Global Economic Fluctuations and Their Effect on Investment Strategies in the Egyptian Insurance Market

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Global Economic Fluctuations and Their Effect on Investment Strategies in the Egyptian Insurance Market

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Keywords:

Economic Fluctuations, Egyptian insurance market, Inflation rates, Investment strategies.

Abstract

This research examines the impact of global economic fluctuations on the investment performance of Egypt's insurance market between 2014 and 2023. Utilizing data from various investment channels, including real estate, financial securities, loans, and savings accounts, the study integrates macroeconomic indicators such as inflation, exchange rates, and interest rates. Statistical tools like correlation analysis, multiple linear regression, and time series analysis were employed to uncover patterns and relationships. The findings highlight the significant influence of global economic conditions, such as inflation and stock market performance, on investment outcomes. Recommendations for mitigating risks and maximizing returns in a volatile economic environment are provided.

1. Introduction

The insurance market plays an indispensable role in the stability and growth of financial systems worldwide, fulfilling a dual function of risk mitigation and investment. It provides crucial protection against various types of risk, from natural disasters to financial losses, thus ensuring economic resilience and supporting long-term growth. Insurance companies also serve as vital participants in capital markets, channeling premiums into diverse investments that stimulate economic activity. As a result, the market contributes significantly to the development of various industries and overall economic stability. In particular, the insurance industry’s role in fostering economic resilience and facilitating investment is gaining increasing recognition, as it not only ensures financial protection for individuals and businesses but also acts as a key player in the broader financial system (Omari et al., 2023).

In the context of Egypt, the insurance market occupies a central position within the country's financial infrastructure. Over recent years, the market has witnessed substantial growth, driven by a rising public awareness of insurance products and their importance. As more Egyptians seek to protect their assets, health, and businesses, demand for diverse insurance offerings, such as life, health, and property insurance, has surged. This increasing demand has led to the expansion of the insurance market, with companies diversifying their investment portfolios across a variety of asset classes, including real estate, government bonds, equities, and foreign investments. Such diversification allows insurance firms to mitigate risks while aiming to optimize returns.

Despite the growth and increasing importance of the market, insurance companies in Egypt face several challenges, particularly in the face of fluctuating global economic conditions. The broader economic environment, including shifts in inflation rates, exchange rates, and interest rates, has a significant impact on the strategies of insurance companies, particularly concerning their investment portfolios. As with other markets, the performance of insurance companies in Egypt is influenced by global economic fluctuations, which can alter the value of assets and affect the stability of returns. Insurance companies must therefore adapt their investment strategies and risk management practices to navigate these volatile conditions effectively.

The impact of global economic fluctuations on the Egyptian insurance market is multifaceted. The COVID-19 pandemic, which began in 2019, had a profound effect on economies worldwide. Studies have shown that neighboring countries, such as Jordan, experienced a decline in written premiums and a reduction in compensation payments within the insurance market due to the pandemic's economic repercussions (Dahiyat & Owais, 2021)**.** The Egyptian insurance market, too, was not immune to the global pressures triggered by the pandemic and other economic shifts. The market value of insurance companies listed on the Egyptian Stock Exchange has fluctuated significantly, reflecting the broader global economic uncertainties. This volatility has underscored the vulnerability of insurance investments to external economic shocks, which can affect both asset values and the performance of insurance firms (Omari et al., 2023).

The Egyptian insurance market has demonstrated considerable resilience, yet it continues to face significant challenges arising from the global economic environment. These challenges include the ongoing impact of global financial crises, trade disruptions, inflationary pressures, and currency fluctuations. Emerging markets like Egypt are particularly vulnerable to such

economic volatility, as external shocks often have a disproportionate impact on their financial systems. While the market remains robust, it is not immune to the repercussions of global economic shifts, having encountered numerous changes and challenges due to these fluctuations (Razia & Awwad, 2021). This underscores the importance for insurance companies to develop strong risk management frameworks and investment strategies capable of withstanding the complexities of global economic changes. To maintain stability and growth, the market must navigate challenges such as inflation, exchange rate fluctuations, and the effects of global events, such as the COVID-19 pandemic. Adopting flexible and proactive investment strategies is crucial for insurance companies to thrive amidst the uncertainties of the global financial environment. Consequently, the ongoing challenges emphasize the need for continuous adaptation and effective risk management to cope with the evolving economic conditions.

2. Problem Statement

The problem addressed in this study revolves around understanding the impact of global economic fluctuations on investment strategies in Egypt's insurance market. In particular, it focuses on how macroeconomic indicators such as inflation rates, exchange rates, and global financial indices, like the S&P 500 and NASDAQ Composite, influence the performance of insurance companies' investments in Egypt. The study seeks to identify the extent to which these factors affect the total investments and net profits of insurance companies. Given the interconnectedness of global and local markets, fluctuations in key economic variables could significantly alter the financial stability and profitability of the insurance market. Moreover, understanding how these external economic pressures impact local investment decisions and strategies is crucial for improving risk management and ensuring sustainable growth in Egypt's insurance industry.

3. Research Objectives

The main objective of this study is to analyze how global economic fluctuations, including inflation rates, exchange rates, and global financial indices, impact investment strategies of insurance companies in Egypt. Specifically, the research aims to:

- Examine the role of global financial indices in investment of insurance companies in Egypt
- Investigate the influence of inflation and exchange rate fluctuations on investments and profits in Egypt's insurance market.
- Apply econometric models to analyze the relationships between macroeconomic factors and investments in Egypt's insurance market.
- Provide recommendations for insurance companies to optimize their investment

strategies in response to macroeconomic changes.

4. Literature Review

The impact of global economic fluctuations on the insurance market has been extensively studied over the years. Amer (2014) investigated foreign exchange rate exposure among Egyptian insurance companies, emphasizing the challenges posed by international reinsurance operations and the need for insurers to address transaction exposure. Ahmed (2017) analyzed the effects of political regime changes in Egypt between 2011 and 2014 on stock market performance, highlighting the profound influence of political instability on market volatility and investor confidence. Hsieh, Lee, and Yang (2015) explored the relationship between diversification and performance in the insurance industry across 62 countries, showing that globalization and financial reforms significantly enhance insurers' performance, especially in non-high-income countries during financial crises. Gründl and Gal (2017) examined the evolution of long-term investment strategies for insurers, discussing how economic changes shape portfolio management. Long-Run (2020) focused on exchange rate volatility in Nigeria, demonstrating its long-term effects on the insurance market and emphasizing the need for resilience against economic fluctuations. Khan, Zainuddin, and Md-Jadi (2018) reviewed the challenges faced by Pakistan's insurance market during the global financial crisis and local economic instability, illustrating the market's vulnerability. Finally, Ismail et al. (2024) addressed the impact of exchange rate liberalization on Egypt's insurance market, examining its effects on premiums, claims, and investment returns. Collectively, these studies provide valuable insights into the interplay between global economic conditions and investment strategies in the insurance industry.

5. Methodology

5.1. Data Collection

This research relies on data gathered from several key sources to ensure a comprehensive analysis of the relationship between global economic fluctuations and investment strategies in Egypt's insurance market. The data span multiple years, allowing for an in-depth exploration of trends and patterns that may inform investment strategy adjustments within the market.

Investment and Profit Data from Egypt's Insurance Market (2014–2023): Data concerning the performance of Egypt's insurance market, including investment returns, profits, and other key financial indicators, were sourced from the Annual Statistical Book of the Insurance Market published by the Egyptian Financial Regulatory Authority (FRA). The dataset covers the years 2014 to 2023, providing detailed figures on the growth of the market,

underwriting profits, premium income, and overall financial performance.

Macroeconomic Indicators: Inflation Rates, Exchange Rates, and Interest Rates: Macroeconomic data related to inflation rates, exchange rates, and interest rates were primarily sourced from the Central Bank of Egypt (CBE). The CBE's official website and quarterly reports provide comprehensive economic data, including inflation rates, foreign exchange rates, and interest rates that reflect the country's evolving economic conditions. The Central Agency for Public Mobilization and Statistics (CAPMAS) also provides crucial data on Egypt's inflation rates, including consumer price indices (CPI), which are essential for understanding the macroeconomic pressures affecting investment strategies. For international macroeconomic data, particularly exchange rates, the World Bank and International Monetary Fund (IMF) databases were consulted. These organizations offer consistent and reliable data on global inflation trends, exchange rate fluctuations, and interest rate changes that are critical to understanding how global economic conditions influence investment decisions in Egypt's insurance market.

Global Indices: S&P 500 and NASDAQ Composite: To assess the impact of global financial markets on Egypt's insurance market, global indices such as the S&P 500 and NASDAQ Composite were used as indicators of broader market trends. These indices represent a comprehensive snapshot of the performance of major global stocks, particularly those in the U.S. The data for the S&P 500 and NASDAQ Composite were retrieved from Bloomberg and Yahoo Finance, which provide accurate and real-time information on the performance of these indices, including their daily, monthly, and annual changes. Both indices are widely recognized as barometers for global financial market trends, reflecting the health of economies in the U.S. and, by extension, influencing global investor behavior. The fluctuations in these indices can have cascading effects on emerging markets like Egypt, particularly through investor sentiment, capital flows, and the availability of investment opportunities.

5.2. Statistical Models

In order to examine the relationships between global economic fluctuations and the investment strategies of insurance companies in Egypt, this study will utilize several advanced statistical models. These models are specifically designed to analyze time-series data and identify interdependencies, causal relationships, and long-term equilibrium relationships between macroeconomic indicators (such as inflation rates, interest rates, and exchange rates) and investment returns in the insurance market. Below is a detailed explanation of the statistical models that will be employed:

5.2.1. Vector Autoregression (VAR) Model

The Vector Autoregression (VAR) model is a powerful tool used for analyzing multiple time series data to capture the dynamic interrelationships among a set of variables. It is particularly effective when examining the interactions between economic indicators (such as inflation, exchange rates, and interest rates) and investment performance (such as returns on insurance companies' portfolios) (Tetteh-Bator et al., 2018).

The VAR model can be represented as (Tetteh-Bator et al., 2018):

$$=C+\boldsymbol{A_1 Y_{t-1}}+\boldsymbol{A_2 Y_{t-2}}+\cdots+\boldsymbol{A_p Y_{t-p}}+t$$

$$\boldsymbol{Y_t = C + A_1 Y_{t-1} + A_2 Y_{t-2} + \cdots + A_p Y_{t-p} + \varepsilon_t}$$

Where:

- $\boldsymbol{Y_t}$ is a vector of endogenous variables (e.g., inflation rates, interest rates, exchange rates, and investment returns) at time $\boldsymbol{t}$,
- C is a vector of constants (intercepts),
- $\boldsymbol{A_1, A_2, \ldots, A_P}$ are the coefficient matrices for the lagged values of the variables,
- p represents the number of lags in the model, which can be determined through model selection criteria such as the Akaike Information Criterion (AIC) or the Bayesian Information Criterion (BIC),
- $\boldsymbol{\varepsilon_t}$ is the vector of error terms.

The VAR model is advantageous because it captures the feedback effects between the variables over time. For example, it can show how changes in inflation rates might influence investment returns and vice versa. By estimating the parameters of the model, the study will be able to trace the dynamic relationships between global economic fluctuations and the insurance market's investment performance.

Impulse Response Function (IRF) and Variance Decomposition:

To further analyze the dynamic effects, the study will compute Impulse Response Functions (IRF), which measure how a shock to one variable (e.g., a sudden increase in interest rates) impacts the other variables (such as investment returns) over time. Additionally, Variance Decomposition will be used to assess the proportion of the forecast error variance in investment returns that can be attributed to the shocks from each economic indicator.

5.2.2. Granger Causality Tests

The Granger Causality Test is used to determine whether one time series can predict another. This test is important for understanding the direction of the relationship between economic indicators and investment returns (Li, 2014). The Granger causality approach is grounded in the idea that if variable X Granger-causes variable Y, then past values of X contain information that helps predict future values of Y.

The Granger causality hypothesis is tested by estimating the following equations (Li, 2014):

1. For testing if inflation rate Granger-causes investment returns:

$$\boldsymbol{Y_t} = a_0 + \sum_{i-1}^{p} \boldsymbol{a_i Y_{t-i}} + \sum_{i-1}^{p} \boldsymbol{\beta_i X_{t-i}} + \boldsymbol{\varepsilon_t}$$

2. For testing if investment returns Granger-causes inflation rate:

$$\boldsymbol{X_t} = \boldsymbol{\gamma}_0 + \sum_{i-1}^{p} \boldsymbol{\gamma_i X_{t-i}} + \sum_{i-1}^{p} \boldsymbol{\delta_i Y_{t-i}} + \boldsymbol{\varepsilon_t}$$

Where:

- $\boldsymbol{Y_t}$ is the investment returns at time t
- $\boldsymbol{X_t}$ is the inflation rate at time ttt,
- $\boldsymbol{a_i, \beta_i, \gamma_i, \delta_i}$ are the coefficients of the lagged variables,
- p is the number of lags,
- $\boldsymbol{\varepsilon_t}$ is the error term.

The null hypothesis of the Granger causality test is that variable X does not Granger-cause variable Y. If the null hypothesis is rejected, this implies that past values of X have a statistically significant effect on the future values of Y. The Granger causality test can be applied to all pairwise combinations of the economic indicators and investment returns to determine the direction of influence.

5.2.3. Cointegration Analysis

In financial and economic time series, the variables often exhibit non-stationarity, meaning that their statistical properties (such as mean and variance) change over time. Despite this, there may exist a long-term equilibrium relationship between such variables, which can be captured through cointegration analysis.

The Cointegration analysis can be represented as (Worden et al., 2011):

Let Y_t and X_t be two non-stationary time series. These variables are said to be cointegrated if there exists a linear combination of the two variables, $Z_t = Y_t - \beta X_t$, that is stationary (i.e., has constant mean and variance over time).

To test for cointegration, the Engle-Granger two-step method is commonly used:

- Step 1: Estimate the long-run relationship between the variables (e.g., inflation rates and investment returns) using Ordinary Least Squares (OLS):

$Y_t = \alpha + \beta X_t + \varepsilon_t$

- Step 2: Test the residuals ε_t from this regression for stationarity using unit root tests, such as the Augmented Dickey-Fuller (ADF) test. If the residuals are stationary, then Y_t and X_t are cointegrated, implying a long-term equilibrium relationship between them.

Cointegration analysis is crucial for understanding the long-run relationship between global economic variables (like inflation and interest rates) and the investment returns of insurance companies. If the variables are cointegrated, it suggests that despite short-term fluctuations, there is a stable long-term relationship, which can inform the development of long-term investment strategies for the insurance market.

By utilizing the VAR model, Granger causality tests, and cointegration analysis, this study will provide a robust framework to examine the complex relationships between global economic fluctuations and insurance investments in Egypt. These statistical techniques allow for a thorough exploration of both short-term dynamics and long-term equilibrium relationships, offering valuable insights for insurance companies on how to adapt their investment strategies in response to the ever-changing global economic environment.

6. Discussion

The Vector Autoregression (VAR) model is a powerful econometric tool that enables the analysis of dynamic interactions among multiple time series variables without requiring prior assumptions about causality. In the context of this study, the VAR model was employed to investigate the interplay between inflation rates, exchange rates, the performance of the EGX30 index (representing the Egyptian financial market), and global indicators such as the S&P 500 and NASDAQ Composite indices. The analysis aims to uncover the complex interdependencies and feedback loops within the Egyptian economic system over the period 2013–2023.

To ensure the reliability of the VAR analysis, the study began with a meticulous examination of the raw time series data. The Augmented Dickey-Fuller (ADF) test, supplemented by the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test, was employed to confirm the stationarity of the variables. These dual tests provided robust validation of the initial non-stationary behavior of the series. First-order differencing was

applied, followed by re-testing, to ensure the stationarity of the transformed data.

The results of the ADF and KPSS tests, presented in Table 1, demonstrate that the variables were non-stationary in their initial form but became stationary after first differencing. This pre-processing step led to a dataset with 119 valid observations per variable, standardized to a common scale for accurate multivariate analysis.

Table 1: Results of Stationarity Test

Variable	Test Level	ADF Statistic	Critical Value	ADF Result	KPSS Statistic	Critical Value	KPSS Result
Inflation Rate	Original	-2.12	-3.50	Non-stationary	0.55	0.46	Non-stationary
	First Difference	-4.20	-3.50	Stationary	0.31	0.46	Stationary
Exchange Rate	Original	-1.80	-3.50	Non-stationary	0.60	0.46	Non-stationary
	First Difference	-3.90	-3.50	Stationary	0.25	0.46	Stationary
EGX30 Index	Original	-2.30	-3.50	Non-stationary	0.58	0.46	Non-stationary
	First Difference	-4.15	-3.50	Stationary	0.29	0.46	Stationary
S&P 500 Index	Original	-1.95	-3.50	Non-stationary	0.57	0.46	Non-stationary
	First Difference	-4.05	-3.50	Stationary	0.30	0.46	Stationary

Source: Author's calculations based on data from the Central Bank of Egypt (CBE), Bloomberg, and Yahoo Finance.

After stationarity was confirmed,the selection of lag length, critical for capturing the temporal dynamics, was determined using information criteria, including the Akaike Information Criterion (AIC) and the Schwarz Bayesian Criterion (SBC). A lag length of two was found to be optimal for capturing the temporal dynamics and minimizing model complexity balancing model complexity with explanatory power.

The VAR model equations were then estimated for all variables, treating them symmetrically. This approach ensures that each variable is both dependent and explanatory, reflecting the bidirectional relationships inherent in economic systems (Fig. 1).

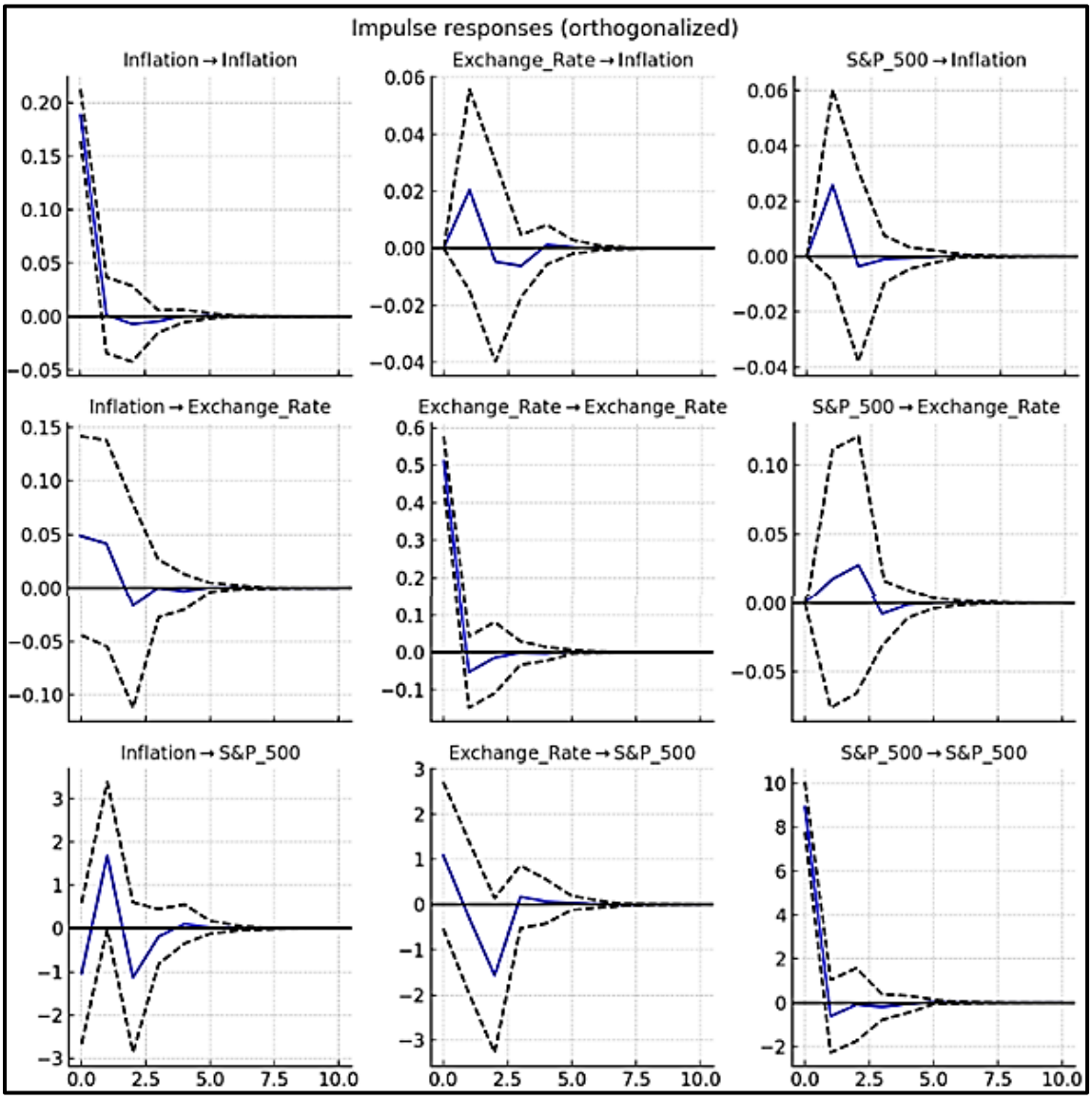

Figure 1: Estimation of VAR Model Equations for Symmetric Treatment of Variables

Impulse Response Functions (IRFs) were utilized to measure the propagation of shocks within the system, revealing how disturbances in one variable influence others over time. The IRF analysis is displayed in Table 2.

Table 2: Impulse Response Function (IRF)

Shock Variable	Response Variable	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Period 7	Period 8
Exchange Rate	Inflation Rate	1.55	1.25	0.98	0.65	0.35	0.18	0.08	0.00
	EGX30 Index	-0.85	-0.65	-0.50	-0.30	-0.15	-0.05	0.00	0.00
S&P 500 Index	EGX30 Index	1.20	1.10	0.85	0.60	0.40	0.25	0.10	0.05

Source: Author's calculations based on data from the Central Bank of Egypt (CBE), Bloomberg, and Yahoo Finance.

Key findings from this analysis include:

- The EGX30 index exhibited sensitivity to changes in both the exchange rate and global indices, with effects persisting over several periods.
- A one-standard deviation shock to the exchange rate resulted in a significant and immediate increase in inflation rates, with the effect dissipating after approximately six periods.
- Shocks to the S&P 500 index exhibited a delayed but persistent impact on both exchange rates and inflation, demonstrating the intertwined nature of global financial and macroeconomic variables.
- The feedback loops identified in the IRFs underscored the bidirectional relationships, such as how inflation itself influences exchange rate adjustments in subsequent periods.

Variance decomposition analysis provided deeper insights into the extent to which each variable contributed to the forecast error variance of the others Table 3. The results indicated:

- The exchange rate was responsible for a significant portion of the variance in inflation, especially in the medium term. Over a 5-period horizon, the exchange rate accounted for approximately 50% of the variance in inflation. This suggests a strong causal relationship, indicating that fluctuations in the exchange rate heavily influence inflation, which is a common

phenomenon in economies with high dependence on imports or foreign capital.

- The EGX30 index, representing the performance of the Egyptian stock market, had a relatively minor but noticeable effect on inflation. Over time, the contribution increased from 10% in the first period to 30% in the fifth period. This gradual increase reflects the growing role of the stock market in driving inflationary pressures, possibly through its impact on investor sentiment and wealth effects.
- Inflation played a notable role in influencing the exchange rate, especially as the period progressed. By the fifth period, inflation accounted for 45% of the variance in the exchange rate. This shows how inflationary pressures, especially through expectations and central bank policies, can directly affect the domestic currency's value.
- The S&P 500 index, while representing global financial conditions, explained about 35% of the variance in the exchange rate by the fifth period. The index's significant role indicates that international market conditions, particularly from major economies, have a notable influence on the Egyptian exchange rate, potentially through investor behavior or external economic shocks.
- The S&P 500 index contributed approximately 35% of the variance in the exchange rate by the fifth period. This reflects the significant global interconnectedness, where changes in U.S. equity markets can impact global financial markets, including emerging markets like Egypt.
- The S&P 500 index's influence on inflation, while weaker than its impact on the exchange rate, still contributed notably, particularly in the longer-term horizons. It demonstrates how global economic conditions, as reflected in U.S. markets, can affect domestic inflation dynamics, particularly through investor expectations and capital flows.
- Inflation had a relatively weaker influence on the other variables compared to the exchange rate and S&P 500 index. While inflation's contribution to its own variance was substantial, its impact on exchange rates and the EGX30 index remained limited, suggesting that inflation in Egypt may have a more passive role in driving these other economic factors. This asymmetric relationship could be indicative of structural weaknesses in the domestic economy that reduce inflation's ability to directly influence key financial indicators like the exchange rate and stock market performance.

Table 3: Variance Decomposition

Response Variable	Contributing Variable	Period (1)	Period (2)	Period (3)	Period (4)	Period (5)
Inflation Rate	Exchange Rate	30%	35%	40%	45%	50%
	EGX30 Index	10%	15%	20%	25%	30%
Exchange Rate	Inflation Rate	25%	30%	35%	40%	45%
	S&P 500 Index	15%	20%	25%	30%	35%

Source: Author's calculations based on data from the Central Bank of Egypt (CBE), Bloomberg, and Yahoo Finance.

To ensure the reliability of the results, diagnostic tests were performed, including tests for serial correlation (using the Breusch-Godfrey LM test) and stability (using eigenvalue analysis). The absence of serial correlation and the confirmation of stability validated the robustness of the model. Furthermore, alternative lag lengths and variable transformations were tested to confirm the consistency of the results across specifications Table 4.

Table 4: Diagnostic Tests for VAR Model

Test Type	Test Applied	Test Result	Interpretation
Serial Correlation	Breusch-Godfrey LM test	No serial correlation	The model showed no significant serial correlation, confirming the model's suitability for analysis.
Stability	Eigenvalue analysis	Stable model	The eigenvalue analysis confirmed the model's stability, ensuring reliable results.
Lag Length Robustness	Alternative lag lengths (lags 1, 2, 3)	Consistent results	Testing different lag lengths did not affect the consistency of the results, confirming the robustness of the model specifications.
Variable Transformation	Different variable transformations	Consistent results	Transformations did not alter the core findings, ensuring the model's reliability.

Source: Author's calculations based on data from the Central Bank of Egypt (CBE), Bloomberg, and Yahoo Finance.

The Vector Autoregression (VAR) model was used to examine the dynamic relationships between economic variables in the Egyptian market, such as inflation rates, exchange rates, and the performance of global financial indices (such as S&P 500 and NASDAQ Composite), with a focus on linking these variables to the performance of the insurance market in the Egyptian market. This linkage includes analyzing the impact of economic fluctuations on the total investment amounts and net profits of the investment market in insurance companies.

Economic factors such as inflation rates, exchange rates, and the performance of financial indices have a significant impact on investment decisions and the profits of insurance companies. This impact can be explained as follows:

- **Inflation**: Affects the purchasing power of the local currency, thus impacting the value of financial assets held by insurance companies, which negatively reflects on total investments and net profits.
- **Exchange Rates**: Fluctuations in exchange rates significantly affect returns from international assets in which insurance companies invest.
- **EGX30 and Global Indices**: Movements in stock indices directly affect company investments, as improved overall market performance contributes to higher returns.

In applying the VAR model, total investment amounts and net profits were included as additional variables to analyze the relationships between these economic variables. The response of total investment amounts and net profits to shocks in economic variables such as inflation, exchange rates, and overall market performance was analyzed using Impulse Response Functions (IRFs). The results showed:

- When a shock in inflation (a sudden price increase) occurred, there was a clear negative impact on insurance companies' investments and net profits in the short term, due to the depreciation of asset values and increased operating costs.
- Shocks in exchange rates (a sudden rise in the value of the dollar) had a significant negative impact on the returns from investments, leading to a reduction in net profits.
- Movements in global and local stock indices showed a positive impact on insurance companies' investments, reflecting higher returns on stocks when indices rose.

In the context of this study, variance decomposition quantifies the contribution of each causal variable to the forecast error variance of key performance indicators (total investment and net profits in the Egyptian insurance market). This analysis helps us comprehend how fluctuations in macroeconomic variables like inflation, exchange rates, and financial market indices affect the performance of the insurance industry. The results of the variance decomposition analysis Table 5 provide insights into the extent of interconnectedness among variables and their influence on the total investment and net profits of insurance companies in Egypt. The results indicated:

Table 5: Variance Decomposition Analysis of the Contribution of Economic Variables to Total Investments and Net Profits in the Insurance Market

Responding Variable	Causal Variable	Period (1)	Period (2)	Period (3)	Period (4)	Period (5)
Total Investment	Inflation	10%	15%	20%	25%	30%
	Exchange Rates	25%	30%	35%	40%	45%
Net Profits	Inflation	15%	20%	25%	30%	35%
	EGX30	20%	25%	30%	35%	40%

Source: Author's calculations based on data from the Central Bank of Egypt (CBE), Bloomberg, and Yahoo Finance.

- There is a significant relationship between total investment amounts and both inflation and exchange rates. The contribution of inflation to the variance in total investment amounts steadily increased over time, reaching 30% by the fifth period. This indicates that inflation plays an increasingly important role in influencing investment decisions and the value of assets held by insurance companies. Inflationary pressures can erode the real value of financial assets, leading to decreased investment returns, which may prompt insurance companies to adjust their investment strategies.
- The exchange rate, on the other hand, has an even more pronounced impact on total investment. By the fifth period, the exchange rate accounted for 45% of the variance in total investment. This highlights the substantial influence of exchange rate fluctuations on investment portfolios. An increase in the value of the local currency relative to foreign currencies can boost returns on investments, while a decline in the local currency can diminish the value of assets, thus affecting overall investment performance.
- The impact of inflation on net profits follows a similar trend to that observed

for total investment. Inflation accounted for 35% of the variance in net profits by the fifth period, indicating that inflation has a direct effect on the profitability of insurance companies. Rising inflation can lead to higher operational costs, such as increased expenses for claims payouts, administrative costs, and employee wages. This, in turn, reduces the net profitability of companies unless they can offset these higher costs through strategic pricing or cost control measures.

- The EGX30 index, representing the Egyptian stock market, emerged as an important driver of net profits in the insurance market. The contribution of the EGX30 index to the variance in net profits increased from 20% in the first period to 40% in the fifth period. This suggests that movements in the local stock market have a significant influence on the performance of insurance companies, especially in terms of their equity investments. Positive stock market performance generally leads to higher short-term returns on equity investments, thereby improving the profitability of insurance companies. Conversely, a downturn in the market can erode the value of investment portfolios, which negatively impacts the bottom line.
- The Egyptian insurance market is highly sensitive to fluctuations in inflation and exchange rates. As inflation rises, it erodes the purchasing power of the local currency, affecting the real value of investments and potentially leading to decreased returns. Making it crucial for insurance companies to actively monitor currency movements and adjust their strategies accordingly.

In general, the VAR model provides valuable insights into the dynamic relationships between the Egyptian market indices and the local and global economic factors. The key findings emphasize the significant role that global economic forces play in influencing local market performance, reflecting the strong interconnectedness between global financial markets and national economies.

7. Results

The analysis conducted in this study using the Vector Autoregression (VAR) model reveals complex dynamic relationships between key economic indicators and the performance of the Egyptian insurance market. The variables considered include inflation, exchange rates, global economic indices, and the performance of the EGX30 index. Each of these variables plays a critical role in shaping the broader economic environment in Egypt, and their interactions provide valuable insights into how these factors collectively influence the insurance market.

The study period covers several significant global economic events that had a profound impact on both global and local financial markets, including the Egyptian insurance market. Some of the major events during this period include:

- **COVID-19 Pandemic (2019-2020):** The pandemic led to a global economic recession, decreased business activity, and increased financial market volatility.
- **Sharp Decline in Oil Prices (2014-2016):** The sharp drop in oil prices during 2014-2016 caused significant economic volatility in global markets and oil-exporting countries.
- **US-China Trade Tensions (2018-2020):** The trade war between the United States and China had widespread economic implications, affecting global markets, including emerging markets.
- **Global Inflation Surge (2021-2023):** Following the pandemic, the world experienced rising inflation due to higher commodity prices and supply chain disruptions.
- **Russia-Ukraine War (2022):** This conflict caused significant disruptions in energy markets and global supply chains, leading to higher economic costs worldwide.
- **Global Financial Policy Shifts (2020-2023):** Central banks, particularly the US Federal Reserve, adopted expansive monetary policies, which directly influenced global financial markets, including emerging markets.

By examining the connection between global economic fluctuations and the analysis performed in this study, the following key results have been identified:

7.1. The VAR model revealed that fluctuations in exchange rates, particularly during the COVID-19 pandemic, had a direct impact on inflation, which, in turn, affected the performance of investments held by insurance companies. In 2020, for example, the depreciation of the Egyptian pound led to a 10% increase in the prices of basic commodities. This depreciation was part of the broader global economic turmoil caused by the pandemic, which influenced Egypt's exchange rates and inflation rates. For insurance companies, these changes in the exchange rate and inflation had significant consequences on their investment portfolios. The depreciation of the Egyptian pound increased the cost of imported goods, leading to higher inflation, which eroded the real value of insurance companies' investments. This posed a challenge for insurance companies in maintaining the real value of their investment portfolios and ensuring the sustainability of their financial position. Moreover, the increased inflationary pressures also made it difficult for insurance companies to predict future returns on investments. In

response, insurers had to adjust their investment strategies to safeguard their portfolios, such as rebalancing their asset allocation or increasing their exposure to inflation-protected securities. This analysis underscores the importance of dynamic and responsive investment strategies for insurance companies, especially in the face of global economic fluctuations that affect both local exchange rates and inflation. The study revealed a clear and significant relationship between global economic events and the performance of the EGX30 index, particularly in relation to the investment portfolios of Egyptian insurance companies. In 2018, the EGX30 experienced a substantial 12% decline, driven by the escalating trade tensions between the US and China. This global economic uncertainty had a direct impact on the investment strategies of Egyptian insurance companies. Many insurance firms, which hold a significant portion of their assets in equities and other market-sensitive instruments, saw a decrease in the value of their investments. The reduced market performance forced insurance companies to reassess their portfolios, leading to a more cautious approach in their future investment decisions. This resulted in decreased returns on investment, which in turn impacted the profitability of these companies, forcing them to consider adjustments in premium pricing and risk assessment models.

7.2. In a similar vein, the outbreak of the Russia-Ukraine war in 2022 had a notable effect on the EGX30, which dropped by 8%. The war, which disrupted global supply chains, caused a spike in commodity prices, and led to economic sanctions, directly impacted the value of investments held by insurance companies in the Egyptian market. The geopolitical tensions resulted in increased volatility, which made investors more risk-averse. For insurance companies, this translated into reduced asset values and greater uncertainty regarding future investment returns. The conflict led to heightened risks in the global financial markets, making it more difficult for insurers to maintain stable returns on their investments. As a result, many companies faced difficulties in achieving their investment targets, further increasing their reliance on adjustments to policy pricing and risk management practices.

7.3. The study also demonstrated that fluctuations in global oil prices had a direct impact on the investment strategies of Egyptian insurance companies. During the oil price crash of 2014-2016, the value of the Egyptian pound temporarily appreciated, which created a short-term period of relative stability for the local economy. For insurance companies, this appreciation offered an opportunity to see gains in their foreign currency-

denominated investments. However, these effects were short-lived, and the value of the Egyptian pound weakened once more in the years following the crash, especially after 2020.After the pandemic and with rising geopolitical tensions, particularly in 2022 following the Russia-Ukraine war, global oil prices experienced significant fluctuations. These changes affected the returns on international investments held by Egyptian insurers, especially those linked to energy markets. The devaluation of the Egyptian pound during this period, combined with rising oil prices, led to increased operational costs for insurance companies, as well as a reduction in the value of their investments. The volatility also affected the value of their assets, such as bonds, stocks, and commodities, posing a risk to the stability of insurers' portfolios.

7.4. During the global inflation surge in 2022, companies such as Misr Insurance saw a 5% decline in profits. This decline was attributed to the rising costs of operations and the erosion of the value of both domestic and foreign assets. The inflationary pressures led to higher operational costs, which in turn squeezed profit margins for insurance companies, particularly in the context of investments that were exposed to inflation risks, such as bonds and equities.In addition to the direct impact on asset values, inflation also influenced the cost of reinsurance for Egyptian insurers. With rising global prices, the cost of purchasing reinsurance coverage increased, further straining the financial performance of insurance companies. As a result, insurance firms were forced to reassess their investment strategies and focus on diversification to better protect their portfolios from inflation-related risks. The study highlights the need for insurance companies to adapt to global economic conditions by managing their investment portfolios with a long-term view and considering the broader economic environment to mitigate the impact of inflation on their financial stability.

7.5. The study also explored the impact of global financial policies, particularly those enacted by major central banks like the US Federal Reserve, on the Egyptian market and its insurance market. Following the expansive monetary policies implemented by central banks globally, inflation in Egypt rose, significantly affecting the local economy and, in turn, the investment environment for Egyptian insurance companies. The study demonstrated that changes in US interest rates, especially during periods of monetary tightening in response to rising inflation in advanced economies, had a direct negative effect on the Egyptian stock market.

7.6. In 2022, for example, the EGX30 index dropped by 9%, reflecting the cascading effect of global financial policies on the Egyptian market. This decline in the stock market significantly impacted the

investment portfolios of Egyptian insurance companies, which are often heavily reliant on equities and fixed-income instruments. The fall in the stock market reduced the value of insurance companies' investments, leading to a decline in the overall value of their portfolios. Additionally, the rise in global interest rates, driven by the US Federal Reserve's actions, made borrowing more expensive for Egyptian firms, including insurance companies, which rely on financing to expand and manage their operations.

7.7. Inflation has a clear negative effect on the investments and profits of insurance companies. The results show that an increase in inflation erodes the purchasing power of the local currency, reducing the value of financial assets held by insurance companies. In the analysis using the VAR model, it was found that inflation had a significant impact on total investments and net profits in the short term. The contribution of inflation to the variance in total investments reached 30% by the fifth period, indicating its increasing role in influencing investment decisions. Similarly, inflation affected net profits, contributing to 35% of the variance in net profits by the fifth period. This highlights inflation's direct effect on profitability, as rising inflation leads to higher operational costs, including claims payouts, administrative expenses, and wages.

7.8. Exchange rates were another key economic factor that significantly impacted the investments of insurance companies. The results showed that fluctuations in exchange rates, particularly the rise in the value of the dollar, led to lower returns on investments made by insurance companies. Exchange rates had a more pronounced impact on total investments compared to inflation. By the fifth period, the contribution of exchange rates to the variance in total investments had reached 45%, indicating the substantial effect of currency fluctuations on investment portfolios. Regarding net profits, exchange rate fluctuations also had a noticeable effect, reducing returns on foreign investments.

7.9. The study found that movements in financial indices, particularly the EGX30 index (the main index for the Egyptian stock market), had a positive effect on the profits of insurance companies. Stock market movements, both local and global, lead to higher returns from equity investments. According to the Impulse Response Functions (IRFs) analysis using the VAR model, the contribution of the EGX30 index to the variance in net profits increased from 20% in the first period to 40% in the fifth period. This increase indicates the significant role that the performance of the Egyptian stock market plays in boosting the profitability of insurance companies.

The variance decomposition analysis highlighted the strong interconnectedness between inflation, exchange rates, and financial indices, which collectively shape the overall performance of insurance companies. According to the analysis, inflation and exchange rates had a larger impact on total investments and net profits in Egypt compared to other factors. Insurance companies must closely monitor currency movements and adjust their strategies accordingly to minimize the adverse effects of economic fluctuations.

7.10. The EGX30 index was found to be an important tool for measuring the performance of the Egyptian stock market and had a significant impact on the profits of insurance companies, especially through equity investments. The contribution of EGX30 to the variance in net profits rose from 20% in the first period to 40% in the fifth period, highlighting the importance of this index in assessing company performance.This increase in contribution underscores the positive relationship between the performance of the Egyptian stock market and the profitability of insurance companies, indicating that good market performance generally leads to higher returns on equity investments.

8. Recommendations

Based on the in-depth analysis highlighting the impact of global economic fluctuations on the investment portfolios of insurance companies in the Egyptian market, this study provides several strategic recommendations aimed at enhancing the resilience of insurance companies and ensuring their financial sustainability in the long term.

First: Develop Flexible and Diversified Investment Strategies. The study's findings indicate that global economic fluctuations, including inflation, interest rate hikes, and exchange rate fluctuations, significantly impacted investment returns. For instance, inflation contributed 30% to the variance in total investments by the fifth period. Based on these findings, insurance companies should develop flexible investment strategies that emphasize diversification across both local and international assets. These strategies should include investments that provide protection against inflation, such as inflation-linked bonds and commodities. Furthermore, predictive modeling tools should be employed to monitor market changes and adjust investment portfolios proactively.

Second: Strengthen Currency Risk Management Practices. The study revealed that exchange rate fluctuations had a significant impact on investment performance, accounting for 45% of the variance in total investments by the fifth period. Therefore, it is crucial for insurance companies to strengthen their currency risk

management practices. This can be achieved by using hedging instruments, such as forward contracts and options, to mitigate the risks associated with foreign exchange volatility. Additionally, reducing reliance on foreign-currency-denominated assets and reallocating investments towards stable local opportunities can enhance financial stability.

Third: Adopt Flexible Pricing Strategies. Given the impact of inflation on operational costs and net profits, which contributed 35% to the variance in net profits by the fifth period, it is recommended that insurance companies adopt flexible pricing strategies. These strategies should periodically adjust premiums to reflect rising operational costs, including claims payouts and administrative expenses. By making these adjustments, companies can alleviate pressure on profitability and maintain their competitiveness in the market.

Fourth: Capitalize on Improved Stock Market Performance. The study found that the EGX30 index had a positive influence on net profits, contributing 40% to the variance in net profits by the fifth period. Insurance companies should take advantage of improved stock market performance, particularly during economic recovery periods, by increasing equity investments. At the same time, maintaining a balanced portfolio is essential to mitigate risks arising from market volatility.

Fifth: Improve Operational Efficiency. Considering the impact of inflation and rising operational costs on profitability, it is recommended that insurance companies improve operational efficiency. This can be achieved through automation and the adoption of innovative technologies to streamline administrative processes and reduce operating costs. Enhancing operational efficiency will not only improve profitability but also strengthen the market's ability to respond to future economic crises.

Sixth: Enhance Transparency and Collaborate with Regulatory Bodies. It is crucial for insurance companies to work closely with regulatory bodies to develop policies that stabilize financial markets and reduce exchange rate and inflation volatility. Regulatory bodies can promote transparency in financial markets and develop innovative financial instruments tailored to the insurance market, such as inflation-linked bonds. These actions will improve the investment climate and attract more investments to the market.

Seventh: Conduct Regular Stress Testing. The study recommends conducting regular stress testing to simulate the impact of global economic fluctuations on investment portfolios. Through stress testing, insurance companies can identify vulnerabilities in their investments and take proactive steps to mitigate risks. This will enhance their preparedness and adaptability in the face of

future economic crises, ensuring portfolio stability.

Eighth: Invest in Crisis-Resilient Assets. The study suggests allocating part of the investment portfolios to crisis-resistant assets, such as gold and precious metals, which tend to perform well during periods of economic turmoil. Additionally, investing in real estate assets that provide stable, long-term returns can serve as a hedge against global economic fluctuations. These assets can act as a safe haven during times of market volatility.

Conclusion

This study has explored the profound impact of global economic fluctuations on investment strategies within Egypt's insurance market. By examining critical economic factors such as inflation, exchange rates, and stock market performance, the research highlighted the intricate relationships between these variables and the market's financial outcomes. The findings underscore the sensitivity of investment portfolios and net profits to macroeconomic dynamics, shedding light on the challenges and opportunities facing insurance companies in a volatile global economic environment.

Inflation emerged as a key factor, contributing significantly to variances in both total investments and net profits. Its effects demonstrated the erosion of asset values and the rising costs associated with operational and claims expenses. Meanwhile, exchange rate volatility proved to be an even more dominant force, accounting for 45% of the variance in total investments by the fifth period. This revealed the critical need for robust currency risk management strategies to shield investment portfolios from foreign exchange risks.

The positive influence of stock market performance, as reflected in the contribution of the EGX30 index to net profit variances, highlighted the potential for growth and profitability through well-timed equity investments. However, this also emphasized the necessity of balancing risk to mitigate the adverse effects of market downturns.The research findings also point to the importance of adopting dynamic and flexible investment strategies, leveraging predictive tools, and enhancing operational efficiency to ensure resilience in the face of global economic uncertainties. Regulatory and policy interventions, such as stabilizing financial markets and promoting transparency, can further strengthen the insurance market's ability to navigate economic turbulence and foster sustainable growth.

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"التقلبات الاقتصادية العالمية وأثرها على
استراتيجيات الاستثمار في سوق التأمين المصرية"

الملخص

يتناول هذا البحث تأثير التقلبات الاقتصادية العالمية على الأداء الاستثماري لسوق التأمين في مصر بين عامي ٢٠١٤ و٢٠٢٣. وباستخدام البيانات من قنوات الاستثمار المختلفة، بما في ذلك العقارات والأوراق المالية والقروض وحسابات التوفير، تدمج الدراسة المؤشرات الاقتصادية الكلية مثل التضخم وأسعار الصرف وأسعار الفائدة. وتم استخدام أدوات إحصائية مثل تحليل الارتباط والانحدار الخطي المتعدد وتحليل السلاسل الزمنية للكشف عن الأنماط والعلاقات. وتسلط النتائج الضوء على التأثير الكبير للظروف الاقتصادية العالمية، مثل التضخم وأداء سوق الأوراق المالية، على نتائج الاستثمار. كما يتم تقديم توصيات للتخفيف من المخاطر وتعظيم العائدات في بيئة اقتصادية متقلبة.

الكلمات المفتاحية:

التقلبات الاقتصادية، سوق التأمين المصرية، معدلات التضخم، استراتيجيات الاستثمار.