less attention has been paid to it in the Egyptian insurance sector. In Egypt, insurance companies (private and public) consist of companies which provide life, non-life causality and many other forms of insurance. The insurance company's performance can be estimated by measuring the company's profitability and the insurer's performance is related to such potential variables as age of company, size of company, size of capital, leverage ratio and loss ratio. Accordingly, the aim of this paper is to investigate the factors that influence the insurance companies' profitability in the Egyptian insurance market. Two private insurance companies have been selected in this study and their data over the period from 1995/1996 to 2013/ 2014 have been used. Profitability is the dependent variable and age, size of companies; leverage ratio, loss ratio and size of capital assets have been taken as independent variables.
Second section provides the literature on determinants of insurance sector`s profitability. Preceding sections provides the objectives of the research, the data collected and methodology that has been used to conduct this paper.

LITERATURE REVIEW

Several empirical studies have investigated the determinants of profitability in the financial institution around the world. According to Jiang, et. al and Tang (2003), Nguyen (2006) firms' profitability is the return of assets (ROA), which gives an idea as to how efficient management is using its assets to generate earnings and is defined as the before-tax profits (BTP) divided by total assets (TA). The relationship of various characteristics of insurance firms with the profitability has been examined by many researchers.

Berger (1995), Walton (2000), for example, had found that there is a positive relationship between profitability and well-capitalized companies, but Hutchison and Cox (2006) had found a negative relationship between bank capital and equity profitability except for the best performing banks.

Mike Adams (1996) found that the organizational characteristics such as size, leverage and underwriting risk were significantly and positively related to the investment earnings of New Zealand stock life insurers.

Kashish and Kasharma (1998) conducted study on Jordan's insurance companies and used the profitability as dependent variable, where profitability was proxied by return on investment (ROI) and is defined as

the net profits divided by total assets and found a significant positive relationship between the companies' age and the profitability measured as return of assets in 1994s but very weak in 1995s.

On the other hand, Born (2001) found that the insurance company performance is significantly related to size and effective number of competitors and weakly related to insurers' legal and regulatory environments in Nigeria.

Agiobenebo and Ezirim (2002) tested the relationship between profitability and financial intermediation in Nigeria. The results showed that the level of premium to total assets is positively related to level of profitability of insurance companies and also significant but the factors of net potential, loan levels, investments were found positively related but insignificant.

Hrechaniuk Bohadana (2007) found that the insurer's size is an important determinant of profitability for the Spanish and Ukrainian insurers'. The results support the idea that size affect the performance positively in Ukraine. However, such effect has not been found in Spain which is explained by the high administrative expenses in Spain companies.

Cowling, Bates, Murray and Jagger (2008) found that both age and size of the firm had positive and significant effect for enterprise investment scheme recipients: the highest the level of fixed assets formation, the older and larger the EIS company.

Hurdle (1974), Vigaykumar and Kadirvelu (2004) emphasizes that a company with a high leverage ratio represents greater financial risk, and thus expect a negative relationship between leverage and profitability. However, the leverage coefficient did not support their hypothesis, rather than it appears with opposite sign. Similarly, Panayotis, Delis & Athanasoglou (2008) argued that banks with lower leverage (higher equity) will generally report higher ROA, ROA emerges as the key ratio for the bank profitability evaluation.

Aburime (2006) identified the firm level determinants of profitability of Nigerian banks over a five years period from 2000 to 2004. He concluded that credit portfolio, size, capital size and ownership concentration are important determinants of Nigerian banks.

Financial Services Liberalization, Final Report (2006) found that important factors that affect ROA in non-life insurance companies in Thailand are technical efficiency, size of capital fund, loss ratio and market power. Firms that have higher solvency and are more technically efficient are more likely to be profitable, while reducing loss ratio can have a positive impact on profitability, greater market power, surprising does not increase profitability.

Hrechaniuk et al. (2007) investigated the determinants of insurance companies performance and showed that the loss ratio is positively influences corporate revenue performance in Lithuania and negatively influences the real profitability in Ukraine and supports the hypothesis that there is a negative significantly relationship between loss ratio and firm's profitability.

Al-shami (2008) investigated the determinants of profitability in the Insurance companies of UAE over the period 2004 to 2007. His study measured profitability as profits before tax to total assets (ROA). The study found positive relationship of size and size of capital with profitability. In addition, the study found that leverage and loss ratio have a negative relationship with the profitability.

Pervan, et al. (2010) aimed to investigate the determinants of the insurance companies' performance in the Republic of Croatia during the period from 2003 to 2009. Findings indicate negative and significant influence of expense ratio and inflation on profitability; and significant positive influence of past performance on current profitability. Additionally, results reveal higher level of profitability of domestically owned firms than of foreign owned.

Ahmed et al. (2011) found that performance of Pakistan life insurance companies is determined by size, risk and leverage. However, Malik (2011) found that the profitability of Pakistan insurance companies is significantly and positively influenced by size of capital; significantly and negatively influenced by loss ratio and leverage; and not related to age of the insurer.

Asghar, et al. (2012) investigated the determinants of profitability in leasing companies of Pakistan over the period 2006 to 2008. This study has applied (OLS) model and logistic model for estimation of results. It found that the size, net investment and liquidity have a positive relationship with the

profitability. Whereas, leverage, and age have negative relationship with the profitability of the leasing companies.

Charumathi (2012) tried to model the factors determining the profitability of life insurers operating in India taking ROA as dependent variable. The sample for this study includes all 23 life insurers including (1 public and 22 private firms) for 3 financial years from 2008/2009 to 2010/2011. For this purpose, firm specific characteristics such as leverage, size, premium growth, liquidity, underwriting risk and equity capital are regressed against Return on Assets. It led to the profitability of life insurers is positively and significantly influenced by the size and liquidity. The leverage, premium growth and logarithm of equity capital have negatively and significantly influenced the profitability of Indian life insurers. It does not find any evidence for the relationship between underwriting risks and profitability.

However, although determinants of profitability have been extensively studied in manufacturing, services sectors and banking institution in Egypt, no such studies can be found for impact of the insurers' ROA as a profitability measure. Literature review supports the idea that financial and non-financial factors, such as size, age, leverage, liquidity, written premium, loss ratio and size of capital have an influence on firms' profitability. The researcher has chosen these variables because they are the most appropriate factors for the Egyptian insurance industry and can be measured by using the published data in the Egyptian insurance market.

PROBLEM STATEMENT

The subject of financial performance has received significant attention from researchers in various segments of businesses. Since financial performance has imperative effect on organization's health and survival. High performance reflects management effectiveness and efficiency in making use of firm's resources and this in turn contributes to the country's economy at large (Naser and Mokhtar, 2004).

During the period of the study annual reports of the Egyptian Private insurance companies showed large fluctuations in the profit. This variation of profits suggests that internal factors or company-specific factors play an essential role in influencing insurance companies' profitability. It is therefore important to determinate which of these factors can help insurance companies to take action for increasing their profitability and help investors to forecast the profitability of the Egyptian Private insurance companies.

In Egypt, very few studies that examined factors that affect profitability in the banking and manufacturing sectors (see for example: Abo Fakhara, 1997; Serag, 2000). However, no studies have been conducted in the insurance sector. Hence, a need for such study is required for the identification of factors that affect the profitability and help to avoid losses.

RESEARCH OBJECTIVES

The main objective of this study could be summarized in identifying the factors that mostly affect the Egyptian private insurance companies' profitability. Hence, this study seeks to answer the following question: What are the basic factors affecting the profitability of the Egyptian insurance companies?

This main aim will be achieved by the following objectives:

- To identify the effect of age of company, size of company, size of capital, leverage ratio, loss ratio, growth of premiums and Liquidity on the profitability of the Egyptian insurance companies and rank these factors according to their degree of influence on the Egyptian insurance companies' profitability.

- To provide some conclusions and recommendations for decision makers at the insurance sector to deal with variables that affect profitability in order to enhance their company financial performance.

- To provide the local libraries with scientific material dealing with variables that affect profitability on the Egyptian private insurance sector.

IMPORTANCE OF THE STUDY

The main reason for this study is that previous researchs have not paid enough attention to this subject in the Egyptian insurance market like other kind of institutions. Therefore, this study sheds light on the scarcity of this type of studies in the Egyptian insurance market.

The significance of the study can be viewed in terms of their specific implications to various parties in the insurance industries, namely the management of insurance companies, policyholders, regulators and investors.

Management: Administration of insurance companies interested in identifying indicators of success and failure to take the necessary decisions to improve the performance of the company.

Policyholders: Policyholders interested in knowing the ability of insurance companies to pay their obligations based on indicators about success of these companies.

Regulator: Regulator interested in knowing which companies operate successfully or failed in order to insure that companies are able to meet their liabilities so as to avoid bankruptcy in these companies.

Investors: Investors interested in these kinds of business will get important information to protect their investments and take the best investment decisions.

RESEARCH METHODOLOGY

Review of related literature indicates that potential variables that influence the profitability are age of company, size of company, leverage ratio, liquidity, capital adequacy, loss ratio, and inflation rate. There are many various ways to measure profitability. In this study, net income to total assets will be used to measure profitability. The researcher has chosen these variables because they are the most suitable ones in the Egyptian insurance market and can be easily measured by using data that is afforded by Egyptian insurance companies.

Age of Company (AG)

Age of insurance companies is measured by difference between observation year and establishment year ((Ahmed et al., 2011). Several earlier studies (Kashish and Kasharma, 1998; Galnncey, 1998; Batra, 1999; Lumpkin and Dess, 1999) found that there is a positive relationship between companies' age and profitability. Newer and smaller firms, as a result, take away market share in spite of disadvantages like lack of capital, brand names and corporate reputation with older firms. (Kakani, Saha, and Reddy, 2001). Regarding firm age, older firms are more experienced, have enjoyed the benefits of learning, are not prone to the liabilities of newness, and can, therefore, enjoy superior performance. Older firms may also benefit from reputation effects, which allow them to earn a higher margin on sales. Therefore, the following hypothesis is supposed:

H1: Older Egyptian insurance companies will have better profitability than recent companies.

Size of Company (SZ)

Size of insurance company is measured by amount of gross premiums (Ahmed et al., 2011). There are several reasons supporting a positive relationship between profitability and insurance company size. Narver and Salter (1990) argue that it is more difficult for smaller companies to get profit than the bigger ones. Hardwick (1997) suggests that large insurers are likely to perform better than small insurers. Therefore, the following hypothesis is assumed:

H2: Large Egyptian insurance companies will have better profitability than small companies.

Leverage Ratio (LG)

Debt leverage is measured by the ratio of total debts to total assets (total debts / total assets). It shows the degree to which business is utilizing borrowed money. Firms that are highly leveraged may be at risk of bankruptcy if they are unable to make payments on their debt Therefore; low leverage provides a measure of corporate financial strength. Cole (2008) found that profitability is negatively related with the firm leverage. However, Jensen's (1986); Berger et al. (1995) found that high financial leverage can increase a firm's operational performance because it obligates managers to work harder and make better investment decisions to generate cash flows in order to meet their obligations. Therefore, the following hypothesis is supposed:

H3: Egyptian insurance companies with low leverage will have better profitability than companies with high leverage.

Liquidity (LQ)

Liquidity ratio measures the ability of insurance companies in meeting debt obligations to policyholders and creditors. Liquidity refers to the degree to which debt obligations coming due in the next 12 months can be paid from cash or assets that will be turned into cash. It is usually measured by the current assets to current liabilities (current ratio). It shows the ability to convert an asset to cash quickly. Companies can use liquid assets to finance their activities and investments when external finance is not available or it is

too costly. However, higher liquidity would allow a firm to deal with unexpected contingencies and to cope with its obligations during periods of low earnings. (Liargovas and Skandalis, 2008).

A high degree of liquidity enables an insurer to meet unexpected needs for cash without the untimely sale of investments or fixed assets, which may result in substantial realized losses due to temporary market conditions. Therefore, the following hypothesis is assumed:

H4: Egyptian insurance companies with high liquidity will have better profitability than companies with low liquidity.

Capital Adequacy (CAPADEQ)

Capital Adequacy refers to the book value of equity. It is usually measured by the capital to total assets. The profitable strategy for any company seems to be to shrink the portion of equity capital over time (Almazar, 2003). Dragana Ikonic, et al. (2011) analyzed the performance of insurance companies in Serbia and found that the level of capital is the determinant of profitability. Malik (2011) found that the profitability of Pakistan insurance companies is significantly and positively influenced by size of capital.

A poorly capitalized company can show a high return on equity, but may be exposed to a high risk of instability. A conservative level of leverage or capitalization enables an insurer to better withstand catastrophes, unexpected losses and adverse changes in underwriting results, fluctuating investment returns or investment losses, and changes in regulatory or economic conditions. Therefore, the following hypothesis is assumed:

H5: Egyptian insurance companies with high size of capital will have better profitability than companies with low size of capital.

Loss Ratio (LR)

Loss ratio is the ratio of annual incurred claims paid by insurance companies to the premiums received (Hrechaniuk, Lutz and Talavera, 2007). The theoretical model predicts that the higher level of incurred losses is expressed in the lower level of profitability. Angoff & Brown (2007) used the loss ratio to evaluate Michigan auto insurance companies' performance and found the lower the loss ratio the more profitable in business. Therefore, the following hypothesis is supposed:

H6: Egyptian insurance companies with lower loss ratio will have better profitability than companies with high loss ratio.

Inflation rate (INF)

The inflation rate typically refers to changes in the overall level of prices within an economy, which consequently leads to the erosion of the domestic currency (Ahligrim and D' Arcy, 2012). It is usually measured by the Consumer Price Index (CPI). Insurers' claim costs are based on, so insurance costs increases are likely to exceed the rate of inflation. D'Arcy (1982) found that both the underwriting profit margin and insurance investment returns were negatively correlated with the inflation rate during the period 1951-1976. Lowe and Warren (2010) describe the negative impact of inflation on property-liability insurers' claim costs. Li, et al. (2007) provides empirical evidence for the negative impact of inflation on life insurance demand and sales. Browne, Carson, and Hoyt (2001) show that the financial performance measures such as Return on Equity (ROE) and Return on Assets (ROA) are significantly negatively affected by inflation rate, Finally, inflation does not have an isolated impact on insurer performance . Therefore, the following hypothesis is assumed:

H7: Years with lower inflation rate will have better profitability than years with higher inflation rate.

DATA ANALYSIS

To examine determinants of changes in the profitability of Egyptian insurance market, financial data of insurance the companies published by the Egyptian Supervision are collected. The study was based on cross sectional data of 2 Egyptian insurance companies listed in Egyptian stock exchange (*Delta & Mohandes*) operating in Egyptian market over the years 1996–2014.

Insurance Companies listed on Egyptian Stock Exchange	Date of Establishment	Date of Listing on Egyptian Stock Exchange
Delta	1980	1996
Mohandes	1980	1995

The OLS regression model is used to estimate the multiple linear equations parameters. Diagnostic tests are executed to insure the all assumptions for the linear regression model are met. These tests include normality test, multicollinearity, heteroscedasticity, serial correlation.

The Multiple Regression Model takes the following format:

$$y_i = \beta_0 + \beta_1 AG - \beta_2 SZ + \beta_3 LG + \beta_4 LQ + \beta_5 CAPADEQ + \beta_6 LR + + \beta_7 INF + e_i$$

Where:

y_i : Dependent variable (Profitability through calculating (ROA) the before-tax profits divided by total assets.

AG : Age of Company (Difference between observation year and establishment year).

SZ : Size of Company (The amount of gross premiums).

LG : Leverage Ratio (The ratio of total debts to total assets).

LQ : Liquidity (The current assets to current liabilities).

$CAPADEQ$: Capital adequacy (capital to total assets).

LR : Loss Ratio (The ratio of annual incurred claims paid by insurance companies to the premiums received).

INF: Inflation Rate (measured by the Consumer Price Index (CPI)).

e_i : Randomized error.

FINDINGS

NORMALITY OF DATA

Before running the multiple regression analysis, it should be noted that the normality of data must be achieved. From Table 1, figure 1 and figure 2, it can be seen that the distribution is a normal curve, indicating that the data conforms the normality assumption. In addition, the normal probability plots were used to test the normality of data as shown in figure 2.

Table 1: Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual	0.111	38	0.200*	0.973	38	0.485

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Significant values > 0.05 for the two tests, then the normality condition is achieved for the residuals.

Figure 1: Histogram

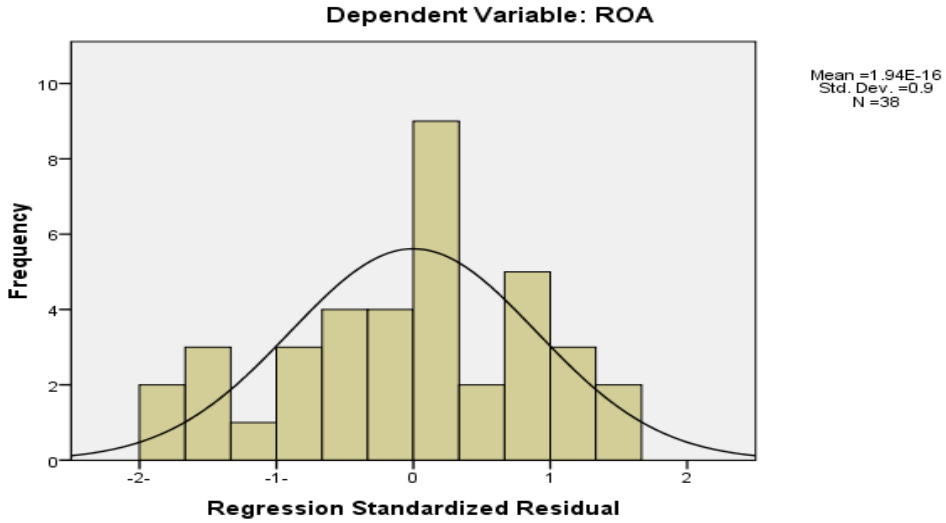
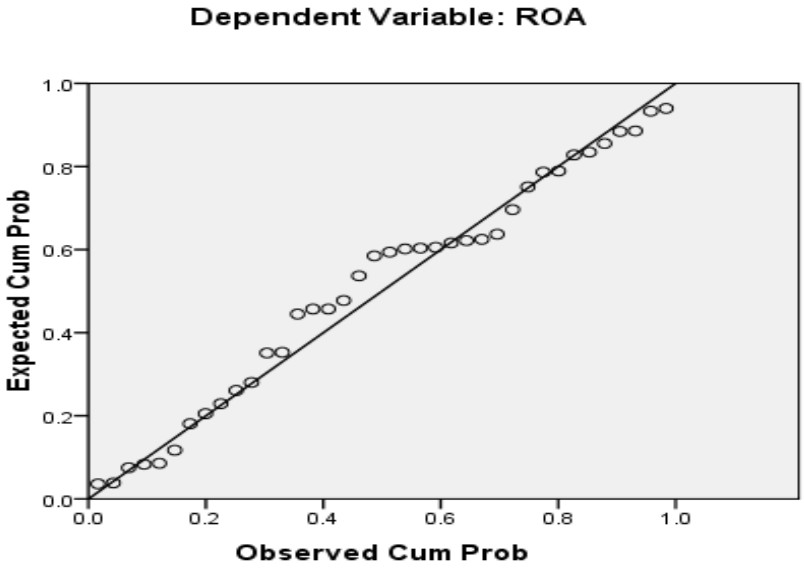
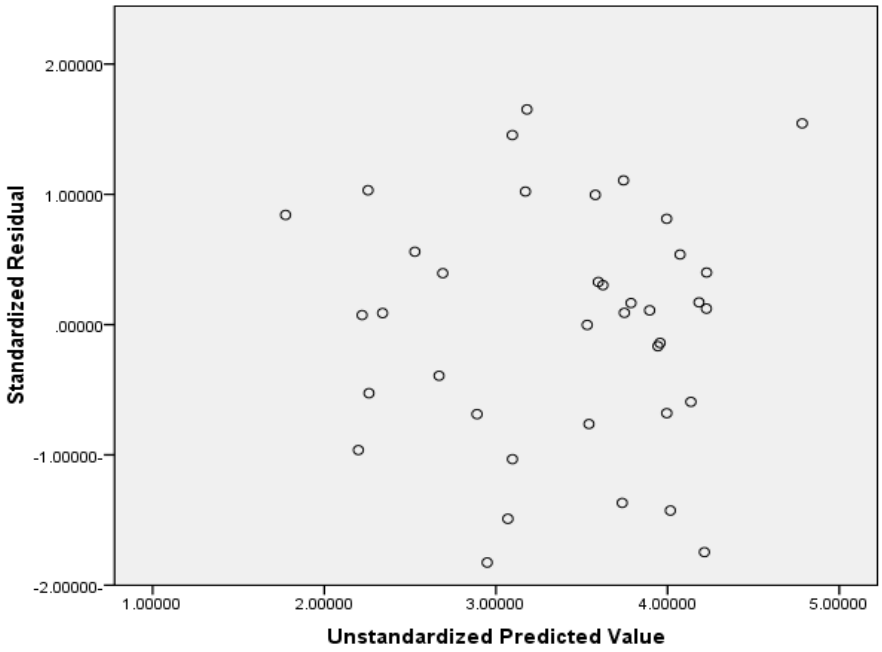


Figure 2: Normal P-P Plot of Regression Standardized Residual



Heteroscedasticity Diagnostic

Diagnostic Figure3: Heteroscedasticity



Based on Figure 3, there is no systematic pattern of this plotting and all plots distributed randomly around zero, so we can say that our model is free from heteroscedasticity problem.

DESCREPTIVE ANALYSIS

Table 1: Descriptive Statistics

	N	Mean	Std. Deviation
ROA	38	3.3924	.96576
AG	38	24.00	5.551
SZ	38	56244.32	32987.484
LG	38	68.3632	19.10576
LQ	38	3.0889	2.08725
CAPADEQ	38	0.08579	.024356
LR	38	49.0237	13.83496
INF	38	7.5358	3.66962
Valid N (listwise)	38		

Descriptive statistics produced the mean and standard deviation for each variable for Egyptian insurance companies listed in Egyptian stock of exchange over the period 1995-2013. Based Table 1 the mean value of profitability (ROA) is 3.3924 and its standard deviation is 0.96576. The mean value of age is 24 with standard deviation 5.551 years. The mean value of size is 56244.32 with high value of standard deviation is 32978.484. The mean value of leverage is 68.3632 and its deviation is 19.10576. Liquidity and size of capital each has mean of 3.0889 and 0.8579 respectively, with standard devation is 2.08725 and 0.024356 respectively. The mean value of loss ratio is 49.0237 with value of standard deviation is 13.83496. Finally, the mean value of inflation rate is 7.5358 with moderate standard deviation is 3.66962.

CORRELATION ANALYSIS

An analysis of bivariate relationships between variables was executed based on a Pearson correlation coefficient. The results are shown in Table 2.

Table 2: Correlations

		ROA	AG	SZ	LG	LQ	CAPADEQ	LR	INF
ROA	Pearson Correlation	1	-.386-*	-.448-**	-.363-*	.454**	.251	-.390-*	-.574-**
	Sig. (2-tailed)		.017	.005	.025	.004	.128	.015	.000
	N	38	38	38	38	38	38	38	38
AG	Pearson Correlation	-.386-*	1	.893**	.595**	-.189-	.374*	.535**	.515**
	Sig. (2-tailed)	.017		.000	.000	.255	.021	.001	.001
	N	38	38	38	38	38	38	38	38
SZ	Pearson Correlation	-.448-**	.893**	1	.424**	-.433-**	.460**	.599**	.605**
	Sig. (2-tailed)	.005	.000		.008	.007	.004	.000	.000
	N	38	38	38	38	38	38	38	38
LG	Pearson Correlation	-.363-*	.595**	.424**	1	-.118-	-.092-	.512**	.417**
	Sig. (2-tailed)	.025	.000	.008		.480	.582	.001	.009
	N	38	38	38	38	38	38	38	38
LQ	Pearson Correlation	.454**	-.189-	-.433-**	-.118-	1	-.115-	-.140-	-.402-*
	Sig. (2-tailed)	.004	.255	.007	.480		.490	.402	.012
	N	38	38	38	38	38	38	38	38

CAPADEQ	**Pearson Correlation**	.251	.374*	.460**	-.092-	-.115-	1	.111	.119
	Sig. (2-tailed)	.128	.021	.004	.582	.490		.507	.478
	N	38	38	38	38	38	38	38	38
LR	**Pearson Correlation**	-.390-*	.535**	.599**	.512**	-.140-	.111	1	.420**
	Sig. (2-tailed)	.015	.001	.000	.001	.402	.507		.009
	N	38	38	38	38	38	38	38	38
INF	**Pearson Correlation**	-.574-**	.515**	.605**	.417**	-.402-*	.119	.420**	1
	Sig. (2-tailed)	.000	.001	.000	.009	.012	.478	.009	
	N	38	38	38	38	38	38	38	38

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

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

The correlation analysis gives early indication that profitability (ROA) are significantly related with age (AG), size (SZ), leverage (LG), liquidity (LQ), loss ratio (LR) and inflation rate (INF). Table 2 shows that there is negative and insignificant relationship between age, size, leverage, loss ratio and inflation rate and ROA. Result shows that there is significant positive correlation between liquidity and capital adequacy and ROA. This finding indicates the possible presence of multicollinearity problems that need to be carefully examined.

COLLINEARITY STATISTICS

In this part, multi-collinearity problem is investigated using tolerance and VIF values as shown in Table 3:

Table 3: Model 1

Coefficients a

	Unstandardized Coefficients		**Standardized Coefficients**			**Collinearity Statistics**	
Model	**B**	**Std. Error**	**Beta**	**t**	**Sig.**	**Tolerance**	**VIF**
1 (Constant)	**3.370**	**1.047**		**3.218**	**.003**		
AG	**-.054-**	**.068**	**-.311-**	**-.789-**	**.436**	**.089**	**11.285**

SZ	-1.001E-6	.000	-.034-	-.077-	.939	.069	14.496
LG	.006	.010	.123	.644	.524	.378	2.643
LQ	.140	.076	.303	1.839	.076	.507	1.974
CAPADEQ	19.156	5.766	.483	3.322	.002	.649	1.542
LR	-.010-	.012	-.143-	-.832-	.412	.461	2.169
INF	-.084-	.041	-.319-	-2.029-	.051	.554	1.807

a. Dependent Variable: ROA

Table 3 shows that VIF value for age is 11.285 and 14.496 for size for the first model, which are more than 10 and their Tolerance values, are closer to zero. It indicates that this model is not free from multicollinearity problem. Table 4, for the second model excluding size variable, the results show that VIF value for all variables less than 10.and Tolerance value for all variable are not closer to zero. It indicates that this model is free form multicollinearity problem.

Table 4: Model 2

Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	3.431	.681		5.039	.000		
	AG	-.059-	.032	-.337-	-1.827-	.077	.390	2.565
	LG	.007	.008	.130	.787	.437	.490	2.042
	LQ	.144	.058	.310	2.456	.020	.831	1.203
	CAPADEQ	19.034	5.454	.480	3.490	.001	.702	1.425
	LR	-.011-	.010	-.150-	-1.043-	.305	.638	1.566
	INF	-.085-	.039	-.323-	-2.177-	.037	.603	1.657

a. Dependent Variable: ROA

REGRESSION ANALYIS

The OLS regression model is used to estimate the multiple linear equations parameters. Diagnostic tests are executed to insure the all assumptions for the linear regression model are met. These tests include normality test, multicollinearity, heteroscedasticity, serial correlation.

REGRESSION ANALYIS

Table 5, Table 6 and Table 7 contain the regression analysis results for model 2.

Table 5: ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	**Regression**	20.307	6	3.384	7.387	.000[a]
	Residual	14.203	31	.458		
	Total	34.509	37			

a. Dependent Variable: ROA

b. Predictors: (Constant), AG, LG, LQ, CAPADEQ, LR, INF.

Table 6 : Output of Regression analysis **Coefficients[a]**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	**(Constant)**	3.431	.681		5.039	.000
	AG	-.059-	.032	-.337-	-1.827-	.077
	LG	.007	.008	.130	.787	.437
	LQ	.144	.058	.310	2.456	.020
	CAPADEQ	19.034	5.454	.480	3.490	.001
	LR	-.011-	.010	-.150-	-1.043-	.305
	INF	-.085-	.039	-.323-	-2.177-	.037

c. Dependent Variable: ROA

Table 7: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.767[a]	.588	.509	.67687	١.814

a. Predictors: (Constant), INF, CAPADEQ, LQ, LR, LG, AG

b. Dependent Variable: ROA

It can be concluded based on these results that only AG is significant in influencing ROA at significant level 10%, LQ and INF are significant in influencing ROA at significant level 5% and LQ is significant in influencing ROA at significant level 1%. The adjusted R-square value of 0.509 for the relationship between dependent variable and the independent variables indicates that 50. 9% of the variation in ROA is explained by the independent variables.

REGRESSION EQUATION

ROA using regression model is developed by running the regression analysis involving only the significant variables. The result is shown in Table 8.

Table 8: Ordinary Least Squares Estimation Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.437	.612		5.621	.000
	AG	-.056-	.025	-.321-	-2.238-	.032
	LQ	.143	.058	.310	2.476	.019
	CAPADEQ	17.722	4.923	.447	3.600	.001
	INF	-.089-	.038	-.337-	-2.340-	.025
	R-Square	0.570	F-stat. Sig.	10.936 [.000]		
	Adjusted R-Square	0,518				

a. Dependent Variable: ROA

The regression equation to estimate ROA of Egyptian insurance companies listed in Egyptian stock of exchange is:

$$ROA = 3.437 - 0.056AG + 0.143LQ + 17.722CAPADEQ - 0.089INF$$

Summary of relations between profitability in Egyptian insurance companies listed in Egyptian stock of exchange and determinants

Determinants	Expected Relation	Actual Relation	*H0* Decision
Age (AG)	**Sig (+)**	**Sig (-)**	**Rejected**
Size (ZE)	**Sig(+)**	**Excluded**	
Leverage Ratio (LG)	**Sig (-)**	**Not Sig (+)**	**Rejected**
Liquidity (LQ)	**Sig (+)**	**Sig(+)**	**Accepted**
Capital Adequacy	**Sig(+)**	**Sig(+)**	**Accepted**
Loss Ratio (LR)	**Sig (-)**	**Not Sig (-)**	**Rejected**
Inflation Rate ((INF)	**Sig(-)**	**Sig(-)**	**Accepted**

CONCLUSION

The objective of this study is to examine the determinants of Egyptian insurance companies listed in Egyptian stock exchange profitability by ROA. This study used secondary data during the period 1995/1996 to 2013/2014. The variables tested in this study are age, size, leverage, liquidity, capital adequacy, loss ratio and inflation rate.

Descriptive statistics and multiple regression analysis were performed to describe the profitability among listed Egyptian insurance companies. The findings showed that there is no relationship between profitability, leverage ratio and loss ratio. It has been identified that there is significantly negative relationship between profitability, age and inflation rate. On the other hand, the analysis showed that there is significantly positive relationship between profitability, liquidity and capital adequacy.

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