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The Role of Institutional Quality in Forecasting the Total Stock Price Index: Case Study of Developing and Developed Countries

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ABSTRACT

The purpose of this paper is the empirically examination of the effect of the Institutional Quality Components (Voice and Accountability, political stability and Absence of Violence and Terrorism, government effectiveness, regulatory quality, rule of law and control of corruption) on the prediction of total stock price index. The study was carried out using data extracted from 53 countries from the World Bank and Thomson Data Stream website over a period of 15 years between 2002 and 2016. The results of this study in various countries surveyed showed that the components of institutional quality have a positive and significant effect on the total stock price index. The results show that, as the institutional quality of the countries improves, the stock price index will increase. The results also indicate that identifying the institutional weaknesses in developing and developed countries would be a pathway to improve the investment in the capital markets.

Keywords:

Institutional quality, Total stock price index, developing and developed countries.

1. Introduction

One of the characteristics of the developed countries is the presence of efficient markets and financial institutions that, in addition to playing a major role in the economy of these countries, are the basis for economic growth and development of these countries. The components of institutional quality are very important in the capital market. Effective function of any investment activity is based on the good corporate governance mechanisms, which, in turn, it depends on the quality of the governance framework of a country(Boadi and Amegbe, 2017). In recent years, there has been a lot of research on institutional relationships and economic growth. Most studies have confirmed the positive and direct relationship between economic variables and institutional quality, which can have a significant impact on capital market performance. Hill and Loose (2006), Hooper et al. (2009), Chen et al. (2009), Giannetti, & Koskinen (2010), Chiou et al. (2010) confirmed the relationship between institutional quality and capital market efficiency.

Acemoglu (2005) states that, in developed countries with strong institutions, the technical knowledge and productivity are internally grown and the competitive power can flexibly be changed. In this situation, it is possible to predict the price variables, the task of the signaling, and the economic models are explained and interpreted in terms of price variables. Therefore, we can map out the role of good governance on the total price index and stock trading volume based on the institutional status of countries(Acemoglu et al., 2005). The assessment of institutional quality has important implications in developing countries and emerging markets. It is very important in these markets because institutional quality is weak in developing countries. Finally, the study of research literature shows that most researches has conducted towards the data from developed European, or Americans countries or other countries with emergent market, and it can be said that the comparison of the countries and their effects in the weak and strong institutional environment has not sufficiently carried out in perspective of practical and theoretical.

In previous researches, the effect of institutional quality on economic variables of the countries has been investigated, but its impact on capital market variables has not been studied. In this study, we directly investigate the impact of institutional components on the \ stock indices of the developed and developed countries. This research will have advantages for the stock market in target developing and developed countries. Policy makers need to focus on improving their institutional quality in their strategies and programs and they should provide the policies to increase institutional components in order to achieve the desired outcomes.

The next sections of present work are as follows: In the section 2, the literature and research hypotheses are presented. In section 3, the quality of the sampling and calculating the variables of the research as well as the descriptive statistics of variables is described. In section 4, the empirical results are presented, and in section 5, the conclusion of the research is provided.

2. Literature Review

2.1. Institution and Performance of Capital Market

Attention to the problem of the institutional effects on economic performance has a long history. Adam Smith is one of the first people who has considered the importance of institutions and their effect on the economic performance and has clearly addressed this issue in the book "the Wealth of Nations". He emphasizes that the development of commerce and industry cannot be observed in a country unless the economic operator don’t trust in justice and judgment of the government, that is, the governance knows the law is one of the important determinants of economic performance.

In a country where capital security exists, every ordinary person will try to use all his capital in economic activities. In countries where there is no security for capital, individuals may conceal a part of their capital or transfer it to another secure place because of the fear of powerful people (Smith, 1937).

Grif (2006) stated that the institutions and good governance, by enhancing the social activities and high efficiency of the relevant activity, improve the economic growth and, consequently, the capital market performance activities. In other words, by regulating the social activities and strengthening collective activities, on the one hand, reduces the transaction costs and makes predictable and reliable the social interconnections, and on the other hand, facilities the

coordination of economic factors(Alonso and Garcimartín, 2013).

North expressed that institutions include three main features and states that institutions, like many environmental and natural factors, are beyond the control of individuals and, on the other hand, define the rules of the game and form the behavior of individuals and stimulate the people's motivation(North, 1981). In fact, the main purpose of many studies in the field of institutions is to express the exact features of institutions that are responsible for economic success(Acemoglu and Robinson, 2010).

Boadi and Amegbe (2017), in their study, examined the effect of good governance on the stock market performance of 23 countries. Their study suggests that the right indicators of voice by the people and the accountability of the rulers, the index of political stability and the absence of violence and terrorism, the index of the effectiveness of the government to meet the needs of society, the index of the laws and regulations quality , and the reduction of barriers to economic development, the index of rule of law and the equality of the people and government before the law, the index of corruption control and the use of power and public facilities have had a significant impact on stock market performance in sample countries.

Hill and Loose (2006), Hooper et al. (2009), Chen et al. (2009), Gianti&Kozinken (2010), Chiu et al. (2010) argue that the institutional quality of a country affects the performance of financial and capital markets. Dooley (1998), Mckeinnon & Pill (1997) confirmed that governments are responsible for financial volatilities and financial stress (Boadi and Amegbe, 2017).

Kwabi et al. (2018) investigated the impact of stringent trading laws and institutional quality on the capital cost. Using data collected from 44 countries during the period from 2001 to 2015, they showed that stringent stock trading rules are interacting with the institutional quality and the allocation of foreign stocks in order to reduce capital expenditures at the country level. The results showed that the adoption of stringent laws on the sale and purchase of shares and their interaction with the quality of institutions is important not only for decisions on investment allocations, but also reduces the country level capital cost. The results showed that the adoption of stringent trading laws and their interaction with the quality of institutions is important not only for decisions on investment allocations, but also for reduction of country level capital cost (Kwabi et al., 2018).

Kamijaniet al. (2008) examined the financial liberalization and its role in financial development, with regard to the institutional and legal development, in the less developed and emerging countries in the 1985-2005 period, in 38 selected countries. The results indicate that the institutional indicators have a positive and significant effect on financial development. Also, for the positive impact of financial liberalization on financial development, the thresholds limits needed for the institutional environment (Kamijani et al., 2008).

According to previous studies, institutions can be different from one community to another due to different social and political reasons. A community may have a democratic political structure, and the other community may has the dictatorship structure; even in societies with democratic structures, depending on how power is distributed between social groups and classes, it may lead to different institutions. In a society, the democratic structure may be weak, but it be considered strong in another society which, based on the definition provided by North, it includes the wide dimensions (Acemoglu and Robinson, 2010).

Pereset al. (2018) investigated the institutional quality of foreign direct investment (FDI) by classification of countries into developed or developing countries. They measured institutional quality through the total control of corruption and indicators of rule of law. Evidence showed that institutional quality positively and effectively affects FDI in developed countries. In general, the results of developing countries have shown that the impact of institutional quality is negligible due to the weak institutional structure (Peres et al., 2018).

Hien Thu Tran (2018),in investigating the impact of institutional quality on the productivity, profitability and survival of new firms in comparison with reputable firms in a transition region, Vietnam, by integrating the economic and institutional views, has emphasized on the importance of institutional quality in the form of the evolution of the industry dynamics, and has found that the quality of poor institutions, which act as organizational barriers for participants, jeopardizes the process of selecting the Schumpeterian markets(Tran, 2018).

According to Rodrik (2000), institutions can be divided into four categories. He described the

influencing process of each of these institutional forms as follows:

Property rights institutions: these institutions include norms and rules that ensure the individuals' control on their return of assets, investments, and the value of their products. This part of the institutions includes the rule of law, the quality of law enforcement, the applicability of contract, the political discretion and the process of changing the officials and executives. Property rights institutions affect the economic performance through influencing the decisions of economic principles on savings and capitalization, and all decisions related to the results of reciprocal agreements. It also improves economic performance by creating a stable level of trust that reduces the risk of lack of achievement of investment income and contracts.

Regulatory institutions: these institutions include the norms, rules and regulations that can overcome market failures and broker issues. These institutions draw the boundaries in which public services are independent of policymakers. It also defines the extent to which the policy makers and regulators can pursue group interests and defines the area where policymakers and Juridical persons are responsible to respond the general public in its general sense and shareholders in a specific sense. These institutions can be measured through indicators of corruption, tax evasion, and bureaucratic quality. Norms and regulations can affect the economic performance by increasing the efficiency of public policy and risk-mitigating caused by non-competitive behaviors, free riding and rentier behaviors of economic agents.

Institutions for macroeconomic stabilization: these institutions can restrict and slow down the macroeconomic fluctuations by reducing the macroeconomic policies and increasing the economy resistance against the external shocks. The power of institutions for stabilization can be measured through indicators such as the central bank independence, the transparency and credibility of the budgeting process and the accountability guaranteed through transparent rules and procedures. These institutions can affect economic performance by reducing the uncertainty.

Institutions for conflict resolution: these institutions contain norms, rules and principles that address to resolve the economic, social and political differences. Institutions for conflict resolution, deficiencies of market synchronization, the problem of distribution in the economy, and issues related to inclusion/exclusion to the formal economy. The political conflict resolution institutions include issues such as violence, law, order, and individual security. Institutions for solving the economic and social conflicts improve economic performance by reducing the risk of prisoners' complicated situation and inappropriate behaviors in the economy and society. Also, the institutions for resolving the political conflicts through the strengthening of internal security provide the necessary framework for economic development.

In general, investigating the various institutional forms helps us to conclude that institutions have two major effects on economic performance that can be described as the market-creating effect and the market-deepening effect:

Market-creating effect: the market-creating effect includes an area in which the available institutions create and enhance the markets by encouraging and supporting economic operators to enter into profitable economic activities. In fact, the high institutional quality implies the low transaction costs, high volume of economic exchanges, and high probability of developing the economic activities by economic agents in new areas and economies. So that, in general, the development of profitable economic activities improves the economic performance. Indeed, institutional quality leads to economic growth through the encouragement of trust and economic cooperation in the economic system, the development and increase of the number of economic contracts and the strengthening of the incentive for physical and human investment.

Market-deepening effect: in fact, this effect implies the improvement of efficiency in existing market economies. This is the result of improving the quality of public and private management as well as ensuring the security of contract performance. In other words, institutional quality improves the quality of governance by reducing the risks associated with the lack of coordination and the agency, reducing the effects of external factors and market failure, improving credible policies and reducing macroeconomic volatility.

Based on empirical studies, the institutions can be divided into two general forms based on the two above effects. The first type consists of institutions that contain rules of the game and coordinating institutions,

which consists of two forms of property rights institutions and conflict resolution institutions, as suggested by Rodrík(Rodrik, 2000). The quality of these types of institutions can be measured based on indicators including rule of law, contract enforceability, risk of expropriation, power and accountability, judicial competence and impartiality, and trust. The second type of institutions is defined as a governance structure and includes regulating regulatory institutions and stabilization institutions based on Rodrice's division (2000). The quality of the second type of institutions can be assessed based on the indicators, e.g., the effectiveness of the government and the bureaucracy, the predictable policies, the corporate governance system and transparency and accountability (Ugur, 2010).

The impact of the first type institutions on economic performance has been conceptualized by the market-creating effect. Type-1 institutions affect the proper economic performance by creating new incentives for angering the contracts between economic operators to achieve the profitable opportunities. The market-creating effect can be outlined in three steps. In the first step, institutions of the first type outline the social motives and the framework of sanctions. In other words, these institutions provide the information about the range of actions that are encouraged or forbidden. They also determine the information about the incentives and limitations of the volume of contracts, the level of trust, the political and economic conflicts, and the level of incentives for the physical and human investment. Finally, in the third step, the volume of investment and contracts affect the economic performance (Ugur, 2010).

On the other hand, the effect of the second type institutions on economic performance is understood as the market-deepening effect. The quality of second type institutions through predictability of governance framework provides more confidence in the economic operator in the efficiency of their economic activities. The market-deepening effect occurs in three steps. In the first step, the quality of governance affects the quality of public policy, such as regulatory policies and economic stabilization. In the second step, the quality of public and private governance improves the quality of contractual frameworks and the corporate governance system in the economic interactions between individuals, so that the quality of public policies is led to reduce the risk and the uncertainty and the quality of contractual frameworks is led to alleviate the agency problems, defects in coordination and rent-seeking; and finally, in the third step, the quality of regulation and the quality of governance affects the economic performance.

In general, it can be said that first type of the institutions, by drawing a motivational structure for economic operators through the market-creating effect, influence the economic performance, while second type of the institutions, by influencing the efficiency of employment, production, and credit contracts, affect the economic performance through the market-deepening effect (Ugur, 2010).

Aziz (2018) examined the effect of the institutional quality on the foreign direct investment inflow in the Arab region. The analysis was conducted by the GMM system in panel data of 16 Arab countries during the 1984-2012 period and the results show that the positive and significant effect institutional variables, e.g., economic freedom, ease of doing business and international risk-taking (ICRG) on the foreign direct investment inflows in Arab economies(Aziz, 2018).

Hearnet al. (2017) examined the expropriation risk of block holders in the institutional quality and stock returns expected in the period from 2001 to 2014 in selected countries. In general, the results were indicative of the changes and deviations in the unusual returns of portfolios that reflect the differences between the higher and lower deciles of investor protection that CAPM models available have no explanation for them. These unusual returns ranged from 0.4 per month (4.91% per year) for the portfolios with the equal weights to -0.8 per month (10% per annum) for portfolios with greater weights, which this verifies the importance of differences in investor protection in multi-country studies (Hearn et al., 2017).

Narayan (2015) reviewed the country-level governance indicators using the government risk factors and examined whether country-level governance could predict the stock market returns. The researcher found that country-level governance in the stock market only predicts returns in countries with poor government quality. For countries with developed governance, there is no evidence of a prediction of returns by the governance. The results showed that investors in countries with poor government can use the information available in country-level governance

indicators to create useful stock strategies (Narayan et al., 2015).

Anayiotos and Toroyan (2009) examined the institutional factors and financial sector development in the 36 selected countries. The results indicated that the effect of institutional factors is greater than the financial quality and profitability, stock return on financial development and access to financial services. They also concluded that the political stability has the greatest impact on the access to financial services. They recommended the institutional reforms to promote the level of financial development in the studied countries (Toroyan and Anayiotos, 2009).

Hooper et al. (2009) has used international asset pricing models to examine the relationship between the quality of government institutions and the performance of global stock markets, and the results show a significant relationship between stock market performance and institutional quality. The findings showed that the countries with better-developed governance systems have stock markets with higher returns on stocks and lower risk levels. The results indicate that the prerequisite for financial market development is the improvement of the institutions that manage the exchange process (Hooper et al., 2009).

Kauffman et al. (2006) at the World Bank expressed six indices including the voice and accountability, political stability, the rule of law, corruption control, the quality of laws and regulations, and the effectiveness of the government for governance. They believe that the good governance in a country is established when the government ismore accountable, more efficient, and more politically stable and the additional regulation and costs and corruption are less and the rule of law is more extensive(Kaufman et al., 2006).

Considering the importance of the issue in determining the extent of the effect of institutional quality dimensions on total stock price index and determining the role of institutional factors on the fluctuations of the total price index on the other hand, the effectiveness of the government policies and macroeconomic variables on the stock exchange, this research is seeking to answer the question "what is the role of the institutional quality dimensions in predicting the total price index in developing and developed countries?

Regarding the above discussion, we present the research hypotheses:

H1: The dimensions of institutional quality have a positive and significant effect on the total stock price index.

H1A: Voice and Accountability has a positive and significant impact on the total stock price index.

H1B: Political stability and the absence of violence and terrorism have a positive and significant impact on the total stock price.

H1C: The effectiveness and efficiency of government has a positive and significant impact on the total stock price index.

H1D: The quality of the law and regulation has a positive and significant impact on the total stock price index.

H1E: The rule of law has a positive and significant impact on the total stock price index.

H1F: Corruption control has a positive and significant impact on the total stock price index.

In this study, we assume that, by increasing the institutional quality, the relationship between institutional quality and total stock price index can lead to improving the stock markets. In Figure 1, we show the relationship between these variables.

3. Methodology

3.1. Sample

The prototype of this study includes the developing and developed countries which were selected from 53 countries and were classified, according to available information from the UN site, to two groups of developing countries (25 countries) and developed (22 countries) (see table 8).Data related to the years of 2002 to 2016 were collected from the World Bank and Data Stream and were designed and formatted in Excel software files. For analysis of the information and the separation of items, the Eviews9 software was used.

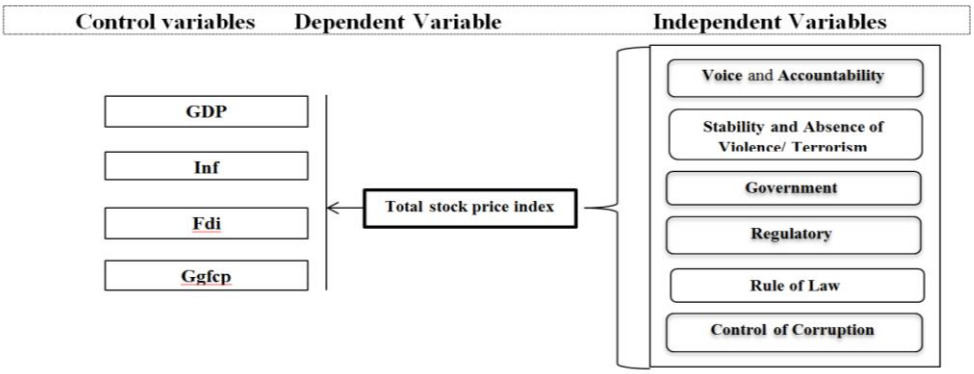

Fig. 1. Conceptual model of research

3.2. Allocation of the regression model

To test the first main hypothesis of this study, i.e., the investigation of the role of institutional quality on forecasting the total price index, the regression model (1), according to the panel data,was used (see table 1):

$$\text{Index}_{it} = \beta_0 + \beta_1 VA_{it} + \beta_2 PS_{it} + \beta_3 GE_{it} + \beta_4 RQ_{it} + \beta_5 RL_{it} + \beta_6 CC_{it} + \beta_7 RGDP_{it} + \beta_8 INF_{it} + \beta_9 FDI_{it} + \beta_{10} GGFCP_{it} + \varepsilon_{it} \quad (1)$$

3.3. The dependent variables

The total stock price index: The stock price index was initially used in the United States in 1884. This index in the railway industry was obtained from the average eleven companies. In total, the stock price index in all financial markets of the world, as one of the most important criteria for measuring the performance of the stock market, has a great importance. Perhaps the most important reason for this increasing interest is that the aforementioned index is obtained by aggregating the stock movements of all companies or a specific class of companies in the market, and therefore, it provides the possibility to assess the direction and the size of the price movement on the stock market. Indeed, the expansion of financial theories and innovations in the last two decades, based on the central role of the attention to the general market movement, has been associated with an increasing tendency to calculate and study the trend of such indicators. The term of "index", in the financial literature, the stock price index, which is briefly called the total index, indicates the general trend of the total price of stock companies and shows the changes in the general level of prices relative to the origin date. In all exchanges in the world, many indicators are defined for groups and companies, which, in this study, they are based on the Thomson Datastream calculations for different countries.

3.4. Independent variable

The institutional quality index was initially measured in 1996 by Kauffman et al. (2009) and has annually been calculated since 2002. These indicators are based on the mental data and are the information obtained from several non-governmental institutions. These indicators are the result of the efforts of three World Bank researchers, i.e., Kaufman, Kerry and Lobotton, which combined the findings of various international institutions such as the EIU and the ICRG, the Heritage Foundation, and the Freedom House on the economic, political and social conditions of the countries, and introduced new indicators called "Governance Indicators". In each of these indicators, a score in the range of 2.5 to 2.5 is given to the countries, and a country with a higher score has a better status in the index. The six indicators are discussed below.

1) Political stability and the absence of violence and terrorism: the Illegal and arbitrary government action causes the instability in the economic, social and political system.
2) Government effectiveness: this index measures the quality of public services, the quality of social services and their degree of independence from political pressures, and highlights the quality of the laws and

regulations and the government's obligations to implement these policies.

3) Quality of laws and regulations: In this indicator, the government's ability to regulate and enforce the policies and regulations to help the development of the private sectoris measured.
4) The rule of law: it estimates the quality of the judicial, legal and legal system of a country, and measures the level of confidence and loyalty of agencies to community laws, especially regarding the quality of the police, the courts and the courts to enforce contracts.
5) Voice and Accountability: Citizens are free to choose their own government, as well as freedom of expression, freedom of association and freedom of media.
6) Corruption control: This index measures the use of state power to achieve the profit and personal gain and, in fact, it completes the indicators of the quality of laws and regulations and the rule of law and points to the bad governance effect on economic relations.

Table 1: Description of the variables of research

Independent variable	VA	Voice and Accountability
	PS	Political stability and Absence of Violence
	GE	Government Effectiveness
	RQ	Regulatory Quality
	RL	Rule of Law
	CC	Control of Corruption
Dependant variable	Index	Total price index
Control variable	RGDP	Gross Domestic Product
	INF	Annual Inflation
	FDI	Foreign Direct Investment
	GGFCP	Government Expenditure
	E	Random Error term

3.5. Control variables

In this research, control variables were presented to show the determinant factors in the model based on theoretical foundations and research. The control variables in this research are:

1) Gross Domestic Product (GDP), which, based on the World Bank's definition of GDP, it includes the total value of final goods and services that are produced in a country, in a certain period, usually one year. (World Bank site).According to Bayraktar (2013), Aziz (2018), Boadi and Amegbe (2017), GDP is an indicator for market size, and the investor will have more incentive to invest by increasing the GDP(Bayraktar, 2013; Boadi and Amegbe, 2017).
2) The inflation rate (INF), based on World Bank's definition, the inflation is measured by the consumer price index, and the change in the annual percentage rate of average consumer cost of the portfolio and services that may remain fixed or change at specified intervals such as annually indicates a change. (World Bank site).According to the researches such as Reece and Sam (2011), Aziz (2018), and Boadi and Amegbe(2017), the high inflation rates were defined as uncertainty in selected countries and reduced the willingness of the investor to invest in the stock.Inflationrates,by creating the volatility in total market index, can affect the price and liquidity of corporate stocks in the capital market(Aziz, 2018; Boadi and Amegbe, 2017; Reece and Sam, 2012).
3) Foreign Direct Investment (FDI), according to the World Bank, refers to direct investment inflows in economic reports. Which is the sum of the equity capital, income reinvestment and other capital; and, according to recent studies by Pereset al. (2018), Bailey (2018), Aziz (2018), it shows a direct and significant effect on research variables and it causes volatility in stock markets (Aziz, 2018; Bailey, 2018; Peres et al., 2018).
4) General government final consumption expenditure (GGFCB): Based on the World Bank definition, it is the final consumption cost of public consumption including all current government expenditures for purchasing goods and services (including compensation for employees). It also includes the highest costs of national security and defense, but does not include the government military costs, which is part of the formation of government capital.

Table 2. Descriptive statistics

Variables	Obs	Mean	Median	Std. Dev.	Min	Max	Skewness	Kurtosis	Probability	Jarque-Bera
Dependent variables:										
va	705	0.345	0.476	0.881	-1.749	1.697	-0.483	2.198	0.000	46.353
ps	705	0.138	0.415	0.972	-2.810	1.640	-0.686	2.560	0.000	60.897
Ge	705	0.637	0.597	0.766	-0.877	2.437	0.119	1.949	0.000	34.101
Rq	705	0.647	0.643	0.809	-1.720	2.261	-0.284	2.554	0.000	15.306
Rl	705	0.536	0.492	0.870	-1.056	2.009	0.028	1.769	0.000	44.589
Cc	705	0.477	0.275	0.943	-1.144	2.391	0.381	1.955	0.000	49.195
Independent and moderate variables:										
Index	668	10.062	9.212	3.014	4.202	19.880	0.754	2.982	0.000	63.382
Control variables:										
Rgdp	704	3.670	3.562	3.774	-10.895	26.170	0.528	7.833	0.000	717.838
Inf	701	4.057	2.817	4.673	-4.863	44.964	3.045	19.119	0.000	8672.506
Fdi	677	22.562	22.591	1.706	16.870	27.322	-0.209	3.455	0.005	10.802
Ggfcp	697	15.519	16.226	4.707	-6.600	27.444	-0.472	3.466	0.000	32.172

NOTE: Index: Total stock price index; Va: Voice and Accountability; ps: Stability and Absence of Violence/Terrorism; Ge: Government Effectiveness; Rq: Regulatory Quality; Rl: Rule of Law. Cc: Control of Corruption; Liq: Liquidity; Rgdp: GDP growth; Inf: Inflation, consumer prices; Fdi: Foreign direct investment; Ggfcp: General government final consumption expenditure.

Table 3. Correlation matrix

	Index	Va	Ps	Ge	Rq	Rl	Cc	Rgdp	Inf	Fdi	Ggfcp
Index	1.000										
Va	-0.231***	1.000									
Ps	-0.529***	0.586***	1.000								
Ge	-0.377***	0.595***	0.812***	1.000							
Rq	-0.380***	0.689***	0.809***	0.903***	1.000						
Rl	-0.448***	0.664***	0.826***	0.917***	0.908***	1.000					
Cc	-0.410***	0.611***	0.807***	0.928***	0.908***	0.947***	1.000				
Rgdp	0.120***	-0.324***	-0.174***	-0.177***	-0.205***	-0.191***	-0.149***	1.000			
Inf	0.262***	-0.318***	-0.468***	-0.486***	-0.504***	-0.456***	-0.452***	0.162***	1.000		
Fdi	0.008	0.268***	0.244***	0.418***	0.425***	0.377***	0.428***	-0.002	-0.206***	1.000	
Ggfcp	-0.506***	0.410***	0.341***	0.249***	0.309***	0.377***	0.296***	-0.350***	-0.275***	-0.039	1.000

NOTE: Total stock price inde; Va: Voice and Accountability; ps : Stability and Absence of Violence/Terrorism; Ge: Government Effectiveness; Rq: Regulatory Quality; Rl: Rule of Law. Cc: Control of Corruption; Liq: Liquidity; Rgdp: GDP growth; Inf: Inflation, consumer prices; Fdi: Foreign direct investment; Ggfcp: General government final consumption expenditure
*p< 0.10; ** p < 0.05; *p < 0.01.

4. Results

4.1. Descriptive statistics and correlation

In Table 2, the descriptive statistics of the research variables are presented. Regarding the descriptive statistics, it can be interpreted that there is not much dispersion in variables based on the standard deviation and median.

In Table 3, the correlation between all variables is presented. As can be seen, there is a positive and significant correlation between the total stock price index, GDP, inflation.

F Limer and Hausman tests: In this research, hypotheses are analyzed by the multivariate regression model based on panel data; therefore, the F-Limer test is used to determine the type of estimation method (data combination method or panel data method) and the Hausman test is used to determine the type of pattern (Random or fixed effects). The results of these two tests are included in Table 7. In the research models, the significance level of the F limer and Hausman test is less than the level of error (0.05), which is the appropriate method shown in the related Table.

Regression Analysis: By establishing regression assumptions and choosing the appropriate method, the regression assumptions should be assessed to confirm the estimation results of the model. The main hypothesis of the multivariate regression analysis is the significance of the whole regression. In table 4, F statistics and its significance level are related to a linear relationship between the independent variables and dependent variables (the overall significance test of regression). Considering that the significance level of this test for model 1 is less than 0.05; thus, in the research models, there is a linear relationship between the independent variables and the dependent variable and all models are significant. Another assumption that is considered in the regression is the independence error test, which is used to check the independence of the errors of Durbin–Watson statistic. If the Durbin–Watson statisticis close to 2 (between 1.5 and 2.5), a lack of correlation between the errors is accepted. According to Table 4, the value of the Durbin–Watson statistic for model 1 is 0.65 and 0.85that is not in range of 1.5 to 2.5. To resolve autocorrelation, the first-order autoregression process (AR (1)) enters the model. By its implementation, the values of Durbin–Watson statistic for model 1 are obtained to be 1.66 respectively.

One of the most important assumptions in application of the linear regression model is the normal distribution for the residues of the model and the dependent variable of the research. In estimation models, it is assumed that the residues and, consequently, the dependent variable are random variables. Therefore, the distribution of the dependent variable follows the distribution of the residues.

In this study, the normality is investigated through the Jarque-Bera statistics. As the significance level for the error component of the research models in Table 4 is greater than 0.05; therefore, the null hypothesis that is the normality of the error component is not rejected, and in model (1) the hypothesis of normality is established in the whole of countries.

In this research, White's test was used to test the heterogeneity of variance. The null hypothesis of this test implies the homogeneity of variance. Given that the significance level of these tests in Table 4 is less than 0.05, it is concluded that the null hypothesis of these tests is not confirmed, that is, there is the problem of heterogeneity of variance in the model; to solve the problem of heterogeneity of the Generalized least squares (GLS) method are used. Considering the establishment of regression assumptions, we consider significance coefficients.

In the main hypothesis H_1, the effect of institutional quality dimensions on the total stock price index has been studied. The results presented in Table 4 show that, in order to examine the above hypothesis, using the information related to testing the first to sixth hypotheses, the political stability and the absence of violence and terrorism, corruption control have a positive effect and the government effectiveness has a negative and significant effect in the total stock price index. It was also found that the rule of law, the quality of law and regulations, and the voice and accountability have no significant effect on the total stock price index. Regarding the mentioned cases and confirmation of the effect of political stability and the absence of violence and terrorism, the control of corruption and the government effectiveness on the total stock price index, it can be concluded that the main research hypothesis, i.e., the institutional quality dimensions have an effect on the total stock price index, is approved.

In the H1A hypothesis, the effect of the voice and accountability on the total stock price index was studied. The results in Table 4 demonstrated that the significant level (0.5336) calculated for the variable coefficient of the voice and accountability more than 0.05 and the estimated coefficient (-0.0344) is negative. As a result, it can be stated that the voice and accountability have no significant effect on the total stock price index in all countries. The results confirm the hypothesis of H0 and reject the research hypothesis, ie, the voice and accountability affect the total stock price index.

The H2A hypothesis examined the effect of political stability and the absence of violence and terrorism on the total stock price index. The results in Table 4 illustrate that the significance level (0.0206) for the coefficient of political stability and the absence of violence and terrorism is less than 0.05 and the estimated coefficient (0.1584) is positive. As a result, it can be stated that political stability and the absence of violence and terrorism has a positive and significant effect on the total stock price index. In other words, by increasing the political stability and the absence of violence and terrorism in the countries, the total stock price index is also increased. The results are representative of the rejection of the H0 hypothesis and confirmation of the research hypothesis, namely, the political stability and the absence of violence and terrorism affects the total stock price index, at a confidence level of 0.95%.

The HA3 hypothesis examines the effect of government effectiveness on the total stock price index. The results presented in Table 4 show that the significance level (0.0194) for the variable coefficient of the government effectiveness is less than 0.05 and its estimated coefficient (0.1513) is negative. As a result, it can be stated that the government effectiveness has a negative and significant effect on the total stock price index. In other words, by increasing the government effectiveness in the level of the whole of the countries, the total stock price index will be reduced. The results indicate that the hypothesis H0 is rejected and the research hypothesis, i.e., the government effectiveness is effective on the total stock price index, is confirmed, at a confidence level of 0.95.

In the H4A hypothesis, the effect of the quality of law and regulation on the total stock price index has been studied. The results presented in Table 4 show that the significance level (0.4331) calculated for the variable coefficient of law quality and regulation is higher than 0.05 and its estimated coefficient (0.0442) is positive, therefore it can be stated that the quality of the law and regulations has no significant effect on the total stock price index in the countries. The results confirm the hypothesis of H0 and reject the research hypothesis, namely, the quality of law and regulations affects the total stock price index.

In the H5A hypothesis, the effect of the rule of law on the total price index of the stock exchange has been studied. The results of Table 4 show that the significant level (0.3471) calculated for the variable coefficient of rule of law is greater than the 0.05 and its estimated coefficient (-0.1249) is negative; therefore, it can be stated that the rule of law has no significant effect on the total stock price index in all countries. The results confirm the hypothesis of H0 and the reject the research hypothesis, i.e., the rule of law affects the total stock price index.

The hypothesis of the H6A examines the effect of corruption control on the total stock price index. The results in Table 4 show that the significance level (0.0064) for the variable coefficient less than the 0.01 and its estimated coefficient (0.2040) is positive; thus, it can be stated that corruption control has a positive and significant effect on the total stock price index. In other words, by increasing the control of corruption in the countries, the total stock price index also increases. The results were indicative of the rejection of the H0 hypothesis and confirmation of the research hypothesis, i.e., the control of corruption affects the total stock price index at a confidence level of 0.99.

Estimation of research models in developed countries: In general, the results presented for Model (1) in Table 5 show that the significance level (0.7477) for the variable coefficient of the voice and accountability is more than 0.05 and its estimated coefficient (0.0341) is positive. As a result, it can be stated that the voice and accountability has no significant effect on the total stock price index in developed countries.

As the results for Model (1) in Table 5 show, the significance level (0.9636) for the variable coefficient of political stability and the absence of violence and terrorism is greater than 0.05 and the estimated coefficient (0.0033) is negative. As a result, it can be stated that political stability and the absence of

violence and terrorism has no significant effect on the total stock price index.

As the results in Table 5 for Model (1) show, the significance level (0.3971) calculated for the government effectiveness is less than 0.05 and its estimated coefficient (0.3971) is negative. As a result, it can be stated that the government effectiveness has a negative and significant effect on the total stock price index. In other words, by increasing the government effectiveness in the developed countries, the total stock price index will be reduced.

As the results for Model (1) in Table 5 show, the significance level (0.0001) for the coefficient of quality of law and regulation is less than 0.05 and the estimated coefficient (0.2958) is positive. As a result, it can be stated that the quality of laws and regulations has a significant and positive effect on the total stock price index in developed countries. In other words, by increasing the quality of laws and regulations at the level of developed countries, the total stock price index also increases.

As the results for Model (1) in Table 5 show, the significance level (0.6519) for the variable coefficient of rule of law is greater than 0.05 and the estimated coefficient (0.0652) is negative. As a result, it can be stated that the rule of law has no significant effect on the total stock price index in developed countries.

As shown in Table 5 for Model (1), the significance level (0.0180) calculated for the variable coefficient of corruption control is less than 0.05 and its estimated coefficient (0.2253) is positive. As a result, it can be stated that corruption control has a positive and significant effect on the total stock price index in developed countries. In other words, with increasing the control of corruption in developed countries, the total stock price index also increases.

Table 4. Estimation of model 1 all countries

Variables	Coefficient	Prob.
Constant	10.98574***	0.0000
Va	-0.034405	0.5336
Ps	0.158470**	0.0206
Ge	-0.151370**	0.0194
Rq	0.044233	0.4331
Rl	-0.124960	0.3471
Cc	0.204005***	0.0064
Rgdp	0.015933***	0.0000
Inf	0.003885	0.6029
Fdi	0.015495*	0.0779
Ggfcp	-0.041968***	0.0000
AR(1)	0.862069***	0.0000
F-statistic (p-value)	5043.79 (0.000)	
Durbin–Watson statistic	0.65	
Durbin–Watson statistic	1.66	
Adjusted-R^2	0.99	
Jarque-Bera (p-value)	2.9246 (0.2316)	
White Test	8.5916	
(p-value)	(0.0000)	

Table 5. The estimation of Model (1) at the level of developed countries

Variables	Coefficient	Prob.
Constant	9.55863***	0.0000
Va	0.034175	0.5336
Ps	-0.003331	0.0206
Ge	-0.397197*	0.0194
Rq	0.295811	0.4331
Rl	-0.065282	0.3471
Cc	0.225376***	0.0064
Rgdp	0.017485***	0.0000
Inf	0.000229	0.6029
Fdi	0.006308	0.0779
Ggfcp	-0.050461***	0.0000
AR(1)	1.087356***	0.0000
AR(2)	-0.370264***	0.0000
F-statistic (p-value)	3087.69 (0.000)	
Durbin–Watson statistic	0.69	
Durbin–Watson statistic	1.96	
Adjusted-R^2	0.99	
Jarque-Bera (p-value)	5.9299 (0.0515)	
White Test	6.8456	
(p-value)	(0.0000)	

*p< 0.10; ** p < 0.05; ***p < 0.01.

Table 6. The estimation of Model 1 at the level of developing countries

Variables	Coefficient	Prob.
Constant	12.71185***	0.0000
Va	0.110372	0.2385
Ps	0.177777***	0.0004
Ge	0.074022	0.3839
Rq	-0.209391**	0.0261
Rl	-0.117464	0.4612
Cc	0.185660**	0.0246
Rgdp	0.015014***	0.0000
Inf	0.005091	0.4563
Fdi	0.022430*	0.0719
Ggfcp	-0.035905***	0.0003
AR(1)	0.873969***	0.0000
F-statistic (p-value)	3872,92 (0.000)	
Durbin–Watson statistic	0.85	
Durbin–Watson statistic	1.86	
Adjusted-R^2	0.99	
Jarque-Bera (p-value)	2.2418 (0.3259)	
White Test	4.8476	
(p-value)	(0.0000)	

*p< 0.10; ** p < 0.05; ***p < 0.01.

Table 7. Limer F and Haussmann tests

Classifications	Test	Model	Statistic value	Significance level	Test results
All countries	Limer F test	Model1	267.055	0.0000	Panel regression
	Haussmann test	Model1	46.4485	0.0000	Panel regression with fixed effect
Devloped countries	Limer F test	Model1	241.0826	0.0000	Panel regression
	Haussmann test	Model1	22.5638	0.0125	Panel regression with fixed effect
Developing countries	Limer F test	Model1	251.8466	0.0000	Panel regression
	Haussmann test	Model1	36.4096	0.0001	Panel regression with fixed effect

Estimation of research models at the level of developing countries: By establishing the regression assumptions and choosing the appropriate estimation method, the results of model (1) estimations are shown in Table 6. In order to rely on the results of model estimations, the regression assumptions should be assessed. According to the findings of Table 6, the significance level of the F test for the corresponding model is less than 0.05. It can be said that, in model (1) in the developing countries, there is a linear relationship between the independent variables and the dependent variable; therefore, it can be concluded thatall the model(1)is significant at the level of developed countries. Also, according to Table 6, the value of the Durbin–Watson statistic for model is obtained to be 0.85,1 which these results are not in the range of 1.5 to 2.5. In order to correct the autocorrelation of the first-order auto regression process in model (1) enters into the model (1); hence, the amount of Durbin–Watson statistic is obtained for the model (1) - 1.86, which has a good value. According to Table 6, the variance inflation factor for independent variables is a good value.

In order to check the normality, since the significance level of the jarque-bera test in Table 6 for the error term variable of the research models is greater than the error level of 0.05, then the null hypothesis of normality of the error term is not rejected, and, in Model 1 in the country level of developing countries, the normality assumption is established.

In order to check the heterogeneity of variance, the significance level of White test in Table 6 is less than 0.05, so it is concluded that the null hypothesis of this test is not confirmed. In other words, there is a problem of heterogeneity of variance in the model and the generalized least squares (GLS) method is used to solve the heterogeneity problem.

Assessment of the effect of variables on the country level of developing countries: The results in Table 6 for Model (1) show that the calculated level (0.2835) for the coefficient of voice and accountability variable is more than 0.05 and its estimated coefficient (0.1102) is positive. As a result, it can be stated that the voice and accountability have no significant effect on the total stock price index in developing countries.

The results of Table 6 for Model (1) show that the significance level (0.0004) for the coefficient of political stability and the absence of violence and terrorism is less than 0.05 and its estimated coefficient (0.1777) is positive. As a result, it can be stated that political stability and the absence of violence and terrorism have a positive and significant effect on the total stock price index in developing countries. In other words, increasing the political stability and the absence of violence and terrorism is led to an increase in the total stock price index in developing countries.

The results represented in Table 6 for Model (1) show that the significance level (0.3839) calculated for the coefficient of government effectiveness is greater than 0.05 and its estimated coefficient (0.0740) is positive; therefore, it can be declared that government effectiveness has no significant effect on the total stock price index in developing countries. The results shown in Table 6 for Model (1) show that the significance level (0.0261) for the coefficient of law and regulation quality is less than the 0.05 and its estimated coefficient (-0.2093) is negative, therefore it can be affirmed that the quality of law and regulation has a significant and negative effect on the total stock price index in developing countries. In other words, by increasing the quality of laws and regulations in the developing countries, the total stock price index is reduced.

The results presented in Table 6 for Model (1) show that the significance level (0.4612) for the

coefficient of law rule variable is greater than 0.05 and its estimated coefficient (0.1174) are negative. As a result, it can be expressed that the rule of law has not a significant effect on the total stock price index in developing countries.

The results presented in Table 6 for Model (1) show that the significance level (0.0246) calculated for the coefficient of corruption control is less than 0.05 and its estimated coefficient (0.1856) is positive; thus, it can be stated that control of corruption has a significant and positive effect on the total stock price index in developing countries. In other words, by increasing the control of corruption in developing countries, the total stock price index also increases.

5. Discussion and Conclusions

Despite the existence of various studies on the impact of various factors on capital market variables, there has always been a question whether the institutional quality has a positive or reverse effect on total stock price index. Our main goal of this paper is to answer the question: Does institutional quality affect the total stock price index? In fact, in contrast to previous studies that only examined the impact of institutional quality on total stock price index, this study seeks to examine the role of institutional quality on total stock price index in developing and developed countries. In this study, we concluded that institutional quality has a positive and significant correlation with total stock price index; these results are consistent with the results previous studies (Boadi and Amegbe, 2017; Narayan et al., 2015).

The results of this research can have several theoretical applications and can improve the theoretical aspects of the subject. First, this study increases our awareness towards the relationship between institutional quality and total stock price index by raising a question in this regard, whether institutional quality improves the capital market. In fact, this study, by the exploration of institutional components (the right to protest and accountability, political stability without violence, government effectiveness, regulatory quality, rule of law and corruption control) is considered as an instrument to improve the capital market.

In this research, we were seeking whether the institutional quality would improve the stock market in developed and developing countries? Of course, similar topics have been researched by researchers, but researchers were looking for other goals in their research and concluded that the countries with poor institution are less development in the market. In this study, we concluded that the institutional quality has a direct relationship with total stock price index in developing and developed countries.

Finally, this study improves the literature on institutional quality, and our results are consistent with the arbitrage theory, and it emphasizes that the macroeconomic variables are important in the stock market and affect the institutional variables of the capital market variables and, this supported this debate theoretically and empirically that the existence of institutional quality is effective on economic variables as other researchers have shown.

Our results can have several practical applications. First, our results showed that institutional quality has a positive and significant impact on total stock price index, and governmental governance can actually affect market performance by increasing institutional quality in the market. This result suggests that policy makers try to improve their performance and Self-interest by using agency theory. As a result, future institutional strategies should focus on institutional quality.

Secondly, our results have shown that government policies improve the performance of the capital market; thus, policymakers need to improve institutional mechanisms and other mechanisms that can be effective in improving the institutional quality and, consequently, capital market performance and policies.

This empirical study specifically examines the impact of institutional quality dimensions on stock price index between 2002 and 2016, and the effects of institutional factors, such as the Voice and Accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption on the total Stock price index in developed and developed countries. The results of the research showed that institutional factors have a positive and significant effect on the total stock price index. According to obtained is consistent with Boadi and Amegbe (2017).

The results of the hypotheses indicate that the Voice and Accountability has no effect on the stock price index in developed and developed countries; according to the results obtained, the variable of political stability and the absence of violence and

terrorism has a positive and significant effect on the total stock price index in the developing countries and is indicative of the political situation of countries on the total stock price index so that total price index increases by increasing political stability. The results also show that the effectiveness and efficiency of government has a significant and inverse effect on the total stock price index of the level of all countries and developed countries, which may be due to being private and lack of relationship with governmental structure and the independence of the exchange of countries in developing countries. The results show the impact of the quality of laws and regulations on the total stock price index in developed and developing countries. Perhaps the reason for the quality of the laws and regulations of the countries is this, and the governance must strive to regulate and implement the policies and laws that contribute to the development and development of the stock exchange. In the analysis of the variables of rule of law, no effect was observed in the in the studied countries which is probably due to the lack of involvement of the official judicial system of the countries.

In analyzing the variable of corruption, it was observed that corruption has a positive and meaningful effect on the total stock price index at the level of all countries and developed and developing countries, and corruption control can lead to increasing the price index by strengthening information transparency, controlling and creating a strong institutional quality and strict implementation of laws in the exchange of countries. In the absence of expansion and improvement of these indicators, there will be irreparable consequences for the expected market trends of the countries under study and the financial crisis of the countries. In the absence of expansion and improvement of these indicators, there will be irreparable consequences for the capital market trends of the studied countries and will result in the financial crisis of the countries.

For future research, the study of the impact of institutional quality on earnings quality, earnings management and exchange rate fluctuations is recommended.

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References

1) Acemoglu, D., Johnson, S., & Robinson, J.A. (2005). Institutions as a fundamental cause of long-run growth. Handbook of economic growth 1, 385-472.
2) Acemoglu, D., Robinson, J. (2010). The role of institutions in growth and development. Leadership and growth.
3) Alonso, J.A., and Garcimartín, C. (2013). The determinants of institutional quality. More on the debate. Journal of International Development 25(2), 206-226.
4) Aziz, O.G., 2018. Institutional quality and FDI inflows in Arab economies. Finance Research Letters 25, 111-123.
5) Bailey, N. (2018). Exploring the relationship between institutional factors and FDI attractiveness: A meta-analytic review. International Business Review 27(1), 139-148.
6) Bayraktar, N. (2013). Foreign direct investment and investment climate .Procedia Economics and Finance 5, 83-92.
7) Boadi, I., and Amegbe, H.(2017). The Link between Quality of Governance and Stock Market Performance: International Level Evidence. European Journal of Government and Economics 6(1), 78-101.
8) Hearn, B., Phylaktis, K., & Piesse, J. (2017). Expropriation risk by block holders, institutional quality and expected stock returns. Journal of Corporate Finance 45, 122-149.
9) Hooper, V., Sim, A.B., & Uppal, A. (2009). Governance and stock market performance. Economic Systems 33(2), 93-116.
10) Kamijani, A., Ebadi, J., & Pourrostami, N. (2008). Financial liberalization and its role in financial development with regard to institutional and legal development (Comparison of less developed and emerging countries) . Mofid Journal(Economy) 14, 3-30.
11) Kaufman, D., Kraay, A., & Mastruzzi, M. (2006). Governance Matters V: Governance Indicators for 1996-2005, World Bank. Policy Research Working Paper.
12) Kwabi, F.O., Boateng, A., & Adegbite, E. (2018). The impact of stringent insider trading laws and institutional quality on cost of capital. International Review of Financial Analysis.

13) Narayan, P.K., Sharma, S.S., & Thuraisamy, K.S. (2015). Can governance quality predict stock market returns? New global evidence. Pacific-Basin Finance Journal 35, 367-380.
14) North, D.C. (1981). Structure and change in economic history. Norton.
15) Peres, M., Ameer, W., & Xu, H. (2018). The impact of institutional quality on foreign direct investment inflows: evidence for developed and developing countries. Economic research-Ekonomska istraživanja 31(1), 626-644.
16) Reece, C., Sam, A.G. (2012). Impact of pension privatization on foreign direct investment. World Development 40(2), 291-302.
17) Rodrik, D. (2000). Institutions for high-quality growth: what they are and how to acquire them. Studies in comparative international development 35(3), 3-31.
18) Smith, A. (1937). The wealth of nations.
19) Toroyan, H., Anayiotos, G.C. (2009). Institutional factors and financial sector development: evidence from Sub-Saharan Africa. International Monetary Fund.
20) Tran, H.T. (2018). Institutional quality and market selection in the transition to market economy. Journal of Business Venturing.
21) Ugur, M. (2010). Institutions and economic performance: a review of the theory and evidence.