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The impact of financial solvency and corporate risk management on achieving financial stability: An applied study in the Iraqi insurance market

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Abstract

General Background: Financial stability is crucial for insurance companies to meet obligations and sustain operations. **Specific Background:** Insurance companies face various risks, making enterpriseriskmanagement and solvencyimportant factors in maintaining stability. **Knowledge Gap:** Limited evidence exists on the relative contribution of solvency and enterprise risk management to the financial stability of Iraqi insurance companies. **Aims:** This study examined the roles of solvency and enterprise risk management in the financial stability of two Iraqi insurance companies using the Autoregressive Distributed Lag (ARDL) model. **Results:** The findings revealed that solvency had no significant effect on financial stability in either the short run or the long run. In contrast, enterprise risk management, represented by the retention ratio, showed a significant positive contribution to long-term financial stability. The error correction term confirmed a stable long-run relationship among the variables. **Novelty:** The study provides evidence from the Iraqi insurance sector by jointly analyzing solvency and enterprise risk management within a dynamic framework. **Implications:** The results suggest that financial stability relies more on effective risk management than on capital adequacy alone, emphasizing the importance of sound risk governance in insurance companies.

Keywords: Enterprise Risk Management, Financial Stability, Insurance Companies, Solvency, ARDL Model

Key Findings Highlights
Risk retention practices were associated with stronger long-term organizational sustainability.
Capital adequacy alone was insufficient to explain variations in stability indicators.
Equilibrium adjustment mechanisms confirmed persistent relationships among the examined variables.

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Introduction:

The insurance sector represents one of the main components of the modern financial structure, as it plays an important role in pooling savings, distributing risks, and enhancing the ability of economic units to cope with unexpected losses. This makes it a significant component for financial stability at both the firm level and the industry level. In this regard, solvency has proven to be a critical measure of an insurance company's capacity to fulfill its contractual obligations and withstand disruptions, whereas enterprise risk management has turned out to be a necessary approach for identifying, measuring, monitoring, and managing risks in a holistic manner, thereby contributing to minimizing defaults, enhancing efficiency, and financial viability (Al-Harbi, 2022, p. 101).Anton, 2020, p. 281).This research theme is especially pertinent to insurance firms since their core business revolves around the assumption of future risks against payment of premium today. This implies that the optimal balancing of capital and underwriting, reinsurance, and retention strategies is essential for achieving financial stability. Recent literature has confirmed that companies that adopt effective enterprise risk management are better able to improve the quality of their financial and operational decisions and enhance their resilience to fluctuations and crises, which ultimately translates into higher levels of financial stability (Abdullah, 2021, p. 55).Malik et al., 2020, p. 100178). Furthermore, policyholders, investors, and regulatory authorities' trust in the company's capacity to continue functioning is fundamentally determined by solvency, which is not only a regulatory indication. A company's capacity to absorb unforeseen losses and its resilience to changes in the outcomes of insurance activities both improve with a larger equity to total asset ratio. On the other hand, a decrease in financial stability, a higher chance of default, or lower profitability might result from insufficient solvency or inadequate risk management, as supported by a number of Arab and international studies that examined the connection between risk, solvency, and financial stability in insurance firms and financial institutions (Al-Otaibi, 2020, p. 77).Nguyen and Vo (2020), page 360 . According to this viewpoint, researching the effects of enterprise risk management and financial solvency on attaining financial stability in the Iraqi insurance market is especially crucial, given an operating environment marked by varying degrees of uncertainty and market and regulatory difficulties that call for a deeper comprehension of the elements influencing financial stability at the company level. By using real data taken from the two insurance firms' most recent annual financial reports, this study seeks to close a gap in applied research that integrates these factors within the Iraqi environment.

1-1 Research problem:

The research problem stems from the fact that insurance companies operating in the Iraqi market face challenges in maintaining adequate levels of solvency, while simultaneously needing to manage their enterprise risks effectively to ensure business continuity and financial stability. The impact of these factors on financial stability in the context of listed and unlisted insurance businesses in Iraq has not received much attention, despite their importance for the study's objectives. As a result, the main question that best captures the research challenge is:

What impact do enterprise risk management and financial solvency have on the two Iraqi insurance firms' capacity to achieve financial stability between 2018 and 2025? Two sub-questions arise from this question:

1-How does the level of financial solvency of an enterprise, which is based on the ratio of equity to total assets, affect financial stability?

2-How does the level of risk management of a company, which is based on the retention ratio, affect financial stability?

2-1 Importance of the research:

Relevance of this research is based on several theoretical and practical issues. Theoretically, the research adds value to Arabic literature in the field of insurance by providing an analysis of the interaction between the mentioned factors from the perspective of their impact on the overall state of financial stability in one applied study. In addition, the research provides a quantitative basis for testing one of the topics that has been gaining relevance in modern financial theory in the context of economic reforms. Practically, the results of this study may be helpful to management of both insurers and risk managers. They can also assist regulatory and supervisory bodies in understanding the factors influencing the stability of these companies, thus supporting the development of more effective supervisory policies. Furthermore, the research gains significance from its focus on the Iraqi market, which still requires further specialized applied studies in the field of insurance and financial stability..

3-1 Research Objectives:

1- Assessing how business risk management and solvency affect two Iraqi insurance firms' potential to achieve financial stability between 2018 and 2025.
2- It aims to analyze the level of financial solvency in the research sample through the ratio of equity to total assets.
3- The level of corporate risk management is measured through the retention ratio, as an indicator that reflects the company’s policy in managing underwriting and reinsurance risks.
4- Measuring financial stability using an indexZ-ScoreAnd a statement of the extent to which it is affected by changes in both financial solvency and corporate risk management.
5- The research aims to provide practical indicators that can help the management of insurance companies and regulatory bodies in supporting financial stability in the Iraqi market..

5-1 Research hypotheses:

The following primary hypothesis forms the basis of the investigation:

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Enterprise risk management and solvency have no statistically significant impact on the two Iraqi insurance firms' capacity to achieve financial stability between 2018 and 2025.

It gives rise to the next two sub-hypotheses:

The two Iraqi insurance firms' capacity to achieve financial stability is not statistically significantly impacted by solvency, as determined by the ratio of equity to total assets. Enterprise risk management, as determined by the retention ratio, has no statistically significant impact on the two Iraqi insurance firms' capacity to achieve financial stability.

2. Previous literature:

Studies carried out in Arab countries indicate that there has been an upsurge in research on the connection between risk management and financial stability in financial institutions and insurance businesses. The research by Abdullah highlighted that enterprise risk management is an important tool that enhances financial performance and improves organizational resilience to changes in market conditions, where applying explicit corporate risk management techniques leads to improved efficiency in making financial decisions (Abdullah, 2021, p. 55). Likewise, in a study conducted by Al-Harbi, financial solvency was found to be directly related to the capacity of an insurance company to sustain its financial stability and fulfill its commitments, and a strong capital position assists in maintaining financial stability and lowering the probability of defaulting (Al-Harbi, 2022, p. 101). In like manner, Al-Otaibi's study has confirmed that risk management plays an essential role in ensuring financial stability within financial institutions, as it reduces the impact of shocks and improves the institution's ability to operate effectively, especially during volatile times (Al-Otaibi, 2020, p. 77). Likewise, Al-Zahrani's study revealed the existence of a link between risk and solvency within insurance firms, where poor risk management could negatively affect organizational resilience even when the capital levels are satisfactory. This highlights the importance of considering solvency and risk management together within a single analytical framework (Al-Zahrani, 2023, p. 33). Additionally, Boukhari's research found that maintaining suitable levels of capitalization and risk control promotes financial sustainability and that the effectiveness of risk management and the type of financial policies implemented within the organization have an impact on the financial stability of insurance companies (Bukhari, 2024, p. 45The degree to which enterprise risk management (ERM) is applied has an impact on the financial solvency of EU-listed insurance companies, and companies that are better organized in this area are better able to maintain sound financial positions in the face of market changes, according to a study published in foreign literature by Nguyen and Vo (Nguyen & Vo, 2020, p. 360) . Anton's study showed that ERM is no longer a partial or isolated function, but rather an integrated system that supports the strength and financial stability of the organization and helps management balance return and risk within a long-term strategic perspective (Anton, 2020, p. 281). According to a study,Malik et al. stated that having an efficient corporate risk management system consisting of committees and controls helps enhance decision quality, performance, and stability of businesses. It refers to the insurance industry, where the importance of consistent risk assessment and management is paramount (Malik et al., 2020, pp. 100-178). According to Otero González et al., corporate risk management influences both risk management and performance; firms that apply this strategy on a more advanced level are more resistant to changes and better capable of maintaining stable performance (Otero González et al., 2020, p. 111). Furthermore, Hartono discovered that the performance of insurance businesses is significantly impacted by the interaction between risk management and corporate governance; effective internal risk management enhances company performance by increasing stability (Hartono, 2024, p. 1). In addition, the study revealed that according to Mosa, the enterprise risk management process in insurance companies is highly connected with the financial sustainability process. Insurance firms that establish well-defined risk measurement and control procedures are likely to thrive and grow within the increasingly dynamic and competitive business environment (Mosa, 2025, p. 1). Moreover, international regulatory reports have indicated that incorporating risk management into the company's internal control process and its financial plan plays an essential role as a fundamental cornerstone for guaranteeing financial stability in insurance companies amid the ever-growing complexities in risks in the industry (IAIS, 2024, p. 1). A literature review analysis indicates a common agreement between the two variables and the significance of their importance regarding their roles in enhancing financial stability. However, previous studies have mostly focused on examining the correlation of both concepts in relation to their impact on financial stability in foreign settings or other financial environments. In order to close this information gap, the present study examines how enterprise risk management and solvency affect the financial stability of Iraqi insurance businesses from 2018 to 2025.

3. Research methodology:

The research adopted a descriptive-analytical approach to present the concepts related to financial solvency, enterprise risk management, and financial stability, and to clarify the nature of the theoretical relationship between them. Using yearly data from a sample of two Iraqi insurance firms between 2018 and 2025, it also used an applied econometric technique to examine the influence of independent factors on the dependent variable. Secondary data was extracted from the annual financial reports, closing statements, and supplementary notes of the two companies under study. On the standard side, panel data combining temporal and cross-sectional dimensions was employed, allowing for the analysis of variable behavior over time and between the two companies. The indicators adopted in the research variables table were also used: solvency was measured by the equity-to-total-assets ratio, enterprise risk management by the retention ratio, and financial stability by an index.Z-ScoreThis design allows for testing the direct impact of independent variables on financial stability and drawing practical, interpretable conclusions.

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4. Research population and sample:

The study population will include two insurance companies active in the Iraqi market, for which annual financial data are obtainable. The study sample was chosen purposefully according to the criterion of availability and continuity in publishing the data, and it includesTwo companies, which are: the National Insurance Company and the Iraqi General Insurance Company. These two insurance companies form a good sample for the study since they constitute one of the significant components of the Iraqi insurance market, and they publish their annual financial statements regularly, thus making the calculation of the study indicators possible within the period 2018-2025.

5. Search variables:

Table (1): Definition of study variables, methods of measuring them, data sources, and their coding, with the identification of the sample of the two Iraqi insurance companies.

Data source	Definition / Method of Calculation	the name	The symbol	Item type
Annual financial" statements of the two "companies	It represents the company's ability to" meet its obligations and cope with potential losses"	Financial solvency	X1	independent variable
Statement of Financial" Position / Balance "Sheet	"Equity ÷ Total Assets"	Equity to" Total Assets Ratio"	ETA	Measurement indicatorX1
Annual financial statements and supplementary notes	The company's efficiency in managing and distributing underwriting risks between retention and reinsurance is reflected.	Enterprise Risk Management	X2	independent variable
List of insurance activity or explanations regarding premiums and reinsurance	Net written premiums" ÷ Gross written "premiums	Retention" rate"	RET	Measurement indicatorX2
It is calculated based on profitability and solvency data over several years.	This reflects the company's ability to remain financially viable with a low probability of default.	Financial stability	Y	dependent variable
ROA is calculated as net profit ÷ total assets, and σROA as the standard deviation of ROA during the study period.	Z = (ROA + ETA) ÷ σROA	Financial Stability Index	Z-Score	Measurement indicatorY
Published annual reports and disclosures by the Iraqi Securities Commission	An Iraqi insurance company listed within the insurance sector	National Insurance Company	NAHF	Study Company
Official annual reports published on the company's website / Ministry of Finance	An Iraqi government-owned insurance company not listed on the Iraq Stock Exchange. This research symbol can be used for study purposes.	Iraqi General Insurance Company	GIIC	Study Company
Annual reports for each company for each fiscal year	2018–2025	Study duration	T	time period

"Source: Prepared by the researcher based on the information provided by the two companies. The population of this research includes the two insurance companies in the Iraqi market where the financial information is available and can be analyzed throughout the research period. The two companies were chosen purposefully based on the availability and consistency of information provided by the companies, which includeThe National Insurance Company and the Iraqi General Insurance Company. The two companies are appropriate to use in this research since they constitute an essential segment of the Iraqi insurance market, where their annual reports provide the basis for calculating the indicators in this research period of 2018-2025".

6. Theoretical and conceptual framework:

The theoretical background for the link between solvency, enterprise risk management, and financial stability is an area of study that has attracted more attention in financial and banking literature. This is because financial stability does not only depend on profitability but also the stability of the financial situation and an institution's capacity to withstand shocks and manage risks well. For this reason, solvency may be defined as the capacity

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of the institution to be able to meet both the short-term and long-term liabilities as a result of the existence of an adequate capital base which is required to conduct its activities successfully and reduce the probability of being insolvent. On the contrary, enterprise risk management is an integral approach to the identification, measurement, monitoring, and reaction to risks in a way consistent with the goals of the institution and sustainability. There is evidence in the literature that high solvency levels increase the capacity of financial and insurance institutions to withstand any sudden losses. In addition to that, the proper use of enterprise risk management enhances the quality of decision-making process and reduces the volatility of returns. In some other studies, it was also revealed that the relation between these two is not merely one of correlation and description, but rather an influencing one. Weakness in capitalization and ineffective risk management can lead to accumulated weakness despite the fact that the indicators of the company might seem fine in the immediate period, and capital adequacy and the policies of risk management can help in building up resilience in institutions as well as preventing any financial instability that might occur. (Al-Otaibi, 2020, p. 77), (Nguyen & Vo, 2020, p. 360).

Risk management and solvency are considered complementary aspects in modern financial and banking literature. Organizations that use holistic approaches towards risk management and have enough capital can better cope with economic, regulatory and market changes. It has been found out that the effects of effective risk management extend far beyond mere losses in profits. Effective risk management leads to optimal resource allocation, curbing of risk appetites and financial sustainability. These factors will inevitably affect financial stability indicators directly or indirectly. (Malik et al., 2020, pp. 100-178), (Otero González et al., 2020, p. 111). In addition, recent studies have found that banks and insurance firms with more advanced risk management systems are less exposed to instability and better equipped to deliver consistent performance, particularly when paired with good solvency to help them cope with unforeseen risks (Hartono, 2024, p. 1), (Mosa, 2025, p. 1). Hence, almost all banking and insurance researches acknowledge that solvency is the foundation of stability, whereas enterprise risk management is the administration process that converts such foundation into real sustainability, decreasing financial vulnerabilities. This makes the investigation of such an impact necessary in the current two Iraqi insurance firms in relation to the wider financial framework (Bukhari, 2024, p. 45), (IAIS, 2024, p. 1).

7. Analytical and practical framework:

Table (2): Descriptive statistics of the study variables in the two Iraqi insurance" "companies during the period 2018–2025

	Z_SCORE	ETA	RET
"Mean"	23.83751	0.327656	0.832215
"Median"	21.68566	0.334387	0.844958
"Maximum"	39.55735	0.402422	0.880905
Minimum	11.14682	0.248247	0.771838
Std. Dev.	9.204801	0.039180	0.034145
Skewness	0.393525	-0.459178	-0.412468
Kurtosis	1.883277	3.092637	1.858422
Jarque-Bera	1.244346	0.567973	1.322480
Probability	0.536777	0.752777	0.516211
Observations	16	16	16

Source: Prepared by the researcher using the programEViews13"

The descriptive statistics table shows that the average financial stability was 23.8This level indicates that the two Iraqi insurance companies in the sample enjoyed an acceptable degree of financial soundness during the study period, with a clear difference between the two companies.NAnd the years, as the values ranged between a minimum of 11.15 and a maximum of395, while the standard deviation reached9.2This reflects a real difference in the two companies' ability to absorb shocks and withstand financial fluctuations. The average solvency ratio was 0.3.2That is, property rights represented, on average, about 32% of total assets, a ratio that reflects a reasonable capital base in the insurance business, with relatively limited variance compared to financial stability, where the standard deviation was 0.03Only, and the values ranged between 0.2 and 0.4. In respect of enterprise risk management, represented by the retention ratio, the mean value was 0.83, which implies that the two firms retained about83%of their written premiums, implying that there is an operational inclination towards taking most of the risks in-house and not fully shifting them to reinsurance, while the minimum value is 0.77. The maximum value is 0.88. In terms of statistical distribution shape, skewness, kurtosis, and Jarky-Pera tests indicate that the data approximate a normal distribution".

Figure (1): Trends of study variables over the study period

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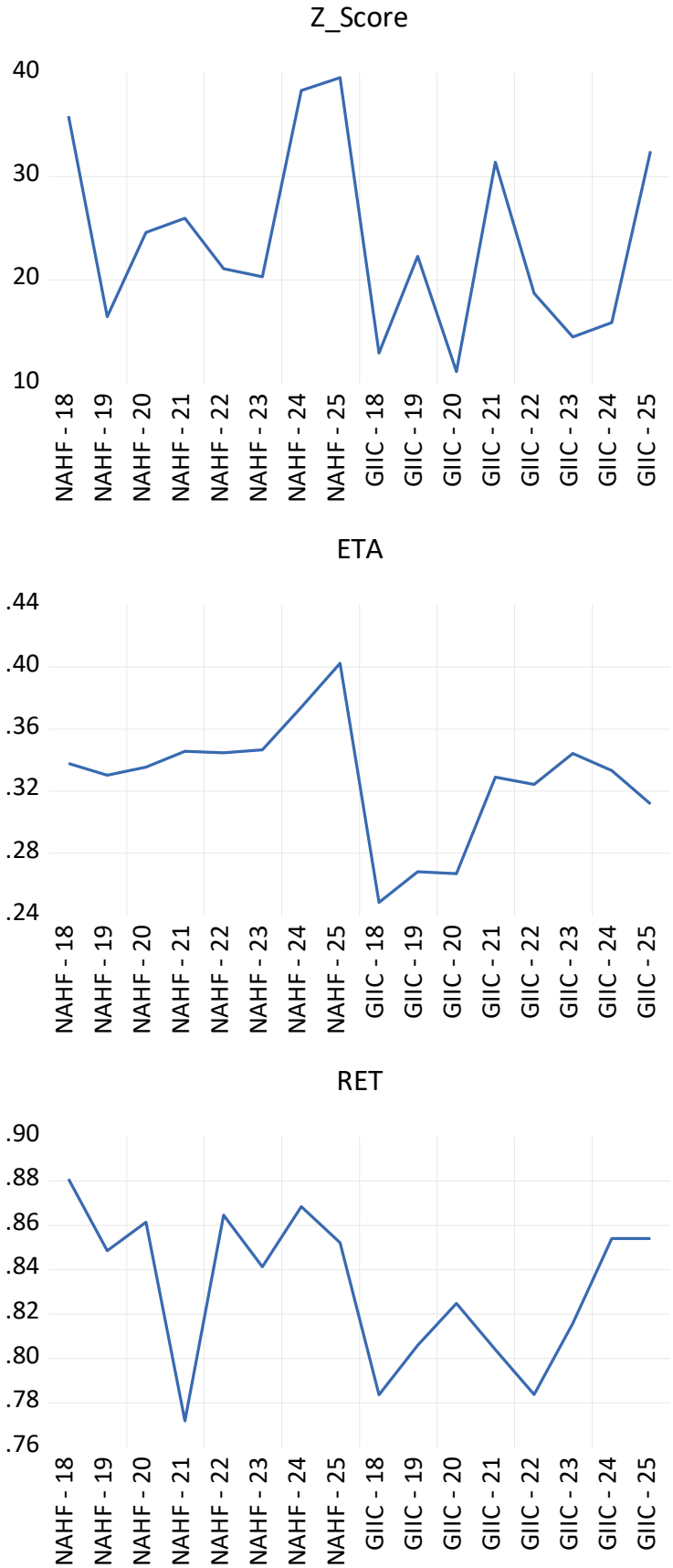

Source: Prepared by the researcher using the programEViews13

Looking at the chart of evolution of variables in study we can see that financial stability, solvency, and enterprise risk management were not always the same but have changed during all time. It is consistent with the specifics of the insurance industry, which is regulated by underwriting/reinsurance policies, capital structure, and profitability. In the case of solvency, its fluctuations were quite moderate and showed that there were companies which were able to maintain relatively steady capitalization, and there were others which had temporary decrease in their

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capitalization level. The variable which is changing most frequently and has maximum volatility is financial stability. In regard to its volatility we can say that there is nothing strange about it since financial stability is affected by profitability, equity ratio and return on assets. Enterprise risk management has less volatility compared to financial stability and is not constant – it means that risk retention policy varies among companies according to their insurance portfolio and use of reinsurance. Considering the banking and insurance sectors, we can make assumption that one of the reasons why these two companies differ in terms of financial stability lies in their policies concerning capitals and operations.

Table (3): Results of cross-sectional dependency tests for study variables

"Cross-Section Dependence Test"			
"Series: Z_SCORE"			
"Null hypothesis: No cross-section dependence (correlation)"			
"Sample: 2018-2025"			
Periods included: 8			
Cross-sections included: 2			
Total panel observations: 16			
Note: non-zero cross-section means detected in data			
"Cross-section means were removed during computation of correlations"			
Test	Statistic	Df	Prob.
"Breusch-Pagan LM"	7.14020	1	0.6667
"Cross-Section Dependence Test"			
"Series: ETA"			
"Null hypothesis: No cross-section dependence (correlation)"			
"Sample: 2018-2025"			
"Periods included: 8"			
"Cross-sections included: 2"			
"Total panel observations: 16"			
"Note: non-zero cross-section means detected in data"			
"Cross-section means were removed during computation of correlations"			
Test	Statistic	Df	Prob.
Breusch-Pagan LM	0.405092	1	0.4100
"Cross-Section Dependence Test"			
"Series: RET"			
"Null hypothesis: No cross-section dependence (correlation)"			
"Sample: 2018-2025"			
"Periods included: 8"			
"Cross-sections included: 2"			
"Total panel observations: 16"			
"Note: non-zero cross-section means detected in data"			
"Cross-section means were removed during computation of correlations"			
Test	Statistic	Df	Prob.
"Breusch-Pagan LM"	0.22974	1	0.1932

"Source: Prepared by the researcher using the programEViews13"

Based on the outcome of the cross-sectional dependency test, there is an absence of any cross-sectional correlation among the units that make up the research sample across all variables. The implication from this is that the performance of the individual insurance companies was more dependent on their own attributes and policies. The probability value of the Brioche-Pagan solvency test was 0.66And for enterprise risk management 0.19, and for financial stability 0.4All of these values are above the significance level of 0.05, thus supporting the null hypothesis of no cross-sectional correlation. Analytically, this finding is highly significant in financial and insurance studies, as it indicates that the differences between the two Iraqi insurance companies during the study period are not due to a single shock affecting them all with the same intensity, but rather to variations in

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capital structure, retention policies, and financial management efficiency within each company. This supports the soundness of transitioning to single-root tests and subsequent standard modeling within the panel data framework without concern about excessive bias resulting from high cross-sectional correlation between the two companies.N.

Table (4Results of stability tests (unit root) for the study variables

"Null Hypothesis: Unit root (individual unit root process)"		
"Series: Z_SCORE"		
"Sample: 2018-2025"		
"Exogenous variables: Individual effects"		
"Automatic selection of maximum lags"		
"Automatic lag length selection based on SIC: 0 to 1"		
"Total number of observations:14"		
"Cross-sections included:2"		
Method	Statistic	Prob.**
"ADF - Fisher Chi-square"	170095	0.2124
"ADF - Choi Z-stat"	-1.31839	0.1150
"Null Hypothesis: Unit root (individual unit root process)"		
Series: D(Z_SCORE)		
Sample: 2018-2025		
Exogenous variables: None		
Automatic selection of maximum lags		
Automatic lag length selection based on SIC: 0 to 1		
"Total number of observations:12"		
"Cross-sections included:2"		
Method	Statistic	Prob.**
ADF - Fisher Chi-square	43.8397	0.0000
ADF - Choi Z-stat	-4.76116	0.0000
"Null Hypothesis: Unit root (individual unit root process)"		
"Series: ETA"		
"Sample: 2018-2025"		
"Exogenous variables: Individual effects, individual linear trends"		
"Automatic selection of maximum lags"		
"Automatic lag length selection based on SIC: 0"		
"Total (balanced) observations:13"		
"Cross-sections included:2"		
Method	Statistic	Prob.**
"ADF - Fisher Chi-square"	11.0343	0.3549
"ADF - Choi Z-stat"	0.14675	0.5583
"Null Hypothesis: Unit root (individual unit root process)"		
"Series: D(ETA)"		
Sample: 2018-2025		
Exogenous variables: None		
"Automatic selection of maximum lags"		
"Automatic lag length selection based on SIC: 0 to 1"		
"Total number of observations: 13"		
"Cross-sections included: 2"		
Method	Statistic	Prob.**
"ADF - Fisher Chi-square"	28.6320	0.0014
"ADF - Choi Z-stat"	-3.21517	0.0007

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"Null Hypothesis: Unit root (individual unit root process)"		
"Series: RET"		
Sample: 2018-2025		
"Exogenous variables: Individual effects"		
"Automatic selection of maximum lags"		
Automatic lag length selection based on SIC: 0 to 1		
Total number of observations: 12		
Cross-sections included: 2		
Method	Statistic	Prob.**
ADF - Fisher Chi-square	26.1842	0.0035
ADF - Choi Z-stat	-2.90602	0.0018

Source: Prepared by the researcher using the programEViews13

The unit root tests show that the stationarity properties differ among the study variables, justifying the selection of the distributed lag autoregressive model as a suitable framework for estimation. Financial stability was found to be unstable at the level according to Fisher's test, with a probability value of 0.09, which is higher than 0.05. However, it became stationary after the first difference was taken, with the probability value dropping to 0.00, indicating first-order integration. Similarly, solvency was unstable at the level, with a probability value of 0.35 in Fisher's test and 0.56 in Choi's test, but it became stationary after the first difference, with probability values of 0.00 and 0.00 respectively, also indicating first-order integration. Enterprise risk management, on the other hand, appeared stationary at the level directly, with a probability value of 0.00 in both Fisher's and Choi's tests, meaning it is zero-order integration. From an economic and financial perspective, this pattern reflects the fact that solvency and financial stability are influenced by temporal and structural accumulations in performance and capitalization, while enterprise risk management, measured by the retention ratio, appears more stable because it is often linked to relatively more consistent operating policies within the insurance companies. Furthermore, the presence of combined zero-order and first-order variables reinforces the suitability of this model.ARDL, because it allows for the estimation of long-term and short-term relationships without requiring all variables to be of the same degree of integration.

Table (5) Outcomes of the model's estimateTo evaluate how enterprise risk management and financial solvency affect the two Iraqi insurance firms' capacity to achieve financial stability

Dependent Variable: D(Z_SCORE)				
Method: ARDL				
Date: 04/04/26 Time: 21:18				
Sample: 2019-2025				
Included observations: 14				
Maximum dependent lags: 1 (Automatic selection)				
Model selection method: Akaike info criterion (AIC)				
Dynamic regressors (1 lag, automatic): ETA RET				
Fixed regressors:				
Number of models evaluated: 1				
Selected Model: ARDL(1, 1, 1)				
Note: final equation sample is larger than selection sample				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
	Long Run Equation			
ETA	-6.730701	18.67875	-0.360340	0.7279
RET	27.19754	7.353250	3.698711	0.0061
	Short Run Equation			
COINTEQ01	-1.426903	0.476024	-2.997543	0.0171
D(ETA)	302.5926	337.3912	0.896860	0.3960
D(RET)	-141.8898	142.6809	-0.994456	0.3491
Root MSE	2.312038	Mean dependent var		1.658491
SD dependent var	11.87118	SE of regression		3.269715
Akaike info criterion	4.185003	Sum squared resid		85.52828
Schwarz criterion	4.571297	Log likelihood		-25.48002
Hannan-Quinn criter.	4.204784			

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Source: Prepared by the researcher using the programEViews13

The results of the distributed gap autoregression model show that the impact of solvency and corporate risk management on financial stability differs significantly between the long and short term. In the long term, the solvency ratio was -6.731 with a standard deviation of 18.679.The t-value was -0.360 at a significance level of 0.7279, a high probability value exceeding 0.05. This indicates that the effect of solvency on financial stability was negative in sign but not statistically significant. This means that increasing the equity-to-total-assets ratio in the two Iraqi insurance companies during the study period did not lead to a clear and definitive improvement in financial stability, and that changes in the capital base alone were not a decisive factor in explaining the behavior of the financial stability index. This may be due to the fact that financial soundness in insurance firms does not depend solely on the adequacy of capitalization, but also on efficient underwriting, asset investment performance, reinsurance practices, and managerial skills for capital allocation to cover real risks. However, with a coefficient of 27.198 and a standard deviation of 7.353, the empirical results showed that enterprise risk management had a statistically significant positive long-term effect. With a p-value of 0.0061, which is less than 0.01, the computed t-statistic was 3.699. This finding suggests that a one-unit improvement in the retention ratio might hypothetically result in a long-term gain in financial stability of around 27.198 units, which is a significant impact from an economic standpoint. This result also reflects that companies with more efficient risk management policies and a better retention of a proportional share of written premiums are better positioned to enhance financial stability, because prudent retention not only reflects a willingness to take risks but also a company's confidence in its technical and financial capacity to manage those risks without compromising its financial soundness. In the short term, the error correction factor, represented by the limit, showedThe coefficient COINTEQ01 has a negative value of -1.427, a standard deviation of 0.476, a t-value of -2.998, and a p-value of 0.0171, which is less than 0.05. This indicates that the coefficient is negative and statistically significant. This is one of the model's most significant findings as it demonstrates that the variables have a long-term equilibrium connection. Additionally, it shows that any brief departure from the equilibrium path of financial stability is quickly repaired in the next era. The value of -1.427 indicates that approximately 142.7% of the imbalance is corrected within a single period. This high correction rate means that the system not only returns to equilibrium but may even surpass it and then regain stability. In terms of the short-term impacts of the independent variables, the value of the change in solvency was determined to be 302.593 with a standard deviation of 337.391.This impact is not statistically significant, as shown by the t-value of 0.897 and p-value of 0.3960, both of which are bigger than 0.05. Although the signal is positive in the short term, the low statistical significance indicates that rapid annual changes in the equity-to-total-assets ratio do not directly impact financial stability. The same applies to the change in corporate risk management, whose coefficient was -141.890 with a standard deviation of 142.681, a t-value of -0.994, and a p-value of 0.3491, also greater than 0.05, indicating that its short-term effect is formally negative but not statistically significant. It shows that the year-to-year fluctuation in the retention ratio does not have a direct and precise influence on financial stability. It also highlights that risk management is a critical aspect for any corporation that needs to be done consistently and persistently to show results. The indicators of estimation quality provide evidence about the normative adequacy of the model. The mean of the dependent variable, change in financial stability, was 1.658, and its standard deviation was 11.871, implying the volatile nature of year-to-year changes in financial stability. The standard error of regression was equal to 3.270, which was much smaller compared to the standard deviation of the dependent variable and meant that the model explained a considerable share of fluctuations in the state of financial stability. The root mean square error was 2.312 and, taking into account the nature of the estimated indicators, meant that the remaining estimation errors were rather small. The sum of squared residuals was 85.528 and, considering that this figure does not indicate excessive deviations, it can be concluded that the selected model was good in terms of goodness of fit. With regard to the comparison criteria, Akaeq criterion was 4.185, Schwartz criterion was 4.571, while Hannan-Cowen criterion was 4.205. Based on the aforementioned values, the model chosen for the study was ARDL(1,1,1), which means that the numerical results obtained during analysis led to the following conclusion:solvency did not have any significant influence on financial stability. The associated probability value was 0.7279 in the long term and 0.3960 in the short term, both exceeding the established significance levels. In contrast, corporate risk management was the most influential factor in supporting long-term financial stability, as evidenced by its coefficient of 27.198, which was significant at the 1% level with a probability value of 0.0061. However, in the short term, it did not show a direct, significant impact, with a probability value of 0.3491. The significance of the error correction coefficient of 0.0171 confirms that the relationship between the variables is not spurious but rather based on a genuine long-term equilibrium, and that the financial stability of the two Iraqi insurance companies quickly returns to its equilibrium after any disruption. Therefore, the most important practical implication of these results is that achieving financial stability does not depend solely on the availability of capital, but depends to a greater extent on the efficiency of corporate risk management and the company’s ability to manage its risk retention policy in a balanced and disciplined manner.

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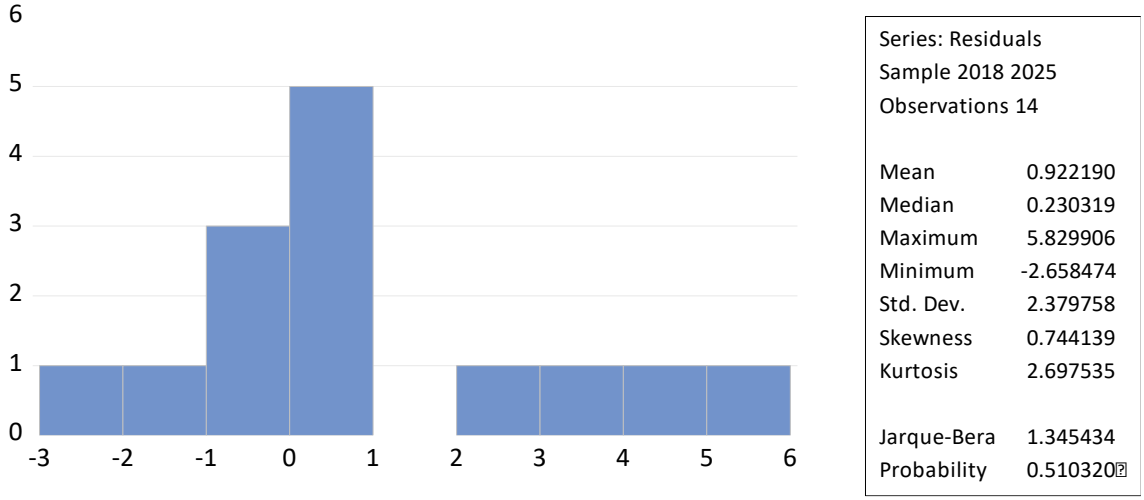
Figure (2): Distribution of the typical residues



Source: Prepared by the researcher using the programEViews13

The distribution of residuals shows that the model errors are distributed around the mean in an acceptable manner, without a sharp deviation that would invalidate the estimated model. The residuals' average was 0.92, the mediator was 0.23, the standard deviation was 5.8, and most significantly, the Jarky-Bera test was 1.3. Since the probability value of 0.5 is higher than 0.05, the residuals' normal distribution hypothesis is not rejected. From a standard perspective, this result strengthens confidence in the model's properties, as the acceptable distribution of the residuals indicates that the model has been able to explain a significant portion of the changes in financial stability, and that the remaining deviations are not due to obvious structural imbalances or severe mischaracterization.

Table (6): Results of diagnostic tests for the remnants of the model (segmental dependence and stability)

Cross-Section Dependence Test
Series: RESID01
Null hypothesis: No cross-section dependence (correlation)
Sample: 2018-2025
Periods included: 7
Cross-sections included: 2
Total panel observations: 14
Note: non-zero cross-section means detected in data
Cross-section means were removed during computation of correlations

Test	Statistic	Df	Prob.
Breusch-Pagan LM	0.478889	1	0.4889
Pesaran scaled LM	-0.368481		0.7125
Bias-corrected scaled LM	-0.535148		0.5925
Pesaran CD	-0.692018		0.4889

Source: Prepared by the researcher using the programEViews13

The estimated model has a high level of standard validity, according to the findings of the diagnostic tests performed on the model residuals. In terms of cross-sectional dependence, every test revealed no significant cross-sectional correlation between the residuals, and every p-value was higher than 0.05. This indicates that a significant amount of the variations between the cross-sectional units have been explained by the model, since the random errors that remain after estimate do not represent an unexplained shared effect across the two insurance firms. Regarding the stability of the residuals, the unit root tests demonstrated that they are stable at the level, with p-values of 0.00 in both Choi's and Fisher's tests, indicating the existence of cointegration between the variables. From a financial and practical perspective, this result means that solvency and enterprise risk management are indeed linked in a long-term equilibrium relationship with financial stability, and that the estimated relationship is not spurious or temporary, but rather based on a genuine economic correlation that can be reliably used to explain the behavior of the two Iraqi insurance companies during the study period.

Conclusions:

1- The result of the study shows that the solvency level (the equity/assets ratio) did not play a significant role, neither in the short nor the long run, regarding the financial stability of the two insurance companies in Iraq. This can be interpreted in such a way that the capital adequacy level is not enough to ensure financial stability without using the resources efficiently and managing them effectively. Or in other

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words, having more equity is not enough in itself to ensure financial stability. Financial stability comes with being able to absorb the losses and reduce performance instability.

2- The findings indicate that enterprise risk management represented by the retention ratio has the greatest influence among all variables that help achieve financial stability. The significant positive contribution of this variable demonstrates that the ability of an insurance company to manage the risk that it underwrites by itself in a systematic way according to the financial and technical capacity of the company leads to the sustainability of the firm. The reason for that is that the financial stability of the insurance industry cannot be achieved only through the size of available resources; rather, it depends largely on how efficiently such resources can be managed along with their risks.

3- The analysis conducted using the econometric model provided a long-run relationship between the dependent variable and the independent variables. This was evident from the error correction coefficient having a negative value and being statistically significant. This finding proves that changes observed in the level of financial stability in the short run will never be lasting; they will revert to equilibrium in future periods. Therefore, the performance of the two insurance firms of Iraq cannot be viewed as random but rather regulated by an equilibrium-reverting process, which connects financial stability to its basic components, namely capitalization and risk management.

4- The study showed that the financial stability of the two Iraqi insurance companies depends more on cumulative factors than instantaneous factors. The independent variables were not influential in the short run, while the role of enterprise risk management appeared to be important in the long run. Thus, the above result suggests that financial stability cannot be achieved instantly but rather in stages through certain policies. It can also mean that achieving financial stability involves gradual processes, which may depend on the company's internal policies, not just yearly changes in accounting principles. Hence, achieving financial stability in the insurance sector is a long-run process that depends on certain strategies.

Recommendations:

- ✓ The research calls for the need to improve the financial solvency of the two Iraqi insurance firms through support for equity, capital accumulation, and conservative financial policies in light of the risks, ensuring the presence of adequate safety margins to meet their future obligations and unforeseen changes.
- ✓ The research calls for the need for insurance firms to focus on enterprise risk management, especially in relation to retention and reinsurance policy, ensuring the use of technically sound retention levels in line with the company's capital and nature of the risks being covered.
- ✓ The research calls for the development of regular monitoring indicators for regulators and supervisors in the Iraqi market relating financial solvency, financial stability, and risk management, which will allow for early identification of weaknesses in the two firms and direct them to correct imbalances before they escalate.
- ✓ The research calls for further studies to be conducted in the future on a broader scale covering more accounting and insurance indicators, such as technical provisions, compensations, earnings quality, and operational profitability, to gain a deeper insight into the determinants of financial stability within the Iraqi insurance sector.

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