

ANALYSIS OF FACTORS INFLUENCING THE DEVELOPMENT OF INDEX MUTUAL FUNDS

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Abstract

Previous research has explored the factors impacting stock market performance, yet the reluctance towards index funds across different countries remained unexplained. In contrast to the US, where Vanguard and Fidelity dominate with high NAVs in index mutual funds, Indonesia's index mutual funds only constitute 1.55% of the total NAV as of 2021. Esteemed figures like Warren Buffet and John C. Bogle advocate for low-cost index funds, citing automatic diversification as the optimal strategy for stock market gains. This study aims to empirically investigate the macroeconomic and financial drivers behind the growth of index mutual funds. Index funds, a form of passive investment, replicate a market index, offering low portfolio turnover, cost efficiency, and reduced unsystematic risk. Analyzing data from 2000 to 2021 across 37 foreign stock markets, encompassing both developed and developing economies, this study employs techniques like data panel regression. Results reveal that macroeconomic factors such as Foreign Direct Investment, export activities, economic size, and stage of development, government spending, current account balance, banking system, and stock market returns correlate with index mutual fund growth. Notably, a nation's GDP per capita emerges as the most influential factor positively driving index fund expansion. These findings bear significance for diverse stakeholders, including governments seeking to formulate targeted policies for fostering index fund products. This research contributes novelty by extending prior work, utilizing macroeconomic and financial factors to elucidate the dynamics underlying the popularity of index funds in various countries.

Keywords: Macroeconomic factors, financial factors, index mutual fund development

Introduction

The concept of indexing or passive investing is the foundation of the investment product known as an index mutual fund. With ownership based on market capitalization, the investment manager buys every share of a stock index. Due to its low

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trading activity and lack of investment selection fees, an index mutual fund minimizes costs and increases tax efficiency.

According to data from the Indonesian Financial Services Authority, equity funds, fixed income funds, capital protected funds, and money market funds are the mutual fund product categories that investors in Indonesia most frequently purchase. The composition of Index Mutual Fund products is only 1.55% to 2.56% of the total Mutual Fund NAV (Otoritas Jasa Keuangan, 2023). This phenomenon is very interesting to study considering that the composition of Index Fund Mutual Funds is much smaller when compared to other types of Mutual Funds. This phenomenon is distinct from that which exists in the US, where an index mutual fund is the biggest mutual fund in the US based on total assets under management. In the United States, the proportion of passive funds surpassed that of active funds even in 2021 (Johnson, 2022). The 9th richest man in the world and CEO of Berkshire Hathaway, Warren Buffet, advised investors to invest in low-cost index funds that are automatically diversified because they purchase all the shares in the index. Buffet told CNBC that investing in index funds is the most prudent course of action ever for anyone trying to increase their retirement savings (CNBC, 2022). According to John C. Bogle, the founder and CEO of Vanguard Group, index funds are the only way to ensure that investors reap the most rewards from the stock market (Bogle, 2017). It's interesting to learn about this phenomenon and why index mutual funds are uncommon in places like Indonesia.

Several studies have examined the after-expense performance of mutual funds. The general finding is that active mutual funds perform worse than the performance measurement model. Several investors have shifted to passive funds as a result of this decision (Elton et al., 2019). The relationship between macroeconomic factors and stock price or stock return has also been the subject of extensive investigation. But none of this data can explain why index funds are not widely used in some nations, such as Indonesia.

Passive funds now account for 26% of assets under management, up from 16,4% in the previous five years (Elton et al., 2019). This phenomenon promotes the execution of mutual fund research. In his research on investment managers' capacity to actively manage portfolios, Jiri Sindelar discovered that passive investment returns significantly outperform those of active ones (Šindelář, 2022).

Long examines the impact of changes in the key economic indicators on a cross-section of worldwide stock returns in a global stock market. The sample includes 39 global stock markets in both developed and developing nations from 1967 to 2021. According to this study, key economic indicators accurately forecast future returns (Long et al., 2022).

This study offers two unique contributions to the body of knowledge on international stock markets. First of all, this research is a development from earlier studies, the majority of which sought to determine the impact of particular variables on stock pricing or returns. Macroeconomic variables will be used in this study to look at what influences the growth of index funds at the national level. Second, this study will

expand on the research findings to identify strategies for a nation to establish index mutual fund products.

This research has two main management questions as follows: What are the factors causing the unpopularity of index funds in Indonesia based on the NAV? What factors influence the development of an index fund in a country? The objective of this research is to investigate the relationship between macroeconomic and financial factors including Foreign Direct Investment, export of goods and services, economic size, stage of economic development, government consumption spending, current account balance, banking system, and stock market return.

This study makes use of panel data from 37 nations, including developed and developing nations, collected over a 22-year period between 2000 and 2021. The degree of multicollinearity among the explanatory variables will be kept within statistically permissible bounds. To guarantee that the variables are devoid of correlation, which could potentially skew the results, correlation tables between the variables will be displayed. The findings of this study are anticipated to reveal the elements that significantly impact the growth of index funds in a nation and may be crucial information for the government in formulating regulations to expand the market for index mutual fund products.

Research Method

Explanatory research is used in this study. Explanatory research seeks to explain the relationships between research variables and the placements of the variables under study (Putra et al., 2013). Because the purpose of this research was to examine the link between two or more variables, correlation research is a sort of research that was used in this study. Researchers will look into the impact of macroeconomic and financial indicators (an independent variable) on a nation's progress with index funds (dependent variable).

This study, which uses a quantitative technique, falls under the category of causality research because it seeks to understand the causes of the independent and dependent variables. Macroeconomic indicators are the independent variable (X) and the growth of index mutual funds in a nation is the dependent variable (Y) in this study. The empirical model, which is based on the primary journal, has the following eight key models:

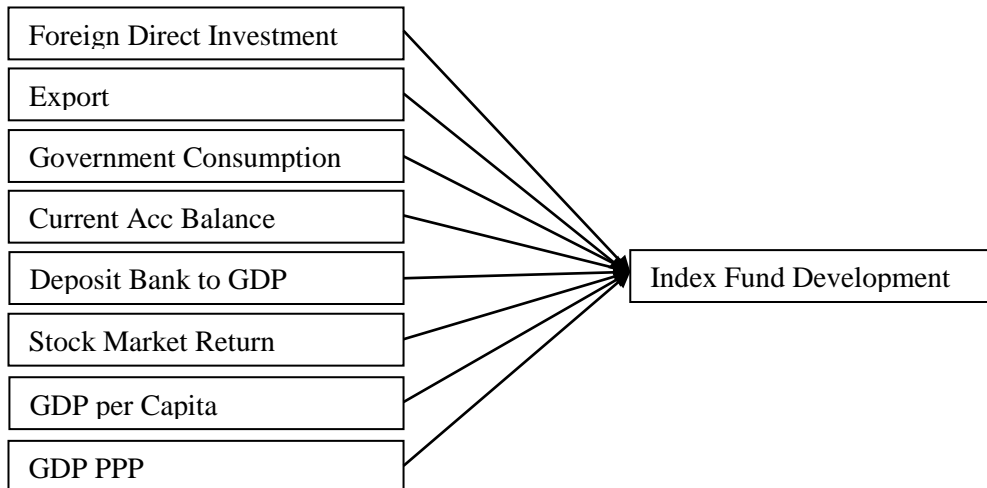


Figure 1. Variables analyzed in this research

Source: The author.

SPSS & EViews statistical software was used for data processing and analysis. The causal model, which demonstrates a causal relationship between variables, is used in the empirical model in this study. This study makes use of panel data from 37 different nations, both developed and developing. The data was collected over a 22-year period, from 2000 to 2021. Since not all nations provide Asset Under Management Fund data in the span of 2000 to 2021, the selection of 37 countries was done using a purposive sampling technique. Index fund development in a nation is gauged by researchers using the ratio of Asset Under Management Index Fund to GDP.

Table 1
Countries covered by this research

No	Country	No	Country
1	Australia	20	Italy
2	Austria	21	Japan
3	Belgium	22	Korea, Rep.
4	Brazil	23	Luxembourg
5	Bulgaria	24	Malaysia
6	Chile	25	Mexico
7	Croatia	26	Norway
8	Czech Republic	27	Philippines
9	Denmark	28	Poland
10	Estonia	29	Portugal
11	Finland	30	Singapore
12	France	31	South Africa
13	Germany	32	Spain
14	Greece	33	Sweden
15	Hong Kong, China	34	Thailand

16	Iceland	35	Turkey
17	India	36	United Kingdom
18	Indonesia	37	United States
19	Ireland		

Source: The author.

A study that uses only genuine, verifiable evidence to draw its conclusions is referred to as empirical research. The term "empirical" denotes that a study is fundamentally informed by a test or other scientific evidence. This kind of study is predicated on the idea that the best approach to gauge reality and determine the truth about the universe is through direct observation of a phenomenon. An approach frequently employed to obtain direct correlations between variables is the creation of empirical models. The independent variables and dependent variables employed in this study can be identified using the literature study that researchers have conducted as follows:

Table 2
Data Source

Data	Indicator	Source
Index fund development	% Fund Asset to GDP	World Bank's Global Financial Development Database
Foreign direct investment	% <i>Foreign Direct Investment</i> to GDP	World Bank
Export	% Eksport terhadap GDP	World Bank
GDP PPP	Log GDP <i>purchasing power parity</i>	World Bank
GDP per capita	Log GDP per kapita	World Bank
Government consumption	% Gov Consumption to GDP	World Bank
Current account balance	% <i>Current account balance</i> to GDP	World Bank
Deposit bank asset	% Deposit Bank Asset to GDP	World Bank's Global Financial Development Database
Stock market	% Stock Market Return YoY	World Bank's Global Financial Development Database

Source: The author.

Descriptive Statistics

The study's research topics include the ratios of foreign direct investment to GDP, exports to GDP, GDP per capita, GDP purchasing power parity (PPP), government consumption, current account balance, bank assets from money deposits, and stock market returns as independent variables, and the ratio of AUM Index Fund to GDP as a dependent variable. 37 nations that were assessed between 2000 and 2021 served as samples. The descriptive statistical analysis used in this study produced the following findings for each research variable:

Table 3
Descriptive Statistics of Study Variables

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Index fund development	814	-	8.330,59	195,31	875,64
Foreign direct investment	814	- 57,53	138,22	5,34	10,94
Export	814	- 57,53	228,99	34,31	44,73
Government consumption	814	6,53	27,94	17,59	4,65
Current account balance	814	- 25,74	27,14	0,76	6,17
Deposit bank asset	814	-	305,24	100,27	47,07
Stock market	814	- 86,74	149,62	7,09	21,63
GDP per capita	814	2,64	5,13	4,28	0,49
GDP PPP	814	9,92	13,36	11,77	0,65

Source: The author.

Descriptive statistics reveal a total sample of 814 samples from 37 different nations. According to the table, each research variable's statistical analysis is as follows:

1. Index fund development

Asset under Management is compared to GDP for the current year to determine the Index Fund Development Variable. The index fund is expanding in a country if this variable's value is increasing. The dependent variable for this analysis is secondary data from the World Bank's Global Financial Development Database for the period ending in September 2022. For the 2000–2001 period, the %AUM Index Fund to GDP shows a minimum value of 0, a maximum value of 8,330.59, and an average value of 195.31, with a standard deviation of 875.64.

Luxembourg is the biggest international distribution hub for investment funds, providing investment funds to more than 70 nations worldwide. Net assets handled by investment fund Luxembourg increased by more than 9.5% in the previous year as of June 2020 (Kremer, 2020). Since Luxembourg has been a well-known hub of the funds sector for more than 30 years, the nation and its ecosystem have developed a solid reputation and long-term stability. As well as having regulations that are relatively flexible for businesses, Luxembourg also has a solid, credible, and renowned regulatory structure (Kremer, 2020).

2. Foreign direct investment

For the years 2000 to 2021, foreign investment ranges from a low of -57.53 to a maximum of 138.22, with an average value of 5.34 and a standard deviation of 10.94. According to data for the years 2000 through 2021, Luxembourg had the lowest FDI to GDP value in 2007 and the greatest FDI to GDP value in 2020. Due to the severe recession brought on by the 2007–2008 financial crisis, FDI to GDP in Luxembourg was minus 57.53% in 2007.

3. Export

For the years 2000 to 2021, exports of goods or services had a minimum value of -57.53, a high value of 228.99, an average value of 34.31, and a standard deviation of 44.73. According to data for the years 2000 through 2021, Singapore had the greatest Export to GDP value and Luxembourg had the lowest Export to GDP value in 2007. Due to the severe recession brought on by the 2007–2008 financial crisis, Luxembourg's export to GDP ratio in 2007 was minus 57.53%. However, in recent years, the ratio of Luxembourg's exports to GDP has increased, and as of 2020, it is 138.21%. Iron blocks, automobiles, rubber tires, gas turbines, and iron sheet piling are Luxembourg's top exports. Germany, France, Belgium, the Netherlands, and Italy are often export destinations.

4. Government consumption

Government consumption has a minimum value of 6.53, a maximum value of 27.94, an average value of 17.59, and a standard deviation of 4.65 between 2000 and 2021. According to data for the years 2000 through 2021, the State of Indonesia had the lowest government consumption per GDP in 2000, while the State of Denmark had the greatest government consumption per GDP in 2009.

Southeast Asian nation Indonesia is regarded as the world's largest archipelago nation. When compared to GDP, Indonesian government consumption is seen as being extremely low, yet it is gradually rising, reaching 9.14% of GDP in 2021. Government consumption, commonly referred to as state spending, is crucial for sustaining stability and GDP growth, provided that state spending is done in a measurable, high-quality manner and has an output that can be measured to evaluate its efficacy. Additionally, overspending (spending above needs), misspending (spending below needs), underspending (not carrying out) and fraud spending (spending in violation of laws) must be avoided in state spending. According to the Transparency International report, Indonesia has a corruption perception index (GPA) score of 34 from a scale of 0-100 in 2022, ranking it as the fifth most corrupt nation in Southeast Asia. Corruption cases are a significant challenge in the implementation of Indonesian government spending. With a GPA score of 83, Singapore has the highest GPA (minimal corruption) (Annur, 2023).

This is evident from the global bank's classification of Indonesia as a lower middle-income country whereas Denmark is still listed as a high-income country. With a score of 90 in 2022, Denmark's corruption perception index (GPA) is exceptionally strong, and as a result, the country has been dubbed the most anti-corruption in the world (Rizaty, 2023).

5. Current account balance

The current account balance for the 2000–2021 period has a range of -25.74 to 27.14, an average of 0.76, and a standard deviation of 6.17. According to data for the period 2000–2021, Singapore had the highest current account balance in 2007 and Bulgaria had the lowest current account balance relative to GDP.

The current account is a financial transaction that involves exports and imports of goods and services within a single calendar year. If imports are more expensive than exports, the balance of payments is negative or in deficit. In contrast, if exports outweigh imports, the balance of payments is in the positive or in a surplus. In general, a nation must work to maintain a positive or surplus current account balance because doing so can boost its foreign exchange reserves. A nation can finance deficits in its balance of payments and preserve exchange rate stability by using its foreign exchange reserves.

6. Deposit bank asset

In the banking system, there is a minimum value of 0 and a high value of 305.24, with an average value of 100.27 and a standard deviation of 47.07 for the period 2000–2021. According to data for the year 2000–2021, the State of Iceland had the greatest ratio of money bank assets to GDP in 2006. One of the most developed nations in the world is Iceland, which is a European nation. The current financial system in Iceland is reliable enough to hold up well during the global economic downturn. Because Iceland has a number of benefits that both domestic and foreign investors can take advantage of, bank deposits have continually expanded in step with growth in the business sector.

7. Stock market

The stock market has a minimum value of -86.74, a highest value of 149.62, an average value of 7.09, and a standard deviation of 21.63 during the years 2000 and 2021. According to data for the years 2000 through 2021, the State of Turkey in 2000 had the highest rate of return on the stock market, while the State of Iceland had the lowest rate of return.

Due to the worldwide financial crisis in 2008, which had a detrimental effect on Iceland's banking system, Iceland saw the greatest stock market loss in 2008. The largest systemic banking collapse in economic history occurred at the end of 2008 as a result of three significant defaults by private commercial banks.

Despite Turkey's extremely high levels of inflation and its weak currency, the stock market there saw a very big gain. This is so that the benchmark interest rate is not raised by the Turkish government even while inflation is high. The rise in the Turkish stock index was primarily the result of government policy.

8. GDP per capita

The average income per capita for the 2000–2021 period is 4.28, with a minimum of 2.64, a maximum of 5.13, and a standard deviation of 0.49. According to data for the years 2000 through 2021, the State of India had the lowest per capita

income in 2000, and the State of Luxembourg had the greatest per capita income in 2021.

An important indication of the level of social wellbeing is income per capita. In general, a nation's population is wealthier the higher its per capita income. In general, income per capita can be used as a standard to determine a country's income class. The World Bank classifies India's income group as being in the Lower Middle-Income region. The World Bank classifies Luxembourg as a High-Income country.

According to data from the International Monetary Fund (IMF), Luxembourg has the highest per capita income in the world, with a GDP of USD 128,820 as of March 2023. This figure surpasses that of other wealthy nations like Singapore (USD 84,500) and the United States (USD 78,420) (Brock & Rathburn, 2023).

9. GDP PPP

The average economic size for the 2000–2021 period is 11.77, with a minimum of 9.92, a high of 13.36, and a standard deviation of 0.65. Based on statistics for the years 2000–2021, Iceland had the lowest GDP PPP in 2000, and the United States had the highest GDP PPP in 2021.

Findings of Empirical Analysis

To discover the best analysis results utilizing many assumptions, panel data regression analysis is conducted in stages. An economic model called panel data combines cross-sectional and time series data, and the number of observations in the panel data is equal to the product of the latitude observations ($N > I$) and the time series observations ($T > 1$). There are two forms of panel data: balanced panel data, in which every individual is observed for the same amount of time, and unbalanced panel data, in which not all individual units are observed at the same time or in which it may also be because an individual unit's data is absent (Ghozi & Hermansyah, 2018).

Three methods are frequently employed when estimating with a panel regression model: the Common Effect Model (CEM), the Fixed Effect Model (FEM), and the Random Effect Model (REM). A methodology is required to choose the best appropriate model out of the three available panel regression models based on the data presented above. Here are a few guidelines for selecting the best model (Ghozi & Hermansyah, 2018):

- a. Chow test to choose between CEM and FEM
- b. Hausman test to choose between FEM and REM
- c. Lagrange Multiplier test which is a REM significance test to determine whether the model with the REM approach is better to use than the CEM model

Having unbiased linear estimates is a sign of a successful regression model (Best Linear Unbiased Estimator). Many assumptions, referred to as the classical assumptions, must be true for this condition to hold. Autocorrelation and heteroscedasticity are potential issues with the panel data model. Because to the cross-sectional and time-series data that must be reconciled, both of these well-known assumption issues arise (Ghozi & Hermansyah, 2018).

Table 3
Chow Test (Likelihood Test)

Effect Test	Statistic	d.f.	Prob.
Cross-section F	102.523964	(36,769)	0.0000
Cross-section Chi-square	1430.834784	36	0.0000

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2674.912	557.8346	4.795171	0.0000
X1	31.27814	2.848483	10.98063	0.0000
X2	-11.75792	1.006613	-11.68068	0.0000
X3	-114.7597	8.885504	-12.91539	0.0000
X4	30.45216	4.878281	6.242396	0.0000
X5	0.063460	0.664756	0.095464	0.9240
X6	-2.695580	1.142994	-2.358350	0.0186
X7	859.6499	70.62155	12.17263	0.0000
X8	-332.4078	40.69768	-8.167734	0.0000
Root MSE	689.0651	R-squared		0.379987
Mean dependent var	195.3086	Adjusted R-squared		0.373825
S.D. dependent var	875.6421	S.E. of regression		692.9063
Akaike info criterion	15.93066	Sum squared resid		3.86E+08
Schwarz criterion	15.98265	Log likelihood		-6474.779
Hannan-Quinn criter.	15.95062	F-statistic		61.66987
Durbin-Watson stat	0.277336	Prob(F-statistic)		0.000000

Source: The author.

The probability value is 0.000000, which means that the F-test produces significant results, according to the output values shown above. It is clear that the fixed effect model should be used because the probability is lower than the value of 0.0.

Table 4
Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.	
Cross-Section random	60.312793	8	0.0000	
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
X1	7.132231	7.321298	0.246558	0.7034
X2	1.152811	1.395608	0.399202	0.7008
X3	-12.416385	-4.919880	15.408323	0.0562
X4	-4.817901	-2.154429	0.331407	0.0000
X5	0.511470	0.216582	0.011940	0.0070
X5	-0.621818	-0.765929	0.000735	0.0000

X7	-416.3462	157.994454	13339.806	0.0000
X8	708.666070	52.644986	18049.286	0.0000

Based on the output data above that the probability is 0.0000, which is less than 0.05. So, it may be concluded that the fixed effect model should be used. The Breusch and Pagan Lagrangian multiplier test was not conducted in this study, which seeks to identify the best model between the Common Effect Model and the Random Effect Model, because the conclusion from the results of the Chow test and the Hausman test is the same that the fixed effect model is the best model.

Normality Test

The purpose of the normality test is to determine whether or not the data in a study are regularly distributed. However, according to Prof. Mudrajad Kuncoro, the normality test is not necessary for the BLUE (Best Linier Unbias Estimator) model. The FEM and CEM models in Panel Data Regression use the Ordinary Least Squares (OLS) approach to estimate models, which does not require the normality test to be performed. Thus, because the Fixed Effect Model was adopted, the normality test was not conducted in this study (Nasar, 2020).

Multicollinearity Test

The multicollinearity test was run to see whether there is a correlation between the independent variables in a regression model. Using tolerance values and VIF, the multicollinearity test was run in this study (Variance Inflation Factor). When VIF is higher than 10 or tolerance is lower than 0.1, there is significant multicollinearity that needs to be corrected.

Table 5
Multicollinearity Test

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	2681,803	557,655		4,809	0,000		
FDI% to GDP	31,253	2,848	0,391	10,973	0,000	0,608	1,646
%Ekspor to GDP Gov	-11,756	1,006	-0,600	-11,680	0,000	0,291	3,432
Consumption to GDP	-114,789	8,884	-0,610	-12,922	0,000	0,345	2,895
Current Acc Balance to GDP	30,447	4,877	0,215	6,242	0,000	0,651	1,535
Deposit Bank	0,063	0,665	0,003	0,095	0,924	0,603	1,658

to GDP							
Stock Market							
Return YoY	-2,698	1,143	-0,067	-2,361	0,018	0,967	1,035
%							
log GDP Per							
Capita (\$)	860,098	70,606	0,478	12,182	0,000	0,500	2,000
log GDP PPP							
(\$)	-333,086	40,693	-0,247	-8,185	0,000	0,844	1,185

Source: The author.

It is clear from the output findings above that there is no correlation between the independent variables because the tolerance value is greater than 0.10 and the VIF value for all independent variables is lower than 10. This makes this regression model appropriate.

Correlation Test

The correlation test used in this study determined whether there was a one-way relationship between the two variables if the correlation coefficient was positive. Unidirectional states that if one variable (X) is high, then the other (Y) must also be high. If the correlation coefficient is negative, then the two variables do not have a one-way relationship. Not unidirectional, i.e., variable Y will have a low value if variable X has a high value. The association between the variables is very strong if the significance number is zero.

Heteroscedasticity Test

The heteroscedasticity test was conducted to determine whether there is an inequality in variance from the residuals in one observation to other observations in a regression model. If there are no issues with heteroscedasticity, the regression model is considered to be sound.

Adjusted R²

The coefficient of determination's value falls between 0 and 1. This test is used to assess how well a model can account for the dependent variable. The conclusion that the independent variables supply nearly all the information required to forecast the variation of the dependent variable can be drawn if the value is close to one.

Table 7
Adjusted R²

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.617 ^a	0,380	0,374	692,79298	0,315

Based on this knowledge, future research can be conducted by including variables that were not included in this study, such as inflation, commodity prices, dividend yields, and unemployment rates. However, care must be taken to prevent

issues with multicollinearity and heteroscedasticity from being brought on by the addition of additional variables.

F-Test

The F test or ANOVA was used to examine, at a significance level of 0.05, the combined impact of all independent variables employed in the regression model on the dependent variable. The conclusion that all the independent factors together have a significant impact on the dependent variable can be drawn if the significance value is less than 0.05. In contrast, all independent factors together have no impact on the dependent variable if the significance value is greater than 0.05.

Table 8

F-Test

ANOVA^a

	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	236997418,1	8	29624677	61,723	.000 ^b
1	Residual	386369500,4	805	479962,11		
	Total	623366918,5	813			

According to the output findings shown above, the sig value is 0.000 or less than 0.05, which leads one to believe that the regression coefficients of all independent variables are not equal to zero or that the independent factors are influencing the dependent variable simultaneously. The variables foreign investment, exports of goods or services, government consumption, the current account balance, the banking system, the stock market, income per capita, and economic size can be used as indicators to forecast how the index will develop based on the results of the simultaneous significance test. Finances in a nation. This information is very helpful for regulators to create efficient policies to promote the growth of index funds in a country.

t-test

The purpose of the t-test was to examine the partial impact of each independent variable on the dependent variable. The purpose of this test is to determine the degree to which each independent variable affects the movement value of the dependent variable.

Table 9

T-test

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2681,803	557,655		4,809	0,000
FDI% to GDP	31,253	2,848	0,391	10,973	0,000
%Ekspor to GDP	-11,756	1,006	-0,600	-11,680	0,000

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Gov Consumption to GDP	-114,789	8,884	-0,610	-12,922	0,000
Current Acc Balance to GDP	30,447	4,877	0,215	6,242	0,000
Deposit Bank to GDP	0,063	0,665	0,003	0,095	0,924
Stock Market Return YoY %	-2,698	1,143	-0,067	-2,361	0,018
log GDP Per Capita (\$)	860,098	70,606	0,478	12,182	0,000
log GDP PPP (\$)	-333,086	40,693	-0,247	-8,185	0,000

The following conclusions can be made in light of the output results above:

- a. The %FDI to GDP variable has a significance/probability value of 0.000 <0.05 so it can be concluded that the %FDI to GDP variable has a significant effect on Fund Assets to GDP.
- b. The %Exports to GDP variable has a significance/probability value of 0.000 <0.05 so it can be concluded that the %Exports to GDP variable has a significant effect on Fund Assets to GDP.
- c. The % Government Consumption to GDP variable has a significance/probability value of 0.000 <0.05 so it can be concluded that the % Government Consumption to GDP variable has a significant effect on Fund Assets to GDP.
- d. The Current Acc Balance to GDP variable has a significance/probability value of 0.000 <0.05 so it can be concluded that the % Current Acc Balance to GDP variable has a significant effect on Fund Assets to GDP.
- e. The bank deposit to GDP variable has a significance/probability value of 0.924 > 0.05 so it can be concluded that the % bank deposit to GDP variable has no significant effect on Fund Assets to GDP.
- f. The stock market return to GDP variable has a significance/probability value of 0.018 <0.05 so it can be concluded that the % stock market return to GDP variable has a significant effect on Fund Assets to GDP.
- g. The GDP per capita variable has a significance/probability value of 0.000 <0.05 so it can be concluded that the GDP per capita variable has a significant effect on Fund Assets to GDP.
- h. The GDP PPP variable has a significance/probability value of 0.000 <0.05 so it can be concluded that the GDP PPP variable has a significant effect on Fund Assets to GDP.

Regression Analysis

Fund Asset to GDP = 2681,803 + 31,253 FDI% to GDP – 11,756 %Ekspor to GDP -114,789 Gov Consumption to GDP + 30,447 Current Acc Balance to GDP + 0,063 Deposit Bank to GDP – 2,698 Stock Market Return YoY% + 860,098 Log GDP Per Capita – 333,086 Log GDP PPP

The GDP per Capita variable is shown to be the most crucial macroeconomic indicator that can fuel the expansion of index funds in a nation based on the findings of the partial t-test and regression model analysis. Therefore, it can be said that the mutual fund sector, particularly index fund products, is more developed the more developed a country or the greater the income of a country (high income country). This is due to the fact that stronger economic conditions will encourage more local and foreign investors to place their money there because it is the best option in terms of risk and return.

Robustness Test

In this study, the regression model that was produced included a dummy variable with a value of 1 if the sample country was classified as a high-middle-class country (high-income or upper-middle income) and a value of 0 if the sample country was classified as a country of need. A robustness test was performed on the regression model as a result. income that is low or below the middle class. Low-middle and low-middle countries were grouped together, and high and high-middle countries were given to one group. This sample of nations has been divided based on the World Bank's classification scheme.

Table 10
Adjusted R² Robustness Test

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.617 ^a	0,381	0,374	692,76355	0,313

Based on the output results shown above, it can be deduced that the independent variables consist of foreign investment, export of goods or services, government consumption, current account balance, banking system, stock market, per capita income, economic size, and income class can explain the dependent variable of 0.381 or 38%. This is because the value of R2 after adding the dummy variable in the form of income classification set by the World Bank is 0.381. While additional factors not considered in this model account for the remaining 62% of the explanation. The second assumption test after adding the dummy variable is superior to the first assumption, according to the findings of the robustness test that has been performed.

Analysis of Research Results' Contribution

It is anticipated that the study's findings will offer crucial information, particularly for investors and regulators. The findings of this study can be used by investors to conduct analysis pertaining to how the prospects of a stock index in a nation in the future. Purchasing all of the issuer's shares listed in a country's stock index according to the weight of the allocation of investment funds based on the issuer's market capitalization is what it means to invest in a stock index. For instance, on May 2, 2023, the Jakarta Composite Index (IHSG) listed 858 issuers from Indonesia. Therefore, investors in index funds will purchase all of the stock from the 858 issuers, with their

largest holdings being in companies with high market capitalization, such as PT Bank Central Asia Tbk, PT Bank Rakyat Indonesia Tbk, PT Bank Mandiri Tbk, PT Telekomunikasi Indonesia Tbk, and PT Astra Internasional Tbk.

According to the findings of this study, a nation's GDP per capita has a significant impact on how index funds are developed there. Therefore, investors may think about directing investment funds to that country if it has a historically steady GDP per capita that grows each year and is expected to continue doing so in the long run. However, because investors lack the knowledge, time, and resources to thoroughly research each company or issuer in a foreign nation, index funds offer a practical and cost-effective way to get the best results. On this basis, regulators have a crucial role to play in creating regulations that will boost GDP per capita in a sustainable way and pique the interest of investors, particularly international investors, in the nation.

Conclusions

It is possible to draw the conclusion that all the independent variables in this study taken together have a significant impact on the development of Index Funds as the dependent variable based on the findings of the research and analysis that has been done regarding the factors related to the development of Index Funds in a country. The variables FDI% to GDP,% Exports to GDP,% Gov Consumption to GDP, Current Acc Balance to GDP, Stock Market Return YoY%, log GDP Per Capita (\$), and log GDP PPP (\$) partially have a substantial impact on the development of the Index Fund. Partially, there is one independent variable the ratio of bank deposits to GDP—that has no discernible impact on the growth of the Index Fund.

The ratios of FDI to GDP, current account balance to GDP, bank deposits to GDP, and GDP per capita are among the variables with positive regression coefficient values. Although factors such as the ratio of exports to gdp, government consumption, stock market return year-over-year, and log GDP PPP have negative regression coefficient values.

The most significant macroeconomic statistic that can influence the growth of index funds in a nation is GDP per Capita. Therefore, it can be said that the mutual fund sector, particularly index fund products, is more developed the more developed a country or the greater the income of a country (high income country). This is due to the fact that stronger economic conditions will encourage more local and foreign investors to place their money there because it is the best option in terms of risk and return.

The second assumption test is superior to the first after including the income class variable, which is the World Bank's classification of income as a dummy variable, although the dummy variable is not significant. If the sample country is categorized as a high- or upper-middle-income country, the dummy variable will have a value of 1 and will have a value of 0 if it is categorized as a low- or lower-middle-income country.

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