STOCK MARKET RETURN AND STAGFLATION UNDER TWO CONTROL VARIABLES: INTERNATIONAL EVIDENCE

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Abstract:

The study investigated the impact of stagflation on stock market returns under two Control variables that economic policies and the characteristics of the stock market. The study included nine countries (Brazil, Egypt, Indonesia, Korea, Malaysia, Pakistan, Singapore, South Africa, and Turkey) during the period from 2005 to 2018. We found that for the economic policies within the lag period under stagflation, the characteristics of each economy and stock market within and outside of the lag period were between 25.74% and 16.20% of the returns of stock markets, respectively. The current study explains the different results according to the different methods of study, in particular with regard to the use of the lag period, which was beneficial for the economic policy but not beneficial with stagflation. In addition, the different abilities of each economy created value added from production factors with the different levels of efficiency of the stock exchanges. Finally, rational investment in stock exchanges requires the ability to classify the policies and economic variables and determine the extent of their time contributions to caret stock return within/outside the lag period. This area is a fertile field in financial economics research, particularly to develop theories and models.

Keywords: stock return; stagflation; economic policies **JEL Classification:** F62; F65; N2

1. Study General Framework

1.1. Introduction

Stephen Ross argued that the prices of financial assets are mainly determined by macroeconomic variables with different beta coefficients (Roll and Ross1984);

however, macroeconomic variables are subject to changes in macroeconomic policies. Macroeconomic policies, namely fiscal and monetary policies, are designed to correct the deviations in economic activities and stimulate economic growth in the economy; however, the effect of these policies may extend to affect microunits in the economy. One of the units that is affected directly and/or indirectly by measures of fiscal and monetary policies is the financial system, in general, and the stock market, in particular (Chatziantoniou et al. 2013). While measures of monetary policies are mainly directed to maintain price level stability, measures of fiscal policy are directed to adjust the level of aggregate demand in the economy.

Measures of fiscal and monetary policies directly affect aggregate demand, aggregate supply, and the level of incomes, and these all have great impact on the profitability of productive units and their future plans and investment decisions. On the one hand, the production capacity of different productive units is mainly based on the size of the market, which, in turn, determines the level of income and aggregate demand in the economy to a large degree (Michaillat and Saez 2013). On the other hand, measures of monetary and fiscal policies play a critical role in determining the response of the aggregate supply to changes in the aggregate demand according to the economy and stock exchange characteristics, such as the relative weight of the sectors (natural resources/agriculture/industry/services) in the economy, the flexibility of the productive system, and the efficiency of the stock market.

Conventional theory dictates that financial assets, such as common stocks or the income generated by real assets, should be a hedge against inflation, meaning that a positive relationship will exist between nominal returns and inflation. However, the testing on stock market movement and inflation after 1953 dispelled this claim (Fama 1981). The current study adds a new dimension to what was covered by Fama. What about the state of the economy, boom, and recession? Does this relationship change, and what about the worst economic situations that companies may face? Is there a role for economic policies? What about the characteristics of stock exchanges? The study seeks to analyze the stock market return and stagflation under economic policies.

1.2. Literature Review

Economic policies are a tool used by governments and central banks to treat economic situations that may suffer from problems, such as inflation (Orphanides 2003; Capistrán and Ramos-Francia 2009; Hongo et al. 2019), unemployment (Loungani et al. 1990; Farsio and Fazel 2013; Pan 2018), and recession (Rabbani et al. 2017; Huang and Startz 2020), with securities re-evaluation according to the investors and traders at risk with these economic variables.

According to Thorbecke (1997), the expansionary monetary policy is able to increase stock returns. However, at the same time, this has a negative effect on the discount factor of future cash flows.

According to Chatziantoniou et al. (2013), fiscal and monetary policies have direct and indirect effects on stock market fluctuations, and the interaction between fiscal and monetary policies has a direct effect on stock market fluctuations; in addition, the effects of fiscal and monetary policies on the stock market vary from one economy to another. According to Monogbe et al. (2016), for the Nigerian economy, the Arbitrage Pricing Theory is not applicable, as the numbers of macroeconomic variables, such as the interest rate, exchange rate, and inflation rate, are not able to explain the changes in securities' returns for a number of companies quoted in the capital market of Nigeria. Instable and inconsistent policies in the Nigerian stock market stand behind the non-response of securities' returns to changes in macroeconomic variables.

On the other hand, according to Galí and Gambetti (2015), the contractionary monetary policy increases the prices of stocks, which works against the trend and suggests that contractionary monetary policy is able to deflate an emerging bubble in the stock market. According to Li et al. (2016), the causal effect of the uncertainty of economic policy and stock returns is not stable overtime; however, the effect varies from one time period to another, and there are mutual relationships between the uncertainty of economic policy and stock returns in China and India, and these bidirectional causal relationships are relatively weak in both countries. In addition, governments are able to reduce the risk that the stock market is exposed to by reducing the uncertainty regarding economic policies.

According to Suhaibu et al. (2017), there is a one-directional positive effect of monetary policy, through the interest rate mechanism, on the stock market of African countries, and shocks in the stock markets affect the measures of monetary policy in African countries, where the real interest rate decreases with negative shocks in the stock market, whereas the money supply decreases with positive shocks in stock market. The inflation rate increases with negative shocks in stock market. The inflation rate increases with negative shocks in stock market; however, there is a mutual relationship between measures of monetary policy and stock market fluctuations. According to Nair and Anand (2020), the employability of monetary policy is a tool to achieve financial stability. Targeting asset prices can be an effective way to contain financial instabilities and consequent economic slumps.

Under stagflation, capitalist gains are squeezed based on rising costs and restricted demand (Sherman 1977). On the other hand, businesses that have a low elasticity of demand for their operating transactions in less competitive environments will do better, while consumer-led companies will likely bear the brunt of stagflation (Shama 1978).

Finally, stagflation is a circumstance wherein the inflation rate is high, the economic growth rate is low, and joblessness remains consistently high. This presents a predicament for economic policies, since activities planned to bring down or expansion may compound joblessness or inflation. Business activities are also affected. When stagflation occurs, investors and traders do not know how long they will persist. Uncertainty rises in the markets and has an impact on stock returns; this is the research gap for the current study. The basic hypotheses of this study focus on stock market returns and stagflation under economic policies.

1.3. Study Problem

The stock market usually experiences severe fluctuations illustrated by several performance indicators in the stock market. Attempting to mitigate such fluctuations without determining their main sources may aggravate the severity of fluctuations. The sources of these fluctuations are divided into exogenous and endogenous variables. While the exogenous variables represent wars, revolutions, financial

crises, and the like, the endogenous variables stem from the economy itself through its two sides: the real and monetary (financial) economy. However, the relationship between financial markets and the two sides of the economy is a mutual one, where both the real and financial economy affect the performance of the financial market in general and the stock market in particular. On the other hand, the performance of the financial market affects the real economy in particular.

1.4. Study Hypotheses

According to our literature review and research gap, hypotheses can be formulated as follows.

Hypothesis 1 (H1). There is an impact of stagflation on the returns of the stock market outside of a lag period.

Hypothesis 2 (H2). There is an impact of stagflation on the returns of the stock market within a lag period.

Hypothesis 3 (H3). There is an impact of economic policies on the returns of the stock market under stagflation on the economy and stock characteristics outside of a lag period.

Hypothesis 4 (H4). There is an impact of economic policies on the returns of the stock market under stagflation on the economy and stock characteristics within a lag period.

1.5. Study Importance

The performance of stock markets is linked, in one way or another, to changes in fiscal and monetary policies. On the one hand, the prosperity of a stock market is primarily determined by the level of aggregate demand in the economy, where the aggregate demand encourages productive units to expand and obtain more physical assets.

On the other hand, measures of monetary policy, determining the interest rate on top of these measures, may increase or decrease the response of the production base to changes in the aggregate demand, where increasing the level of the interest rate on alternative financial instruments plays a fundamental role in the fluctuations of stock prices and the appetite for investment in the stock market. Finally, the main source of savings invested in the stock market and other financial markets is the level of aggregate supply that is stimulated directly and indirectly by fiscal and monetary policies. Figure 1 depicts the potential effects of fiscal and monetary measures on the stock market.



Figure 1. Potential Effect of Economic Policies on the Returns of the Stock Market under The Characteristics of The Economy and Stock Market.

Uncertainty of economic policies can have a negative impact on stock returns, particularly during periods of severe volatility (Arouri et al., 2016). In this context, determining the potential effects of fiscal and monetary policies on the stock market enables the consideration of such effects while preparing such fiscal and monetary measures to avoid the negative externalities of such measures, which may ultimately threaten the macroeconomic stability.

In the same context, uncertainties arise in stagflation. Economic policy conflicts in this case are unlimited. Economic policies that seek to create new jobs to reduce unemployment lead at the same time to maximizing inflation rates. The reactions of the markets, companies, investors, and consumers are unpredictable. In this study, we seek to reveal this state of uncertainty in stock exchanges.

1.6. Study Methodology

Economic activities can be measured through many variables. These may include economic growth, the gross national product, financial stability, etc. The current study focuses on the state of stagflation as the most difficult case for economic policy makers. There is a conflict in policies in this case: How can the inflation rates be reduced (the decrease in the purchasing power of the local currency) while seeking to create new jobs to reduce unemployment rates? The study proposes that the stock exchange and companies' responses to these policies will not be the same. This is what our study reveals by analyzing the relationships between economic policies and stock returns under stagflation. In this study, we used the methodology of panel data according to weights based on per-unit error variances that using the data of nine countries where Y depends on X but with a different intercept in different countries. To overcome the obstacle of different methods of building financial market indices, we relied on measuring the annual performance announced by the MSCI emerging markets index. Figure 1 shows the general framework of the study through the presentation of intermediate variables that explain the impact of the independent variables (stagflation and economic policies) on the dependent variable (stock market returns).

According to the above figure, economic policies affect stock returns by affecting the ability of companies to establish new production facilities. This is achieved by affecting the cost of financing through the interest rates announced by the central bank as well as by affecting the conditions and incentives for access to credit as well rather than tax and customs effects and government spending (as well as consumer behavior) by affecting the income levels available through indirect tax as well as the credit facilities for the family sector. This effect varies from the characteristics of the economics and the stock markets.

2. Data Description and Hypotheses Testing

2.1. Data Description

We used basic data published by the World Bank and the MSCI emerging markets index. In this study, we compared the performance of stock exchanges under the economic policies during the period from 2005 to 2018, and the data are annual. The study included nine countries; Table 1 shows these countries, the level of diversification between stock exchanges, and the MSCI index covers of the equity for every country.

No	Country	The Sectors of Country Equity	theThe Index Covers of the Country Equity
1	Brazil	11	85%
2	Egypt	3	85%
3	Indonesia	10	99%
4	Korea	10	85%
5	Malaysia	10	85%
6	Pakistan	2	85%
7	Singapore	7	85%
8	South Africa	9	85%
9	Turkey	7	85%

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Source: MSCI emerging markets index, fact sheets, July 31, 2019.

The above table shows that there was variation in the level of diversification between stock exchanges, and we found that the most diversified market was Brazil, while Pakistan was the least diversified. This could explain a part of the relationship between economic policies variables and the performance of these exchanges. Figures 2-10 illustrates the annual performance of the MSCI for the sample countries.

2.1.1. Brazil

According to the MSCI index, the best annual performance of Brazilian equities was in 2009 with a return of (128.62%) in contrast to (-56.06%) in 2008 with the largest annual losses. From 2005 to 2018, the average annual return for Brazil's equities was 18.67% with a standard deviation of 51.34%.





2.1.2. Egypt

According to the MSCI index, the best annual performance of Egyptian equities was in 2005 with a return of (161.5%) in contrast to -52.3% in 2008 with the largest annual losses. From 2005 to 2018, the average annual return for Egypt's equities was (16.517%) with a standard deviation of (53.141%).





2.1.3. Indonesia

According to the MSCI index, the best annual performance of Indonesian equities best annual performance was in 2009 with a return of (126.26%) in contrast to (-57.78%) in 2008 with the largest annual losses. From 2005 to 2018, the average

annual return for Indonesia's equities was (18.560%) with a standard deviation of (45.04%).



Figure 4. The annual performance of the MSCI Indonesia 2005–2018.

2.1.4. Korea

According to the MSCI index, the best annual performance of Korean equities was in 2009 with a return of (72.06%) in contrast to (-55.07%) in 2008 with the largest annual losses. From 2005 to 2018, the average annual return for Korea's equities was (12.957%) with a standard deviation of (33.709%).





2.1.5. Malaysia

According to the MSCI index, the best annual performance of Malaysian equities was in 2009 with a return of (46.25%) in contrast to (-40.77%) in 2008 with the largest annual losses. From 2005 to 2018, the average annual return for Malaysia's equities was (6.094%) with a standard deviation of (20.97%).



Figure 6. The annual performance of the MSCI Malaysia 2005–2018.

2.1.6. Pakistan

According to the MSCI index, the best annual performance of Pakistani equities was in 2009 with a return of (78.07%) in contrast to (-75.39%) in 2008 with the largest annual losses. From 2005 to 2018, the average annual return for Pakistan's equities was (7.038%) with a standard deviation of (40.134).



Figure 7. The annual performance of the MSCI Pakistan 2005–2018.

2.1.7. Singapore

According to the MSCI index, the best annual performance of Singaporean equities was in 2009 with a return of (74.0%) in contrast to (-47.34%) in 2008 with the largest annual losses. From 2005 to 2018, the average annual return for Singapore's equities was (11.872%) with a standard deviation of (30.879%).



Figure 8. The annual performance of the MSCI Singapore 2005–2018.

2.1.8. South Africa

According to the MSCI index, the best annual performance of South African equities was in 2005 with a return of (39.6%) in contrast to (-18.81%) in 2008 with the largest annual losses. From 2005 to 2018, the average annual return for South Africa's equities was (11.018%) with a standard deviation of (16.334%).





2.1.9. Turkey

According to the MSCI index, the best annual performance of Turkish equities was in 2009 with a return of (98.4%) in contrast to (-62.1%) in 2008 with the largest annual losses. From 2005 to 2018, the average annual return for Turkey's equities was (11.644%) with a standard deviation of (49.44%).





Through the previous presentation of the nine stock markets, we found that the largest negative impact on the returns of these markets was the global financial crisis in 2008; conversely, the bulk of the highest returns for those markets was 2009, which witnessed changes in economic policies through the tendency to facilitate monetary and expansionary fiscal policies as an incentive to increase the performance of the markets under study.

2.2. Study Variables

The data published by the World Bank relied on independent and dependent variables as well as the intermediate variables as shown in Table 2.

		X1	Interest rate on deposits (%)
	Monetary Policies		Broad money (% of GDP)
Independent		X3	Tax revenue (% of GDP)
variables	Fiscal Policies	X4	Government expenditure (% of GDP)
		X5	Tariff rate (%)
		X6	Total unemployment (% of total labor force)
		X7	External debt stocks (% of GNI)
		X8	External balance on goods and services (% of GDP)
		X9	Gross savings (% of GDP)
	Economy	X10	Inflation, consumer prices (annual %)
Intermediate variables	characteristics	X11	Domestic credit to private sector (% of GDP)
		X12	International tourism, receipts (% of total exports)
		X13	Foreign direct investment, net inflows- BoP, current US\$(Log)
		X17	Stagflation (annual %)
	Stock characteristics	X14	Stocks traded, total value (% of GDP) (Log)

Table 2. The study	variables.
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		X15	Risk premium on lending (lending rat minus treasury bill rate, %)			
		X16	Listed domestic companies, total (Log)			
Dependent	Stock return	V	Stock return according to MSCI			
Variables	Slock return	I	emerging markets index (annual %)			

The study test the stationary of data to ensure that the mean and variance were invariant according to a unit root test, the stationarity of the time series of the basic independent and dependent indicators at level zero was evaluated according to the constant level. This was done through the Augmented Dickey–Fuller (ADF), Philips–Perron (PP), Im, Pesaran and Shin W-stat (IPSW), Levin, and Lin and Chu t (LLC) tests at a significance level of less than 0.05. In addition to the Tau-statistic, the Z-statistic criteria were at a significance level of less than 0.05.

2.3. Examining the Impact of Stagflation on the Return of Stock Market

The roots of stagflation in the 1970s were frequently associated with crises in oil prices. The price level is generally not mentioned at all. This corresponds to the inclination to reduce nominal variables in contemporary business cycle studies (see Sims 1998). In view of the concern of politicians and the public media with the roots of stagflation and the chance of their recurrence, the absence of scholarly interest in stagflation may be surprising. This has implications for stock market returns.

2.3.1. The Effect of Stagflation on Stock Market Returns Using Regular and Lag (-1) Periods According to Nine Cross-Sectional Units

The previous statistical results showed the impact of stagflation on the returns of stock markets and were significant at the 0.01 level. According to the adjusted R-squared, the stagflation interpreted 8.69% of the returns of the stock markets. We also reanalyzed the lag period for stagflation.

The previous statistical results showed that there was an impact of stagflation within the lag period on the returns of the stock markets, and this was not significant at the 0.05 level.

According to the statistical results from models 1 and 2 (Figures 11 and 12), we accept Hypothesis 1, as we found an impact of stagflation without a lag period on the returns of the stock markets. We reject Hypothesis 2, as we found that there was no impact of stagflation within the lag period on the returns of the stock markets.

Model 1: WLS, using 117 observations Included 9 cross-sectional units Dependent variable: Y Weights based on per-unit error variances Coefficient Std. Error t-ratio p-value 7.53823 4.39734 1.714 0.0892 const -2.92759 X17 -3.562 0.0005 *** 0.821831 *** X17 1 2.98040 0.829164 3.594 0.0005 Statistics based on the weighted data: Sum squared resid 116.3172 S.E. of regression 1.010112 **R-squared** 0.102627 Adjusted R-squared 0.086884 P-value(F) F(2, 114) 6.518737 0.002087 Log-likelihood Akaike criterion -165.6734337.3468 Schwarz criterion Hannan-Quinn 345.6333 340.7110 Statistics based on the original data: Mean dependent var 9.797179 S.D. dependent var 36.75806 Sum squared resid 146317.4 S.E. of regression 35.82577 Source: Gnu Regression, Econometrics and Time-series Library output.

Figure 11. Model 1.

Model 2: WLS, using 1 Included 9 cross-section	17 observati	ons			
Dependent variable: Y					
Weights based on per-	-unit error va	riances			
	Coefficient	Std. Erroi	r t-ratio	p-va	lue
const	6.97578	4.77169	1.462	0.14	65
X17_1	0.0990341	0.224969	0.4402	0.66	06
Statistics based on the	e weighted da	ata:			
Sum squared res	id 115.6	711 S	S.E. of regres	ssion	1.002914
R-squared	0.001	682 A	djusted R-so	quared	-0.006999
F(1, 115)	0.193	787 F	P-value(F)	•	0.660610
Log-likelihood	-165.3	3476 A	kaike criteri	on	334.6951
Schwarz criterion	340.2	195 H	lannan-Quin	n	336.9379
Statistics based on the	e original data	a:			
Mean dependent	var 9.797	'179 S	S.D. depende	ent var	36.75806
Sum squared res	id 1565	57.3 S	S.E. of regres	ssion	36.89672
Source: Gnu Regressi	on, Econome	etrics and T	ïme-series L	ibrary ou	itput.

Figure 12. Model 2.

2.3.2. Examining the Impact of Economic Policies on the Returns of Stock Markets under Stagflation Economic and Stock Characteristics

According to our review of previous studies, we found that most of the studies dealt with economic policies or variables through the immediate impact on stock market returns; however, there is typically a slowdown until this effect reached both the business sector and the private sector combining the immediate effect with the effect with a lag period.

Model 3: WLS, using 117 observations Included 9 cross-sectional units Dependent variable: Y Weights based on per-unit error variances

		Coeffi	cient	Std. Err	or	t-ratio	p-valu	le	
	const	-58.2	144	357.484		-0.1628	0.872	3	
	X1	-3.003	396	3.42078		-0.8782	0.390	3	
	X2	-0.162	2723	1.34881		-0.1206	0.905	2	
	X3	-1.065	505	5.20154		-0.2048	0.839	8	
	X4	-3.692	225	3.55180)	-1.040	0.311	0	
	X5	-4.370)22	6.11941		-0.7142	0.483	4	
	X17	-2.893	336	2.97932		-0.9711	0.343	1	
	X7	-0.122	2459	0.87223	6	-0.1404	0.889	8	
	X8	6.4576	61	3.52528		1.832	0.081	9	*
	X9	-10.64	192	4.65543		-2.287	0.033	2	**
	X11	0.1336	672	0.60337	0	0.2215	0.826	9	
	X12	5.6678	36	2.52404		2.246	0.036	2	**
	X14	40.449	93	49.2456	;	0.8214	0.421	1	
	X13	-14.52	223	15.9426	;	-0.9109	0.373	2	
	X15	2.157	1	1.64147	,	1.314	0.203	7	
	X16	160.81	15	150.719)	1.067	0.298	7	
Stati	stics based on the	weigh	ted da	ta:					
	Sum squared resi	d	29.208	386	S.E.	of regression	۱	1.2084	188
	R-squared		0.6160)78	Adju	isted R-squar	ed	0.3281	136
	F(15, 20)		2.1395	594	P-va	lue(F)		0.0564	183
	Log-likelihood	-	-47.31	895	Akai	ke criterion		126.63	379
	Schwarz criterion		151.97	742	Han	nan-Quinn		135.48	309
Stati	stics based on the	origina	al data	:					
	Mean dependent	var	15.269	917	S.D.	dependent v	ar	36.983	317
	Sum squared resi	d	24956	.90	S.E.	of regression	ו	35.324	185
Sou	ce: Gnu Regressio	on, Ecc	nome	trics and	Time	e-series Libra	ry outp	out.	

Figure 13. Model 3.

The statistical results detailed above showed that there was an impact of the economic policies on the returns of the stock markets under stagflation economies and stock characteristics, and this was not significant at the 0.05 level. There was a lag period for the economic policies, as shown in Model 4 (Figure 14).

Model 4: WLS, using 117 observations

Included 9 cross-sectional units

Dependent variable: Y

Weights based on per-unit error variances

	Coefficient	Std. Error	t-ratio	p-value	
const	-462.077	268.515	-1.721	0.1015	
X1_1	5.60670	3.25302	1.724	0.1010	
X2_1	-1.36506	1.15503	-1.182	0.2519	
X3_1	5.82765	4.36271	1.336	0.1974	
X4_1	4.50577	2.85376	1.579	0.1309	
X5_1	12.0375	5.33660	2.256	0.0361	**
X17	-4.00488	1.98940	-2.013	0.0585	*
X7	-0.249021	0.665435	-0.3742	0.7124	
X8	3.15933	4.15470	0.7604	0.4563	
X9	-10.8795	3.73566	-2.912	0.0089	***
X11	-0.0854419	0.471604	-0.1812	0.8582	
X12	2.27191	1.72248	1.319	0.2029	
X14	6.37120	36.3402	0.1753	0.8627	
X13	-24.8483	16.1307	-1.540	0.1399	
X15	-1.28982	1.41759	-0.9099	0.3743	
X16	182.919	95.8381	1.909	0.0715	*

Statistics based on the weighted data:

Sum squared resid	29.10133	S.E. of regression	0.911848			
R-squared	0.585037	Adjusted R-squared	0.257435			
F(15, 19)	1.785814	P-value(F)	0.116192			
Log-likelihood	-46.43298	Akaike criterion	124.8660			
Schwarz criterion	149.7515	Hannan-Quinn	133.4564			
Statistics based on the origi	nal data:					
Mean dependent var	13.77600	S.D. dependent var	36.45530			
Sum squared resid	23414.92	S.E. of regression	35.10504			
Source: Gnu Regression, Econometrics and Time-series Library output.						

Figure 14. Model 4.

The statistical results showed that was an impact of the economic policies on the returns of the stock markets under stagflation economic and stock characteristics, and this was not significant at the 0.05 level. The study, then, reanalyzed without the economic and stock characteristics, which were non-significant variables from the model.

Model 5: WLS, using 91 observations Included 9 cross-sectional units Dependent variable: Y Weights based on per-unit error variances

	Coefficient	Std. Error	t-ratio	p-value	
const	95.0273	64.2331	1.479	0.1429	
X1_1	-0.0827482	0.0666274	-1.242	0.2178	
X2_1	-0.396351	0.167650	-2.364	0.0204	**
X3_1	3.53030	1.47163	2.399	0.0187	**
X4_1	0.474722	0.788265	0.6022	0.5487	
X5_1	2.43744	1.34706	1.809	0.0740	*
X17	-3.15949	1.13248	-2.790	0.0066	***
X9	0.647379	0.763009	0.8485	0.3987	
X16	-37.5437	24.7298	-1.518	0.1328	

Statistics based on the weighted data:

Sum squared resid	89.22395	S.E. of regression	1.043119
R-squared	0.236521	Adjusted R-squared	0.162036
F(8, 82)	3.175390	P-value(F)	0.003478
Log-likelihood	-128.2266	Akaike criterion	274.4532
Schwarz criterion	297.0509	Hannan-Quinn	283.5700
Statistics based on the orig	inal data:		
Mean dependent var	12.47429	S.D. dependent var	35.35318
Sum squared resid	101037.5	S.E. of regression	35.10221
<u> </u>			

Source: Gnu Regression, Econometrics and Time-series Library output.

Figure 15. Model 5.

The statistical results showed that there was an impact of the economic policies on the returns of stock markets under stagflation economic and stock characteristics, and this was significant at the 0.01 level. The economic policies on the returns of the stock markets under economic and stock characteristics affected (16.20%) of the returns of the stock markets.

According to the statistical results of models 3, 4, and 5, we reject Hypothesis 3, as we found that there was no impact of the economic policies on the returns of the stock markets under stagflation economic and stock characteristics outside of a lag period. We accept Hypothesis 4, as we found an impact of the economic policies on the returns of the stock markets under stagflation economic and stock characteristics within a lag period. According to the statistical results of models 4 and 5, the economic policies within a lag period under stagflation economic and stock characteristics outside of a lag period were 25.74% and 16.20% of the returns of the stock markets, respectively.

3. Conclusions and Recommendations

3.1. Discussion and Conclusions

The impact of economics on stock markets has been of interest to many models and theories of financial economics, such as Arbitrage Pricing Theory (APT) and the Fisher effect. Prior research has often focused on economic variables and the stock market and their influence on this return, e.g., Fama (1981); Kim and Wu (1987); Asprem (1989); Mukherjee and Naka (1995); Elton et al. (1995); Qi (1999); Qi and Maddala (1999); Crosby (2001); Patra and Poshakwale (2006); Lee (2010); Asgharian et al. (2013); Nikita et al. (2017); and Nijam et al. (2018). However, we found few studies related to economic policies and stagflation, e.g., Marx and Struweg (2015), and Arouri et al. (2016).

This study provided evidence that economic policies under stagflation economic and stock characteristics had impacts on the stock returns from nine exchanges. This agrees with the findings of Arouri et al. (2016), who studied the impacts of economic policy uncertainty on stock markets in the United States over the period 1900–2014. We showed that an increase in policy uncertainty significantly reduced stock returns and that this effect was stronger and persistent during extreme volatility periods.

According to Marx and Struweg (2015), the relationship between economic growth and inflation changes during periods of stagflation, and earnings yield models and equity return models exhibit different behaviors between periods of stagflation and no stagflation. This study, therefore, confirmed that the South African stock market needs to be approached differently during periods of stagflation.

The current study can explain the different results according to the different methods of study, in particular with regard to the use of the lag period, which was beneficial with economic policy but not beneficial with stagflation. The different abilities of each economy created value added from production factors with different levels of efficiency of stock exchanges. Finally, the above tables showed that there was a variation in the level of diversification between stock exchanges, where we found that the most diversified market was Brazil, while Pakistan was the least diversified. This could explain, in the future, a part of the relationship between economic policy variables and the performance of these exchanges. Figure 2-10 illustrates the annual performance of the MSCI for the sample countries. The economic policies within a lag period under stagflation economic and stock characteristics outside of a lag period were between 25.74% and 16.20% of the returns of the stock market.

3.2. Recommendations

Rational investment in stock exchanges requires the ability to classify the policies and economic variables and determine the extent of their time contributions to caret stock returns within/outside a lag period. This area is a fertile field in financial economics research, particularly for developing theories and models.

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Ethics declarations

Informed consent was obtained from all study participants prior to data collection. Participants were able to decline participation or withdraw at any point of the study.

Data Availability Statement:

The dataset is available from the authors upon request.

Conflicts of Interest:

The authors declare no competing interests exist. All study participants provided informed consent, and the study design was approved by the appropriate ethics review board. We have read and understood your journal's policies, and we believe that neither the manuscript nor the study violates any of these. There are no conflicts of interest to declare.

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