EURASIAN NATIONAL UNIVERSITY

ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ ҰЛТТЫҚ ВАЛЮТА КҮНІНЕ АРНАЛҒАН «ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ ҰЛТТЫҚ ВАЛЮТАСЫ: ЭКОНОМИКАЛЫҚ ӨСУ ЖӘНЕ ҚАРЖЫ ТЕХНОЛОГИЯЛАРЫ» ХАЛЫҚАРАЛЫҚ ҒЫЛЫМИ-ТӘЖІРИБЕЛІК КОНФЕРЕНЦИЯСЫ

МЕЖДУНАРОДНАЯ НАУЧНО-ПРАКТИЧЕСКАЯ КОНФЕРЕНЦИЯ, «НАЦИОНАЛЬНАЯ ВАЛЮТА РЕСПУБЛИКИ КАЗАХСТАН: ЭКОНОМИЧЕСКИЙ РОСТ И ФИНАНСОВЫЕ ТЕХНОЛОГИИ» ПОСВЯЩЕННАЯ ДНЮ НАЦИОНАЛЬНОЙ ВАЛЮТЫ РЕСПУБЛИКИ КАЗАХСТАН

INTERNATIONAL SCIENTIFIC AND PRACTICAL CONFERENCE, «NATIONAL CURRENCY OF THE REPUBLIC OF KAZAKHSTAN: ECONOMIC GROWTH AND FINANCIAL TECHNOLOGIES» DEDICATED TO THE DAY OF THE NATIONAL CURRENCY OF THE REPUBLIC OF KAZAKHSTAN

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Л.Н.ГУМИЛЕВ АТЫНДАҒЫ ЕУРАЗИЯ ҰЛТТЫҚ УНИВЕРСИТЕТІ

МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО ОБРАЗОВАНИЯ РЕСПУБЛИКИ КАЗАХСТАН
ЕВРАЗИЙСКИЙ НАЦИОНАЛЬНЫЙ УНИВЕРСИТЕТ ИМЕНИ Л.Н. ГУМИЛЕВА

MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE REPUBLIC OF KAZAKHSTAN
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Қазақстан Республикасының ұлттық валютасы күніне арналған "Қазақстан Республикасының ұлттық валютасы: экономикалық өсу және қаржы технологиялары" тақырыбындағы халықаралық ғылыми-практикалық конференция материалдарының жинағында жас ғалымдар, докторанттар, магистранттар мен студенттер өткізген өзекті және проблемалық мәселелер бойынша авторлық зерттеулердің нәтижелері ұсынылған. Басылым студенттерге, магистранттарға, докторанттарға, сондай-ақ қазіргі ғылымның өзекті мәселелерімен айналысатын оқырмандардың кең ауқымына арналған.

В сборнике материалов международной научно-практической конференции, посвященный дню национальной валюты Республики Казахстан на тему «НАЦИОНАЛЬНАЯ ВАЛЮТА РЕСПУБЛИКИ КАЗАХСТАН: ЭКОНОМИЧЕСКИЙ РОСТ И ФИНАНСОВЫЕ ТЕХНОЛОГИИ» представлены результаты авторских исследований по актуальным и проблемным вопросам, проведенных молодыми учеными, докторантами, магистрантами и студентами. Издание предназначено для студентов, магистрантов, докторантов, а также для широкого круга читателей, занимающихся актуальными проблемами современной науки.

The collection of materials from the international scientific and practical conference dedicated to the Day of the National Currency of the Republic of Kazakhstan on the topic "NATIONAL CURRENCY OF THE REPUBLIC OF KAZAKHSTAN: ECONOMIC GROWTH AND FINANCIAL TECHNOLOGIES" presents the results of the author's research on current and problematic issues conducted by young scientists, doctoral students, master's students and students. The publication is intended for students, master's students, doctoral students, as well as for a wide range of readers involved in current issues of modern science.

THE LINKAGE BETWEEN ECONOMIC GROWTH AND FINANCIAL DEVELOPMENT: EVIDENCE FROM KAZAKHSTAN

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Abstract. The relationship between economic growth and financial development has long been a topic of interest for economist. Continued empirical research on Kazakhstan's financial sector, using methodologies like Vector Autoregression (VAR) models and Granger causality tests, is used to track the evolving relationship between financial development and economic growth. By addressing current challenges and deepening reforms, Kazakhstan can strengthen this linkage, driving long-term economic resilience and diversification. The results indicate minimal causal connections among GDP, FDI, and the unemployment rate. Additionally, the findings imply that stock market performance may not be closely linked to the country's external account metrics, underscoring the role of other factors in shaping their behavior. Furthermore, the empirical evidence suggests that initiatives aimed at strengthening the current account balance could potentially influence the unemployment rate.

Keywords: economic growth, financial development, Vector Autoregression (VAR), Granger causality, Kazakhstan

1. Introduction. Financial development refers to the growth and enhancement of a country's financial institutions, markets, and instruments. Theoretical frameworks, notably from Schumpeter (1911), emphasize that financial development fosters innovation and growth by mobilizing savings and allocating them to productive investments. Further work by Goldsmith (1969), McKinnon (1973), and Shaw (1973) expanded on this, arguing that a developed financial system is critical for efficient capital allocation, which accelerates economic growth.

In the context of Kazakhstan, as an emerging market with a transitional economy, the linkage between financial development and economic growth can potentially vary compared to developed economies, due to structural differences, policy environments, and reliance on specific industries like oil and natural resources.

Empirical studies, such as those conducted by Levine (1997), King and Levine (1993), and others, have commonly found a positive relationship between financial development and economic growth. These studies often use indicators such as bank credit to the private sector, stock market development, and financial depth. In emerging economies, this relationship is more complex due to challenges like regulatory frameworks, financial literacy, and integration into global financial markets.

Specifically for Kazakhstan, studies such as those by Grigoli et al. (2018) and Adams et al. (2020) have explored financial development metrics to examine their effects on growth. Findings indicate that financial development has a positive impact on Kazakhstan's economic growth, but it is influenced by external factors like oil prices and foreign direct investment (FDI) flows. These findings align with the financial sector's role as a bridge for international capital, crucial for an oil-exporting economy like Kazakhstan.

2. Literature Review. The connection between financial development and economic growth has been widely researched, producing varied perspectives on their interaction. Here's a summary of the main academic positions on this topic:

Supply-Leading Hypothesis

The supply-leading hypothesis suggests that financial development is a driver of economic growth by mobilizing savings, supporting investments, and improving the efficiency of resource allocation. For instance, Levine (1997) contends that well-structured financial systems encourage both technological advancements and capital accumulation, thereby stimulating economic growth. King and Levine (1993) also provide empirical support, showing that financial development can act as an indicator of future economic growth.

Demand-Following Hypothesis. On the other hand, the demand-following hypothesis holds that economic growth fuels financial development. As economies expand, the need for financial services grows, which then drives the development of financial markets and institutions. Robinson (1952) argues that the evolution of financial systems mainly responds to the needs of a growing economy, suggesting that economic growth leads financial sector expansion.

Bidirectional Causality. Some studies propose a two-way relationship, in which financial development and economic growth reinforce each other. Greenwood and Jovanovic (1990) illustrate how financial development and economic growth may co-evolve, as financial intermediaries enable investments in high-yield projects, which promotes economic growth and further financial sector development.

No Causality. A few studies find no significant causal link between financial development and economic growth. Lucas (1988) questions the role of financial factors in economic growth, suggesting that the link may be overstated. Ram (1999) also observes that the positive connection between financial development and economic growth lacks consistency across different nations and timeframes.

Contextual Considerations. The relationship between financial development and economic growth may vary based on country-specific factors, such as the level of development, institutional strength, and regulatory conditions. Demetriades and Hussein (1996) point out that causality can differ across countries, indicating the need to consider each country's unique context.

The relationship between financial development and economic growth is complex and multifaceted. While strong evidence supports the idea that financial development can boost economic growth, significant backing also exists for the demand-following hypothesis and the idea of bidirectional causality. This relationship is affected by factors like the stage of economic development and institutional quality, suggesting that there may not be a universal pattern that applies across all contexts.

Empirical studies on the relationship between economic growth and financial development have produced various results depending on the countries examined, periods covered, and econometric techniques used. Here is a summary of notable empirical findings from the literature:

Evidence Supporting the Supply-Leading Hypothesis

King and Levine (1993): In a cross-country study covering 80 countries, they found that financial development is a strong predictor of future economic growth. Their findings show that higher levels of financial intermediation are associated with increased rates of economic growth, capital accumulation, and productivity improvements.

Levine and Zervos (1998): By examining data from stock markets and banks, they concluded that developed financial systems are associated with higher long-term economic growth. Their study found that both bank development and stock market liquidity contribute significantly to growth.

Evidence Supporting the Demand-Following Hypothesis

Robinson (1952): This early empirical work suggested that financial development is a response to economic growth rather than a driver. In growing economies, the increased demand for financial services fuels the development of financial institutions and markets.

Jung (1986): Using data from several countries, Jung found support for the demand-following hypothesis, particularly in economies where economic growth rates were already high. This suggests that as economies grow, financial development expands in response to rising demand for financial products.

Bidirectional Causality. Greenwood and Jovanovic (1990): Their empirical model proposed a two-way relationship between financial development and economic growth. They suggested that, in

the early stages of economic development, financial markets facilitate investments in productive sectors, leading to growth. As economic growth continues, it further supports the development of financial institutions.

Demetriades and Hussein (1996): Using time-series data for 16 countries, they observed bidirectional causality in some cases, with financial development and economic growth reinforcing each other. Their study emphasized the importance of country-specific factors in determining the direction of causality.

Mixed Results Depending on the Context. Rioja and Valev (2004): Analyzing data from 74 countries over three decades, they found that the impact of financial development on growth varies based on the level of economic development. Financial development strongly affects growth in developed countries, while in less-developed economies, the impact is weaker and sometimes non-significant.

Beck, Levine, and Loayza (2000): This study found a positive relationship between financial development and economic growth across countries, but noted that the degree of impact varies by institutional quality, legal framework, and level of financial openness.

Evidence of No Causality. Lucas (1988): Questioning the role of financial systems, Lucas argued that their effect on economic growth may be overstated. His work suggests that other factors, such as human capital and technological advancements, are more critical to economic growth than financial development.

Ram (1999): Using cross-country data, Ram found that the relationship between financial development and economic growth was not robust. His results indicated that financial development's impact on growth is inconsistent and varies across countries and timeframes, pointing to the importance of contextual factors.

Recent Studies with Advanced Techniques. Aghion, Howitt, and Mayer-Foulkes (2005): Using data from various countries and advanced econometric models, they found that financial development has a significant effect on growth, especially in countries with relatively high levels of institutional quality and financial liberalization.

Calderón and Liu (2003): Employing dynamic panel data techniques across 109 countries, their findings suggest a strong positive relationship between financial development and economic growth. They noted that this effect is more pronounced in developing countries where financial services are still expanding.

3. Research Methodology. Continued empirical research on Kazakhstan's financial sector, using methodologies like Vector Autoregression (VAR) models and Granger causality tests, is used to track the evolving relationship between financial development and economic growth.

The Vector Autoregression (VAR) Granger Causality Test is a statistical method used to identify predictive relationships between multiple time series variables, particularly in economics and finance (Granger, 1969). The test evaluates whether the past values of one variable improve the prediction of another variable within a VAR model, which treats each variable in the system as potentially endogenous (Lütkepohl, 2005). In a VAR framework, each variable is expressed as a function of its own lagged values and the lagged values of other variables. The Granger causality test assesses whether the inclusion of one variable's lagged values significantly enhances the forecasting accuracy of another variable, beyond what is predicted by its own lagged values (Stock & Watson, 2015). Specifically, the test involves two hypotheses:

Null Hypothesis: The lagged values of a variable do not contribute to the prediction of another variable (i.e., no Granger causality).

Alternative Hypothesis: The lagged values of a variable contribute to predicting another variable (i.e., Granger causality exists).

A significant Granger causality result suggests that the past values of one variable contain useful information for forecasting another, which is particularly valuable in identifying temporal or leading indicators in macroeconomic or financial data. However, it is essential to note that Granger causality implies predictive causation rather than true causation, and it does not account for contemporaneous relationships (Granger, 1969; Sims, 1980). Granger causality tests are sensitive to

the choice of lag length, assume that the time series data are stationary, and do not capture causal mechanisms beyond prediction (Lütkepohl, 2005). Thus, while useful for identifying predictive relationships, caution is advised in interpreting the results as evidence of true causation.

4. Research Findigs

4.1. Descriptive Statistics. This dataset covers various economic indicators over time, including: GDP (current prices in billions of U.S. dollars): Represents the Gross Domestic Product in nominal terms, reflecting the size and growth of the economy over the years.

FDI (Foreign Direct Investment in U.S. dollars): Measures the net inflow of investment from foreign sources, indicating levels of international economic engagement.

GDP per capita (U.S. dollars per capita): Reflects the average economic output per person, indicating the general economic well-being and living standards.

Real GDP Growth (annual percent change): Shows the real growth rate of GDP, adjusted for inflation, indicating the health and expansion rate of the economy.

Current Account Balance (billions of U.S. dollars): The balance of trade and net income from abroad, indicating whether a country is a net lender or borrower internationally.

Current Account Balance as Percent of GDP: Shows the current account balance relative to GDP, reflecting the size of the deficit or surplus compared to the overall economy.

Unemployment Rate (percent): Indicates the percentage of the labor force that is unemployed, reflecting labor market health.

KASE Index: The Kazakhstan Stock Exchange (KASE) index level, representing stock market performance, which is a barometer of investor confidence and economic conditions.

Observations and Trends: GDP Growth: The GDP in nominal terms has grown significantly from 1992, with some fluctuations, particularly around 2009 (global financial crisis) and 2020 (COVID-19 pandemic).

FDI Trends: FDI inflows have been variable, with peaks in 2007 and 2016, suggesting fluctuating investor interest and economic conditions that influence foreign investments.

GDP Per Capita Increase: The GDP per capita has generally trended upward, indicating growth in average income levels, although some years, such as 2015 and 2020, saw declines.

Real GDP Growth: Growth rates show periods of high growth in the early 2000s, followed by slower growth and even negative growth in years like 1993, 1994, 1998, and 2020.

Current Account Balance: The current account balance fluctuates, moving between deficits and surpluses. Significant deficits in recent years (e.g., 2020 and 2023) indicate challenges in international trade and finance.

Unemployment Rate Stability: Unemployment rates have shown slight fluctuations but generally remain stable, especially in recent years.

KASE Index Growth: The KASE Index shows notable growth over time, indicating increased investor confidence and stock market development, with some volatility reflecting economic conditions.

This data provides a detailed historical view of economic health, investment trends, and market confidence in the region over the years. It can help in analyzing economic cycles, understanding the impact of global events, and making policy or investment decisions.

Figure 1: Selected Macroeconomic Variables
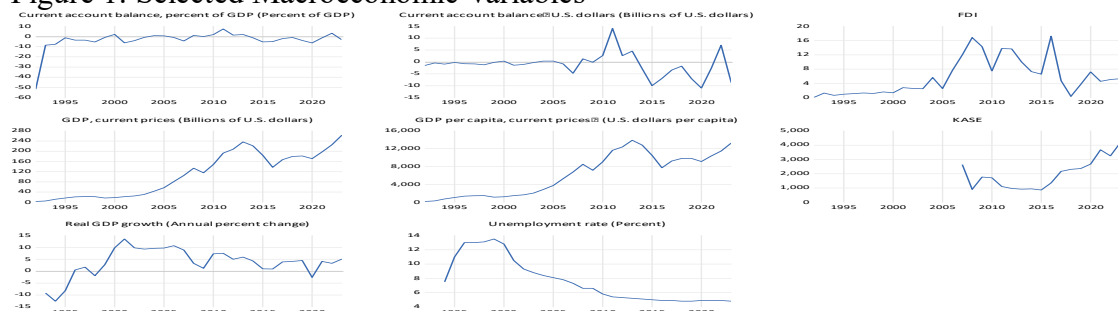
The descriptive statistical analysis of key economic indicators reveals critical insights into economic trends, growth patterns, and volatility over time. This synthesis combines findings across variables to provide a coherent picture of the underlying economic environment and its stability.

Economic Growth and Volatility

The analysis of GDP (VAR1) and GDP per capita (VAR3) indicates sustained growth over time, with GDP steadily increasing, supported by a generally upward trend in per capita income. Both GDP and GDP per capita exhibit high variability (standard deviations of 85.21 and 4,645.11, respectively), reflecting periods of robust growth interspersed with economic fluctuations.

Real GDP growth (VAR4), however, shows high volatility with periods of both substantial growth and contraction (range: -12.6% to 13.5%). The negative skewness in GDP growth highlights that economic contractions tend to be more severe than periods of expansion, suggesting susceptibility to external shocks or internal economic vulnerabilities.

Investment Trends and Foreign Capital

The analysis of Foreign Direct Investment (FDI, VAR2) indicates fluctuating investment levels, with a mean of 5.73 billion USD and notable peaks and troughs. The positive skewness reflects that, while low FDI inflows are common, certain years saw exceptionally high levels of foreign investment. This variability in FDI aligns with global and domestic economic conditions that influence investor confidence.

Current Account and Trade Balance Stability

The current account balance (VAR5), and more so when expressed as a percent of GDP (VAR6), shows high variability and is predominantly negative, with a mean current account balance of -1.11 billion USD and a current account-to-GDP ratio of -3.44%. The high skewness and kurtosis in VAR6 reflect extreme deficits, particularly in certain years. These deficits suggest structural challenges in balancing trade and capital flows, potentially impacting currency stability and foreign exchange reserves over time.

Labor Market and Unemployment Stability

Unemployment rates (VAR7) have a relatively stable mean of 7.6% with moderate variability, indicating a relatively stable labor market over time. The normal-like distribution suggests that unemployment trends have been largely consistent, though fluctuations reflect adjustments to economic conditions. The generally low skewness implies that there are no extreme deviations from the norm, reflecting a resilient labor market even in periods of economic volatility.

Financial Market Performance

The KASE Index (VAR8) reflects growth in the financial market, with a mean value of 1,988.24 and significant upward trends in recent years. The moderate standard deviation indicates that, despite some volatility, the financial market has shown a relatively stable upward trend. The index's slight positive skewness implies that while dips do occur, growth periods in the index are typically more substantial, reflecting increased investor confidence and market maturity.

Implications of Non-Normality in Specific Variables

While several variables, like GDP and the KASE Index, approximate normal distributions, others—such as the current account balance as a percent of GDP—exhibit substantial deviations from normality. This non-normality indicates that certain economic indicators are prone to extreme values, especially in external balances, which may reflect economic policies or global factors impacting trade and investment flows. Such volatility highlights areas where economic stability could be strengthened to avoid extreme fluctuations.

Table 1: Descriptive Statistics

	VAR1	VAR2	VAR3	VAR4	VAR5	VAR6	VAR7	VAR8
Mean	108.2143	5.726934	6240.043	3.648387	-1.108844	-3.440625	7.600000	1988.237
Median	110.0795	4.662006	6968.321	4.100000	-0.811000	-1.350000	6.600000	1768.260
Maximum	263.3720	17.22379	13890.64	13.50000	14.06800	7.300000	13.50000	4187.380
Minimum	2.875000	0.100000	168.6450	-12.60000	-10.96000	-51.70000	4.800000	858.7900
Std. Dev.	85.21164	5.070563	4645.107	5.965281	4.756336	9.460132	3.050495	1044.970

Skewness	0.185503	0.915668	0.091749	-0.946328	0.541207	-4.267589	0.810875	0.622626
Kurtosis	1.513665	2.703059	1.466509	3.779769	5.241242	22.63668	2.226919	2.330138
Jarque-Bera	3.129116	4.589292	3.180356	5.412328	8.259711	611.2647	4.034659	1.416221
Probability	0.209180	0.100797	0.203889	0.066793	0.016085	0.000000	0.133010	0.492574
Sum	3462.858	183.2619	199681.4	113.1000	-35.48300	-110.1000	228.0000	33800.03
Sum Sq. Dev.	225091.7	797.0288	6.69E+08	1067.537	701.3046	2774.317	269.8600	17471386
Observations	32	32	32	31	32	32	30	17

NOTE: VAR1: GDP, current prices (Billions of U.S. dollars); VAR2: FDI (Foreign Direct Investments) U.S. Dollars; VAR3: GDP per capita, current prices (U.S. dollars per capita); VAR4: Real GDP growth (Annual percent change); VAR5 : Current account balance U.S. dollars (Billions of U.S. dollars); VAR6: Current account balance, percent of GDP (Percent of GDP); VAR7: Unemployment rate (Percent) and VAR8: KASE Index.

The table presents the correlation coefficients between key economic indicators (VAR1 to VAR8), providing insights into the strength and direction of relationships between these variables. Here's a detailed analysis of the correlations, their statistical significance, and potential implications.

The correlation analysis highlights several key relationships within the dataset:

GDP, GDP per capita, and unemployment display expected relationships, with economic growth and increased per capita income generally aligning with lower unemployment rates.

Real GDP growth and current account balance (both in USD and as a percent of GDP) are positively correlated, suggesting that economic growth supports external balance improvement, potentially through increased exports.

FDI's relationship with unemployment and the KASE Index suggests complex dynamics, where foreign investment does not directly translate to job creation or stock market growth, potentially due to the type and nature of FDI projects.

These findings provide insights into how economic growth, external balances, and investment flows interrelate within the economy. However, some correlations—particularly between FDI, unemployment, and the KASE Index—highlight the need for further investigation to understand the causal mechanisms and broader economic implications.

Table 1: Correlation Coefficients

Correlation Probability	VAR1	VAR2	VAR3	VAR4	VAR5	VAR6	VAR7	VAR8
VAR1	1.000000							

VAR2	-0.450648	1.000000						
	0.0695	-----						
VAR3	0.954955	-0.286543	1.000000					
	0.0000	0.2648	-----					
VAR4	0.089712	0.003071	0.215438	1.000000				
	0.7320	0.9907	0.4063	-----				
VAR5	0.121784	0.278034	0.276910	0.512375	1.000000			
	0.6415	0.2799	0.2819	0.0355	-----			
VAR6	0.218976	0.210710	0.367061	0.499516	0.979663	1.000000		
	0.3984	0.4169	0.1472	0.0412	0.0000	-----		

VAR7	-0.692245	0.581349	-0.554980	0.330979	0.189501	0.126816	1.000000	
	0.0021	0.0144	0.0208	0.1944	0.4663	0.6277	-----	
VAR8	0.226340	-0.545600	-0.025494	-0.001738	-0.297378	-0.264932	-0.211119	1.000000
	0.3824	0.0235	0.9226	0.9947	0.2464	0.3041	0.4160	-----

NOTE: VAR1: GDP, current prices (Billions of U.S. dollars); VAR2: FDI (Foreign Direct Investments) U.S. Dollars; VAR3: GDP per capita, current prices (U.S. dollars per capita); VAR4: Real GDP growth (Annual percent change); VAR5 : Current account balance U.S. dollars (Billions of U.S. dollars); VAR6: Current account balance, percent of GDP (Percent of GDP); VAR7: Unemployment rate (Percent) and VAR8: KASE Index.

4.2. Causality Analysis

The VAR Granger Causality Test evaluates whether one time series can predict another, examining causality relationships among the current account balance in USD (VAR5), the current account balance as a percentage of GDP (VAR6), and the unemployment rate (VAR7). Here's a detailed interpretation of each causality test result.

VAR Granger Causality Test 1

The combined Chi-square statistic for both VAR6 and VAR7 as predictors of VAR5 is 0.3921 with a probability of 0.8220, supporting the conclusion that neither the unemployment rate nor the current account balance as a percentage of GDP Granger-cause the current account balance in absolute terms. The combined Chi-square statistic for both VAR5 and VAR7 as predictors of VAR6 is 1.2652 with a probability of 0.5312, supporting the conclusion that neither the absolute current account balance nor the unemployment rate Granger-cause the current account balance as a percentage of GDP. In addition, the combined Chi-square statistic for VAR5 and VAR6 as predictors of VAR7 is 12.6755 with a probability of 0.0018, showing strong evidence that both the current account balance in absolute terms and as a percentage of GDP Granger-cause the unemployment rate. Both the current account balance in absolute terms (VAR5) and as a percentage of GDP (VAR6) Granger-cause the unemployment rate, indicating that fluctuations in external balances have predictive power for unemployment. This finding may suggest that economic shifts impacting the current account—such as trade balance changes or foreign investment inflows—affect domestic employment levels. There is no evidence that either the current account balance in USD (VAR5) or as a percentage of GDP (VAR6) Granger-cause each other, nor is there evidence that the unemployment rate (VAR7) Granger-causes either current account measure. This suggests that current account measures and unemployment have a unidirectional causality, where changes in the current account influence unemployment but not vice versa.

VAR Granger Causality Test 2

The Granger causality tests in this set reveal the following insights. Neither FDI (VAR2) nor the unemployment rate (VAR7) significantly Granger-cause GDP. This suggests that changes in FDI inflows and unemployment do not predict changes in GDP, implying that GDP growth may be driven by other internal or external factors beyond FDI and labor market conditions. Neither GDP nor the unemployment rate Granger-cause FDI. This lack of causality implies that FDI may be influenced by factors unrelated to domestic economic performance, such as global market conditions, investor sentiment, and foreign policies. There is a weak indication ($p \approx 0.1$) that GDP (VAR1) could have a predictive relationship with the unemployment rate. This aligns with the idea that higher GDP growth may lead to lower unemployment, but the relationship is not statistically strong. There is no significant causality between FDI and the unemployment rate, suggesting that foreign investments may not directly impact employment levels in the short term.

These results suggest limited causal relationships between GDP, FDI, and the unemployment rate. While GDP might weakly influence unemployment, the lack of significant causality in other pairs implies that FDI and unemployment may be driven by more complex factors outside of direct interactions with each other or with GDP. These findings highlight the need to consider broader economic and global variables when examining determinants of FDI and unemployment.

VAR Granger Causality Test 3

The Granger causality tests for these variables indicate that No Significant Causality is confirmed implying that there is no evidence of Granger causality among the current account balance (both in USD and as a percentage of GDP) and the KASE Index. None of the variables predict changes in each other at statistically significant levels, indicating an absence of causal relationships in either direction. The lack of causality between the current account balance measures (VAR5 and VAR6) and the KASE Index (VAR8) suggests that the stock market index operates independently of the country's current account balance. This could imply that the stock market movements are influenced by other domestic or global factors rather than by external balances. The absence of causality between the absolute current account balance (VAR5) and its percentage of GDP (VAR6) suggests that these two measures do not influence each other predictively, likely because they reflect different aspects of economic performance and are independently influenced by external economic conditions, trade policies, or foreign exchange dynamics.

This analysis reveals no significant predictive relationships among the variables tested, indicating that the current account balance (both in USD and as a percent of GDP) and the KASE Index evolve independently of each other. These findings suggest that the stock market's performance may not be strongly tied to the country's external account metrics, and vice versa, highlighting the need for other factors to explain their behavior.

<p style="text-align:center;">**Table 2: VAR Granger Causality Tests**</p>

VAR Granger Causality Test 1

Dependent variable: VAR5

Excluded	Chi-sq	df	Prob.
VAR6	0.000810	1	0.9773
VAR7	0.338368	1	0.5608
All	0.392144	2	0.8220

Dependent variable: VAR6

Excluded	Chi-sq	df	Prob.
VAR5	0.830143	1	0.3622
VAR7	0.918502	1	0.3379
All	1.265163	2	0.5312

Dependent variable: VAR7

Excluded	Chi-sq	df	Prob.
VAR5	8.250131	1	0.0041
VAR6	12.65216	1	0.0004
All	12.67545	2	0.0018

VAR Granger Causality Test 2

Dependent variable: VAR1

Excluded	Chi-sq	df	Prob.
VAR2	0.914107	1	0.3390
VAR7	1.561835	1	0.2114
All	3.125341	2	0.2096

Dependent variable: VAR2

Excluded	Chi-sq	df	Prob.
VAR1	0.107853	1	0.7426
VAR7	0.128892	1	0.7196
All	1.310862	2	0.5192

Dependent variable: VAR7

Excluded	Chi-sq	df	Prob.
VAR1	2.628503	1	0.1050
VAR2	1.675798	1	0.1955
All	4.873141	2	0.0875

VAR Granger Causality Test 3

Dependent variable: VAR5

Excluded	Chi-sq	df	Prob.
VAR6	0.147838	1	0.7006
VAR8	0.156940	1	0.6920
All	0.248576	2	0.8831

Dependent variable: VAR6

Excluded	Chi-sq	df	Prob.
VAR5	0.004390	1	0.9472
VAR8	0.370893	1	0.5425
All	0.406354	2	0.8161

Dependent variable: VAR8

Excluded	Chi-sq	df	Prob.
VAR5	0.942818	1	0.3316
VAR6	0.791008	1	0.3738
All	1.118293	2	0.5717

VAR5 : Current account balance U.S. dollars (Billions of U.S. dollars); VAR6: Current account balance, percent of GDP (Percent of GDP); VAR7: Unemployment rate (Percent)

VAR1: GDP, current prices (Billions of U.S. dollars); VAR2: FDI (Foreign Direct Investments) U.S. Dollars; VAR7: Unemployment rate (Percent)

VAR5 : Current account balance U.S. dollars (Billions of U.S. dollars); VAR6: Current account balance, percent of GDP (Percent of GDP); VAR8: KASE Index.

Note: LM test detected no autocorrelation. Optimal lag is 1 year.

5. Conclusion

Overall, empirical research indicates a complex relationship between financial development and economic growth, with evidence supporting the supply-leading, demand-following, and bidirectional hypotheses. The relationship's nature and direction depend heavily on factors such as the level of economic development, financial liberalization, institutional quality, and the specific methodologies used in studies.

The descriptive analysis indicates a growing economy with significant variability in certain key areas, such as FDI, current account balance, and real GDP growth. The presence of high volatility and occasional extreme values in trade balances and growth underscores the need for economic policies that promote stability and resilience. Overall, the economic indicators suggest positive growth trends, moderate labor market stability, and improving financial market performance. However, the susceptibility of some indicators to external shocks and trade imbalances points to areas where economic planning could focus to enhance long-term stability and sustainable growth.

The empirical results imply that policy measures aimed at improving the current account balance could potentially influence the unemployment rate. However, changes in unemployment do not appear to impact the current account measures in return, suggesting that unemployment might respond to broader economic conditions but does not directly drive changes in external balances.

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