# Aggregate Risks and Financial Performance: Risk Management Mediator

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**Abstracts:** This study aimed to reveal the impact of financial risk management on the performance of Jordanian insurance companies. The study sample consisted of (21) Jordanian insurance companies, all of whom were selected from the Amman Stock Exchange for the period (2009-2018). The study followed descriptive and analytical approach. Multiple regression analysis was also applied to measure the impact of various investments (financial investments, other investments and reinsurance) on the financial performance as measured by the return on equity. - ROE, in addition to measuring the standard deviation of returns for each type of investment to identify the role of macro risk on insurance companies` financial performance. Empirically the results showed that there a statistically significant impact of financial investments, other investments and reinsurance on the financial performance of insurance companies, where other investments reflected the highest degree of significant impact (3.707), and the least in terms of the degree of significant influence was for financial investments (B = 0.205). The results also showed that the returns of financial investments are characterized by a very high degree of variance in term of returns. The study recommended the need to increase and diversify their investments especially in real estate and certificate of deposit diversifying also, to plan effectively to face high-level risks according to a specific and effective strategy approved by specialized experts in the field of risk management.

**Keywords:** Risk, Insurance, Returns, Performance, Variance.

## 1. INTRODUCTION

Insurance function is not newly established, it appeared a long time ago and developed with the development of societies, and its essential role has emerged as an important means of preventing or diverting dangers that may afflict individuals or society, in addition to being a tool for saving and as an important element in financing projects. The financial sector plays a fundamental role in escalating the economic wheel of countries, therefore ensuring the sector sound financial position is substantial for inducting finance and providing safety to investors a gainst various risks in various economic sectors. The insurance sector practices a crucial role in realizing sustainable growth to the economy by facilitating capital formation, financial security, and promoting trade and commerce [1]. In an ever-dynamic world, insurance companies continuously confront risks that emerge in all potential fields. It is thus extremely hard, for an insurance company to succeed unless proper risk mitigation measures are implemented. The emergence of recent COVID-19 pandemics has impacted and still adversely affect the performance of insurance companies globally. COVID-19 has increased challenges to the sector, which include limitations in operations, financial stress and regulatory issues [2].

Risk could lead to the collapse of organizations. To avoid or eliminate risk impact, risk management is always essential to the organization through identifying, analyzing, developing, implementing and handling techniques, in order to reduce such impact on the financial performance [3]. [4], pointed out that, risk management framework includes detection, prioritization, and risk estimation. Risk issue in the insurance industry requires additional efforts to confront the high level of risks, and to take appropriate measures to control their potential impact. Risk management has occupied an important place after global financial crises and the recent CPVID-19 pandemic, as it improves company's performance and creates value for shareholders [5]. Recently, there has been growing interest in risk management in business environment around the world especially the financial sectors [6]. Risk if not well managed may lead to collapse for organizations especially those whose core business deals with day-to-day handling of risk. Risk management should, be at the core of an organization's operations by integrating risk management practices into systems, processes, and culture of the whole organization.

Despite their crucial role in the country`s economy, they are like other companies operating in other sectors, do face many risks that may affect their financial performance and consequently shareholders` rights and wealth. This study came with the aim is empirically to examine most important financial risks facing listed insurance companies operating at Amman Stock Exchange - ASE, also investigating the impact of these risks on its financial performance and to identify the most appropriate techniques or strategies these companies' managements should adopt to reduce or mitigate the adverse impact of various risks, whether they are risks at the level of the economy as a whole or risks related to the insurance sector in particular.

### 1.1. Study Importance

The core function of an insurance company is distributing risk across different participants [7]. Insurance companies has become one of the most important requirements to achieve financial and economic transactions to individuals and to organizations, so it has become a basic need for economic development, this is so as insurance companies promote saving, enhance investment and transfer risk in the economy [8]. Insurance companies play a major role in the Jordanian national economy, and the performance of these companies is a cornerstone for the other sectors and the society, due to the insurance services it provides to various sectors and individuals that enable them to overcome the risks to which they are exposed. According to a study conducted by [9], in most cases, the cause for the bankruptcies of insurance companies was due to a combination of internal and external factors. A common reason for bankruptcy of an insurance company is a combination of poor-quality management procedures and inadequate risk management. dealing with major risks to which the company is exposed. This fact highlights the need for adequate internal models to assist in the process of risk management.

The importance of this study comes from identifying the types of risks facing Jordanian insurance companies, and what is influence of these risks on the financial performance of this vital sector, which plays a major role in the Jordanian economy by proposing some tools of protection against risks that may face companies operating in insurance sector. The importance of this study also lies in providing some financial indicators that may help decision makers in the Jordanian insurance sector to adopt more flexible investment policies, which will help them enhance their level of profitability. Thus, paper aims to analyze factors that influence performance of insurance companies. Moreover, to determine how risk management practices affect organizational performance in insurance companies in Jordan.

### 1.2. Study Objectives

The current study aimed, in general, to answer the questions of this study and to test the validity of the hypotheses contained therein. It also aimed to achieve the following:

- Identifying the impact of risk management of various investments in insurance companies on their financial performance.

- Identify the different types of financial risks facing insurance companies.

- Measuring the impact of financial risks through the standard deviation of investment returns on performance in Jordanian insurance companies.

### 1.3. Insurance Industry in Jordan

The first Jordanian insurance company was established in 1951, and in 1986 the number of insurance companies operating in Jordan reached (33) companies, including (22) Jordanian insurance companies. By the end of 2003, the number of Jordanian insurance companies increased to (26), while in 2007 the number of Jordanian insurance companies reached (28), and with the beginning of 2014, the number of Jordanian insurance companies decreased from 28 to 25 after the exit of (3) companies. At present and due to severe economic conditions and COVID-19 pandemic the number of insurance companies dropped to 21 companies (Jordan Insurance Federation, 2021). The total assets of all insurance companies amounted to JOD1,028,711,148 increasing by 3.3% comparing

to 2019, the net profit by end of 2020 reached to JOD36,524,120 comparing to JOD25,777,604 end of 2019. The total investment amount has increased in 2020 (JOD588,998,174) by 2.3% comparing to 2019 (JOD576,053,581). Regarding paid up capital for all listed Jordanian insurance companies was JOD272,807,655. As insurance companies' main business core is under-writing premium, the total underwriting premium (general and life insurance) by end of 2020 amounted to JOD593,442,125 declining by 3.6% in comparison to 2019.

## 2. Literature Review

Insurance sector works as a safe shield for all other sectors and is considered a very important as its performance will inversely have an effect on other sectors, especially those that are unstable. Researchers and interested parties have deeply investigated risk management and its impact on financial performance in various sectors including insurance, but the outcomes and finding of these studies were different as there were no general consensus of findings. Theoretically speaking there is strong correlation between risk management and any company financial performance. liquidity risk, credit risk and Operational risk are considered as the most important risks proxies' insurance sector can confront [10].

[11] indicated that most Jordanian insurance businesses have adopted risk management methods that have reflected a significant impact on their financial performance, and that the adoption of risk management strategies positively correlates with financial performance. [12] study found that there is a positive impact of leverage and liquidity on the profitability of insurance companies in Ghana. [13] found that liquidity, leverage and underwriting risks have a negative and a significant impact, while company`s size, market share and GDP have a positive and a significant impact on Jordanian insurance companies' financial performance. But inflation has reflected no significant impact on the profitability of the insurance companies in Jordan. [14] indicated that Leverage, liquidity, Size, Management competence index, had a positive statistical impact on the financial performance of Jordanian Insurance Companies.

[15] findings show that a higher level of ERM implementation, assists performance through mitigating losses and/or to take advantage of opportunities. Also, evidence found a positive and significant market impact to high levels of ERM implementation. [16] investigate whether or not enterprise risk management (ERM) added value to stakeholders. The study found that effective adoption of ERM plays a critical role in reducing risk and increasing value addition for all stakeholders. [17] they did not find any significant influence of managing underwriting risks on the efficiency of firms. [18] study results showed that the financial performance of Kuwaiti insurance companies is mostly affected by credit risk and operational risk, while liquidity risk does not have any statistically significant impact. [19], confirms that "risk management is an important function of insurance companies in adding value for customers and shareholders. [20] found, the existence of a positive and strong relationship between enterprise risk management implementation and banking sector financial performance. [21] conclude that risk and investment management are important drivers to ensure the overall profitability of insurance firms. [22], state that modern insurance companies are in the risk management business, they undertake risk bearing and management functions on behalf of their customers through the pooling of risks and the sale of their services as risk specialists. This implies that, risk management should take the core stage in the operations of insurance companies.

## 3. Methodology

This study adopted a quantitative research approach and explanatory research design in order to investigate the impact of risk management on listed Jordanian insurance companies` financial performance. The study used panel data of 21 insurance companies listed at ASE covering the period 2011–2020. This study relied on the descriptive and analytical approach, using linear regression analysis for testing the study hypotheses depending on secondary sources. The impact of independent variables values represented in annual investments of insurance companies, on the return on equity – ROE as the dependent variable proxy. Unsystematic risks will also be examined through the standard deviation of returns for each type of investment (independent variables).

The independent variables were represented by the nature of the investments of insurance companies as one of the tools to reduce the impact of risks on their financial performance by addressing the change in the components of

the investment portfolio, using investment diversification as risk management. Financial investments (investments in stocks, bonds or certificate of deposit), other investments (investment in allied companies or in real-estate or loans to policy holders) and reinsurance are the different types of insurance companies' investments as a proxy of independent variables.

## 4. Statistical Analysis

The study used statistical analysis for the purpose of data processing and statistical analysis, several tests through the Statistical Processing Program (SPSS), and statistical methods and indicators that fit the hypotheses of the study and available in the program were used, as follows:

- Variance Inflation Factor (VIF) test and Tolerance test.

- Data normal distribution by calculating the Skewness coefficient.

- Autocorrelation Test Using the Durbin-Watson Test.

- Multi Regression.

Two conditions must be met for the application of multi linear regression, namely, there is no correlation between the independent variables, and the other is that study variables do follow the normal distribution. For this purpose, coefficient of variance inflation VIF, the acceptable variance, the autocorrelation test, and the skewness coefficient were performed in order to ensure that the data fit the assumptions of the regression analysis. [23], stated that VIF should not exceed the value of (10) and that Tolerance test value should be greater than (0.05), if so it means that there is no high correlation (multi-collinearity) between the independent variables. The results were as follow:

**Table (1): Independent Variables Multi Collinearity Test**

| Independent Variable | VIF - Coefficient | Tolerance – Acceptable Variance |
|---|---|---|
| Financial Investments | 1.245 | 0.803 |
| Other Investments | 1.040 | 0.961 |
| Reinsurance | 1.242 | 0.805 |

Based on the results, we can confirm that, high collinearity between the independent variables does not exist, as VIF value of all variable ranges between 1.040 and 1.245 which is less than 10, and the tolerance values of the said variables are more than 5% [23].

For examining the normal distribution of the study data, the study calculated Skewness coefficient, as if the value of is less than (1), this indicates that the data follow the normal distribution. Also, in order to confirm that there is no autocorrelation between the independent variable, Durbin-Watson test was used, whose value is between (0-4) and the closer to the value (2) indicates that there is no autocorrelation [23]. The test results were as follow:

**Table (2): Normal Distribution and Autocorrelation Test**

| Independent Variable | Skewness | Durbin-Watson |
|---|---|---|
| Financial Investments | 0.392 | 1.510 |
| Other Investments | 0.450 | |
| Reinsurance | 0.979 | |

The outcomes of table (2) confirm that the study independent variables follow a normal distribution trend and autocorrelation does not exist.

**Table (3): Descriptive Analysis of the Study Variables:**

| Variables | Lowest Value | Highest Value | Average Value | Std. Deviation |
|---|---|---|---|---|
| Financial Investments | 22.24% | 28.93% | 25.17% | 2.31% |
| Other Investments | 14.66% | 19.13% | 17.13% | 1.37% |
| Reinsurance | 5.48% | 7.23% | 6.12% | 0.55% |
| ROE | -9.79% | 10.22% | -.19% | 5.60% |

Based on the above results, we notice that there is a proportionate stability (standard deviation value is very low and not exceeding 2.31%) of different types of investment in the Jordanian investment companies. The value of each investment type was calculated by dividing investment type on the total assets value. It's clear that insurance companies focus mainly on financial investment as the major source for diversification. In general, all 3 types of investments constitute on average 50% of the insurance company's total assets. Additionally, it's very obvious that there is a high volatility in Jordanian financial companies ROE, and on average they are incurring losses, and this is due to the fact that, Jordanian financial companies are small in size, and that the major portion of returns comes from vehicles insurance premium, which is considered the riskiest type of insurance in this business.

### 4.1. Testing Study Hypotheses:

**$H_{01}$**: *There is no statistical impact of various investments on the financial performance of listed Jordanian insurance companies.*

**Table (4):** Regression Model Test

| Model | Sum of Squares | DF | Square Mean | Calculated F | Sig. |
|---|---|---|---|---|---|
| Regression | 0.24 | 3 | 0.008 | 12.516 | 0.005 |
| Residuals | 0.004 | 6 | 0.001 | | |
| Total | 0.028 | 9 | | | |

The results of the regression model test indicate a statistically significant impact of the independent variables (financial investments, other investments, reinsurance) on the financial performance of the Jordanian insurance companies listed at ASE Amman Stock Exchange. The calculated (F) value was (12.516) with a significance level of (0.005) which is less than 5%.

**Table (5): Multi Regression Analysis Test**

| Dependent Variable | R | $R^2$ | Independent Variables | β Coefficient | Calculated T | Sig. T |
|---|---|---|---|---|---|---|
| ROE | 0.929 | 0.862 | Financial Investments | 0.205 | 4.499 | 0.007 |
| | | | Other Investments | 3.707 | 5.851 | 0.001 |
| | | | Reinsurance | 0.984 | 4.574 | 0.006 |

The above results related to multiple regression analysis, affirms that there is a statistically significant impact of risk management (financial investments, other investments, reinsurance) on the financial performance, as the calculated t-values amounted to (4.499, 5.851, 4.574), respectively, and the statistical significance for all of the independent variables is less than 5%. Also, the value of the coefficient of determination ($R^2$) indicates that (86.2%) of the variation in the financial performance indicator (ROE) is due to the change in the amount of insurance companies' various investment (financial investments, other investments, reinsurance). The independent variable together shows a high correlation with ROE with R value = 0.929. The above-mentioned outcomes, summaries that these 3 independent variables are the main determinants of Jordanian insurance companies' financial performance.

We can also notice that the volume of impact of each independent variable on the financial performance of insurance companies do differ, as other investment demonstrates the highest impact (β coefficient = 3.707) followed by reinsurance with (β coefficient = 0.984) and the lowest impact refers to the financial investments as they are characterized by high volatility in returns subject to the prevailing economic condition (β coefficient = 0.205).

**$H_{02}$**: *There are no differences between the impact of unsystematic risks of financial investments, of other investments and of reinsurance.*

**Table (6): Various Investment Standard Deviation, Average Returns and Covariance**

| Items | Financial Investments | Other Investments | Reinsurance |
|---|---|---|---|
| Returns Standard Deviation | 13,430,243 | 3,156,486 | 10,665,277 |
| Average Returns | 21,018,824 | 2,871,694 | 15,798,039 |
| Returns Covariance | 1.565 | 0.910 | 1.481 |

To identify each investment risk degree, we can indicate that the standard deviation (13,430,243), covariance (1.565) and average returns (JOD21,018,824) related to financial investment, is the highest, implying that it bears

the highest risk degree, while the lowest risk degree pertains to other investment. This means that investing in real estate and certificate of deposit will generate an acceptable return with an acceptable risk degree, as such type of investment enjoy return stability with low volatility. This confirm the hypothesis which state that there are differences between the impact of unsystematic risks (measured by returns standard deviation, average returns and covariance) related to financial investments, other investments and reinsurance. Thus, we can conclude that unsystematic risk (measured by returns standard deviation) does have an impact on Jordanian insurance companies.

## DISCUSSION AND CONCLUSION

There are remarkable changes in insurance industry and economic environment recently, which implies the risks that the insurers are encountering have evolved, due to volatile investment conditions, pandemics and climate change. On this account, stakeholders converge on these risks and the way in which they are managed. Insurance companies` major economic activity is management of hazard, they manage the risks of both their clients and their own risks. This requires an integration of risk management into the companies" systems. In view of the importance of the financial performance of companies, the need emerged to study factors that impact insurance companies' financial performance, and by reviewing studies and some literature, we found that there are many macro and micro factors that affected the financial performance of insurance companies.

This study was conducted to investigate the impact of different types of investment on the financial performance on the financial performance of insurance companies in Jordan and the role of risk management in this context. In doing so, all listed insurance companies at ASE data were used to study the subject of interest. The study was conducted through secondary panel data which covers a 10 years range (2011-2020) with total observation of 210. Firstly, a multicollinearity test was examined through correlation matrix in order to see if there was any issue between variables; assumptions of classical linear regression model were tested and confirmed that the model is viable by using Durbin-Watson test.

The finding of the study reveals that; insurance companies in Jordan mainly invest in financial assets followed by other investments (investment in allied companies or in real-estate or loans to policy holders), also financial investments do generate the highest average return with the highest risk degree (covariance = 1.565; returns standard deviation = 13,430,243). The results also indicated that, all types of insurance companies' investments do impact insurance companies financial performance with different degrees, but it's worth mentioning that other investments possess the highest degree of impact (β Coefficient = 3.707). This conclusion does come in rhyme with other studies that investigated factors that impact insurance companies' financial performance ([14]; [12] and [13].

Based on the results, the study recommends that Jordanian insurance companies management should concentrate on infusing more investments in real estate and allied companies as they generate good returns with an average risk degree, and to manage their investment more efficiently in order to avoid high returns volatility, as the insurance industry in Jordan is very small and exposed to high level of systematic risks that may endanger their sustainability and existence. Sophisticated risk management system is essential, in order to analyze, control and manage their risks. [24], stated that some risks present opportunities through which the company can capture comparative advantage, and hence enable it to improve financial performance. Banks (2004) argued that some risks can be retained as part of the core business operations and actively managed to create value for stakeholders, while others should be transferred, as long as it is cost effective to do so.

## REFERENCES

[1] IRA. (2020). Insurance industry annual report.

[2] Baumann, N. (2020). Understanding COVID-19's impact on the insurance sector. Deloitte. https://www2.deloitte. com/global/en/pages/about-deloitte/articles/covid19/understandingcovid-19-s-impact-on-theinsurance-sector-.html.

[3] Schmidt, R., Lyytinen, K., Keil, M., & Cule, P. (2001). Identifying software project risks: An international Delphi study. Journal of management information systems, 17(4), 5-36. https://doi.org/10.1080/07421222.2001.11045662

[4] Ahmed, E.R., Islam, M.A., Alabdullah, T.T.Y & bin Amran, A. (2018). Proposed the pricing model as an alternative Islamic benchmark.

Benchmarking: An International Journal, 25(8): 2892-2912.

[5] Huber C, Scheytt T (2013) The dispositive of risk management: Reconstructing risk management after the financial crisis. Management Accounting Research 24(2): 88-99

[6] Coskun Y (2012) Financial failures and risk management. Sermaye Piyasası Dergisi, 10(2): 100-109.

[7] Merton, R.C. (1995). A Functional Perspective of Financial Intermediation, Financial Management Journal, 24 (2): 23-41.

[8] Kripa, D., Ajasllari, D., (2016). Factors Affecting the Profitability of Insurance Companies in Albania. European Journal of Multidisciplinary Studies, 1 (1): 352-360.

[9] KPMG (2002), Study into the methodologies to assess the overall financial position of an insurance undertaking from the perspective of prudential supervision.

[10] Tandelilin, E., Kaaro, H., and Mahadwartha, P.A. (2007). Corporate governance, risk management and bank performance: Does type of ownership matter. EADN Individual Research Grant Project, 34: 115-118.

[11] Almasarweh, M., Al-Rawashdeh, O., Wadi, S., Alnawaiseh, M. and Al-Rawashdeh, F. (2022). Risk Management and Financial Performance of Insurance Companies in Jordan. Social space journal.eu, 22(1): 112-142

[12] Boadi, E.K., Antwi, S., & Lartey, V.C. (2013). Determinants of Profitability of Insurance Firms in Ghana. International Journal of Business and Social Research (IJBSR), 3 (3): 43-50.

[13] Alomari, M. and Azzam, I. (2017). Effect of the Micro and Macro Factors on the Performance of the Listed Jordanian Insurance Companies. International Journal of Business and Social Science, 8(2): 66-73.

[14] Almajali, A., Alamro, S., & Al-soub, Y. (2012). Factors Affecting the Financial Performance of Jordanian Insurance Companies Listed at Amman Stock Exchange. Journal of Management Research, 4(2): 266-289.

[15] Baxter, R., Bedard, J. C., Hoitash, R., & Yezegel, A. (2013). Enterprise risk management program quality: Determinants, value relevance, and the financial crisis. Contemporary Accounting Research, 30(4): 1264-1295.

[16] Acharyya, M., & Mutenga, S. 2013. The benefits of implementing enterprise risk management: evidence from the non-life insurance industry. Enterprise Risk Management 6(1): 22-24.

[17] Lin, H. J. & Wen, M.M. 2008. Effects of integrated risk management on mean and variance of cost efficiency of property/liability insurance industry. Project Paper, Society of Actuaries.

[18] Sundus K. Al-Yatamai, Musaed S. Al Ali, Khuloud M. Al Awadhi, Nour M. Al Shamali (2020). The Effects of Credit Risk, Operational Risk and Liquidity Risk on The Financial Performance of Insurance Companies Listed at Kuwait Stock Exchange. European Journal of Economic and Financial Research, 3(6): 1-8

[19] Pagano, M.S. (2001). How theories of financial intermediation and corporate risk management influence bank risk- taking behavior, Financial Markets, Institutions and Instruments, 10 (5), 277-323.

[20] Soliman, M. (2017). Virtual Reality and the Islamic Water System in Cairo: Challenges and Methods. ArchNet-IJAR: International Journal of Architectural Research, 11(3): 78-93. https://doi.org/10.1016/S0883-9026(98)00003-2

[21] Yusop, Z., Radam, A., Ismail, N. 2011. Risk management efficiency of conventional life insurers and Takaful operators. Insurance Markets and Companies: Analyses and Actuarial Computations 2: 58-68

[22] Saunders, A. & Cornett, M.M. (2008). Financial Institutions Management: A Risk Management Approach, McGraw-Hill, Irwin.

[23] Hair et al. (1998). Multivariate Data Analysis with Readings. Englewood Cliffs, NJ: Prentice-Hall.

[24] Stulz, R.M. (1996). Rethinking Risk Management. Journal of Applied Corporate Finance, 9 (3), 8- 24.

[25] Khan, T. I., Jam, F. A.., Anwar, F., Sheikh, R. A., & Kaur, S. (2012). Neuroticism and job outcomes: Mediating effects of perceived organizational politics. *African Journal of Business Management*, *6*(7), 2508-2515.

[26] Jam, F. A., Rauf, A. S., Husnain, I., Bilal, H. Z., Yasir, A., & Mashood, M. (2014). Identify factors affecting the management of political behavior among bank staff. *African Journal of Business Management*, *5*(23), 9896-9904.

[27] Jam, F. A., Singh, S. K. G., Ng, B., & Aziz, N. (2018). The interactive effect of uncertainty avoidance cultural values and leadership styles on open service innovation: A look at malaysian healthcare sector. *International Journal of Business and Administrative Studies*, *4*(5), 208-223.

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