

Risk Management and Financial Performance of Insurance Companies in Jordan

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Abstract

This study investigates the effect of risk management methods employed by Jordanian insurance firms on their financial performance. We employed an empirical study design. The study sample comprises twenty insurance companies registered in Jordan. The research utilized both published reports and financial documents maintained by IRA for seven years. Using SPSS, the quantitative data was evaluated. The mean, standard deviation (SD), and variance analysis evaluated the data. According to the report, most Jordanian insurance businesses have embraced risk management methods that have a significant impact on their financial performance. In addition, it was discovered that the adoption of risk management strategies correlates positively with financial performance. The study suggests that insurance companies in Jordan adopt alternative risk management approaches to derive higher benefits from their risk management initiatives.

Keywords: Financial performance, Insurance companies, Risk management.

Introduction

The insurance sector in Jordan faces high-risk businesses with their clients and risks. Insurance as a financial-services sector plays an important role by lowering total risk, efficient resource allocation, decreasing transaction costs, creating liquidity, and spreading financial losses (Al Khattab et al., 2015; Charumathi, 2012; Doumpos et al., 2012). The insurance industry is responsible for the economic development of developed countries because it plays a vital role in all various sectors of any economy by providing safety in economic activities, constructing a dynamic stock market, and motivating investors by compensation for economic losses (Rahmani et al., 2014). Risk could lead to the collapse of the organizations. To avoid any risk, risk management is always involved in the organization's operations by identifying, analyzing, developing, implementing, handling techniques, monitoring risks to reduce the impact of risk on the organisation's financial performance, and determining the business performance_ (Schmidt et al., 2001).

Today's globalization business does consider not only profitability but also the political and economic environment (Adams, 2002; Evans, 2000; Luo, 1999), rapid technology (Baldwin & Lin, 2002), and stiff competition (Titarenko, 1997), which leads companies to establish a robust risk management system. Inadequate risk management by all insurance businesses results in unreliable financial performance and transferable losses (Mirakhor & Zaidi, 2007). Moreover, selecting particular risk tools is likely linked to the firm's calculative culture (Bergh et al., 2014).

The importance of risk managing insurance companies should attend to achieve financial performance. From this angle, risk management becomes an important practice, especially in the insurance sector for higher returns (Krishnamurthy et al., 2005). Therefore, the current study to examines the effect of risk management practices by Jordanian insurance companies on the financial performance of these companies from 2010 to 2016 by using important variables such as return on assets (ROA) ratio and profitability ratios which are considered one of the important financial ratios that measure the performance of the company as an indicator used to measure the company's ability to generate profits through its total assets owned (Rosikah et al., 2018), return on equity (ROE) as a total return on equity

capital, a criterion that shows a company's ability to turn equity investments into profits, return on investment (ROI) ratio, which is a tool for measuring the profitability of a particular investment option and 'the loss ratio', which shows the difference between the earned premiums from all type of insurance and the claims, compensations that have been settled by the company (Saleh & Jawabreh, 2020)

In 1995, the first insurance firm was created in Jordan. In 1956, the Jordan Insurance Companies Association was founded. In 1965, the first insurance law was enacted. From the mid-1980s to the end of the boom in the insurance industry, several mergers occurred, sparking rivalry (Alomari & Azzam, 2017). The Unified Office of Mandatory Vehicle Insurance was founded. To govern the insurance industry, the Jordanian Federation of Insurance Companies was created in 1989. The number of insurance providers reached twenty-five. The average market share per company reached 3.57 percent (Al-Rawashdeh, 2016). According to the Ministry of Industry and Trade and Supply Department of Insurance (2015), roughly 53.6% of the total market share of premiums written in 2015 was held by only five companies. The sector's penetration rate of 2.13 percent is significantly lower than the global average of 6.23 percent.

Statement of the Problem

Many Jordanian insurance companies face financial performance troubles, and the insurance sector has been going through difficult circumstances with huge losses. There are several factors which affect the performance of insurance companies. The present study is trying to identify the factors affecting the financial performance of insurance companies. In light of this problem, it aims to answer the following questions:

1. Is the financial performance of different insurance companies in Jordan affected by the return on assets ratio, equity and investment?
2. Is there a significant difference in risk management of Jordanian insurance companies in loss ratio?

Research Objective

Risk management is the process that identifies, evaluates, and monitors threats to a company's capital and profits. It generates strategies to manage impending risks such as market risk, credit risk, operational risk, reputation risk, and risks that have

already occurred. These are the financial risks that have an impact on their performance. Therefore, risk management solutions have become essential for businesses, institutions, and individuals to mitigate potential dangers (Jahmani et al., 2020). Consequently, the risk management plan should incorporate all of the company's processes for identifying and mitigating threats to its assets.

Plans for risk management should include remedies for all foreseeable threats. The insurance strategy is a crucial component of the risk management plan. Its purpose is to devise a plan for mitigating the risk's impact. Therefore, the insurance industry is one of the suitable methods for mitigating the negative consequences of risks that threaten all industries. Consequently, the insurance industry must be solid, as the government, commercial, and individuals rely heavily on it. Therefore, this study aims to investigate the impact of risk management strategies on the financial performance of Jordanian insurance businesses with the target audience of Jordan's twenty-one registered insurance companies.

Literature Review

Daniel and Tilahun (2013) examined the aspects affecting insurance companies' performance, which considered a return on total assets (ROA), and an important pointer to insurance companies' performance. They found that insurers' leverage is related to return on total assets, but the loss ratio is negatively related to ROA. Malik (2011) investigated the factors of profitability of return on assets (ROA) in insurance companies in Pakistan. He used profitability as the dependent variable. It indicated no relationship between age of the company, loss ratio, leverage ratio and profitability, but it found a positive relationship between the volume of capital, profitability and size of the company.

A. A. Wani and Ahmad (2015) investigated the relationship between financial risk and financial performance in Indian insurance companies. The ROI was utilized as a measure of financial performance. Underwriting risk, capital risk, and solvency risk negatively correlate with financial performance, although firm size, liquidity risk, and capital volume have a positive relationship. Otieno et al. (2016) study on the Kenyan insurance industries about the relationship between financial risk and

financial performance found the following indicators: liquidity, financial, and capital management. The study found that solvency risk has negatively affected financial performance.

Tangibility has a negative relationship with ROA, whereas liquidity and leverage have a positive relationship with ROA, according to [Boadi et al. \(2013\)](#)'s study on factors affecting the profitability of Ghanaian insurance companies. [Malik \(2011\)](#) investigated the financial performance drivers of the Pakistani insurance industry. He discovered a correlation between size and capital, and profitability. However, he discovered a negative correlation between loss ratio, leverage, and profitability. According to [Díaz and Carrascal \(1993\)](#) research on the Turkish insurance sector, there are around eight profitability-determining variables. It was found that firm size and growth rate positively correlate with profitability, whereas loss ratio, company age, and current ratio negatively correlated with profitability. In addition, it was shown that the premium retention ratio and motor insurance share were not significant variables.

[Mohammed and Knapkova \(2016\)](#) discussed the impact of risk management on a company's performance. He found a positive relationship between them in such companies that invested more in intellectual capital. [Jafari et al. \(2011\)](#) focused on the ability of risk management response to factors of out-of-control market on profitability, which improves the company's performance. The results indicated that the companies invested in research have a positive relationship between total risk management and company's performance. [Adeusi et al. \(2014\)](#) found that many insurance companies in Kenya had strongly adopted risk management practices, and strongly impacted their financial performance. He found that the risk identifications are the most influenced on financial performance. [Soliman \(2017\)](#) investigated how firms' performance has been affected by implementing enterprise risk management. The study found a positive and strong relationship between enterprise risk management implementation and performance in the banking sector.

[Joseph and Jini \(2013\)](#) studied the financial performance of life insurance companies in Ghana. The study found that investment income negatively affects insurers' sales profitability, but it positively relates to the gross written premiums.

[Mirie \(2015\)](#) studied the financial performance factors of Kenyan public insurance companies. The study indicated that the financial performance was related to equity capital, leverage and management competence index, but it negatively relates to size and ownership structure. The study also showed that there is no relationship between financial performance and liquidity, retention ratio, underwriting risk and age. [Mwangi and Angima \(2016\)](#) studied the property and casualty insurance underwriters to discuss the relationship between actuarial risk management practices and financial performance. They found that specific factors moderate this relationship, such as the age of the firms, size, growth rate, and company management soundness.

[Pagach and Warr \(2011\)](#) investigated the impact of enterprise risk management adoption on business performance by analyzing the changes in asset, financial, and market characteristics around the period of implementation. Overall, the study failed to discover evidence that enterprise risk management creates value, although it did reveal that enterprises who embraced enterprise risk management witnessed a decrease in stock price volatility. [Abiola and Olausi \(2014\)](#) studied the impact of credit risk management practices on the financial performance of microfinance companies in Kenya. They determined that firms are enhancing their credit risk management by minimizing risk to improve service efficiency. The report suggested that MFIs implement new technology.

[Cummins et al. \(2009\)](#) investigated the relationship between risk management and cost-efficiency. The results indicated that it is necessary to use financial derivatives in managing investment risks to enhance the cost efficiency. [Kasman and Turgutlu \(2011\)](#) studied the performance of European insurance firms. The study found that most insurance companies system displays cost inefficiency and indicate that there are economies of scale. [Mazviona et al. \(2017\)](#) studied the determinants of financial performance in Romanian insurance companies. They found that financial leverage premiums and underwriting risk negatively affect return on total assets ratio. But solvency margin, retained risk ratio, and company size have a positive relation to return on total assets ratio. Furthermore, the investment ratio, diversification, total market share, equity, company age and growth of real GDP do not have any substantial linkages with the insurers' financial performance.

Mohammed and Knapkova (2016) assessed the financial performance of Egyptian insurance companies. The study found that the mean efficiency of financial performance of Egyptian companies did not differ significantly by the following ratios: expenses paid to premiums, net profit to surplus, total liabilities to total assets, net profit to total assets, and returns on investment, resulting in a tenuous relationship between financial performance efficiency and ownership type. Hussain (2015) examined the profitability of Pakistani insurance businesses. He discovered that business size, working capital, financial leverage, financial soundness, expansion potential, and equity market circumstances affected insurance companies' profitability. But working capital, financial soundness, expansion potential, and equity market circumstances positively impact the profitability of life insurance companies, whilst the other elements have a negative impact. J. A. Wani et al. (2014) investigated the relationship between financial risk and financial performance in the Indian insurance industry. They discovered that the deterrent risk variables for financial performance firms are solvency risk, capital management risk, and underwriting risk, but the attractive risk elements are capital volume, company size, and, surprisingly, liquidity risk.

(Rosikah et al., 2018) examined the effect of implementing ERM on the performance of companies. The results showed that enterprise risk management affected the performance of companies because investors began to realize the positive effects of the application and practice of enterprise risk management. The study showed that the use of risk management impacts the profitability of companies. Alghusin (2015) study showed that the size and growth of investment affect the company's profitability, but the current assets and financial leverage have an inverse relationship with profitability.

According to Gatzert and Martin (2015) research on the relationship between enterprise risk management and company performance, there is no conclusive evidence that enterprise risk management has a favorable impact on business success. In addition, the study revealed that organizations employing enterprise risk management have low asset returns. The strategies of risk management and the financial performance of insurance businesses were elucidated by Sambasivam and

Ayele (2013). Their research revealed no correlation between risk management practice and financial performance and that risk management application does not affect financial performance. Gupta (2011) explored Indian company risk management. The study revealed that the use of effective management for risk management has a good impact on the organizational performance of businesses, but businesses are unable to implement corporate risk management due to the absence of the necessary infrastructure. Pagano (2001) elucidated the key reasons for applying risks from banking and corporate finance. The study revealed that interest rate concerns are one aspect of a risk management challenge.

Saleh and Jawabreh (2020) studied the impact of financial risks on the performance of Ethiopian insurance companies. He found that some factors have a negative impact, such as liquidity, underwriting, credit, and technical provision risks. But provision risks have little impact on the insurance companies' performance. Chen and Wong (2004) study showed that the profitability of companies is affected by several factors such as volume, liquidity and investment. Ahmed et al. (2011) studied the insurance sector in Pakistan. The study showed that size and risk are two factors that are positively related to the profitability of Pakistani insurance companies. The study also showed that liquidity is not an important determinant in the profitability of insurance companies.

Theoretical Review

Insurance and Risk

According to Mazviona et al. (2017), insurance is the accumulation of incidental losses through the transfer of risks to insurers, who consent to reimburse the insured for these losses, providing risk-related services, or giving other financial benefits when they occur. It includes compensation for loss, anxiety reduction, an investment fund source, loss avoidance, and credit enhancement. It is difficult to avoid the majority of opportunities-enhanced hazards. Insurance firms need an excellent risk management procedure. According to Simon et al. (2000), the risk is the uncertainty connected with a future event. Companies confront numerous types of hazards, including Enterprise risk encompasses all the major risks a company faces (such as speculative, strategic,

financial, and operational risks), and companies also suffer financial risk, which refers to the possibility of incurring a loss as a result of fluctuations in the economy (such as inverse commodity prices, interest rates, the value of money and foreign exchange rates,). In addition, there are other types of risks that individuals face, such as property risk, which involves the likelihood of losses associated with the destruction or theft of property, personal risk to the individual or family due to the premature death of the family's head, inadequate income during retirement, poor health, and voluntary unemployment.

Risk Management

Risk management is a common term in all fields of study. Risk management is utilized in the banking and insurance industries for various activities, including auditing. Risk management has many objectives, including preparing economically for potential losses, reducing anxiety, meeting any legal obligations, ensuring the company's survival, preserving the continuation of operations, the stability of profits, ensuring the company's continued growth, and minimizing the impact of the loss on others and society. The insurance industry must engage in risk management because it is accountable for the business's survival and performance. And since insurance companies are responsible for the payout of all covered parties, they must engage in good risk management. However, according to [Kadi \(2003\)](#), insurance companies primarily cover insurable risks. The objective of risk management in insurance businesses is to detect, quantify, and prioritize the impact of uncertainties. On the other hand, [Greaney et al. \(1997\)](#) observed that risk management strongly impacts shareholders in increasing their investment in various companies. According to [Saleem and Abideen \(2011\)](#), risk management is responsible for identifying, analyzing, evaluating and controlling risks to make important financial decisions that have a strong and positive impact on performance.

According to [Pidgeon \(1991\)](#), risk management is a set of scientific processes by risk management in organizations to learn about the things exposed to losses and choose the best methods to avoid and treat such exposures. [Bézier et al. \(2002\)](#) emphasized that effective risk management aims to warrant the accomplishment

of the company's financial goals. It identifies risks and attempts to get rid of them for the development and prosperity of the organization. [Wenk \(2005\)](#) emphasized that effective risk management yields long-term benefits for all institutions, including the formulation of strategies, the development of services, the enhancement of competitive advantage, the optimal use of resources, the eradication of fraud, and the maintenance of operations to achieve outstanding financial performance. [Andersen \(2008\)](#) stated that risk management is one of the most important strategic objectives of the company, and managers should pay attention to achieving a balance between risks and risk opportunities. Weak and unsuccessful risk management leads to additional costs for companies and shareholders, thus will lead to poor financial performance and more losses. [Mwangi and Angima \(2016\)](#), [Andersen \(2008\)](#), and [Amaya and Memba \(2015\)](#) emphasized that companies which do not have a risk management policy do not deal with risks thoroughly. According to [Krishnamurthy et al. \(2005\)](#), the risk management process steps are identifying and assessing likely losses, selecting suitable techniques of risk management to address loss exposure, and implementing and managing a risk management program.

Financial Performance

The financial performance of an insurance company depends on several factors such as the quality of its management, organizational structure and controls in place ([Karapetyan et al., 2009](#)). Financial performance can be measured from different perspectives: solvency, liquidity, and profitability ([Almajali et al., 2012](#); [Rakshit, 2006](#)). According to [Angell and Brewer \(2003\)](#), the financial performance of companies is determined using assets, profitability and leverage of the company. [Rakshit \(2006\)](#) indicated that administrations' performance is measured using net profit margin, earnings per share, return on assets, equity, and operating profit margin. However, [Abbas et al. \(2015\)](#) observed that most insurance companies do not have a mechanism to reduce risk, leading to a continuous increase in losses and thus hampering their financial performance. [Nakhaei and Hamid \(2013\)](#) stated that profitability analyzes the relationship between revenue and expenses, return on equity (ROE) and return on assets (ROA) are common measures of profitability.

Risk Management and Performance

Pidgeon (1991) affirmed that active risk management is responsible for increasing the financial company's performance and that it is a challenge for a company to treat risk as a chance to enhance its financial performance through intelligent decision making. Burca and Batrinca (2014) affirmed that risk management's endeavour to improve financial performance might be accomplished by managing expenses, boosting the firm's value, and ensuring continual profitability. Gold (2009) argued that insurance businesses could never exist if spending ratios and losses rise. Bézier et al. (2002); Boadi et al. (2013) noted that insurance businesses should always evaluate their risks to manage them properly. To minimize financial losses and insolvency, the insurance firm must implement effective risk management into its everyday operations. Ongore and Kusa (2013) has shown that business losses can be avoided by taking precautions to reduce risks to enhance financial performance and profitability.

Methods

The researcher used secondary data such as websites, annual reports, and scientific research in this empirical study. The insurance sector contains 21 companies, but the analysis relied on 20 companies because a new company entered the market and a company exited the market. The financial data of 20 insurance companies in Jordan were collected and analyzed using mean, standard deviation, coefficient of variance and ANOVA to verify the relationship between insurance companies on their performance during the study period from 2010-to 2016. The following tools and techniques were classified in the study:

Ratio analysis is a quantitative method that compares the information in a company's financial statements to analyze its liquidity, profitability, and operational efficiency. The foundation of analysis is relative analysis. The ratio evaluation includes an adequate examination of the firm's operational strengths and weaknesses. *Statistical Techniques:* The main indicators have been used to verify and test the hypothesis by using Average/Mean, standard deviation, T-test, F-test and ANOVA test.

Data Analysis

Profitability ratios

Profitability ratios, an indicator of the efficiency of companies, are used as a measure of the profits accomplished by the company during a definite period and an indicator of its growth, success and dominance (Delen et al., 2013).

1. Return on assets (ROA) ratio: This ratio is considered net profit after tax divided by total assets. It measures a company's operational efficiency based on its profits from its total assets. The higher the return on assets, the more successful and distinguished management. It was used in this study.
2. The return on equity (ROE) ratio is calculated as the insurance company's net income divided by ordinary shareholders' equity.

A low return on equity is a dangerous sign for investors that the company may face problems now and in the future. But increasing the return on equity means the insurance company can use its capital effectively and improve its returns.

Activity Ratios

It is used to measure the company's capacity to improve the use of its existing resources to identify the performance and operational efficiency of the company. This set of ratios is the capital employed turnover ratio or the return on investment (ROI) ratio.

Return on Investment (ROI) Ratio

Return on investment (ROI) is calculated as the net profit after tax divided by the overall paid-in capital. It measures the company's efficiency in using the invested capital and achieving the expected return, and it is one of the ways to link profits with the invested capital. The high rate of return on investment is considered a positive indicator.

Risk management

It is a technique that seeks to diminish the severity of the likelihood of a loss, also known as risk control

Loss Ratios

The loss ratio is calculated by dividing the total losses paid and adjustment charges by the generated premiums. The loss ratio is the difference between the insurance company's premium and claims ratios. It is the entire amount of losses paid out by the insurance company in claims. Losses are added to the adjustment expense, divided by the total earned premium (A & Andreas, 1999; Gaver & Paterson, 2004).

Hypotheses

Based on the above discussions, the researchers hypothesize that,

H₀: There is no significant difference in different insurance companies' financial performance in Jordan in return on assets ratio $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \dots = \mu_{21}$

H₁: There is a significant difference in different insurance companies' financial performance in Jordan in return on assets ratio $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \dots = \mu_{21}$

H₀: There is no significant difference in different insurance companies' financial performance in Jordan in return on equity ratio $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \dots = \mu_{21}$

H₂: There is a significant difference in insurance companies' financial performance of different in Jordan in return on equity $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \dots = \mu_{21}$

H₀: There is no significant difference in different insurance companies' operational efficiency and performance in Jordan in return on investment $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \dots = \mu_{21}$

H₃: There is a significant difference in different insurance companies' operational efficiency and performance in Jordan in return on investment $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \dots = \mu_{21}$

H₀: There is no significant difference in different insurance companies' risk management in Jordan in the loss ratio $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \dots = \mu_{21}$

H₄: There is a significant difference in different insurance companies' risk management in Jordan in loss ratio $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \dots = \mu_{21}$

Results

Financial Performance of Jordanian Insurance Companies

Table 1A. Return on Assets Ratio

Year	Middle East Insurance (MEI)	An-Nsr Al-Arabi Insurance	Jordan Insurance	Arabia Insurance Company (AIC)	Delta Insurance (DI)	Jerusalem Insurance (JI)	The United Insurance (UI)
2012	0.018771	0.035615	0.045086	0.009169	0.020529	0.042374	0.026668
2013	0.010838	0.018705	0.030389	0.002787	0.002539	0.037697	0.012528
2014	0.016500	0.025595	0.050803	0.021938	0.052404	0.049382	0.019847
2015	0.009278	0.009414	0.005092	0.004993	0.015065	0.014101	0.030617
2016	0.003708	0.012061	0.011005	0.007052	0.015116	0.017070	0.040001
2017	0.002062	0.010761	0.004063	-0.004583	0.007474	0.009869	0.035843
2018	0.015012	0.006789	0.015029	0.005722	0.006517	0.004128	0.041447
Mean	0.010881	0.016991	0.023067	0.006725	0.017092	0.024946	0.029565
SD	0.006360	0.010396	0.019158	0.008009	0.016748	0.017813	0.010675
CV	58.448747	61.183039	83.05410	119.09014	97.984973	71.406413	36.10693

Year	Jordan French Insurance	The Holy Land Insurance	Al-Manara Insurance Plc.Co.	Arab Orient Insurance Company	The Mediterranean & Gulf Insurance Compan	Arab Life & Accident Insurance	Philadelphia Insurance
2012	0.008001	-0.048870	0.012138	0.059261	-0.050994	0.021940	0.147139
2013	-0.040031	-0.037938	0.062207	0.164185	-0.096922	-0.012346	-0.014587
2014	-0.013840	-0.501184	0.056633	0.047108	0.007877	0.024154	-0.211680
2015	0.007520	0.068335	-0.017367	0.048836	0.004845	-0.021276	-0.344065
2016	0.047531	0.015001	-0.025446	0.053462	-0.026354	0.034004	0.070209
2017	0.044248	-0.184088	-0.012210	0.042420	0.003778	0.019583	0.029354
2018	0.054555	0.123711	0.000039	0.010900	0.018355	0.022052	0.027072
Mean	0.015426	-0.080719	0.010856	0.060882	-0.019917	0.012587	-0.042365
SD	0.035219	0.209560	0.035350	0.048137	0.041531	0.020764	0.172729
CV	228.30339	-259.6164	325.62008	79.066514	-208.5257	164.96273	-407.7128

Year	Arab Union International Insurance	National Insurance	Jordan International Insurance	Euro Arab Insurance Group	The Arab Assurers Insurance Company	Arab Jordanian Insurance Group
2012	0.158302	-0.027834	0.007729	-0.019190	-0.123259	-0.318103
2013	-0.141890	-0.066967	0.027942	0.048637	0.060398	0.044111
2014	-0.079930	0.010377	-0.008154	0.032861	0.000601	-0.070810
2015	0.083621	0.023062	0.019468	0.030244	0.005238	-0.024597
2016	0.050521	0.049190	0.036003	0.065723	-0.003405	0.033492
2017	0.053059	0.051633	0.045580	0.025588	0.031098	0.029437
2018	-0.023403	0.054457	0.025632	0.026636	0.038197	0.035611
Mean	0.014326	0.013417	0.022028	0.030071	0.001267	-0.038694
SD	0.102512	0.045989	0.017888	0.026083	0.059575	0.130083
CV	715.58232	342.76977	81.205907	86.73874	4702.4757	-336.1829

Table 1B. Overall Mean and Standard Deviation of ROA Ratio

Year	Company (Mean) 20 companies	Standard Deviation
2012	0.001686	0.094925
2013	0.014972	0.076198
2014	-0.021536	0.125507
2015	-0.002273	0.082948
2016	0.026879	0.027562
2017	0.018582	0.056808
2018	0.021466	0.034293
Aggregate	0.008539	0.031649

In Table 1B, the financial performance is assessed based on ROA. The descriptive statistics show the mean ROA of 20 companies for seven years. The highest was for the year 2016 (with a mean of 0.026879), and the lowest was for the year 2014 (with the mean of -0.021536) with an aggregate of (0.008539). According to the company's wise, the Arab Orient Insurance Company has the highest ROA (with a mean of 0.060882 and a Standard Deviation of 0.048137). But The Holy Land Insurance has the lowest ROA (with a mean of -0.0801719 and a Standard Deviation of 0.209560), as stated in Table 1B.

Table 1(C) ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.140234661	20	0.007011733	1.181121254	0.28128193	1.654459929
Within Groups	0.747999718	126	0.005936506			
Total	0.888234379	146				

Table 1C shows that the F calculated value is (1.18112) less than the F critical - table value (1.65446). Hence, the null hypothesis is accepted, that is, there is no significance difference in financial performance of different insurance companies in Jordan in return on assets.

Table 2A. Return on Equity (ROE) Ratio:

Year	Middle East Insurance	An-Nsr Al-Arabi Insurance	Jordan Insurance	Arabia Insurance Company	Delta Insurance	Jerusalem Insurance	The United Insurance
2012	0.018771	0.068850	0.068753	0.016538	1.364935	0.080427	0.051866
2013	0.023729	0.041501	0.052731	0.005554	0.004214	0.073095	0.024701
2014	0.039225	0.057404	0.089473	0.045131	0.094904	0.101924	0.045056
2015	0.022047	0.023508	0.009473	0.011591	0.030197	0.031050	0.078848
2016	0.008668	0.033288	0.020979	0.016792	0.033384	0.039427	0.114123
2017	0.004575	0.033859	0.008953	-0.011743	0.017835	0.023514	0.096659
2018	0.031097	0.023846	0.034551	0.014948	0.015595	0.010647	0.114479
Mean	0.021159	0.040322	0.040702	0.014116	0.223009	0.051441	0.075105
SD	0.012037	0.017090	0.030877	0.016951	0.504402	0.033818	0.035438
CV	56.887656	42.383580	75.861254	120.08543	226.18007	65.741409	47.184128

Year	Jordan French Insurance	The Holy Land Insurance	Al-Manara Insurance Plc. Co.	Arab Orient Insurance Company	The Mediterranean & Gulf Insurance Company	Arab Life & Accident Insurance	Philadelphia Insurance
2012	0.022127	-0.180078	0.019374	0.153003	-0.111236	0.048996	0.029297
2013	-0.141133	-0.094144	0.108871	0.311964	-0.426417	-0.106054	-0.017061
2014	-0.052970	2.976518	0.174344	0.130718	0.022656	0.062644	-0.370470
2015	0.032606	-0.531174	-0.055442	0.143999	0.016381	-0.060792	-0.409781
2016	0.194789	1.117723	-0.097299	0.157194	-0.10195	0.096225	0.212939
2017	0.170702	-186.3212	-0.042964	0.127899	0.014017	0.050912	0.076128
2018	0.192045	0.450793	0.000125	0.035627	0.068805	0.053514	0.058907
Mean	0.059738	-26.08308	0.015287	0.151486	-0.073963	0.020778	-0.060006
SD	0.131187	70.668148	0.096069	0.081910	0.169321	0.074118	0.236545
CV	219.6038	-270.9349	628.4275	54.07070	-228.9262	356.71268	-394.2028

Year	Arab Union International Insurance	National Insurance	Jordan International Insurance	Euro Arab Insurance Group	The Arab Assurers Insurance Company	Arab Jordanian Insurance Group
2012	0.365056	-0.051260	0.012832	-0.031859	-1.362214	-1.240126
2013	-0.669239	-0.137453	0.154009	0.042420	0.126707	0.491928
2014	-0.279981	0.024115	-0.014952	0.097716	0.002833	-0.229668
2015	0.375422	0.066321	0.029801	0.083691	0.023579	-0.090523
2016	0.175611	0.144242	0.051261	0.181310	-0.014111	0.108638
2017	0.234663	0.133591	0.063902	0.073944	0.115288	0.094030
2018	-0.111836	0.132393	0.040923	0.070564	0.122194	0.117001
Mean	0.012814	0.044564	0.048254	0.073969	-0.140818	-0.106960
SD	0.386812	0.107066	0.053357	0.063754	0.541889	0.546976
CV	3018.7203	240.2522	110.5770	86.18927	-384.8154	-511.3842

Table 2B. Overall Mean and Standard Deviation of ROE Ratio

Year	Company (Mean) 20 companies	Standard Deviation
2012	-0.030063	0.522823
2013	-0.001131	0.234948
2014	0.148483	0.662448
2015	-0.014177	0.182008
2016	0.130563	0.24566
2017	-8.757343	40.68569
2018	0.055789	0.134464
Aggregate	-1.209697	5.699842

In Table 2B, the financial performance is assessed based on ROE. The descriptive statistics display that the mean of ROE for seven years, the lowest mean was in (2017) at -8.7573, and the highest mean in the year (2014) at 0.14485. with an aggregate of -1.209697. According to the companies wise in the table 2A, Delta Insurance has had the highest ROE (with a mean of 0.223009 and a Standard Deviation of (0.504402), but the lowest ROE was The Holy Land Insurance (with a mean of -26.083 and Standard Deviation of (70.668148).

Table 2C. ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	4548.34711	20	227.4173555	0.956043525	0.519147602	1.6544599
Within Groups	29972.05256	126	237.8734331			
Total	34520.39967	146				

Table 2C shows that the F calculated value (0.956044) is less than the F critical -table value (1.65446). Hence, we accept the null hypothesis that there is no significance difference in financial performance of different insurance companies in Jordan in return on equity.

Activity Ratio or Operational Efficiency and Performance Determination

Return on investment (ROI): $ROI = \text{Net profit after tax} / \text{Total paid-up capital}$

Table 3A. Return on Investment Ratio

Year	Middle East Insurance	An-Nsr Al-Arabi Insurance	Jordan Insurance	Arabia Insurance Company - Jordan	Delta Insurance	Jerusalem Insurance	The United Insurance
2012	0.060619	0.132938	0.103823	0.020976	0.036760	0.112600	0.078057
2013	0.035643	0.076299	0.077842	0.006914	0.004872	0.104885	0.034190
2014	0.059043	0.114332	0.140345	0.058072	0.121146	0.154907	0.063397
2015	0.037169	0.048429	0.013684	0.015042	0.039128	0.049558	0.113021
2016	0.014369	0.069963	0.028505	0.022600	0.043869	0.067155	0.173372
2017	0.008152	0.072055	0.010119	-0.015022	0.023669	0.040513	0.160160
2018	0.062466	0.049498	0.039889	0.020100	0.020702	0.017892	0.195664
Mean	0.039637	0.080502	0.059172	0.018383	0.041449	0.078216	0.116837
SD	0.022323	0.031843	0.049529	0.021838	0.037571	0.047922	0.061226
CV	56.317083	39.556116	83.703397	118.79229	90.641932	61.269009	52.402855

Year	Jordan French Insurance	The Holy Land Insurance	Al-Manara Insurance Plc.Co.	Arab Orient Insurance Company	The Mediterranean & Gulf Insurance Company	Arab Life & Accident Insurance	Philadelphia Insurance
2012	0.015078	-0.141809	0.012099	0.203573	-0.099129	0.060837	0.032395
2013	-0.008315	-0.063625	0.038897	0.150353	-0.180607	-0.033575	-0.037223
2014	-0.029028	-1.006027	0.050336	0.178603	0.016544	0.065450	-0.132361
2015	0.017239	0.142361	-0.014977	0.203806	0.011731	-0.061035	-0.147978
2016	0.124040	0.026111	-0.073123	0.234504	-0.067459	0.105818	0.202816
2017	0.132921	-0.202289	-0.030842	0.204119	0.009417	0.055695	0.078999
2018	0.175583	0.107202	0.000090	0.056187	0.049539	0.061312	0.064967
Mean	0.061074	-0.162582	-0.002503	0.175878	-0.037138	0.036358	0.008802
SD	0.080839	0.392551	0.042174	0.058831	0.081951	0.060060	0.124436
CV	132.36221	-241.4480	-1685.076	33.449787	-220.6676	165.19171	1413.6677

Year	Arab Union International Insurance	National Insurance	Jordan International Insurance	Euro Arab Insurance Group	The Arab Assurers Insurance Company	Arab Jordanian Insurance Group
2012	0.617265	-0.045635	0.014214	-0.035291	-0.208246	-0.327728
2013	-0.353230	-0.115383	0.054416	0.107141	0.176845	0.074095
2014	-0.183759	0.019709	-0.016080	0.075576	0.001142	-0.091815
2015	0.179413	0.058476	0.043799	0.077230	0.008940	-0.037524
2016	0.101824	0.151057	0.066313	0.204369	-0.005458	0.065045
2017	0.115114	0.160275	0.088321	0.090003	0.049271	0.052999
2018	-0.098680	0.170450	0.055809	0.092410	0.059423	0.073721
Mean	0.053993	0.056993	0.043827	0.087348	0.011702	-0.027315
SD	0.312168	0.111075	0.034657	0.070000	0.115291	0.147188
CV	578.16997	194.89356	79.077224	80.13868	985.18334	-538.845

Table 3B. Overall Mean and Standard Deviation of ROI Ratio

Year	Company (Mean) 20 companies	Standard Deviation
2012	0.031833	0.179424152
2013	0.030572	0.158124052
2014	-0.013786	0.244839137
2015	0.035255	0.080972768
2016	0.081087	0.084672244
2017	0.067514	0.101763569
2018	0.054037	0.077726044
Aggregate	0.040930	0.068121791

In Table 3, the operational efficiency and performance are assessed based on ROI. The descriptive statistics show that ROI means seven years. The lowest mean was in (2014) at -0.013786, and the highest mean was in the year (2016) at 0.081087. with an aggregate of 0.040930. According to the companies wise in the table 3A, Arab Orient Insurance Company has the highest ROI with a mean of (0.175878) and SD of (0.058831). The remaining companies in the sample have lower ROIs that range from -0.162582 (The Holy Land Insurance) to 0.116837 (The United Insurance) compared to the average Table 3.

Table 3C. ANOVA

Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	0.649680985	20	0.032484049	1.694481798	0.042394917	1.654459929
Within Groups	2.415481954	126	0.019170492			
Total	3.065162939	146				

Table 3C shows that the F calculated value (1.694482.956044) is greater than the F critical - table value (1.65446). Hence, we reject the null hypothesis that there is no significant difference in operational efficiency and performance of different insurance companies in Jordan in return on investment and accept the alternate hypothesis that there is a significant difference in operational efficiency and performance of different insurance companies in Jordan in return on investment.

Risk Management

Table 4A.

Year	Middle East Insurance	An-Nsr Al-Arabi Insurance	Jordan Insurance	Arabia Insurance Company - Jordan	Delta Insurance	Jerusalem Insurance	The United Insurance
2012	0.249936	0.501500	0.371931	0.595138	0.034421	0.651130	0.563443
2013	0.693971	0.505309	0.600569	0.582274	0.652194	0.698670	0.836817
2014	1.593645	0.575064	0.523998	0.775904	0.481280	0.568271	0.683469
2015	0.377802	0.437430	0.509609	0.633450	0.538339	0.654745	0.454761
2016	0.528702	0.450259	0.608335	0.672392	0.627843	0.617917	0.549621
2017	0.591541	0.428504	0.662834	0.769344	0.632306	0.682729	0.671749
2018	0.724509	0.593858	0.682331	0.719778	0.801237	0.817068	0.660815
Mean	0.680015	0.498846	0.565658	0.678326	0.538231	0.670076	0.631525
SD	0.436638	0.065785	0.106851	0.079288	0.243621	0.077742	0.122412
CV	64.210105	13.187451	18.889692	11.688734	45.26329	11.602014	19.383507

Year	Jordan French Insurance	The Holy Land Insurance	Al-Manara Insurance Plc.Co.	Arab Orient Insurance Company	The Mediterranean & Gulf Insurance Company	Arab Life & Accident Insurance	Philadelphia Insurance
2012	0.270833	1.025740	0.614099	0.642634	1.430915	0.767019	0.662675
2013	0.727503	1.543060	0.087483	0.285961	0.901264	0.996788	1.230514
2014	0.879042	0.680863	0.684012	0.371242	0.538863	0.541440	2.481669
2015	0.884841	0.859228	0.698590	0.406171	0.585141	0.509699	27.364030
2016	0.662693	0.985892	0.687965	0.804206	0.743003	0.656886	1.037626
2017	0.643519	0.930017	1.143915	0.681427	0.954491	0.751436	0.963438
2018	0.850378	0.883726	1.247078	0.786033	0.816635	0.716268	1.161503
Mean	0.702687	0.986932	0.737592	0.568239	0.852902	0.705648	4.985922
SD	0.215371	0.269154	0.380662	0.210640	0.297340	0.162520	9.884669
CV	30.649600	27.271770	51.608787	37.068879	34.862193	23.031297	198.25159

Year	Arab Union International Insurance	National Insurance	Jordan International Insurance	Euro Arab Insurance Group	The Arab Assurers Insurance Company	Arab Jordanian Insurance Group
2012	0.547038	0.546704	1.024822	1.024822	0.846129	1.198951
2013	1.214421	0.710556	1.030190	1.075128	1.271089	0.800201
2014	0.965931	0.467313	0.477423	0.470690	0.741090	0.756765
2015	0.758064	0.399645	0.443245	0.483493	0.690179	0.563733
2016	0.921336	0.676475	1.175275	0.616685	0.954094	0.650618
2017	0.736177	0.691379	0.897058	0.732680	0.765988	0.593145
2018	1.087216	0.919948	0.713166	0.875969	1.066021	0.682376
Mean	0.890026	0.630288	0.823026	0.754209	0.904941	0.749399
SD	0.227150	0.174621	0.285465	0.246337	0.207430	0.215201
CV	25.521688	27.704906	34.684877	32.661661	22.921944	28.716508

Table 4(B) Overall mean and standard deviation Loss Ratio

Year	Company (Mean) 20 companies	Standard Deviation
2012	0.681524	0.3307963
2013	0.868134	0.3993178
2014	0.757740	0.4715173
2015	1.856765	5.8463405
2016	0.744280	0.1932223
2017	0.751256	0.1601338
2018	0.850839	0.1795472
Aggregate	0.930077	0.9395058

Tables 4A and 4B assess the financial performance based on the loss ratio. The descriptive statistics show the mean loss ratio of 20 companies for seven years. The highest was for the year 2015 (with a mean of 1.856765), and the lowest was for the year 2012 (with a mean of 0.681524) with an aggregate of (0.930077). According to company wise, Philadelphia Insurance has the highest loss ratio (with a mean of 4.98592 and SD of 9.884669). But An-Nsr Al-Arabi Insurance company has the lowest loss ratio (with a mean of 0.498846 and a Standard Deviation of 0.065785). The companies with a higher loss ratio have the maximum risk and are not preferred by customers.

Table 4C ANOVA.

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	123.5739529	20	6.178697643	1.312152297	0.183269597	1.654459929
Within Groups	593.312152	126	4.708826603			
Total	716.8861049	146				

Table 4C displays that the F calculated value (1.3121523) is less than the F critical - table value (1.65446). Therefore, we accept the null hypothesis that there is no significant difference in risk management of different insurance companies in Jordan in Loss ratio.

Conclusion

This study compares the performance of 20 insurance businesses listed on the Amman Stock Exchange (ASE) in Jordan between 2012 and 2018. Utilized performance variables (ROA, ROE, RI, and loss ratio). Multiple macroeconomic and microeconomic variables influenced the fluctuating performance of each business throughout time. The results indicate no statistically significant differences between the mean financial performance of insurance businesses and their risk management at the 5% significance level for ROA, ROE, and loss ratio. However, the data indicate substantial differences in the financial performance of insurance companies at the 5% significance level for Rhode Island. This means the performance and risk management of neighboring insurance firms in Jordan, except RI.

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