



## Nexus between Fiscal Performance and Stock Market: Does Institutional Quality Matter?

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### Abstract

This study analyses the relationship between the stock market and fiscal performance by adding the moderating role of institutional quality in the nexus between fiscal performance and the stock market in advanced countries. The study employs panel data of advanced countries with the span of 2007-2021 using the Generalized method of moments (GMM). The results find that fiscal performance plays a major role in determining the stock market returns, more over institutional quality further enhancing the relationship between fiscal performance and the stock market. This study contributes to ongoing literature by providing new evidence on the moderating role of institutional quality in the nexus between fiscal performance and the stock market.

**Keywords:** Fiscal Performance, Stock Market, Institutional Quality, GMM

### 1. Introduction

Fiscal policy has a massive macro prospect due to its multi-dimensional interlinks with the financial system and real economy. Fiscal stance measures such as public debt management, tax policies, different structural and social procedures, as well as other fiscal measures aimed at ensuring sustainable economic progress. Better fiscal performance provides greater work opportunities, and the achievement of social goals that can affect developments in financial markets (Dumičić, 2019). Instrumental application of fiscal policy can be expressed by the fiscal performance that shows how a government manages taxation and spending, borrowing and debt, as well as looking at how spending has been allocated and where tax revenues have been raised from. Fiscal performance is important to maintain stabilization in the economy and promote conducive infrastructure for future investment. When fiscal performance is not up to the mark it causes instability and uncertainty in the economy, which further dampens the speed of investment in the financial markets (Hagemann, 2011). Historically fiscal policy promotes growth in developed economies to a greater extent compared to developing economies. Fiscal policy is used as a tool to reduce inequality through the distribution of tax revenue through providing transfer to the poor and provision of subsidies to underprivileged economic units. Industrialized economies stressed the importance of fiscal policy long ago compared to developing economies. The main objective of fiscal policy in developed economies is to promote equality by using progressive taxation. Developed countries have larger government sizes that's why allocate enormous resources to enhance public income equality (Heshmati & Kim, 2014).

According to the IS-LM model, when the government uses expansionary fiscal policy by increasing government expenditure and reducing tax rates shift the IS curve to the right, raising both income and interest rates. Stock investment becomes less attractive with low future earnings and investor prefer higher return that comes from debt instruments (Silber, 1970). As financial market participants are forward looking they react according to the expected outcome of fiscal policy in terms of interest rate increase interest rate decrease, and their ultimate decision to invest in the stock market. Countries facing budget deficits make their government debt sustainable, which causes a reduction in the interest rate that makes investment in the stock market profitable (Ardagna, 2009). To have sustainable fiscal policy, the presence of trustworthy institutions plays a pivotal role in the successful implementation and maintenance of policies that foster economic growth and stability. One of the vital sides within this framework is political institutions, which exert significant influence over the allocation of tax revenue. Moreover, state institutions exhibit a strong correlation with income levels, as well as the potential for violence. In weaker states, particularly those dealing with ample poverty and societies caught up in internal conflicts, this connection is notable. On the contrary, developed countries considered by high-income levels, have robust establishments, well-structured policies, and peaceful conflict resolution mechanisms (Ricciuti et al., 2019). According to the institutional theory, the institutional structure and framework of a country have a major role in making and implementing economic policies. The countries have poor policies as they have poor institutional setups. That means the economic and political institutions perform substandard the low standard work. In the presence of corruption, weak property rights, and weak law and order situation, it is difficult for developing countries to fully utilize fiscal and monetary policies for economic development (Acemoglu et al., 2003).

The purpose of this study is to evaluate fiscal policy performance in terms of the composite index through multivariate decision-making criteria techniques and then check its association with the stock market. The relationship between fiscal performance and the stock market is widely discussed in the literature (Stoian & Iorgulescu, 2020) but there is limited literature having institutional quality being discussed in the nexus between fiscal performance and the stock market. The impact of institutional quality on the nexus of fiscal performance – the stock market is not lucid. However, this research extends the line of inquiry by examining the moderating impact of Institutional quality on the linkage of fiscal performance and the stock market in advanced countries. We structure the remainder of the article as follows: Literature review in section 2 along with hypothesis linking

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institutional quality with fiscal performance and stock market performance. Data and methodology are in section 3. Results and discussion are in section 4 while the last section presents the conclusion.

## 2. Literature Review

There are well-established financial markets in developed countries. There exists a directional association between macroeconomic policies and financial markets. In advanced countries, there is more investor protection and low transaction costs, that make the financial market efficient (Qureshi et al., 2019).

Fiscal policy consists of various variables such as tax revenue, government expenditure, and borrowing. Some variable shows a positive association with the stock market some show a negative. A study in G-7 economies by applying the Vector Autoregressive method. It was estimated that government expenditure has a negative effect on stock prices while government revenue has a positive effect on stock market prices (Afonso & Sousa, 2011). Stock market prices react efficiently to current and past fiscal policy news in the Romanian stock exchange (Stoian & Iorgulescu, 2020). A similar result obtains in the case of the US stock market. Insights from the study show that stock prices incorporate both current and past fiscal policy information, and fiscal policy influences the stock market both by direct and indirect channel. Moreover, the study also incorporates the role of other control variables such as oil price, consumer price index, and industrial production (Gunduz, 2020).

On the contrary, fiscal policy has a deteriorating effect on stock market returns. The study by Tsibikis and Donders (2020) in the Netherlands advocates the classical crowding out hypothesis. Fiscal balance which is ratio of government expenditure and government revenue to GDP has a negative impact on the stock market, an increase in fiscal balance causes a decrease in stock market returns.

A study by Hooper and Uppal (2005) reveals a significant positive association between stock market returns and the quality of the institutional framework. the quality of governance is identified to have a negative connection with stock market total risk and idiosyncratic risk, supported by the concept that steady institutions relate to reduced variation in stock returns. Insights of this research show that countries with well-established institutional sets can positively impact the stock market by reducing the risk of variation in stock returns.

Investigating the role of institutions in alleviating corruption and its influence on the growth of financial markets, this study reveals that corruption, alongside weaker institutions, reduces stock returns. However, Bureaucratic quality acts to alleviate the detrimental consequences of corruption, thereby supplementing returns by rationalization administrative processes. Likewise, corruption unsettles law and order, leading to reduced stock returns. This analysis is conducted within the context of BRIC countries. The overall findings imply that corruption has a negative and significant impact on stock returns (Lakshmi et al., 2020).

How the behavior of politicians and the legal system influences the effectiveness of government expenditure and government taxation can be explained by public choice theory (Buchanan & Tullock, 1986). This postulate is not only limited to theory but it can be observed practically. The significance of establishments becomes obvious in the setting of fiscal transparency in connection with various governance drivers. Enhanced levels of institutional quality or governance are associated with improved fiscal transparency indicators (Andreula, 2009). In line with political economy theory, Alesina and Perotti (1995) contend that relying solely on economic factors is insufficient to elucidate fiscal persistence. They propose that a political and institutional standpoint could provide a resolution to this issue. Interaction between fiscal policy variables and governance can be inflationary or deflationary depending upon whether either country is developed or developing. It is evident that in developed countries with superior governance quality, there is a deflationary effect between fiscal deficit and governance, on the contrary, developing countries have poor governance quality make the association between fiscal deficit and governance inflationary. As in a superior institutional setup, central banks work independently and control interest rates and exchange rates to curb the effects of inflation. Moreover, effectively managed public projects help to manage the issue of fiscal deficit (Ho et al., 2021).

In the same vein, the study investigates another fiscal policy variable (government expenditure) with institutional quality. Efficient institutions enhance the effectiveness of the fiscal policy, Improved institutions mitigate the neo-classical crowding out effect of fiscal policy and promote the Keynesian hypothesis (Phuc, 2018). In the same vein, a study in the Euro area reveals that superior institutional quality helps to improve public spending. Superior institutional quality helps reduce public spending by curbing unproductive public spending. By adding the role of interconnection among countries having the same monetary union, the relationship between government spending and institutions is more pronounced (Barra & Ruggiero, 2023).

Various governance indicators impact fiscal policy differently as study by Arif and Arif (2023). Studies provide insights such as an increase in corruption level causes a significant increase in budget deficit. On the other hand, adherence to the rule of law, improved bureaucratic quality, democratic accountability, and high political stability cause a significant reduction in the budget deficit. That promotes the idea that superior institutions help in the efficacy of fiscal policy.

The present study analyzes the relationship between fiscal performance and the stock market and then incorporates the moderating impact of institutional quality in nexus, so this study checks the following hypothesis.

**H<sub>1</sub>:** *Fiscal performance and the stock market are positively related.*

**H<sub>2</sub>:** *Institutional quality moderates the relationship between Fiscal performance and the stock market.*

### 3. Research Methodology

#### 3.1. Data

This study consists sample of 31 advanced countries according to IMF criteria (a list of countries is in the appendix). The data, gathered from sources such as the World Bank database, Investing.com, OECD Database, central banks of relevant countries, and IMF Statistics, spans from 2007 to 2021, with an annual frequency.

The dependent variable in this study is the stock market return, while the independent variables encompass Fiscal performance and institutional quality. Discussion of control variables in table 3.2 where their measurement and sources are discussed. List of countries along with their stock markets mentioned in table 3.1.

**Table 3.1:** List of countries

Country	Stock Market Index
Australia	S&P/ASX 200
Austria	ATX
Belgium	BEL 20
Canada	S&P/TSX
Cyprus	Cyprus main market
Czech republic	PX
Denmark	OMXC20
Estonia	Tallinn SE General
Finland	OMX Helsinki 25
France	CAC40
Germany	DAX
Greece	Athens General Composite
Hong Kong	FTSE China 50
Ireland	ICEX main
Israel	TA 35
Italy	FTSE Italia All Share
Japan	Nikkei 225
Korea	KOSPI
Latvia	Riga General
Lithuania	Vilnius SE General
Luxembourg	LuxSE
Netherlands	AEX
Portugal	PSI
Singapore	FTSE Singapore
Slovak	SAX
Slovenia	Blue-Chip SBITOP
Spain	IBEX35
Sweden	OMXS30
United Kingdom	FTSE 100
United States	Dow Jones

#### 3.2. Measurement of Variables

##### 3.2.1. Fiscal Performance Index (FPI)

The composite fiscal performance index is constructed by applying the data-driven Data Envelopment Analysis (DEA) approach. The DEA method allocates weights to inputs and outputs for each economic unit in the most favorable way. DEA is a more scientific approach compared to other data-driven weighted ratio indices. FPI Consists of four main variables Tax revenue, government spending, government debt, and Gross domestic product (Sinha, 2017). In our case, the study will apply an output-oriented model. DEA maximizes output for a given level of input; in other words, it indicates how much an economic unit can increase its output for a given level of input (Huguenin, 2012). Input consists of GDP and government debt while output consists of Government spending and tax revenue.

##### 3.2.2. Institutional Quality Index (IQI)

Institutional quality consists of six dimensions (Kaufmann et al., 2010) 1-Voice and Accountability, 2-Political Stability/Absence of violence, 3-Government Effectiveness, 4-Regulatory Quality, 5-Rule of Law and 6-Control of Corruption. Principal component analysis (PCA) was utilized to construct a composite Institutional quality index. PCA is a commonly used statistical technique for composite index construction. PCA is employed to reduce a large set of highly correlated variables into a smaller set of uncorrelated indicators called principal components.

##### 3.2.3. Stock Market Return (SR)

The stock market return is derived by utilizing the closing prices of the stock market index. stock returns are measured by annual stock log returns, as shown in Equation, where  $i$  and  $t$  denote the country and time indices, respectively.  $P_{i,t}$  represents the stock price of country  $i$  at time  $t$ .  $SR_{i,t} = \log(P_{i,t}/P_{i,t-1})$

**Table 3.2:** Variable Description

Variable name	Description	Source	Acronym
Stock index price	Represented by stock market index (Wiranto, 2008).	Investing .com Central Banks of Country	SR
Fiscal performance index	Consists of four main variables	World Bank database OECD database IMF database	FPI
Institutional Quality Index	Consists of six dimensions (Kaufmann et al., 2010)	World Bank governance indicators (World Bank)	IQI
<b>Control Variables</b>			
Short term Interest rate	As a proxy of monetary policy (Stoian & Iorgulescu, 2020)	IMF database	IR
GDP growth rate	As a proxy of economic activity (Fulop & Gyomai, 2012).	IMF Database	GDPGR
Inflation	Measured by GDP Deflator (Stoian & Iorgulescu, 2020).	World bank database	GDE
Exchange rate	This entails the nominal effective exchange rate divided by a price deflator(Suriani et al., 2015)	World bank database IMF database	LER
Trade Openness	Trade Openness is the sum of imports and exports standardized by GDP (Alotaibi & Mishra, 2014).	World bank database	LTOP
Oil price	input cost affects the stock prices measured by oil price((Tsibikis & Donders, 2020).	Investing.com	LO

### 3.3. Empirical Specification of Models

$$SR_{it} = \alpha + \beta_1 SR_{it-1} + \beta_2 FPI_{it} + \beta_3 GDE_{it} + \beta_4 ER_{it} + \beta_5 IR_{it} + \beta_6 LO_{it} + \beta_7 LTOP_{it} + \beta_8 GDPG_{it} + \varepsilon_{it} \quad \text{Model\#1}$$

$$SR_{it} = \alpha + \beta_1 SR_{it-1} + \beta_2 FPI_{it} + \beta_3 IQI_{it} + \beta_4 FPI_{it} * IQI_{it} + \beta_5 GDE_{it} + \beta_6 ER_{it} + \beta_7 IR_{it} + \beta_8 LO_{it} + \beta_9 LTOP_{it} + \beta_{10} GDPG_{it} + \varepsilon_{it} \quad \text{Model\#2}$$

Model#1 is used to test the relationship between Fiscal performance and the stock market while Model#2 discusses the moderating impact of Institutional quality in the nexus between Fiscal performance and the stock market. The notion t indicates the period while i denotes the country.

### 4. Empirical Results and Discussions

Table 4.1 shows the results of the two-stage system GMM in a sample of Advanced countries. For the validity of instruments, the probability value is greater than 5% that instruments are valid by using the Sargan test while AR(1) and AR(2) show results related to autocorrelation, the Probability value of AR(2) is greater than 0.05 that justifies there is no autocorrelation in the model.

**Table 4.1:** Fiscal performance and stock market with the interacting impact of Institutional quality

Variables	Coefficient	t-value	Coefficient	t-value
SR(-1)	0.022***	2.53	0.021***	-2.59
FPI	0.048**	1.98	0.036**	2.33
IQI			0.049*	1.66
FPI*IQI			0.056*	1.78
GDE	-0.005***	-3.00	-0.006**	-2.30
LER	0.231***	2.62	0.198***	2.81
IR	-0.026*	-1.85	-0.025*	-1.83
LO	-0.031	-1.02	0.003	-1.02
LTOP	-0.113**	-2.03	-0.099	-0.06
GDPG	0.021***	2.90	0.006**	2.01
constant	0.823	0.61	0.50	0.98
Sargan Test	0.701		0.783	
AR(1)	0.001		0.004	
AR(2)	0.471		0.137	

Note: SR(-1) is the lag of stock return, FPI is the Fiscal performance index, IQI is the Institutional quality index, GDE is the GDP deflator, LER is the exchange rate, IR is the interest rate, LO is the oil price, LTOP is trade openness and GDPG is GDP growth. \*, \*\*, and \*\*\* depict significance at 10%, 5% and 1 % respectively.

The table shows the results of the two-stage system GMM in a full sample of Advanced countries. Regarding models #1 & 2 Fiscal performance index is positively related to stock market returns and advocates the Keynesian

theory. This is consistent with Stoian & Iorgulescu's (2020) unanticipated shift in fiscal policy exerts a notably favorable influence on the present stock market yield, aligning with the efficient market hypothesis. The unforeseen fiscal update caught investors off guard, eliciting an instant stock price response. 1 unit change in fiscal performance going to change 0.048 units in stock market returns. The result is consistent with studies (Ardagna, 2009; Afonso & Sousa, 2011; Mbanga & Darrat, 2016; Submitter et al., 2021; Caporale et al., 2022). Now taking into consideration the importance of institutional quality in the nexus between fiscal performance and the stock market, model #2 shows that there is a positive significant association between fiscal performance and stock market returns when taking institutional quality into analysis

implying that the fiscal performance further incentivizes the sound IQ and thus supplement the impact on stock market in Advanced countries. This is also in line with the authors' expectations that developed countries with strong IQ can benefit more from fiscal policy performance. As a 1 unit change in fiscal performance and institutional quality index nexus causes a 0.056-unit increase in stock market return, hence more increase compared to individual fiscal performance impact on the stock market, that 1 unit change in fiscal performance leads to 0.036 change in stock market return. Results are consistent with the literature, according to Imran et al. (2020), better governance quality helps in curbing insider trading and elevates investor confidence in working in financial markets. Efficient financial markets enhance business activities and hence increase investor protection. It was concluded that in the case of developed economies stock markets operate under efficient governance and institutional framework to enhance the stock returns and lower level of risk. Results are consistent with ((Winful et al., 2016; Marshall et al., 2017; Eldomiaty et al., 2019)

Incorporating the role of control variables in determining the stock market returns in Advanced countries. GDP Deflator, Trade openness, short-term interest rate, and oil price have a significant negative influence on the stock market returns. An increase in oil price leads to a decrease the stock market returns, as oil is the basic input for products that further influence the profits of business by affecting the cost of production, the result is consistent with Stoian & Iorgulescu (2020), study of the USA stock market. Short-term interest rate depicts the role of monetary policy, negative and significant result consistent with Stoian & Iorgulescu (2020). Regarding inflation rate results advocated by Khil and Lee, (2000). Zarei et al. (2019) propose that a positive relation with stock market returns can be explained as a one-unit change (or increase) in the value of real exchange rates for the chosen countries relative to the US dollar corresponds to a rise in stock index returns within the range 0.23 units. The study by Karunanayake et al, (2012) provides evidence of a strong positive significant impact on GDP growth in selected advanced countries.

#### 4.1. Robustness test (Alternate measures of Institutional Quality)

The research employs an alternative proxy of Institutional quality that includes 12 variables of freedom house indicators such as property rights, judicial effectiveness, government spending, government integrity, tax burden, fiscal health, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom, and financial freedom Because of multi-collinearity study constructed Institutional quality index from above variables. Table 4.2 depicts the findings when we employ a new proxy of institutional quality FPI\*GI is the interaction term in the model. The findings show the substitution effect of institutional quality, and the estimated coefficient of the interaction term are all significant. In the presence of institutions, there is a more pronounced impact of fiscal performance on the stock market. Regarding control variables, GDP growth, and exchange rate have significant associations with the dependent variable.

**Table 4.2:** Fiscal performance and stock market with the interacting impact of Institutional quality

Variables	Coefficient	t-value	Coefficient	t-value
SR(-1)	-0.288***	-3.33	-0.033***	-2.85
FPI	0.034***	2.70	0.16**	2.35
GI			0.18**	1.98
FPI*GI			0.19*	1.78
GDE	-0.002*	-1.87	-0.006	-0.09
LER	0.007*	1.89	0.001*	1.81
IR	-0.021*	-1.65	0.008	(1.83)
LO	0.0031	0.32	-0.009	-0.32
LTOP	-0.063	-1.63	-0.049	-0.81
GDPG	0.191**	2.30	0.062*	1.91
constant	-0.33	-0.71	-0.45	-0.62
Sargan Test	0.201	0.383		
AR (1)	0.001	0.002		
AR (2)	0.141	0.197		

Note: SR (-1) is the lag of stock return, FPI is the Fiscal performance index GI is the alternative proxy of the Institutional quality index, GDE is the GDP deflator, LER is the exchange rate, IR is the interest rate, LO is the oil price, LTOP is trade openness and GDPG is GDP growth. \*, \*\*, and, \*\*\* depict significance at 10%, 5% and 1 % respectively.

## 5. Conclusion

Fiscal policy gains attention in evaluating its impact on financial markets. This study provides the relationship between fiscal performance and the stock market in the presence of institutional quality in a sample of advanced countries. Study reveals that institutional quality positively moderates the relationship between fiscal performance and the stock market. The main results reveal that fiscal performance has a positive impact on the stock market in advanced countries, but in the presence of institutional quality magnitude of this relation is further improved. The result shows the acceptance of hypothesis #1 that there is a positive relationship between the stock market and fiscal performance. The positive moderating impact of institutional quality in the nexus between fiscal performance and the stock market advocates hypothesis#2.

This result argues that advanced countries have better governance and monitored institutes that make the government use fiscal policy in a productive manner that eventually impacts the financial markets specifically the stock market positively.

Governance quality in terms of strong legal structure, improved transparency, controlled corruption, and a stable political environment provide a stable arena for investment by reducing transaction costs and regulatory hurdles. Policymakers should emphasize effective regulation and promote effective corporate governance.

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