The Macroeconomic Determinants of the Stock Market Index Performance: The Case of DAX Index

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Abstract:

Purpose: This research will try to show that macroeconomic conditions are basically the main determinants of stock market performance and for this reason DAX Index will be analyzed.

Design/Methodology/Approach: In particular, the macroeconomic factors that affect the performance of DAX will be used. The methodology to be followed is linear regression and in particular Ordinary Least Squares (OLS).

Findings: The performance of a stock exchange is affected by the constantly continuous international political and economic conditions that have a strong influence on the operation of stock exchanges around the world. States remain the main actors in the international economy and this means that macroeconomic data act as catalysts for stock market performance.

Practical Implications: Stock exchange is actually the "mirror" of an economy. There is much literature that has dealt with the determinants of stock market performance around the world. Today's era is highly globalized. The current era has made it clear that there are many parameters that are exogenous and have a serious impact on the economy and therefore on the performance of the stock market.

Originality/Value: Since the economy is the field in which every stock market operates, it should be borne in mind that macroeconomic factors are of great importance.

Keywords: Stock Exchange, DAX Index, Germany, Ordinary Least Squares

JEL Classification: G10, G20, E44.

Paper type: Research article.

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1. Introduction

Stock market performance and the economy are inextricably linked. This relationship can be seen both in times of economic prosperity and in times of economic difficulty. Macroeconomic aggregates are not only a "picture" of a country's economy but indicate the "climate" in which a stock market can perform.

One important aspect of the stock markets, is the relationship between the financial development and the economic growth. The financial development is vital for a country. There are many studies that have examined this relationship. For instance, King and Levine (1993) showed that financial organizations can affect economic growth firstly by growing the accessibility of financial services and secondly increasing borrowing choices.

Furthermore, Rioja and Valev (2004), mention that the relationship could differ depending on the level of financial development of each country. Luintel and Khan (1999) showed that there is bi-directional connection among financial development and economic growth. Wachtel (2002) and Trabelsi (2002) indicated that the financial system plays an important role and offers an significant input to economic growth. Atje and Jovanic (1993), Rajan and Zingales (1998) and Levine (1997) have examined the relationship and have found positive correlation.

Paudel (2005) mentions that stock markets, because of the liquidity, have the capability for the corporations to obtain the desired capital fast, henceforth enabling capital distribution and investment. Arestis, et al. (2001) and Van Nieuwerburgh, et al. (2006) mention a positive effect of financial activity on the total economy.

On the contrary, Lucas (1988) and Stern (1989) have shown that financial markets have no specific role in endorsing economic growth. Similarly, Shan (2005) did not find strong evidence that the financial development plays major role in economic growth. Ghimire and Giorgioni (2013) claim that the influence of the stock market on growth is contingent to the variables selected and the assessing methodologies applied.

The undeniable fact is that there is a relationship between the stock market and the economic growth. But the basic question is the following. Does the macroeconomic aggregates have impact on the stock market? And especially, what is the effect on the stock exchange performance?

For the present study the DAX Index has been chosen. The DAX Index is very important for Germany. It is considered a crucial standard for the performance of the economy of Germany. Due to the fact that Germany is the largest economy in Europe, the growth of the DAX Index can make possible bigger guarantee in the German economy and investment in the country. The elementary standards for including corporations in DAX are, firstly, a current listing on the Regulated Market

of the FWB (Frankfurt Stock Exchange), secondly, nonstop trading on Xetra[2], thirdly, lowest free float of 10%, fourthly, legal headquarters or functioning headquarters in Germany, moreover timely publication of annual financial reports, and lastly half-yearly financial reports and quarterly statements (Qontigo, 2023).

Figure 1. *The DAX Index – Average Closing Price for the examining period 2000 – 2021.*
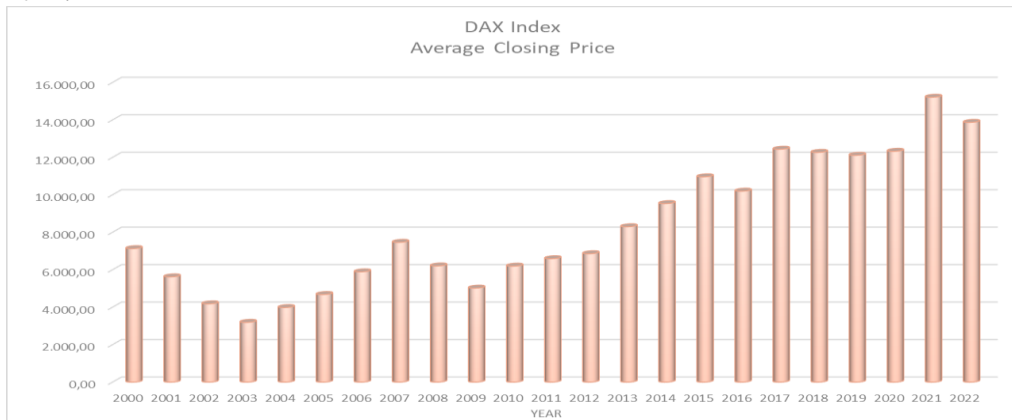
Source: *Own study.*

Figure 2. *The Percentage Change % of the DAX Index – Average Closing Price for the examining period 2000 – 2021.*
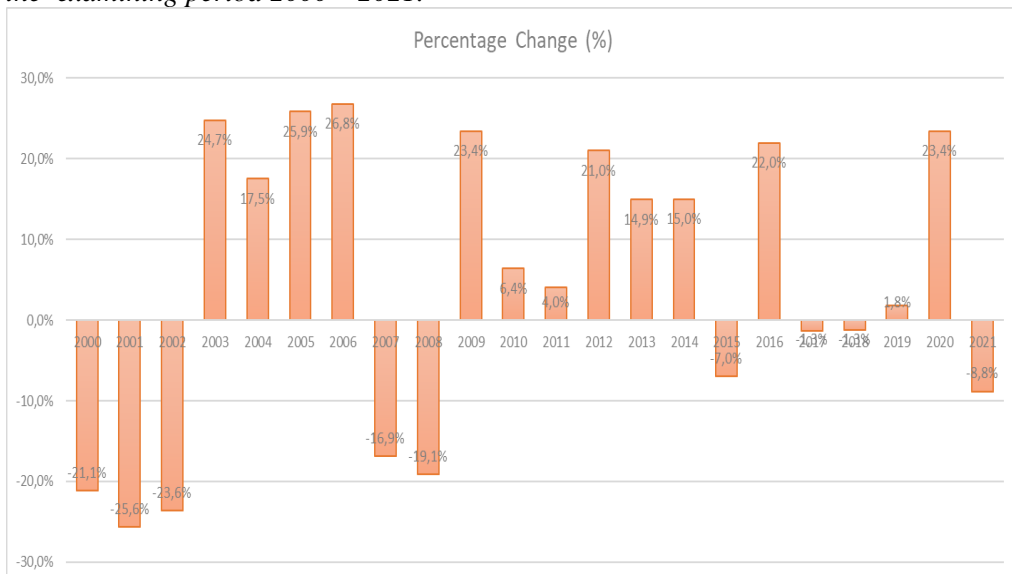
Source: *Own study.*

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[2] *Xetra is a trading venue operated by the Frankfurt Stock Exchange based in Frankfurt, Germany.*

The study will inspect the factors influencing the DAX Index performance. To attain this, linear regression and, especially, OLS, will be used. The next section will refer to the literature review. Reference will then be made to the methodology to be used. Next, the results will be stated. In the end, the assumptions are developed.

2. Literature Review

There are many bibliographic references that analyze the relationship between macroeconomic aggregates and stock market performance. In particular, Garcia and Liu (1999) concluded that macroeconomic factors are significant factors of financial development.

Naceur and Ghazouani (2007) found that inflation and saving rate are major factors of stock market development. Claessens *et al.* (2000) concluded that low inflation, is central in explaining market capital. Boyd *et al.* (2001) examined the result of inflation on stock market.

They concluded that the higher levels of inflation the fewer dynamic stock markets. Claessens *et al.* (2001), determined that foreign direct investment is important for the domestic stock market development. Joshep and Vezos (2006) determined that both exchange rate and interest rate are vital financial and economic features. Tsoukalas (2003) concluded in his study that firstly the exchange rate, secondly the industrial production, and thirdly the money supply are among the major factors.

Ibrahim (2003) determined that the stock price index is linked to money supply, consumer price index, industrial production and exchange rates. The trade openness aids stock market progress (Niroomand *et al.,* 2014).

El-Wassal (2005) studies the influence of trade openness on stock market development and concluded in a positive relation in emerging market. Lee *et al.* (2012) studied the connection amongst oil prices and sectoral stock prices for G7 countries. They stated that oil price shocks do not distress the composite indices in all these countries.

Auzairy *et al.* (2011) concluded that macroeconomic variables have the ability to effect the performances of stock markets. Some of the macroeconomic fundamentals which are linked to the stock markets as determinants are money supply (Hardouvelis, 1987), interest rate (Hondroyiannis and Papapetrou, 2001), and industrial production growth (Engle *et al.,* 2013).

A key parameter in the analysis of the relationship between macroeconomic aggregates and stock market performance is the categorization between developed and developing countries. Regarding, developing countries Buchanan and English (2007) studied 24 emerging market and found that the legal foundation is linked with the stock market size.

Yartey (2007) studied 13 African countries and concluded that domestic savings investment, income level, and institutional quality are linked with the stock market development. Kim and Wu (2008) examined 51 emerging markets.

Akinlo and Akinlo (2009) analyzed 7 sub-Sahara African countries and found connection between economic growth and stock market development. Agbloyor *et al.* (2013) and Malik and Amjad (2013) studied 16 African countries (and Pakistan) and concluded that there is relationship between FDI and stock market development.

Considering developed countries, Vazakidis and Adamopoulos (2012), Thalassinos and Thalassinos (2006; 2018) and Thalassinos *et al.,* (2011) analyzed Greece and found relationship between economic growth and stock market development. Cheng (2012) examined Taiwan and found the same relationship between economic growth and stock market development. Marques *et al.* (2013) studied Portugal and concluded that is a correlation between economic growth and stock market development.

As far as, developed and developing, Jeffus (2004) studied Argentina, Brazil, Chile and Mexico and concluded that is connection between FDI and stock market development. Boubarkri and Hamza (2007) studied 61 countries and found out that privatization is significant for the stock market. Yartey (2010) studied 42 emerging economies and concluded that income level, gross domestic investment, and institutional factors among others have influence on stock market development. Glen (2000) stated that is important interconnection between macroeconomic fundamentals and stock prices for both industrialized and developing markets. The next section mention the methodology applied.

3. Methodology

The present study attempts to examine the factors that determine the stock market performance. The time period has chosen firstly and mostly due to the availability of data. The country and the index has been chosen due to the fact that Germany and the DAX Index are among the most prestigious economy and index respectively.

The present research uses multiple-regression model as an estimator of annual time series data. The dependent variable is the DAX Index (Average Closing Price). The model states the DAX Index (Average Closing Price) as a function of, firstly, the Broad Money (M3), secondly, the Long-term interest rates, thirdly, the Real Broad Effective Exchange Rate for Germany, moreover, the Saving rate, next the Current account balance, % of GDP, additionally, the Industrial Production, also, the GDP per hour worked, furthermore the Crude oil import prices and, finally the Economic Policy Uncertainty index.

The above are the independent variables. The following Table 1 shows the description of the selected variables.

Table 1. *Shows the description of the examining variables*

Variable	Units	Source	Decription
DAX Index	Index	macrotrends	DAX is the most crucial index for the equity market of Germany. The Index is the underlying for financial products (such as options, futures, ETFs, structured products) and is used for benchmarking purposes.
Broad Money (M3)	Index	OECD	Broad money (M3) contains currency, deposits with an agreed maturity of up to two years, deposits redeemable at notice of up to three months and repurchase agreements, money market fund shares/units and debt securities up to two years. M3 is calculated as a seasonally adjusted index based on 2015=100.
Long-term interest rates	Percentage (%)	OECD	Long-term interest rates allude to government bonds maturing in ten years period. Long-term interest rates are commonly averages of daily rates, measured as a percentage. These interest rates are implied by the prices at which the government bonds are operated on financial markets.
Real Broad Effective Exchange Rate	Index	FRED	Real effective exchange rates are considered as weighted averages of bilateral exchange rates accustomed by relative consumer prices.
Saving rate	Percentage (%)	OECD	Saving is equivalent to the change between disposable income and final consumption expenditure. It echoes the portion of disposable income that is proper to obtain financial and non-financial assets.
Current account balance	Percentage (%)	OECD	The current account balance of payments is a statement of a nation's worldwide transactions with the world. This Indicator is measured as a percentage of GDP.
Industrial Production	Index	OECD	Industrial production states the production of industrial organizations and covers various segments such as mining, manufacturing, electricity, gas etc. This indicator is measured in an index based on a reference period that indicates alteration in the capacity of

			production.
GDP per hour worked	Index	OECD	GDP per hour worked is a degree of labour productivity. It indicates how competently labour input is united with other aspects of production. This indicator is measured in indices.
Crude oil import prices	US Dollar	OECD	Values are noted at the time of import and comprise cost, insurance and freight, but ignore import duties. This indicator is measured in USD per barrel of oil.
Economic Policy Uncertainty	Index	policyuncertainty.com	Is a created index based on newspaper articles concerning policy uncertainty.

Source: *Own study.*

The variables chosen have the ability to describe the variation of the index from both the monetary and trade aspects. In particular, the choice of variables such as Broad Money (M3), Long-term interest rates, Real Broad Effective Exchange Rate, Saving rate try to explain from the monetary aspect of causal factors. On the contrary, variables such as Current account balance, Industrial Production, GDP per hour worked, Crude Oil Import Price try to explain the international trade dimensions. The Economic Policy Uncertainty variable has been selected as the policy dimension variable. Table 2 shows the values of the variables.

Table 2. *The Values of the Variables*

Year	DAX Index Average Closing Price (annual)	Broad Money (M3) Total, 2015=100, Euro Area	Long-term interest rates Total, % per annum	Real Broad Effective Exchange Rate for Germany, Index 2020=100	Saving rate Total, % of GDP	Current account balance Total, % of GDP	Industrial production Total, 2015=100	GDP per hour worked Total, 2015=100	Crude oil import prices Total, US dollars /barrel	Economic Policy Uncertainty Index
2000	7,126.45	45.21	5.26	102.95	5.84	-1.84	80.41	87.07	28.09	84.71
2001	5,620.08	48.87	4.80	102.94	5.70	-0.45	80.47	89.26	24.15	138.85
2002	4,178.81	52.42	4.78	104.01	5.61	1.8	79.47	90.08	24.40	103.15
2003	3,191.47	56.44	4.07	109.23	4.70	0.34	79.69	90.78	28.44	113.64
2004	3,981,03	59.63	4.04	110.82	7.30	4.47	83.16	91.60	36.65	84.96

2005	4,677.84	64.15	3.35	108.41	7.01	4.68	85.93	93.05	52.30	81.38
2006	5,887.44	69.69	3.76	107.38	9.54	5.67	90.87	94.54	63.29	81.35
2007	7,463.19	77.43	4.22	108.75	11.40	6.82	96.87	95.65	71.60	87.82
2008	6,204.16	85.49	3.98	108.48	9.78	5.71	97.74	95.68	96.70	134.75
2009	5,017.57	88.74	3.22	108.89	6.03	5.85	80.78	92.80	61.18	111.63
2010	6,193.20	87.75	2.74	103.18	7.92	5.76	90.46	94.94	78.49	140.19
2011	6,589.01	88.62	2.61	102.11	10.14	6.19	98.16	97.41	110.63	191.29
2012	6,855.43	91.03	1.50	98.61	8.89	7.12	97.07	98.01	112.21	177.68
2013	8,295.81	92.73	1.57	100.80	8.49	6.59	97.04	98.47	109.62	148.59
2014	9,533.85	94.31	1.16	101.67	9.83	7.28	98.97	99.49	99.76	125.19
2015	10,961.50	100.00	0.50	96.41	10.46	8.74	100.00	100.00	52.65	157.01
2016	10,195.65	104.88	0.09	97.82	10.83	8.69	101.13	101.36	42.80	231.44
2017	12,434.31	109.86	0.32	98.54	11.21	7.88	103.84	103.16	54.02	177.63
2018	12,267.00	114,00	0.40	100.41	11.89	8.01	105.05	103.38	70.50	172.45
2019	12,109.96	119.87	-0.25	98.98	11.39	8.23	101.76	104.16	64.43	204.55
2020	12,324.61	129.98	-0.51	100.00	9.76	7.01	92.69	105.19	43.05	322.36
2021	15,211.28	141.20	-0.37	100.76	11.12	7.84	97.18	106.10	71.19	305.42

Source: *Own study.*

According to the data from the above Table, it can be said that the DAX Index (Average Closing Price) has an increasing trend for the examining period. The Broad Money also has an increasing trend for the examining period. In contrary Long-term interest rates has a decreasing trend. The Real Broad Effective Exchange Rate has a slight a decreasing trend.

The Saving rate has an increasing trend for the examining period. The Current account balance has a large increasing trend for the examining period. The Industrial Production has an increasing trend. The GDP per hour worked has a large increasing trend for the examining period. The Crude oil import prices has a large variance for the period examined. Lastly, the Economic Policy Uncertainty has an increasing trend for the examining period. Table 3 shows the descriptive statistics of the selected variables.

Table 3. *Descriptive Statistics*

Variables	*count*	*mean*	*Standard Deviation*	*Mini mum*	*25 %*	*50 %*	*75%*	*Maxi mum*	*Skewe ness*	*Kurt osis*

DAX	22.0	8,014.5	3,354.2	3,191.5	5,686.9	6,990.9	10,770.0	15,211.3	0.5	-0.8
Broad Money	22.0	87.4	26.5	45.2	65.5	88.7	103.7	141.2	0.2	-0.6
Long-term interest rates Total	22.0	2.3	1.9	-0.5	0.4	2.7	4.0	5.3	-0.1	-1.5
Real Broad Effective Exchange Rate	22.0	103.2	4.4	96.4	100.1	102.5	108.2	110.8	0.3	-1.2
Saving rate	22.0	8.9	2.2	4.7	7.1	9.7	10.7	11.9	-0.4	-1.2
Current account balance	22.0	5.6	3.0	-1.8	4.9	6.4	7.7	8.7	-1.3	0.9
Industrial Production	22.0	92.7	8.7	79.5	83.9	97.0	98.8	105.1	-0.4	-1.3
GDP per hour worked	22.0	96.9	5.5	87.1	92.9	96.5	101.0	106.1	0.0	-1.0
Crude oil import prices	22.0	63.5	28.5	24.2	42.9	62.2	76.8	112.2	0.4	-0.9
Economic Policy Uncertainty	22.0	153.5	67.2	81.3	105.3	139.5	177.7	322.4	1.2	1.3

Source: *Own study.*

DAX Index has a minimum value of 3,191.5 and a maximum value of 15,211.3 The average rate of DAX Index, the mean, is 8,014.5. The Skeweness is of 0.5 which means that the data are nearly symmetrical and the Kurtosis of -0.8 which means that the distribution is platykurtic. The Broad Money has a minimum value of 45.2 and a maximum value of 141.2. The average rate of Broad Money, the mean, is 87.4. The Skeweness is of -0.6 so the data are slightly skewed, and the Kurtosis of -0.6 which means that the distribution is platykurtic.

The Long-term interest rates has a minimum value of-0.3 and a maximum value of 5.3. The mean is 2.3. The Skeweness is -0.1 and the Kurtosis of -1.5. The Real Broad Effective Exchange Rate, has a minimum value of 96.4 and a maximum value of 110.8. The mean, is 103.2. The Skeweness is of 0.3 which means that the data are nearly symmetrical and the Kurtosis of -1.2. The Saving rate, has a minimum value of 4.7 and a maximum value of 11.9. The mean, is 8.9. The Skeweness is of -0.4 which means that the data are nearly symmetrical and the Kurtosis of -1.2. The Current account balance has a minimum value of -1.8 and a maximum value of 8.7.

The mean, is 5.6. The Skeweness is of -1.3 and the Kurtosis of 0.9. The Industrial Production, has a minimum value of 79.5 and a maximum value of 105.1. The mean, is 92.7. The Skeweness is of -0.4 which means that the data are nearly symmetrical and the Kurtosis of -1.3. The GDP per hour worked, has a minimum value of 87.1 and a maximum value of 106.1. The mean, is 96.9. The Skeweness is of 0.0 and the Kurtosis of -1.0. The Crude oil import prices, has a minimum value of 24.2 and a

maximum value of 112.2. The mean, is 63.5. The Skeweness is of 0.4 and the Kurtosis of -0.9. The Economic Policy Uncertainty has a minimum value of 81.3 and a maximum value of 322.4. The mean, is 153.5. The Skeweness is of 1.2 and the Kurtosis of 1.3.

Generally, If the skewness is among -0.5 and 0.5, the figures are closely balanced. If the skewness is among -1 and -0.5 (negative skewed) or among 0.5 and 1 (positive skewed), the information are to some extent skewed. If the skewness is lesser than -1 (negative skewed) or larger than 1 (positive skewed), the data are very skewed. A positive rate for the kurtosis specifies a distribution extra peaked than normal. In contrary, a negative kurtosis designates a shape flatter than normal (Groeneveld, 1984). The following figure shows the correlation matrix of the selected values.

Figure 3. *The Correlation matrix of the Variables selected.*
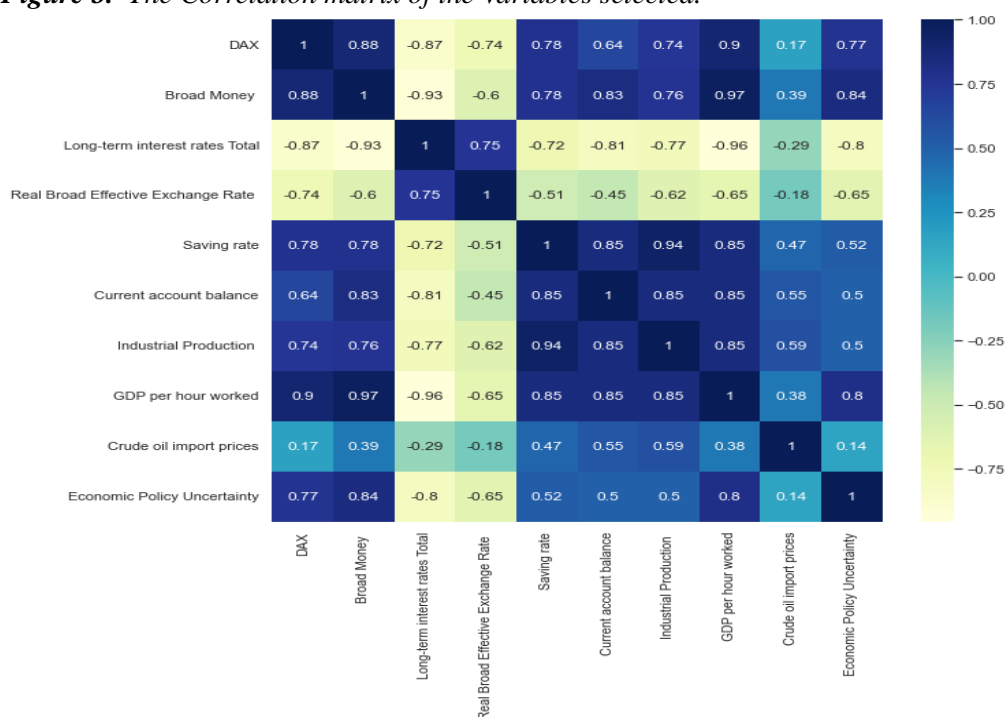
Source: Own study.

The correlation matrix shows that there is large positive correlation between the DAX Index and the Broad money and the GDP per hour worked. There is large negative correlation between the Long term Interest Rates with the DAX Index and the Real Effective Exchange Rate. There is low correlation between DAX Index and Crude Oil. The study uses the traditional Multiple Regression[3] technique. The linear regression model can be scripted as:

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[3]*Multiple linear regression assumptions:*
1: Model: $Y=\beta_0+\beta_1X_1+....+\beta_kX_k+U$

$$Y_i = B_0 + B_1X_{1i} + B_2X_{2i} ... + ... B_KX_{Ki} + e_i, \quad (1)$$

$$i = 1,...,n,$$

Where: Y_i=ith observation on the dependent variable, X_{ji}=ith observation on the jth independent variable, e_i=ith observation on the error term, B_0 ... B_K=the parameter estimates, K=the number of independent variables, n=number of observations (Anghelache et al., 2014).Especially, the Ordinary Least Squared (OLS) method is used (Hutcheson, 2011). The linking among the dependent and independent variables can be stated as the succeeding:

$$y = b_0 + b_1x_1 + ... + b_kx_k + u \quad (2)$$

Where: $y, x_1, x_2 ... x_k$, are the observed random scalars; u is the error or unobservable random disturbance; and $b_0, b_1, b_2 ... b_k$, are the constants or parameters that are going to be assessed (Woolridge, 2010). The symbolization t is supplementary to show that time-series data are examined. By means of the OLS, the coefficients are assessed by minimizing the sum of squared residuals (SSR). Squared residuals are the variance in the sample.

The main OLS assumptions that should be met are the following: Firstly, is linearity. All parameters must be linear. Secondly, there must be a random sample where each observation. Thirdly, there must be enough variation between the independent variables. Moreover, the average value of the error term does not change across different x-values of the population. Also, each value of the error term has the same variance given any other explanatory variable. Lastly, the population error e is independent of the explanatory variable.

The study sets up the estimated multiple-regression model to test as follows:

$$\textbf{DAX}_{it} = \beta_o + \beta_1\textbf{BroM}_t + \beta_2\textbf{LTIR}_t + \beta_3\textbf{RBEER}_t + \beta_4\textbf{SavR}_t + \beta_5\textbf{CurA}_t + \beta_6\textbf{IndP}_t + \beta_7\textbf{GDPpWt} + \beta_8\textbf{EconPUt} + \beta_9\textbf{CrOiPt} + e_t \quad (3)$$

The next session displays the regression results.

4. Results and Discussion

Table 4 displays the results of the OLS Regression.

Table 4. *Regression Results*

2: The observed data {($Y_i;X_{1i};...;X_{ki}$); i = 1;...;n} is a random sample from the population.
3: None of the explanatory variables has constant values and there is no perfect linear relationships among the explanatory variables.
4: Zero conditional mean: $E(U/X_1;...;X_k) = 0$
5: Homoskedasticity: $Var(U/X1;...;X_k) = Var(U) = \sigma^2$
6: Normality: $U / X_1;...;X_k \sim N(0;\sigma^2)$

OLS Regression Results

Dep. Variable:	DAX	R-squared:	0.973			
Model:	OLS	**Adj. R-squared:**	0.952			
Method:	Least Squares	**F-statistic:**	47.28			
Date:	Sun, 23 Jul 2023	**Prob (F-statistic):**	5.30e-08			
Time:	12:48:11	**Log-Likelihood:**	-169.74			
No. Observations:	22	**AIC:**	359.5			
Df Residuals:	12	**BIC:**	370.4			
Df Model:	9					
Covariance Type:	nonrobust					
	coef	**std err**	**t**	**P>|t|**	**[0.025**	**0.975]**
const	31.430.000	2.39e+04	1.317	0.212	-2.06e+04	8.34e+04
Broad Money	1.281.178	33.246	3.854	0.002	55.681	200.554
Long-term interest rates Total	-4.643.001	637.823	-0.728	0.481	-1.853.998	925.398
Real Broad Effective Exchange Rate	-2.436.510	91.738	-2.656	0.021	-443.532	-43.770
Saving rate	12.036.451	396.195	3.038	0.010	340.411	2.066.879
Current account balance	-8.258.051	181.619	-4.547	0.001	-1.221.519	-430.091
Industrial Production	-1.432.713	105.316	-1.360	0.199	-372.735	86.193
GDP per hour worked	527.419	289.577	0.182	0.859	-578.193	683.677
Crude oil import prices	-104.753	10.566	-0.991	0.341	-33.496	12.546
Economic Policy Uncertainty	-209.693	6.821	-3.074	0.010	-35.830	-6.108
Omnibus:	0.438	**Durbin-Watson:**	1.373			
Prob(Omnibus):	0.803	**Jarque-Bera (JB):**	0.567			
Skew:	-0.193	**Prob(JB):**	0.753			
Kurtosis:	2.315	**Cond. No.**	3.93e+04			

Skew:	-0.616	Prob(JB):	0.445	
Kurtosis:	2.501	Cond. No.	5.77e+04	

Source: Own study.

From the analysis of the results of the existing model, the next can be supposed: first, both R-squared and Adj. R-squared are 0.973 and 0.952 which means that 95.20% of the variance in DAX Index can be predicted from the variables abovementioned. Secondly, the Prob (F-statistic) is 0.0000000530, which means that the independent variables of the model can explain the dependent variable. The model constructed in the present research is statistically significant.

From the coefficients the negative are the Long Interest Rate, the Real Broad Effective Exchange Rate the Current Account Balance, the Value Added, the Industrial Production, the GDP per hour worked the FDI inflows and outflows, the Crude Oil import prices and the Economic Policy Uncertainty. The negative signs indicate that as the predictor variable multiplies, the response variable decreases.

The positive are the Broad Money, the GDP per hour worked, and the Saving Rate. The positive sign high shows that as the predictor variable rises, the response variable likewise rises. It can be said that the independent variables of Broad Money and the Current Account are statistically significant with P value of 0.002 and 0.001 respectively. The next session concludes.

5. Conclusion

This study has attempted to illustrate the macroeconomic forces that can affect a stock market index. In this case, the DAX indicator has been used. The basic starting point of this study is that both monetary aspects and trade dimensions play an important role in the performance of the Stock Market Index.

Regarding the commercial dimension, Mercereau (2004) constructing a model, states that the current account can help predict the future performance of the stock market. Regarding the monetary dimension, scholars such as Malliaris and Urrutia (1991) consider money supply to be one of the key factors in stock market performance.

The present study shows that the factors chosen as independent variables can largely explain the DAX Index for the time period 2000-2021. In particular, variables such as Broad Money, Long-term interest rates, Real Broad Effective Exchange Rate, Saving rate try to prove the influence of the monetary dimension and variables such as Current account balance, Industrial Production, GDP per hour worked try to prove the influence of the commercial dimension.

The variables Crude oil import prices and Economic Policy Uncertainty are variables used based on the literature. The analysis of those factors that affect and determine the performance of stock market indices needs further investigation.

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Appendix:

Table 5. *The explanation of the abbreviations.*

Variables of the Model	Explanation
DAXit	The DAX Index
β_0	The constant amount or the intercept
β_1-β_9	The coefficients of the explanatory variables
BroMt	The Broad Money (M3)
LTIRt	The Long-term interest rates
RBEERt	The Real Broad Effective Exchange Rate
SavRt	The Saving rate
CurAt	The Current account balance
IndPt	The Industrial Production
GDPpWt	The GDP per hour worked
CrOiPt	The Crude Oil Import Price
EconPUt	The Economic Policy Uncertainty
e	The error term
t	The year from the period 2000-2021

Partial Regression Plot