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Financial Market Development and its Implication on Economic Performance: Evidence from APEC countries

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ABSTRACT: Establishing a strong financial market could help countries economically by acting as an accelerator. It has been discovered that countries with robust stock markets promote the creation of decent jobs, improve national income, and support economic expansion that is consistent with long-term economic growth. This study aimed to investigate the effect of financial market development on economic performance among the Asia-Pacific Economic Cooperation (APEC) countries. The data, which spans the prior 32 years from 1991 to 2022, has been collected from reputable databases, such as Internal Monetary Fund (IMF) and World Bank Data. The Fixed effect model with GLS cross-section weight was used to assess the above association. The findings display that FDI has a positive but insignificant influence on economic performance measured by (GNI and GDP). MAC has an adverse impact on GNI, but it has a beneficial impact on GDP, suggesting that although the stock market drives economic growth, its influence on national income is insignificant. Efficiency in the financial markets increases GDP but also increases disparities in income distribution, whereas depth in the financial markets increases GNI but reduces GDP growth. The results emphasize the necessity of balanced approaches to achieve equitable and sustained economic performance. To encourage economic growth, policymakers should give priority to fostering stock market expansion, lowering disparities in income distribution, and enhancing the effectiveness of the financial system. Sustainable economic growth, higher income level, and enhancing general social well-being are three benefits of putting these aims into practice.

Keywords: Financial market growth; Market capitalization; Market efficiency; FDI; Economic performance

1 INTRODUCTION

Financial market growth and economic development are prerequisites for reducing poverty and promoting overall well-being. A healthy financial system promotes company expansion, encourages efficient capital allocation, and boosts employment opportunities, all of which work together to reduce poverty. Economic growth could reduce income inequality by promoting a more equitable distribution of wealth [1]. Nevertheless, due to local and international uncertainty, fast economic growth has become impossible to accomplish. Macroeconomic factors are related closely to internal and external factors including political circumstances and instability in financial markets and commodities, which will influence economic achievements [2].

A financial market is a structure that facilitates the movement of money between investors and companies by allowing the trading of financial instruments such as stocks, and bonds. A robust financial system guarantees economic stability, improves liquidity, and distributes resources efficiently [3]. Economic performance, on the other hand, assesses the economic system at the national level. It shows a country's capacity to produce revenue, establish employment opportunities, and maintain steady growth over the long run. Thus, national economic results can be determined partly by the relationship between the growth of financial markets and economic performance [4].

Schumpeter's theory of economic development [5] served as the basis for decades of debate over the relationship between the financial sector and economic development. According to the theory, financial service providers are crucial in fostering economic expansion. Market-driven and bank-based intermediary systems, on the other hand, support growth in the country and affect the reliability and efficacy of the national accounting regime. Later, [6] expanded the application of the finance-growth argument and demonstrated that long-term economic expansion is positively impacted by banking development and stock market liquidity. Furthermore, [7] argues that the financial system of a country can be classified as either market- or bank-based, depending on how important banks and financial markets are to the nation's economy and supporting the establishment of sustainable development.

The goal of every country is to encourage quick and sustainable growth in their economy. Despite the exception of the global economic downturn, this goal seems to have progressed generally during the last twenty years. According to World Bank data [8], the total GDP of the world increased by more than four times from 24 trillion USD in 1991 to 100 trillion USD in 2022. As shown in Figure 1, there have been only two negative changes in the world economy since 1991. The first incident was in 2009 during the Great Recession, which caused the global GDP to drop by 1.35%. The second one was during covid-19 pandemic in 2020 and the subsequent period of economic depression caused a more significant 2.9% reduction in global GDP.

Figure 1 shows the ranges in GDP growth per year from 1991 to 2022 for five members of the Asia-Pacific Economic Cooperation (APEC), and the world. Both of them experienced impressive endurance and moderate growth, despite fluctuations in both growth and decline. More than any other country, Singapore has demonstrated a robust ability to endure financial crises, often exceeding expectations. Maintaining a consistent growth trajectory was made possible by its well-diversified economy and well-timed investments in industries including banking and technology. Notable for its durability, South Korea was also able to maintain growth projections and rebound back from economic recessions. Despite occasional volatility, Australia and New Zealand have largely maintained consistent expansion trends, helped by their robust domestic markets and rich resources. However, Japan struggled to maintain growth as it dealt with fundamental economic problems among other factors.

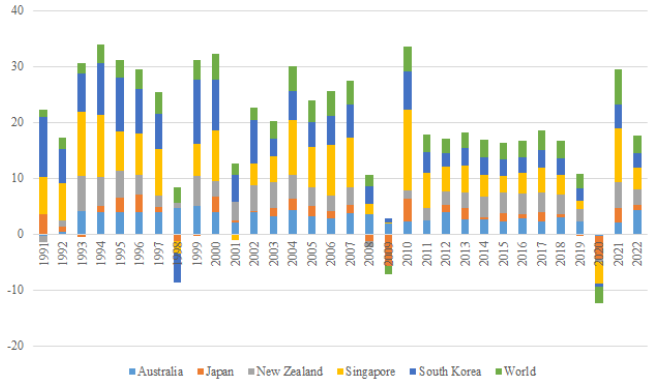

Figure 1. GDP growth trends between five APEC countries and global on average (1991–2022)
Source: Prepared by the author using World Bank data

Moreover, the efficiency of national accounting plans is contingent upon the expansion and complexity of financial markets [3]. From this perspective, [4] argues that robust stock markets can mitigate inequality by offering individuals the opportunity to hold a percentage of the shares of a business and generating chances for investment gains and prospective rewards from the profits generated by the business. Thus, the capital market serves as a mediator for corporations seeking to find financial sources.

According to [9],[10] business expansion accompanied by enough funding from equity finance, would provide new job possibilities and contribute to the achievement of Sustainable Development Goals. Additionally, a strong financial system attracts both local and international capital, which may promote economic expansion [11], [12]. Figure 2 also shows the Gross National Income (GNI), an important indicator of macroeconomic performance, for the five APEC nations between 1991 and 2021. Throughout this time, GNI increased in all nations, but at different levels. Australia and New Zealand had lesser GNIs, whereas South Korea and Japan regularly had the highest levels. After 2000, Singapore's GNI increased significantly.

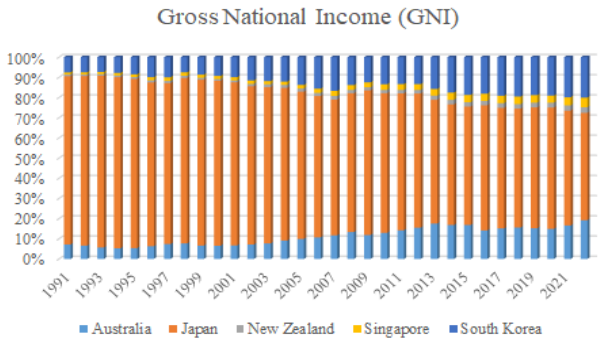

Figure 2. GNI trends for five APEC countries between (1991–2021)
Source: Prepared by the author using World Bank data

Previous investigations on the relationship between finance and growth in the economy have focused on banks' function as the conventional means of financial intermediaries [12][13]. Yet, due to economic liberalization legislation, financial markets have grown significantly as financial service providers in recent years, particularly in industrialized nations. Therefore, the idea that capital markets can stimulate economic performance has attracted the attention of researchers. The function of the financial market has been defined by recent developments in the literature [13][14], which demonstrate how they might support economic performance through a variety of productive activity-related features.

Even though APEC countries are among the most prosperous countries in the world, there is still a lack of research on the development of financial markets and how they have affected economic performance. In particular, there are few studies investigating how these industrialized nations' regulatory systems, market structures, or particular financial tools contribute to economic performance. However, this is important because strong financial markets are essential for raising capital, improving the effectiveness of investments, and fostering economic growth. A significant gap in the literature is highlighted by the lack of extensive research on the ways in which the financial market structure affects economic performance in APEC nations. Therefore, this study aims to investigate how stock markets in developed countries support economic performance. The research makes specific contributions to the current literature as it offers new proof of the financial development-performance linkage within advanced economies.

2 LITERATURE REVIEW

2.1 THE EFFECT OF FINANCIAL MARKET DEVELOPMENT ON ECONOMIC PERFORMANCE

The financial system serves as an essential component in the economy by guaranteeing liquidity, allocating financial claims, mobilizing a portion of national income over current spending for investments, enhancing the role of profit as a motivator, allocating funds to the economy, and mitigating financial and economic shocks through the risk-sharing system [15]. Empirical research has placed attention on the impact of financial market growth on economic performance. For instance, [4] examined how economic growth is impacted by the financial market among middle- and high-income nations. The study used OLS regression analysis and found that domestic stock trading has a negative correlation with GDP growth, while market capitalization has a favorable impact on economic growth. Macroeconomically conversing, financial market sources for capital framework offer advantages in terms of low expenses and risk reduction during an interest rate shock. From this perspective [16] investigated the impact of stock market development on sustainable development in less developed nations. To improve growth and stability, it suggests controlling capital inflows, encouraging bank-based financial systems, and avoiding centralized control of markets. At the microeconomic level, [17– 19] focused on examining how capital financing affects performance and they found that uncontrolled financial structure raises investor risk by using more borrowing and less stock issuance. In this vein, financial managers must perform a challenging task when determining how to raise money for their organizations [20][21]. Therefore, developments in financial markets have an effect on the financial system by expanding the availability of funding and lowering expenses. Effective markets optimize capital allocation, lower borrowing costs, and promote investment, which drives economic expansion through corporate growth and development.

Moreover, established robust financial systems improve the effectiveness of resource allocation and accelerate long-term growth through a variety of mechanisms. From this perspective, [22] investigated the contribution of the financial sector to economic expansion, emphasizing the importance of lending, and stock trading. The results of linear regression analysis demonstrate that while firm market value has a detrimental effect on economic development, borrowing and trading in stocks have a beneficial effect.[23] examined how financial markets and financial institutions affected macroeconomic performance over a 40-year period. They concluded that financial markets and banking institutions had a favorable effect on economic development. Similarly, [24] examined the effect of financial market growth on economic achievement. The study used data of Indonesian economy between 2002-2019. Using principal component analysis, the study revealed the stocks traded, turnover ratio and market capitalization has considerable effect on Indonesian economy.

[25]–[27] reported the same findings, that the financial market promotes economic growth. [28] claimed that prior to the financial crisis of 2008, there was a positive correlation between the stock market and economic performance; nevertheless, after the crisis of 2008, the findings were mixed and [4] evidenced a nonlinear association.

2.2 ASSESSING FINANCIAL MARKET DEVELOPMENT

From a macroeconomic perspective, the development of the financial sector and overall economic growth are interconnected [29]. Therefore, the efficiency of economic development will be aided by a robust and transparent financial system. Financial market growth measures were developed by [30] utilizing a variety of indicators, such as market capitalization at a percentage of GDP, linked to the volume of the capital market. In a similar vein, [31] argues that financial development indicates the magnitude of the financial industry and is determined by the proportion of stocks traded or the turnover ratio to GDP. Thus, it is expected that a larger market will be able to generate investment while dispersing risks. These factors show how liquid the stock market is, which should lower investment costs and bring additional capital.

Another factor that is used in this investigation is the introduction of external funds, knowledge, and technology through foreign direct investment (FDI) is critical to increasing national income as it may stimulate productivity growth and innovation [32] By giving companies, the opportunity to utilize global equity markets and improving liquidity in the market [33], FDI may also benefit the stock market. A study by [34] points out that FDI can strengthen the foreign nation's financial system, encouraging economic development. FDI improves the effective distribution of assets throughout the financial system and minimizes the cost of financing. Therefore, FDI improves the effective distribution of assets throughout the financial system and minimizes the cost of financing.

Furthermore, according to Fama theory in 1970, the market consistently proved efficient if the prices accurately represented available information. From this perspective, when asset prices fairly reflect their inherent worth, efficient markets allow investors to make more educated choices about investments [35]. This is because an effective capital market may improve the distribution of capital, decrease the cost of transactions, and lessen the asymmetric information [36]. Thus, economic performance can be enhanced by greater utilization of resources resulting from stronger stock markets [3].

In line with this, the continued development of financial integration is a necessary component of every nation's financial growth [37], and this should be bolstered by laws that aim to make these services more effective and efficient [38]. The most financially successful initiatives in the marketplace can receive funding because of effective financial intermediaries. Greater depth and stability in the economic sector increase the amount of money accessible and direct savings toward the most highly profitable ventures [39]. However, [40] contends that excessive consumption in financial development might be detrimental to economic expansion, implying that the advantages of enlarged capital markets may become less pronounced or even change direction beyond a certain point. Hence, establishing the connection between financial market depth and economic output at an optimum level could encourage the adoption of regulations that enhance financial growth and advance economic opportunities, which brings higher income at a national level.

3 METHODOLOGY

3.1 DATA

The data covers the previous 32 years, from 1991 to 2022, and has been confirmed by (IMF, 2022; World Bank, 2022). Due to their distinctive economic behaviors, the five members of the Asia-Pacific Economic Cooperation (APEC) (Australia, Japan, New Zealand, Singapore, and South Korea) were selected. These nations are suited for studying the relationship between financial market development and economic advancement since they have shown stable economic performance and sophisticated financial systems. They stand out from other countries in the region due to their robust financial structures and economic resiliency, which offer important insights into how financial markets support sustained economic growth. In addition, they have robust and frequently unique regulatory systems. For example, countries such as South Korea and Singapore have developed laws governing transparency in markets and protecting investors that might not be comparable to other countries in the region. Additionally, sophisticated financial supervision and regulation in Australia and Japan guarantee the stability of their markets.

3.2 VARIABLES

The dependent (explained) variable in this study is economic performance, measured through gross national income (GNI), and gross domestic product (GDP) annual growth rate. The independent (explanatory) variable in this investigation is financial market development which is approximated by foreign direct investment (FDI), the market capitalization of listed domestic firms as a percentage of GDP (MAC), financial market efficiency (FME), and financial market depth (FMD), and stocks traded, turnover ratio (STTR).

3.3 METHOD AND MODEL SPECIFICATION

According to [17][41], using an explanatory research design is appropriate for examining the correlations involving several variables, such as their relationships, effects, and overall impact. They also underline the usefulness of this strategy in resolving problems that might not have a clear description. From a methodological perspective, the literature explores panel data assessment using different methods and techniques. The present investigation follows the work of [4][28], which suggests a direct connection between financial market development and macroeconomic performance, within the parameters of the study's paradigm. Additionally, the panel unit root, cointegration, and panel data assumption tests as pre-regression evaluations, serve in selecting the proper regression model for analysis. The factors that are stationary at the level and cointegrated throughout the long term were chosen. Therefore, the fixed effects model with GLS cross-section weights was applied in this study, using EViews (version 10) for analysis.

Model 1.

$$GNI_{it} = a_0 + a_1 FDI_{it} + a_2 MAC_{it} + a_3 FME_{it} + a_4 FMD_{it} + a_5 STTR_{it} + e_{it}$$

Model 2.

$$GDP_{it} = a_0 + a_1 FDI_{it} + a_2 MAC_{it} + a_3 FME_{it} + a_4 FMD_{it} + a_5 STTR_{it} + e_{it}$$

Where;

GNI_{it} is the natural logarithm of gross national income (GNI)

GDP_{it} is the gross domestic product annual growth rate

FDI_{it} is a foreign direct investment, net inflows as a percentage of GDP.

MAC_{it} is the market capitalization of listed domestic companies as a percentage of GDP.

FME_{it} is the financial market efficiency index.

FMD_{it} is the financial market depth index.

$STTR_{it}$ is the stocks traded, and the turnover ratio of domestic shares.

a_0 is a constant.

e_{it} is the error term.

4 EMPIRICAL RESULTS

4.1 DESCRIPTIVE STATISTICS

Table 1 displays a brief overview of the statistical analysis. The mean value of GNI and GDP for the entire sample are 27.03, and 3.37, respectively. The range and deviation of GDP and GNI show the presence of both exceptionally high and low-performing countries within the sample throughout the selected period. The market capitalization as a percentage of GDP has a mean value of 94.24 which is particularly higher than other indicators of financial market development. This claims that the majority of countries in the sample consider market capitalization to be a key component of their economic development. Having a comparatively high deviation of 7.60, the arithmetic mean of FDI as a proportion of GDP is 4.80. This suggests that there is a significant amount of heterogeneity in FDI inflows among the selected nations. The lowest value of -3.81 indicates that throughout the study period, some countries may have had net outflows of FDI, while the highest value of 31.62 indicates that other countries may have benefited from significant inflows.

Table 1. Descriptive Results

Variables	Obs.	Mean	St.Dev.	Min.	Max.	Skewness	Kurtosis	Jarque-Bera	Prob.
GNI	160	27.033	1.484	24.385	29.494	0.083	1.901	8.230	0.016
GDP%	160	3.373	3.160	-5.693	14.520	0.435	4.298	16.271	0.000
FDI%	160	4.809	7.607	-3.812	31.621	1.938	5.703	148.856	0.000
MAC%	160	94.243	59.457	7.351	296.883	1.231	4.118	48.753	0.000
FME	160	0.679	0.319	0.110	1.000	-0.441	1.697	16.487	0.000
FMD	160	0.609	0.251	0.170	0.980	-0.178	1.500	15.837	0.000
STTR%	160	77.575	63.795	9.285	407.881	1.781	7.567	223.645	0.000

Source: Prepared by the author based on EViews output

In comparison to other characteristics, the mean values of FMD and FME are 0.67 and 0.60 with the standard deviations of 0.25 and 0.32, respectively. This implies that the members of APEC countries have more consistently high levels of financial market depth and efficiency. Moreover, STTR, which calculates the stocks traded, and the turnover ratio of

domestic shares has a significant deviation of 63.79 and an arithmetic mean of 77.57. The diversity in stock market participation throughout the sample is highlighted by a wide range from 9.28 to 407.88.

Moreover, according to the results of table 1, none of the data sets follow a normal distribution. Both GDP and GNI display moderate kurtosis with low skewness. Other variables such as FDI, MAC, and STTR, exhibit positive skewness and high kurtosis, suggesting distributions that are right-skewed and have fat tails. FME and FMD are platykurtic and show small negative skewness. The Jarque-Bera test verifies that all variable departs significantly from normalcy ($p < 0.05$), suggesting that the null hypothesis that all observed series have a normal distribution is rejected.

4.2 PEARSON CORRELATION

This test is used to determine the direction and strength of the linear connection between two variables. In the correlation degree scale, 0 denotes no correlation, 1 denotes positive correlation, and -1 denotes negative correlation. The relationship between all variables, including dependent and independent variables, is shown in Table 2.

Table 2. Correlation Analysis

	1	2	3	4	5	6	7
(1)GNI	1						
(2)GDP	-0.375***	1					
(3)FDI	-0.371***	0.319***	1				
(4)MAC	-0.065	0.238***	0.774***	1			
(5)FME	0.571***	0.029	-0.265***	0.075	1		
(6)FMD	0.334***	-0.037	0.375***	0.696***	0.482***	1	
(7)STTR	0.417***	0.090	-0.280***	-0.121	0.759***	0.206***	1

Notes: ***, **, and * denote significance levels at 1%, 5%, and 10% respectively (two-tailed).
Source: Prepared by the author based on EViews output

The highest correlation registered is 0.77, which is between MAC and FDI, and the lowest connection is 0.029 between FME and GDP. GNI is negatively related to FDI and MAC, but positively on FME, FMD, and STTR. The correlation between GDP and indicators of financial market development, such as FDI and MAC is positive and statistically significant. However, in the case of FME, FMD, and STTR, the results are not statistically significant. FDI is positively related to MAC and FMD, but negatively on FME and STTR. MAC has a positive and significant relation with FMD but is insignificantly related to FME and STTR. In addition, the correlation between FME with FMD and STTR is positive and statistically significant. The association between FMD and STTR is also positive and statistically significant.

4.3 STATIONARY TEST

The panel unit root test results for every variable are shown in Table 3. The research applied two stationary tests to increase the accuracy of the findings. These tests are Phillip Perron (PP) introduced by [42], and Harris–Tzavalis (HT) evolved by [43]. Based on the results of table 3, all of the study variables are determined to be stationary at level. Thus, at significance levels of 1% and 5%, all variables contradict the hypothesis of unit roots. The majority of variables are significant at the 1% level. However, FMD is stationarity at the 5% level, indicating possibly a lower level of stationarity.

Table 3. Results of unit root tests

Variables	PP	H&T
GNI	64.144***	7.953***
GDP	86.080***	4.984***
FDI	44.421***	7.610***
MAC	23.360***	4.314***
FME	88.773***	4.755***
FMD	22.370**	7.270***
STTR	27.102***	1.929**

Notes: ***, and ** denote significance levels at 1%, 5% respectively
Source: Prepared by the author based on EViews output

4.4 PANEL DATA COINTEGRATION TEST

In panel data, the Johansen cointegration test is used to determine if there is a long-term equilibrium connection between the variables. Although there may be short-term fluctuations, meaningful long-term relationships will be assured when at least half or more of the variables in panel data analysis are cointegrated.

Table 4. Cointegration test

Kao Residual Cointegration Test	GNI		GDP	
	t-Stat.	Prob.	t-Stat.	Prob.
ADF	-1.701	0.044**	-5.807	0.000***
Residual variance	0.012		10.661	
HAC variance	0.019		4.206	
Series	GNI FDI MAC FME FMD STTR		GDP FDI MAC FME FMD STTR	

Notes: ***, and ** denote significance levels at 1%, 5% respectively
Source: Prepared by the author based on EViews output

Table 4 presents an overview of the results of the panel co-integration test. The outcomes indicate that the probability value of each of the variables, sequentially for different groups, are cointegrated because statistical proof rejects the null assumption at a 5% significance level that there is a lack of cointegration. These results are based on the utilization of GNI (model 1) and GDP (model 2) as explained factors. A stronger case for integration among the variables under study is made by the results of the p-value. Hence. we can infer that there is a long-term link between the components being investigated.

4.5 REGRESSION RESULTS AND DISCUSSION

Table 5 exhibits the results of the fixed effect with GLS cross-section weight. This method is executed to evaluate the effect of financial market development on economic performance. The adjusted R square for both models is 0.950 for (GNI) and 0.314 for (GDP). This indicates that the independent variables (FDI, MAC, FME, FMD, and STTR) together can explain 95% and 31% of the variance in the GNI and GDP respectively. Both models have goodness of fit for the explanatory factors, as the probability of F-statistic is less than 1%.

Table 5. Regression Analysis

Variables	Model 1 (GNI)			Model 2 (GDP)		
	Coef.	Std. Err.	t-Stat.	Coef.	Std. Err.	t-Stat.
FDI	0.013	0.008	1.589	0.078	0.072	1.081
MAC	-0.001	0.001	-0.919	0.020**	0.009	2.218
FME	-1.466***	0.185	-7.917	3.203**	1.412	2.269
FMD	2.397***	0.195	12.269	-5.810***	1.541	-3.770
STTR	0.001	0.001	0.441	0.002	0.007	0.142
R_2		0.953			0.353	
Adj. R_2		0.950			0.314	
S.E. of regression		0.343			2.483	
F-statistic		342.891			9.098	
Prob.		0.000			0.000	

Notes: ***, **, and * denote significance levels at 1%, 5%, and 10%, respectively.
Source: Prepared by the author based on EViews output

The findings illustrated that the existence of FDI has a positive but insignificant influence on both GNI and GPD with a value of 0.013 and 0.078 respectively. This clearly means any changes that occur in FDI, do not affect economic performance. A possible explanation for this finding is that FDI may be directed toward economic sectors that may not be principally in charge of boosting the economy's overall efficiency or growth. In addition, if FDI could primarily prioritize short-term gains over long-term economic growth, it would make its contribution to GDP or GNI insignificant. Moreover, MAC has a negative influence on GNI but this result is statistically insignificant, however, it has a positive and significant impact on GDP. If other factors remain unchanged, this means that an increase or decrease in MAC does not bring any changes in GNI. However, for every 1% increase in MAC, GDP increases by 0.020 percent. The different outcomes demonstrate that although market capitalization contributes to GDP growth, its overall influence on GNI is not significant. The growth of the stock market can support national economic activity, possibly by enhancing the quality of allocating capital and the efficiency of investment.

The coefficient correlation of FME with GNI and GDP is statistically significant. To be more precise, if FME increases by 1%, GNI decreases by 1.466%, and GDP increases by 3.203%. The results demonstrate how crucial financial market efficiency (FME) is in determining economic performance. The favorable impact on GDP indicates that improved financial market efficiency boosts investment possibilities, capital allocation, and overall economic performance. The adverse impact on GNI, nevertheless, suggests that there may be disparities in income distribution.

The connection between FMD with GNI is positive, while it negatively affects GDP. To be more precise, for every 1% increase in FMD, GNI would significantly improve by 2.397%, and decline GDP by 5.810%. This claims that increased local markets enhance domestic revenue by giving home-country businesses better access to capital. However, an adverse relationship with GDP may indicate that financial market depth increases domestic income while also causing the misallocation of resources, which supports short-term investments over long-term economic development. The findings also show that STTR has no significant influence on either indicator of economic performance. If other factors remain constant the results indicate that any change in STTR does not affect the economic growth.

Further, several tests were performed to guarantee that the regression results were robust and reliable. These include multicollinearity, model selection, serial correlation, and heteroscedasticity tests. Table 6 shows the results of the Variance Inflation Factor (VIF).

Table 6. Variance Inflation Factor (VIF)

Variables	VIF
FDI	3.495
MAC	4.959
FME	3.967
FMD	3.094
STTR	2.670
Mean	**3.637**

Source: Prepared by the author based on EViews output

According to [44] achieving a VIF greater than 10 signifies a considerable level of multicollinearity among the independent variables. The findings of table 6 demonstrate the highest and lowest values of VIF, which are 5.028 and 1.213 respectively. Hence, multicollinearity does not appear to be problematic in this study.

For deciding between pooled OLS, fixed effect (FE), and random effect (RE) models, the Lagrange Multiplier (LM) and Chow test have been applied. To make a decision between OLS and RE, the LM test could be applied, while to select between OLS and FE, the Chow test could be employed. Given that short sample size (N = 5) can occasionally result in problems with the covariance matrix or leave the test inaccurate, the Hausman test failed to run and this is caused by the small sample size. Table 7 illustrates the outcomes of both LM and Chow tests.

Table 7. Model diagnostics and selection tests

Test summary	Dependent Variable (GNI)	Dependent Variable (GDP)
Lagrange Multiplier Test	17.651***	7.826***
Chow Test (F-Test)	382.97***	35.17***

Notes: ***, **, and * denote significance levels at 1%, 5%, and 10%, respectively.
Source: Prepared by the author based on EViews output

The chi-square of the LM test for both models (GNI and GDP) is 17.651, and 7.826 respectively and the p-values of both models are lower than 1% ($P < 1\%$). According to this, RE models are more appropriate than polled OLS. Additionally, the Chow test findings also demonstrate that the probability is less than 1% ($P < 1\%$), suggesting that FE models are more precise and reliable. However, the evidence of heteroscedasticity is confirmed by the Breusch–Pagan–Godfrey test result, which shows the probability of a significance level of less than 1% ($P < 1\%$) as shown in table 8. Hence, the homoscedasticity null hypothesis is rejected. The serial correlation test as presented in table 8 also shows a *p*-value lower than 1%, which further supports the existence of the serial correlation. In light of these findings, the most reliable and efficient estimating technique for this study could be the Generalized Least Squares (GLS) approach with cross-section weights. According to [45][46] GLS method permits heteroscedasticity and/or cross-sectional correlation between

the panels. [47] also contended that the GLS model outperforms because it recognizes fundamental issues with data, such as homoscedasticity and normality.

Table 8. Panel data assumption test

Test summary	Dependent Variable (GNI)	Dependent Variable (GDP)
Serial Correlation (Breusch-Godfrey)	128.52***	11.399***
Heteroskedasticity (Breusch-Pagan-Godfrey)	24.608***	12.261***

Notes: ***, **, and * denote significance levels at 1%, 5%, and 10%, respectively.
Source: Prepared by the author based on EViews output

CONCLUSION

This investigation explores the effect of financial market growth on economic performance among APEC countries over 32-year time span (1991-2022). In the last two decades, these nations' economic performance tendency has been rather steady, averaging 3.3%, which is greater than the 2.9% global GDP for the same time frame. Annual data accessible to the public is gathered and used from the World Bank and IMF databases. The fixed effect model with GLS cross-section weight in this study is used to examine the effect of financial market growth on economic performance.

The results show that FDI has a positive but insignificant effect on economic performance measured by GNI and GDP, suggesting that FDI may be allocated to sectors of the economy that make insignificant contributions to the economy as a whole. MAC has an adverse correlation with GNI, but it has a beneficial relationship with GDP, suggesting that although the stock market drives economic growth, its influence on national income is insignificant. FME has a negative impact on GNI but a positive effect on GDP, indicating that while more efficient financial markets boost economic performance, they also increase the disparity in income. A tendency toward short-term investment at the expense of long-term growth is suggested by FMD, which has a positive influence on GNI but a negative impact on GDP. The findings also demonstrate that STTR has no impact on economic performance (GNI and GDP). These results highlight the diverse role of financial market indicators, that have different implications for income distribution and economic performance. Overall, the above results and discussions are supported by the findings of [4], [9], [24], [28].

This research extends the repository of knowledge by presenting empirical proof of the effect of financial market development on economic performance among APEC countries. In order to improve economic performance and increase national income, the results advise policymakers including legislators, financial regulators, and central banks, in these nations should prioritize encouraging stock market capitalization, strengthening banking sector stability, making effective stock markets, and expanding financial inclusion. Governments may foster economic development and enhance the general well-being of their community by adopting regulations that promote these goals.

Two limitations in this study were observed. First, other variables, such as market instability, underground economy, fiscal performance, and financial compliance with a longer time span are recommended to be used by future studies. Second, financial technology accelerates the evolution of finance and facilitates access to credit in both advanced and emerging nations. This may lead to structural modifications in the financial landscape. Hence, the possible effects of increasing access to intermediaries must be the focus of future studies.

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