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The Determinants of Profitability of Insurance Companies in Palestine

محددات الربحية في شركات التأمين في فلسطين

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Abstract

This study aimed to examine the factors that affect the profitability of insurance companies in Palestine. Unbalanced panel data was utilized from seven insurance companies operating in Palestine from 2006 to 2018 to estimate a linear model between determinants theoretically expected to affect performance and the profitability of insurance firms. Findings revealed that size, growth and liquidity significantly positively affect the insurance firm's profitability while motor claims, on the other hand, have a significant negative effect on the insurance company's profitability. Other factors including claims ratio and leverage ratio have no significant effect on profitability of insurance firms. The main implications of these results are that Palestinian insurance companies should diversify their insurance portfolio away from motor insurance and keep higher liquidity levels to enhance profitability. Further, some

insurance companies are recommended to merge with other companies to increase size and to gain economies of scale.

Keywords: Insurance Companies, Profitability, Palestine.

ملخص

اختبرت هذه الدراسة العوامل التي تؤثر في ربحية شركات التأمين في فلسطين، وقد استخدمت بيانات طولية مقطعية غير متوازنة من سبع شركات تأمين تعمل في فلسطين من سنة 2006 وحتى 2018 لتقدير نموذج انحدار خطي بين محددات الربحية التي تم تحديدها نظريا وبين ربحية شركات التأمين، أظهرت النتائج ان حجم الشركة ومعدل نموها وسيولتها تؤثر ايجابيا على الربحية بينما حصة تأمين السيارات من اجمالي محفظة التأمين تؤثر سلبيا على الشركة، بعض العوامل الاخرى كنسبة الادعاءات ونسبة الرفع المالي لم يكن لها تأثير على الربحية، التوصيات الاساسية للدراسة هي ان على شركات التأمين في فلسطين تنويع محفظتها التأمينية خارج تأمين السيارات لتحسين الربحية، وأيضا تنصح بعض شركات التأمين بالاندماج لزيادة الحجم وتحقيق اقتصاديات الحجم الكبير في عملياتها.

الكلمات المفتاحية: شركات التأمين، الربحية، فلسطين

1. Introduction

The growth of an economy depends on the success of industries and individual companies which make up that economy. Therefore, the performance of individual companies working in different industries is an important indicator of how well the whole economy is doing. One of those crucial sectors that constitute modern economies is the financial sector represented by financial institutions that perform the role of transferring funds between different economic units to achieve economic efficiency. Drawbacks in the function of financial institutions could be devastating to the whole economy as more funds will stay idle and, therefore, investment will fall back (Ahmed, Ahmed & Usman, 2011; Birhan, 2017). Having that said, insurance companies are fundamental financial institutions that play significant roles which encompass, in addition to facilitating the transfer of funds, financial losses indemnity and reduction of uncertainty that people and businesses face. Those functions of insurance companies lead to a high-scale investment and well-performing economy. Therefore, the study of insurance companies' determinants of performance is important to understand how to increase

efficiency of this sector (Mazviona, Dube & Sakahuhwa, 2017; Angoff & Brown, 2007).

Performance of a company, i.e. insurance companies, is evaluated by the maximization of owners' wealth, and profitability is a main determinant of whether the owners' wealth is maximized (Zeleke, 2007; Browne, Carson & Hoyt, 2001; Abdeljawad & Masri, 2020). The enhancement of profits, in general, enables the firm to maintain its continuity and survival. Moreover, losses lead to the deterioration of financial condition and erosion of owners' wealth which may lead to liquidation (Westall, 2002). Profitability is also an important tool for measuring the efficiency of management in exploiting available resources (Greene & Segal, 2004). In case of insurance companies, profitability enhances solvency of the company which is very important to face risks and meet obligations towards policyholders and, as a result, fulfil insurance goals (Burca & Batrinca, 2014).

Profitability depends on different factors including economic, industry and firm-specific factors that need to be identified to be able to control the profitability of insurance companies. In contrast to economic and industry factors, firm-specific factors can be controlled and managed by the executives of the firm in order to achieve the objective of profit maximization. Consequently, this research aims to study the firm-level determinants of profitability of insurance companies operating in Palestine. Specifically, this paper aims to study the impact of identified factors from previous literature including company size, liquidity, leverage, growth, claims ratio and motor claims ratio on the profitability of insurance companies operating in Palestine.

The insurance sector in Palestine is relatively new with paucity in studies dealt with the determinant of profitability in this sector. Moreover, there are contradicted findings of previous studies from other countries (Kramaric, Mileticand & Pavic, 2017). This study should help decision makers to avoid poor performance and provide them with recommendations to improve financial performance by determining the factors that affect profitability. It may also help other researchers to make

comparative studies between profitability determinants of Palestinian insurance companies and other insurance companies in other countries.

This research consists of five sections. The study background is considered in section 2, while section 3 discusses the research methodology. Section 4 presents the results of the study. Finally, conclusions are delivered in section 5.

2. Study Background

The insurance legislative framework in Palestine has passed through many changes due to the multiplicity of authorities that ruled the country. Regulations and laws have changed under the Ottoman era, British mandate, the Jordanian period, and during the Israeli full occupation until 1994 when the Palestinian Authority became the authorized body to supervise and control the enactment of laws for the insurance sector. This sector remained overlooked till the establishment of the Palestine Capital Market Authority (CMA) in 2004 and the issuance of the Insurance Act in 2005 which regulated the insurance sector until today. Currently, ten insurance companies are now operating in Palestine, two of which are operating according to the Islamic Takaful system (Palestine Economic Policy Research Institute, 2016).

Table 1 presents the main indicators for the insurance sector in Palestine from 2006 to 2018. The sector has more than doubled during the period in terms of size, but in terms of net income it has grown 420% during the same period.

Table (1): Main Indicators for the Insurance Sector from 2006 to 2016.

	2006	2007	2008	2009	2010	2011	2012
Total Assets	217,540,815	231,258,381	279,524,471	300,517,572	298,372,951	323,563,814	339,991,583
Total Liabilities	168,407,809	178,027,746	203,858,074	216,022,406	202,766,372	222,436,622	231,201,550
Total Equity	49,133,006	53,230,635	75,666,397	84,495,166	95,606,579	101,127,192	108,790,033
Investments	127,687,889	134,562,793	145,600,617	160,812,755	180,314,797	180,655,300	184,619,450
Technical Reserves	112,616,062	117,488,484	138,647,803	146,420,893	145,411,293	158,548,489	160,264,776
Paid in capital	39,436,696	41,819,719	53,295,009	55,599,143	62,247,650	63,062,143	67,187,306
Gross Written Premium	72,208,915	75,459,539	94,310,529	104,304,394	125,801,552	150,461,249	144,465,157
Paid Claims	43,402,982	46,668,238	51,333,750	56,201,425	66,430,926	75,572,381	88,420,157
Net Income	2,958,895	5,357,304	6,985,205	11,438,794	4,566,709	6,816,464	7,273,404
Insurance companies	8	8	9	10	10	10	10
Employees	734	758	795	875	1,007	1,028	1,035
Agents and Producers	146	145	220	225	265	239	229
Table 1: Continued							
	2013	**2014**	**2015**	**2016**	**2017**	**2018**	
Total Assets	367,002,222	383,040,500	352,357,813	387,078,907	528,410,447	541,431,384	
Total Liabilities	247,185,251	246,382,990	227,750,689	252,329,040	339,770,639	355,178,862	
Total Equity	119,816,971	136,657,510	124,607,124	134,749,867	188,639,808	186,252,522	
Investments	187,044,275	193,549,682	176,684,826	192,860,697	248,887,118	249,330,540	
Technical Reserves	177,883,913	170,118,470	164,193,960	179,788,685	251,712,136	261,035,374	
Paid in capital	67,874,606	69,687,306	58,700,000	59,550,000	71,200,000	90,000,000	
Gross Written Premium	158,707,973	171,002,187	164,814,461	195,618,330	255,421,729	279,370,598	
Paid Claims	88,700,399	108,070,231	97,893,567	113,814,080	144,320,228	166,307,996	
Net Income	12,435,880	13,950,946	7,252,966	16,621,084	25,963,459	15,442,849	
Insurance companies	10	10	9	9	9	10	
Employees	1,075	1,175	1,156	1,192	1,245	1,401	
Agents and Producers	225	215	206	224	262	271	

The determinants of the profitability of insurance companies are of theoretical and practical interest. Few researchers have examined the determinants of profitability in insurance companies whether conventional or Islamic. The results of previous studies are mixed. This study will investigate the factors found to be the most important in past literature. Most studies have highlighted the internal determinants of profitability which are under the control of management (Ayele, 2012; Chen & Wong, 2004). Following are a discussion of few relevant past research from different countries to rationalize the basis for this study.

The study of Almajali, Alamro and Al-Soub (2012) aimed to investigate the factors that mostly affect financial performance of Jordanian insurance companies by studying a sample of twenty-five insurance companies listed in Amman Stock Exchange. This study investigates the effect of five independent variables namely: age of company, size, leverage, liquidity, and management competence index on the dependent variable, return on assets, using multiple regression

analysis. The results revealed that leverage, liquidity, size, and management competence index have a positive effect on the financial performance of the Jordanian insurance companies. Malik (2011) disclosed slightly different results. He studied the effect of five determinants namely age of company, size, capital, leverage, and loss ratio on the return on assets using data of 35 listed life and non-life insurance companies in Pakistan. He found no relationship between profitability and age of the company but significant positive association between size and capital of the company, from one side, and profitability from the other. Loss ratio and leverage ratio exhibited a negative relationship with profitability in that same study.

Guendouz and Ouassaf (2018) studied the determinants of Saudi Takaful companies' profitability for a sample of six Islamic companies. Factors taken into consideration are age of the company, size, risk level, written premium growth, rate of retention, and loss ratio. Results indicate that age, size, written premium growth rate and loss ratio significantly affect profitability. Kripa and Ajasllari (2016) studied the factors that affect the profitability of insurance companies in Albania on a sample of 7 insurance firms using descriptive and correlation analysis, where they chose six independent variables namely fixed assets, liability, liquidity, growth rate, size, and capital to investigate their effect on the return on assets. The study found that the growth rate is positively associated with profitability, while liabilities, liquidity and fixed assets are negatively related to profitability. Boadi, Antwi and Lartey (2013) studied the determinants of profitability of insurance firms in Ghana on a sample of 16 insurance companies in Ghana using the same independent variables of Kripa and Ajasllari study in addition to a risk variable. They found that apart from tangibility, which has a negative relationship with profitability, there is a positive relationship between leverage and liquidity, from one side, and profitability of insurance firms in Ghana, from the other.

In India, Charumathi (2012) studied the determinants of profitability of Indian Life Insurers for a sample of all the 23 Indian life insurers (including 1 public and 22 private firm). Six independent variables

namely leverage, size, liquidity, premium growth, underwriting risk, and capital are investigated. Charumathi found that profitability of life insurers is positively and significantly influenced by the size and liquidity. The leverage, premium growth and equity capital have negatively influenced the profitability of Indian life insurers while no evidence exist for the relationship between underwriting risk and profitability.

In Zimbabwe, Mazviona, Dube and Sakahuhwa (2017) studied the factors that affect the performance of insurance companies in Zimbabwe in a sample of 20 insurance companies. They used nine independent variables namely leverage, growth, expense ratio, inflation, retention, size, liquidity, equity and claims ratio. Using multiple linear regression and factor analysis on the panel data, they found that expense ratio, claims ratio, retention ratio, size of company and equity capital have a negative significant effect on the profitability of insurance companies while liquidity has a positive significant effect on the profitability of the insurance companies.

In Poland, Kozak (2011) studied the determinants of profitability of non-life insurance companies for a sample of 25 non-life insurance companies, and found that reduction in the share of motor insurance of the company's portfolio, with simultaneous increase of other types of insurance, has a positive impact on profitability. The growth in GDP is also found to have a positive effect on profitability.

In Ethiopia, Mehari and Aemiro (2013) investigated the firm specific factors that determine insurance companies' performance for a sample of 9 insurance companies. Their findings state that insurer's size, tangibility and leverage have a significant positive effect on performance. However loss ratio, which reflects the risk of the firm, has a negative significant relationship with the performance. Also, the study found that growth in written premiums, age, and liquidity have insignificant relationship with insurers performance. Another study in Ethiopia, Birhan (2017) studied the determinants of insurance company profitability as a case study on one insurance company and found that size, leverage, tangibility of assets, loss ratio, growth and managerial efficiency are significant

determinants of profitability where liquidity and age have only marginal effects on profitability. Moreover, brand preference and perceived quality are found to have high impacts on the process of insurance selection by customers.

Lee (2014) studied the impact of firm-specific factors and macroeconomic factors on profitability of property-liability insurance companies in Taiwan for 15 insurance companies using operating ratio and return on assets as two proxies of profitability and found that underwriting risk, financial leverage, reinsurance usage, input cost and financial holding group have significant negative effects on profitability, while return on investment has a positive impact. Growth has a significant impact on operating ratio and an insignificant impact on return on assets.

Derbali and Jamel (2014) studied the effect of firm-specific characteristics on the profitability of 8 Tunisian insurers and found that size has a negative effect while age and growth have a positive effect on the profitability of insurance companies. In Addition, they found that leverage, tangibility, liquidity and risk have no relationship with the profitability of insurance companies in Tunisia.

Alhassan, Addisson and Asamoah (2015) examined the impact of the regulatory-driven market structure on firm pricing behaviour and profitability for 14 life and 22 non-life insurance companies in Ghana. Efficiency was measured using the Data Envelopment Analysis to proxy for efficient structure. The results revealed that though the level of competition has increased for life and non-life insurance industry, the efficiency is still concentrated in life insurance sector compared to non-life insurance sector. Inflation, risk and leverage have a negative impact on ROA, while GDP and size have no effect on the financial performance of insurance companies.

In Romania, Burca and Batrinca (2014) studied the determinants of financial performance in the Romanian insurance market for 21 insurance companies and found that leverage, growth and loss ratio have negative

significant impact on the financial performance, whereas risk and solvency have a positive impact on the financial performance.

In Pakistan, Rahman, Jan and Iqbal (2018) identified the profitability determinants in the insurance industry of Pakistan using a panel data of 41 diversified insurance companies (life, non-life and takaful insurance). They found that leverage, business risk and inflation have a significant negative effect on profitability, whereas size and GDP have significant positive impacts. Moreover, they found that liquidity and growth have insignificant effects in the study.

In Kuwait, AlAli, AlSalem, AlAwadhi, AlForaih and AlSabah (2019) studied the nexus between internal factors and profitability of insurance companies for 7 insurance companies listed in Kuwait stock exchange. They found that leverage and age have a negative impact on the profitability of insurers. On the other hand, tangibility and size have a positive impact. Liquidity, growth and management efficiency have no impact on the profitability of insurance companies in Kuwait.

In 2018, Banerjee and Majumdar have investigated the impact of firm-specific factors and macroeconomic factors on the profitability of insurance companies for 20 insurance companies in UAE. They found that investment ratio, size and leverage have a negative impact on the profitability of insurers, while growth, market share and per-capita GDP have a positive impact.

To conclude, factors of size, liquidity, leverage, growth, claims ratio and share of motor insurance of the company's portfolio are found to be the main internal factors that affect profitability. Table 2 summarizes the results and presents our expectation about the relationship in the Palestinian context. The sample and period of each study are presented in Table 3 in Section 3.1 with the data discussion.

Based on the above discussion, this study will investigate the following hypotheses:

H1: There is a positive relationship between size and profitability of insurance companies in Palestine.

H2: There is a positive relationship between growth and profitability of insurance companies in Palestine.

H3: There is a negative relationship between leverage and profitability for Palestinian insurance companies.

H4: There is a positive relationship between liquidity and profitability of insurance companies in Palestine.

H5: There is a negative relationship between share of motor insurance and Profitability of insurance companies in Palestine.

H6: There is a negative relationship between claims incurred and profitability of insurance companies in Palestine.

Table (2): Analysis of results of previous literature and expected relationships.

Factors	Studies	Empirical relationship from literature	Expected relationship
Size	Almajali, Alamro and Al-Soub (2012)	Positive	Positive
	Malik (2011)	Positive	
	Kozak (2015) Guendouz and Ouassaf (2018) AlAli, AlSalem, AlAwadhi, AlForaih and AlSabah (2019) Rahman, Jan and Iqbal (2018)	Positive Positive Positive Positive	
	Charumathi (2012) Birhan (2017) Mehari and Aemiro (2013) Derbali and Jamel (2014) Banerjee and Majumdar (2018)	Positive Positive Positive Negative Negative	
	Mazviona, Dube and Sakahuhwa (2017)	Negative	

...continue table (2)

Factors	Studies	Empirical relationship from literature	Expected relationship
Liquidity	Almajali, Alamro and Al-Soub (2012)	Positive	Positive
	Kripa and Ajasllari (2016)	Negative	
	Boadi, Antwi and Lartey (2013)	Positive	
	Birhan (2017)	Positive	
	Charumathi (2012)	Positive	
	Mazviona, Dube and Sakahuhwa (2017)	Positive	
Leverage	Almajali, Alamro and Al-Soub (2012)	Positive	Negative
	Mehari and Aemiro (2013)	Positive	
	Malik (2011)	Negative	
	Birhan (2017)	Positive	
	Boadi, Antwi and Lartey (2013)	Positive	
	Banerjee and Majumdar (2018)	Negative	
	AlAli, AlSalem, AlAwadhi, AlForaih and AlSabah (2019)	Negative	
	Lee (2014)	Negative	
	Rahman, Jan and Iqbal (2018)	Negative	
	Charumathi (2012)	Negative	
	Alhassan, Addisson and Asamoah (2015)	Negative	
	Burca and Batrinca (2014)	Negative	

…continue table (2)

Factors	Studies	Empirical relationship from literature	Expected relationship
Growth	Guendouz and Ouassaf (2018)	Positive	Positive
	Banerjee and Majumdar (2018)	Positive	
	Burca and Batrinca (2014)	Negative	
	Kripa and Ajasllari (2016)	Positive	
	Derbali and Jamel (2014)	Positive	
	Charumathi (2012)	Negative	
Claims ratio	Mazviona, Dube and Sakahuhwa (2017)	Negative	Negative
Share of motor insurance of the company's portfolio	Kozak (2011)	Negative	Negative

Research Methodology

This part of the research deals with the data collection method, measurement of variables, research model, and analysis techniques.

Data

Previous literature from other countries use the available data though samples may be small in size since the number of insurance firms are limited in most countries. The small sample problem may affect the power of tests and question the generalizability of results. However, this is an unavoidable problem since all data are eventually used. Table 3 summarize the sample of firms and periods from different past studies to better grasp this issue.

Table (3): Number of firms and periods for selected previous studies.

Studies	Country	Firms	Period
Almajali, Alamro and Al-Soub (2012)	Jordan	25	2002-2007
AlAli, AlSalem, AlAwadhi, AlForaih and AlSabah (2019)	Kuwait	7	2010-2017
Alhassan, Addisson and Asamoah (2015)	Ghana	36	2007-2011
Boadi, Antwi and Lartey (2013)	Ghana	16	2005-2010
Banerjee and Majumdar (2018)	UAE	20	2009-2013
Burca and Batrinca (2014)	Romania	21	2008-2012
Charumathi (2012)	India	23	2009-2011
Derbali and Jamel (2014)	Tunis	8	2005-2015
Guendouz and Ouassaf (2018)	Saudi Arabia	6	2010-2016
Kozak (2011)	Poland	25	2002-2009
Kripa and Ajasllari (2016)	Albania	7	2008-2013
Lee (2014)	Taiwan	15	1999-2009
Rahman, Jan and Iqbal (2018)	Pakistan	41	2007-2017
Malik (2011)	Pakistan	35	2005-2009
Mazviona, Dube and Sakahuhwa (2017)	Zimbabwe	20	2010-2014
Mehari and Aemiro (2013)	Ethiopia	9	2005-2010
Birhan (2017) (case study)	Ethiopia	1	2016

Following previous literature, all the data available about insurance companies will be utilized. The number of insurance companies in Palestine as the end of 2017 was nine and, during 2018, an additional company was authorized but not included in this study due to data limitation. Data are collected manually from annual reports (statement of financial position and income statement) of insurance companies disclosed on the Palestine Stock Exchange website for the period from 2006 to 2018 based on the availability of data. For variables that require

differencing between two years, the values of base year 2005 are obtained to prevent the loss of observations but for the two companies established after 2005, one observation is lost in the differencing procedure. Companies with inappropriate disclosures for the period were not included, resulted in seven companies being used for the analysis. Outliers in the debt to equity ratio are dropped from the analysis since they result from the extremely small equity for some firms that accumulated losses for several years. The final data set is unbalanced panel data of 85 firm-year observations. The number of observations for each variable may differ in case of some missing data. Table 4 and Table 5 present the number of observations by firm and by year.

Table 4: Observations by year

Year	No. of Companies
2006	5
2007	5
2008	6
2009	6
2010	7
2011	7
2012	7
2013	7
2014	7
2015	7
2016	7
2017	7
2018	7
Total	**85**

Table 5: Observations by company

Company*	Observations
AIG	13
Global	9
MIC	13
NIC	13
PIC	13
TIC	11
Trust	13
Total	**85**

* See the appendix for the full name.

Measurement of variables

Measurement of variables for this study adheres to previous literature. Summary of measurement of variables is presented in Table 6. Discussion of variable measurement is following:

1. **Performance:** Performance is usually measured using accounting profitability, mainly the return on assets (ROA) and return on equity (ROE) (Damodaran, 2007; Adams & Buckle, 2003; Derbali & Jamel, 2014). This study used ROA and ROE, alternatively as the dependent variable in the regression model. ROA is measured by dividing profit before tax by total asset and ROE is measured by dividing net income by total equity.
2. **Liquidity:** liquidity of an insurance company reflects its ability to pay for short-term liabilities and claims including operating expenses and payment of compensations (Almajali, Alamro & Al-Soub, 2012; Birhan, 2017; Mazviona, Dube & Sakahuhwa, 2017). Liquidity in this study is represented by current ratio measured by dividing current assets by current liabilities.
3. **Leverage:** leverage is an indicator of the degree to which business is utilizing borrowed money. In this study leverage is defined as total liabilities to total equity (Almajali, Alamro & Al-Soub, 2012).
4. **Company Size:** the size of insurance companies is found to affect its financial performance (Malik, 2011; AlAli, AlSalem, AlAwhadi, AlForaih & AlSabah, 2019). Company size was proxied by the logarithm of total assets.
5. **Growth:** Growth prospects of insurance firms are represented by the percentage change in the gross premiums of the insurance company (Kripa & Ajasllari, 2016; Banerjee & Majumdar, 2018). Another proxy for growth prospects is the percentage change in assets.
6. **Claims Ratio:** This ratio measures the amount of compensation incurred plus commission paid by the company in comparison to the amount of its premiums earned and commission received from reinsurers (Ortynski, 2016; Mazviona, Dube & Sakahuhwa, 2017).

7. **Share of Motor insurance claims:** This is the percentage of claims paid to motor insurance to the total claims paid by the company (Kozak, 2011).

Table (6): Measurement of variables.

Variable	Name	Measurement
Profitability (dependent variable)	ROA	Net Income before Tax / Total Assets
	ROE	Net income / Total Equity
Liquidity	Current Ratio	Current Assets/Current Liabilities
Leverage	D/E	Total liabilities/Total Equity
Company Size	Ln(assets)	logarithm of Total Assets
Growth	Growth in premiums	percentage change in Gross Written Premium
	Growth in assets	percentage change in assets
Claims Ratio	Claims Ratio	(compensation incurred + commission paid) / (Net Earned Premium + Commissions Received)
Share of Motor insurance claims	Motor Claims	Percentage of claims paid to motor insurance/ Total claims paid

Research Model

The following linear model was estimated to test the hypotheses of the research. Firm and year subscripts are dropped for clarity.

$$Profitability = b_0 + b_1 Liq + b_2 Lev + b_3 Size + b_4 Grow + b_5 CL + b_6 Motor\ claims + e$$

Where: Profitability is the dependent variable measured by ROA or ROE,

Liq is Liquidity ratio,

Lev is Leverage Ratio,

Size is size of the company,

Grow is Growth of the company, which is measured by growth in assets in one model and growth in premiums in the other.

CL is Claims ratio for the company,

Motor claims is Share of Motor insurance claims

e is the error term, and

b_i's are the regression coefficients.

To estimation this model, a panel GLS multiple linear regression were employed in this study to overcome the heteroscedasticity and autocorrelations problems.

Findings

This section presents the results of this investigation. Descriptive statistics and correlation analysis are presented first; estimation results of the model are discussed later.

Descriptive statistics

Table 7 below presents the descriptive statistics indicators of the variables used in this study. It can be noted that ROA for Palestinian insurance companies ranges from minimum minus18.2% to maximum of 14.8% with a mean and median of 3.4%. ROE fluctuate much higher with a mean of 4.5%. Growth in premiums and growth in assets have means of 19.6% and 11.2%, respectively, among Palestinian insurance companies which indicate the prospects of this industry. As to leverage, it has an average of 2.644 times the owners' equity which points to the heavy dependence of this sector on debt. The liquidity ratio has an average of almost 1. Besides, 61.1% of received premiums are paid out as claims to policyholders and 67.4% of these paid claims are paid to motor policyholders.

Table (7): Descriptive indicators of Variables.

	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
ROA	0.034	0.034	0.148	-0.182	0.048	85
ROE	0.045	0.126	1.908	-5.857	0.846	85
Growth in Premiums	0.196	0.150	2.803	-0.843	0.448	83
Growth in Assets	0.112	0.073	0.739	-0.173	0.163	84
Leverage D/E	2.644	2.316	9.066	0.305	1.628	75
Liquidity	0.999	0.813	3.928	0.364	0.700	85
Claims Ratio	0.611	0.636	0.848	0.253	0.116	85
Ln(assets)	7.615	7.662	8.305	6.780	0.281	85
Motor Claims	0.674	0.681	0.971	0.212	0.160	85

Correlation analysis

The correlation coefficient is the bivariate relationship between each two variables included in the current study as presented in Table 8. The table shows that ROA has a positive relationship with each of growth in assets, liquidity, insurance company size and growth in premiums. It also has a negative relationship with claims ratio, leverage and motor claims. The ROE has similar relationships to ROA with each of the explanatory variables except for its relationship with company size which is negative. The high correlation between independent variables can be problematic in the regression analysis but the strongest relationship between independent variables is -0.47 between growth in assets and insurance company size, which is acceptable. According to Asteriou and Hall (2007), correlations of less than 0.9 do not cause a serious multicollinearity problem in regression analysis.

Table (8): Correlation Coefficients.

	ROA	Claims Ratio	Growth in Assets	Leverage D/E	Liquidity	Motor Claims	Ln(assets)	Growth in Premiums	ROE
ROA	1.00								
Claims Ratio	-0.11	1.00							
Growth in Assets	0.21	-0.03	1.00						
Leverage D/E	-0.24	0.19	-0.18	1.00					
Liquidity	0.24	0.20	0.18	-0.23	1.00				
Motor Claims	-0.13	-0.21	-0.02	0.15	-0.30	1.00			
Ln(assets)	0.06	0.17	-0.47	-0.29	0.03	-0.31	1.00		
Growth in Premiums	0.10	-0.37	0.43	-0.14	0.08	0.07	-0.32	1.00	
ROE	0.89	-0.02	0.21	-0.03	0.15	-0.17	-0.03	0.08	1.00

Estimation Results

There are two dependent variables, ROA and ROE, and two models were fitted for each dependent. The difference between the two models fitted for each dependent variable is in the proxy for the insurance company growth. One model uses growth in assets and the other uses growth in premiums. As a result, four models were fitted. Models 1 and 2 were fitted to investigate the effect of the explanatory variables on ROE as a measure of profitability, where models 3 and 4 were used to explore the effect on ROA. As previously mentioned, models 1 and 3 use growth in assets as a measure of insurance company growth, while models 2 and 4 use the growth in premiums.

Table 9 presents the regression results of the four research models. Model 1 explains 14.1% of the variability in ROE as measured by the R-square. Furthermore, the F-statistic shows that this model is a well-fit at 10% level of significance. On the other hand, Model 2 is a better fit of the effects of the independent variables on ROE since it explains 23.3% of the variability as measured by the R-square and it is adequate at 1% level of significance according to F-statistic. Similarly, Model 4 is better than Model 3 in clarifying the effect of the set of independent variables on ROA. In terms of R-square, Model 3 explains only 16.8% of the variability in ROA, while Model 4 explains 29.1% of that variability. In addition, Model 3 is significant at 5% level whereas Model 4 is significant at 1% level. These results indicate that growth in premiums is

a better proxy for the insurance company growth than growth in assets in the context of Palestine.

Table (9): Estimation Results.

Dependent Variable	**ROE**		**ROA**	
Independent variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Claims Ratio	-0.107	-0.105	-0.027	-0.037
	(-0.850)	(-0.926)	(-0.815)	(-1.231)
Growth in Assets	**0.159**	-	0.036	-
	(1.896)*	-	(1.579)	-
Growth in Premiums	**-**	0.004	-	0.001
	-	(0.195)	-	(0.193)
Leverage D/E	0.007	0.002	-0.002	-0.003
	(0.520)	(0.184)	(-0.567)	(-0.933)
Liquidity	-0.001	**0.023**	0.001	**0.007**
	(-0.064)	**(2.184)****	(0.150)	**(2.469)****
Motor Claims	**-0.167**	**-0.163**	**-0.034**	**-0.034**
	(-2.541)**	**(-2.766)*****	**(-1.831)***	**(-2.293)****
Ln(assets)	**0.128**	0.033	**0.035**	0.010
	(2.503)**	(0.688)	**(2.222)****	(0.713)
C	-0.708	0.033	-0.188	0.011
	(-1.779)	(0.088)	(-1.510)	(0.101)
R-squared	0.141	0.233	0.168	0.291
Adjusted R-squared	0.064	0.163	0.093	0.227
Durbin-Watson stat	1.934	2.060	1.879	2.024
F-statistic	(1.831)*	(3.333)***	(2.249)**	(4.521)***
Observations	74	73	74	73

Method: Panel EGLS (Period weights)
*, **, *** indicate significance at 10%, 5%, and 1% respectively.

The results of the first model Shows that ROE as a measure of the performance of insurance companies is significantly affected by the size of the company, growth in assets, and the ratio of the motor claims to the total claims paid by the company. Size of the insurance company has a significant positive relationship with its performance which indicates the importance of scale economies. The ability of large companies to provide their services with low costs and their ability to control premiums make them more competitive and able to achieve higher profits (Robins and Wiersema, 1995). Moreover, the ability of insurance companies to predict future losses increases as the number of risks which they insure increases, as indicated by the law of large numbers, which enhances the control over their performance (Cummins and Nini, 2002). This result agrees with the results found by Almajali et al. (2012), Charumathi (2012), Kozak (2011), Malik (2011) and Rahman et al. (2018) who investigated the profitability of insurance companies in Jordan, India, Poland, and Pakistan, for the last two, respectively. However, this result contradicts the result of Mazviona et al. (2017), Derbali and Jamel (2014) and Banerjee and Majumdar (2018) who explored this relationship in Zimbabwean, Tunisian and UAE insurance companies, respectively.

Model 1 shows a significant negative association between Palestinian insurance companies' profitability and the ratio of motor claims to the total claims paid by the insurance company. The higher ratio of claims related to vehicles insurance means that this type of insurance constitutes a large part of the insurance company's operations. Motor insurance costs the insurance company more in terms of marketing and claims to be paid to policyholders which adversely affect the company's profitability. In Palestine, unlike most other countries, compensations to motor insurance are unlimited. Personal (bodily) injury can cost the company millions of Dollars for some motor accidents. At the same time, premiums from this type of insurance are almost set at the floor tariff imposed by regulators not according to the risk-based pricing because of high competition in the market. Re-insurance should cover this high risk but some companies do not release all the data about all vehicle accidents to reinsurer to prevent the upward adjustment of re-insurance price in the future. In addition, for

accidents between Palestinian and Israeli vehicles, a long time is needed for the Palestinian insurance company to recover any compensation from the Israeli insurance company if managed to receive anything at all. Similar to this result, Kozak (2011) have found that when the insurance company cut down the motor insurance proportion of its operations, its profitability will positively be affected. Regarding the growth rate, Model 1 has shown that it has a marginally significant positive impact on the profitability of insurance companies. This result agrees with the findings of Derbali and Jamel (2018), and Banerjee and Majumdar (2018) who found a positive relationship between growth and profitability in Tunisian and UAE insurance companies, respectively. However, it contradicts the findings of Charumathi (2012) in India, Kripa and Ajasllari (2016) in Albania and Burca and Batrinca (2014) in Romania who found a significant negative association between the two variables.

Model 2 shows that ROE is significantly affected by motor claims and liquidity of the insurance company. Motor claims negatively affect the profitability of insurance companies in Palestine at a 1% level of significance which points to the high costs of car insurance incurred by insurance companies as shown by Kozak (2011). On the other hand, liquidity has a positive effect significant at 5% level. This indicates that the higher the proportion of liquid assets in the insurance company, the lower the risk that the company will be out of cash when a claim or an expense should be paid (Mazviona, Dube and Sakahuhwa, 2017). High liquidity is associated with higher solvency margins and hence better chances to win large bids. In addition, high liquidity enable the company to pay claims timely and hence to build better reputation and consequently, enhance profitability. This result agrees with the significant positive effect of liquidity on insurance company profitability found by Almajali, Alamro and Al-Soub (2012) in Jordan, Boadi, Antwi and Lartey (2013) in Ghana, Birhan (2017) in Ethiopia and Charumathi (2012) in India. It also conforms to the finding of Mazviona et al. (2017) who documented a similar relationship in Zimbabwe. But, this result is not in line with the findings of Derbali and Jamel (2018) who found an insignificant association between liquidity and insurance companies

profitability in Tunisia and Kripa and Ajasllari (2016) who found negative association between the two variables in Albania.

The effects of the independent variables on ROA are estimated in Model 3 and Model 4. Model 4 shows similar effects of the independent variables on ROA as Model 2. In other words, ROA is significantly negatively affected by motor claims and positively affected by liquidity. Model 3 shows significant effects of motor claims and size on the ROA. Motor claims effect is negative which conforms to the results of the other three models. Likewise, the effect of the insurance company size is positive which indicates the importance of the economies of scale, as found by Almajali et al. (2012) and Rahman et al. (2018). Table 10 summarizes these results.

Table (10): Summary of Results.

Hypothesis	Expected relationship	Empirical Result	Conclusion
H1: There is a positive relationship between size and profitability of insurance companies in Palestine.	+	+	supported
H2: There is a positive relationship between growth and profitability of insurance companies in Palestine.	+	+	supported
H3: There is a negative relationship between leverage and profitability for Palestinian insurance companies.	-	No relationship	No evidence

... continue table (10)

Hypothesis	Expected relationship	Empirical Result	Conclusion
H4: There is a positive relationship between liquidity and profitability of insurance companies in Palestine.	+	+	supported
H5: There is a negative relationship between share of motor insurance and Profitability of insurance companies in Palestine.	-	-	supported
H6: There is a negative relationship between claims incurred and profitability of insurance companies in Palestine.	-	No relationship	No evidence

Conclusions

In this study, factors affecting the profitability of insurance companies operating in Palestine were analyzed using multiple linear regression analysis. The effects of the size, growth, liquidity, leverage, share of motor insurance and claims ratio on profitability were identified. Results of the study confirm that size, liquidity, growth and motor insurance are the factors that significantly affect the profitability of insurance companies in Palestine. Size, growth and liquidity affect the profitability positively but share of motor insurance have a negative effect on profitability. Claims ratio and leverage have insignificant effects on ROE and ROA. The main implications of these results are that Palestinian insurance companies should diversify their insurance portfolio away from motor insurance to enhance profitability. Further, insurance companies are advised to merge to increase size and gain economies of scale. Finally, insurance companies are advised to keep

high liquidity that enables it to win bids and pay claims quickly which in turn improves the company's reputation and, as a result, profitability

Nevertheless, the sample included in the study may be criticized as not large enough to give power in modeling the variables and their impact on the profitability of insurance companies operating in Palestine. This limitation is not avoidable currently since all the available data are utilized in this paper. Future research may overcome this shortcoming by adding to the period of the study.

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Appendix

Firms in the sample from 2006 to 2018 depending on the availability of data

Insurance Company Name	Symbol
Trust International Insurance Company	Trust
National Insurance Company	NIC
Global United Insurance Company	Global
Takaful Palestinian Insurance Company	TIC
Mashreq Insurance Company	MIC
Palestine Insurance Company	PIC
Ahlia Insurance Company	AIG