The relationship between stock prices and foreign direct investment on economic growth in emerging countries. A comparative analysis during the period 2000-2018.

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The relationship between stock prices and foreign direct investment on economic growth in emerging countries. A comparative analysis during the period 2000-2018.

العلاقة بين أسعار الأسهم والاستثمار الأجنبي المباشر على النمو الاقتصادي. دراسة حالة دول ناشئة خلال الفترة 2000-2018 باستعمال بيانات بانل .

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Abstract :

Financial markets are a focal point between thrift and investment through specialized instruments and institutions key channels, as it creates investment opportunities for cash balances. The study aims at examining the impact of Stock Prices and Foreign Direct Investment on Economic Growth through adopting emerging countries during 2018-2000 as a sample, basing on Panel Data Technique. The estimated results indicate that Total Stock Price Values and FDI have a positive association on economic growth, while a negative effect between Local Stock Turnover and economic growth. Also, fiscal surpluses that are originating from FDI have a major effect on economic growth in sample countries. The study recommends relying on more accurate techniques, such as: effective Panel models, as well as expanding sample in the prospective studies.

Key words: Stock Prices; Foreign Direct Investment; Economic Growth. Emerging Countries.

JEL classification : G1; F2; O11; O2 .

ملخص:

تعتبر الأسواق المالية حلقة وصل بين الادخار والاستثمار من خلال قنوات رئيسية متمثلة في الأدوات والمؤسسات المتخصصة ، اذ تقوم بتهيئة الفرص الاستثمارية للأرصدة النقدية. ان الهدف من هده المقالة هو دراسة أثر أسعار الأسهم و الاستثمار الأجنبي المباشر على النمو الاقتصادي في عينة من دول ناشئة خلال الفترة 2000-2018 .تم الاعتماد على تقنية بيانات بانل .تشير نتائج التقدير الى وجود علاقة إيجابية بين كل من أسعار الأسهم بالقيم الاجمالية والاستثمار

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الأجنبي المباشر على النمو الاقتصادي في حين أثر سلبي بين معدل دوران الأسهم المحلية والنمو الاقتصادي .مما استنتج أن الفوائض المالية التي مصدرها الاستثمارات الأجنبية المباشرة لها أثر فعال على النمو الاقتصادي في دول العينة .توصي الدراسة بالاعتماد على تقنيات أكثر دقة مثل نماذج بانل الديناميكية وتوسيع العينة في الدراسات المستقبلية .

الكلمات المفتاحية : أسعار الأسهم ، الاستثمار الأجنبي المباشر، النمو الاقتصادي، الدول الناشئة .

تصنيفات JEL : G1 ، F2 ، O11 ، O2 .

INTRODUCTION

The stock market figures prominently on contemporary economic systems, especially capitalist systems. It is a mechanism through which financial resources are converted from saved economic entities with availability of financial surpluses into financial deficit units. So, it is a system involving a group of individuals, institutions and securities that ties investors and savers together. Medium- and long-term securities such as stocks and hybrid securities are treated to innovative financial instruments for sale and purchase. The Securities Exchange is the official body dealing in securities and has a specific place where these securities are traded, through financial intermediaries in accordance with rules and procedures governing customers' actions, facilitating communication between stakeholders and setting the stage to enter into successful transactions in the context of modern communications evolve.

High growth rates achieved by emerging economies are an effective indicator in the building process of investors' goals and strategies. Developing countries such as Thailand, Korea and Indonesia have achieved higher economic growth rates than most developed industrialized nations.

In that light, the research study focused on the following key problematic:

What has been the impact of Stock Prices and Foreign Direct Investment (FDI) on emerging countries economic growth?

The study aims to test the following hypotheses:

- Positive impact of Stock Prices and Foreign Direct Investment on the economic growth.
- Negative impact of Stock Prices and Foreign Direct Investment on the economic growth.

This research study is aiming at several objectives along with the objective of confirming or refuting the raised hypotheses, the main ones being:

- To know to which extent the emerging countries' stock market contributes to the available financial resources allocation and in the economic growth promotion through investment channel.
- To rely on Panel data method as an attempt to study the financial markets status of selected emerging countries..

To solve the problematic question, our research study is divided into five sections. The first section deals with the literature review. Then, we have referred to a diagnostic study of the study variables, while the third section tackles the model estimation using Panel data, which its findings are displayed in the fourth section. Finally, we end the study with the conclusion.

1. Literature Review

Debate has raged over the emerging countries' evolution recently. This evolution, as demonstrated through the high growth rates and the economic integration among these countries, which had become significant clusters using their own economic growth model. In this context, we will review certain articles that deal with the relationship between the stock market and FDI and their impact on the economic growth:

On the one hand, Pradhan and others (2019) had conducted a study entitled: "The Nexus Between Economic Group, Stock Market Depth, Trade Openness, and Forest Guide Investment". This study is involves 25 Southeast Asian countries as a sample over five decades (1961-2012), by applying Cointegration and Causality Tests. All in all, the findings point that there is a long-term equilibrium relationship between variables and trade openness, and between the FDI and the stock market. These relationships are the causes of long-term economic growth. In addition to the De Santis's study, 1997, entitled: "Stock Returns and Volatility in Emerging Financial Markets" for a group of emerging countries as a sample (during the 1988-1996), using the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) Model. The study's findings indicate that emerging markets know a higher volatility, with a conditional probability of stock prices variations of the mature markets. Likewise, Latin American markets have known price risks more than the observed ones in Asian countries.

On the other hand, El-Wassal (2005), had conducted an article entitled: "Understanding the Growth in Emerging Stock Markets" for 40 emerging countries in 1980-2000 as a simple, through the Least Squares

and Fixed effects Models. The findings indicate that economic growth; financial liberalization policies and foreign portfolio investments have been key factors in the emerging stock markets growth, further increasing economic growth enhancement in these countries. While Oskooe's study (2010), entitled: Emerging Stock Market Performance and Economic Growth in Iran during 1997-2008, using the Vector Error Correction Model (VECM) and the Granger Causality Test. The study's findings showed that there was a causal connection between stock price fluctuations and long-term economic growth, as well as a positive relationship between stock prices and short-term economic growth. Moreover, the real economic activity is the major factor in the long-term stock prices movement.

Furthermore, Foristi's study (2006), entitled: Testing for Granger Causality between Stock Prices and Economic Growth in the United States, during the 2000-2005, using Granger Causality Test. The findings indicate that stock prices can be used to predict the economic growth and vice versa. Besides, Koojaroenprasit's study (2012) entitled: The Impact of Foreign Investment on Economic Growth in South Korea during 1980-2009, using Multiple Regression. The findings indicate that there is a strong positive relationship between FDI and economic growth while domestic investment has no major impact. Additionally, Zhang's study (2001), entitled "Does Foreign Direct Investment Promote Economic Growth?" is conducted by considering 11 Eastern Asian and Latin-American countries during 1960-1997 as a sample using the Vecteur Autoregressif Model (VAR), the Error Correction Model (ECM), in addition to Cointegration Test of Johansen and Dickey-Fuller, as well as the application of Granger Causality Test. This study's findings showed that there is a long-term simultaneous a complementary relationship between FDI and economic growth, regarding four East Asian countries: Hong Kong, Indonesia, Singapore, Taiwan and a single Latin-American country, which is Mexico. Also, there is a short-term causal relationship, regarding Korea, Malaysia, Thailand, Singapore, and Brazil, while there is a long-term causal relationship for Colombia, and a bilateral causality relationship for Mexico.

Last but not least, Anwar's & Nguyen's study (2010), entitled: Foreign Direct Investment and Economic Growth in Vietnam. This study involves 61 Vietnamese provinces during 1996-2005, using Panel Data Technology. The findings indicate a bidirectional connection between the FDI and economic growth, interchangeably. This connection would be greater if more resources are invested in education, training, developing

financial markets, reducing the technological gap between foreign and domestic companies.

Most of the obtained findings make reference to a positive relationship between the Stock Market, Foreign Direct Investment (FDI) and Economic Growth.

2. Analytical study of study variables

According to the most experimental and applied studies that based on econometric approach methodology to perform their analysis. This methodology utilizes the examination and the standard methods of estimating the theoretical findings authenticity and comparing them with practical findings. So, we had applied Panel model, using the compiled data between Time Series Data and Cross Sectional Data:

2.1 The Study Methodology And Data

Table (01): Study Variables Identification

Variables	Data and sources of study
Economic Growth (GDP)	According to buyer's rate, GDP is the sum of the Total Added Gross Value of all economic producers, as well as all products' taxes minus subsidies that are not contained in the products value. It is calculated without any discounts for manufactured goods consumption, loss of value or natural resources degradation. GDP Dollar amounts are converted from local currencies using the 2010 official exchange rates. According to World Bank Data (2018), alternative data conversion factor, which is with fixed US dollar of 2010, is being utilized for some countries, because those countries do not consider official exchange rates as actual ones that are applied to foreign exchange transactions
Total Stock Price Values (SP)	Outstanding (traded) shares value is the gross of traded shares indigenously and internationally, multiplied by their matching prices, so that the singular numbers by considering only one part of the transaction and companies that have been accepted are included in the listing and approved for data trading. Data are the year-end values converted into US dollars using foreign exchange rates at the end of the year. That is to say, data are the gross actual value in US dollars (US$).
Domestic Shares Turnover Rates (TRA)	Turnover rate is the value of traded domestic shares divided by their market value, in which the value is repealed by multiplying the monthly average by 12.
Foreign Direct Investment	FDI is the net return on investment for a permanent quota (10% or more of the voting shares) In a company that engages in a quite different economic activity from the investor's economy. It is the

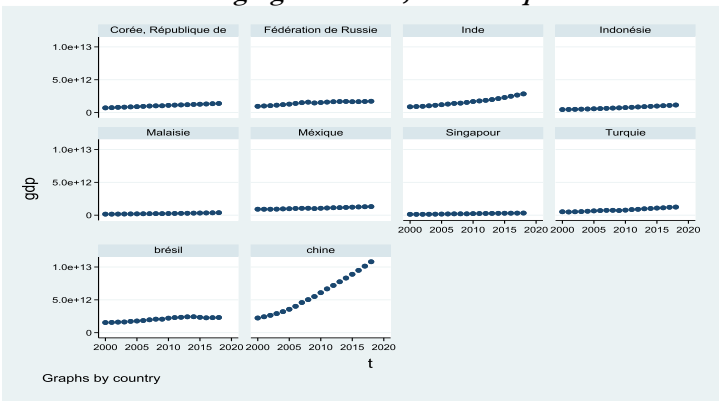
(FDI)	overall of ownership rights, reinvested profits, other long-term and short-term capital and that are acknowledged in the balance of payments (BOP). This series shows net flows (net investment flows minus liquidations) of foreign investors in the reporting- based economy Knowledge-Based Economic. Data are in fixed US dollars (US $) of 2010. (World Bank 2018)
Economic Openness Rate (OPE)	Opening rate: is An index of the state's integration degree into the global economy. The most common way to calculate is the average exports and imports divided by GDP ($\frac{X+M}{2}/GDP$), so that the data are in fixed US dollars (US$) of 2010.(World Bank 2018)

Source: Prepared by the Researchers by Drawing upon World Bank Data

2.2. Gross domestic product(GDP)and explanatory variables

2.2.1 Gross Domestic Product (GDP)

Fig 01 : The evolution of economic growth in selected *emerging countries ,2000-2018 perid.*

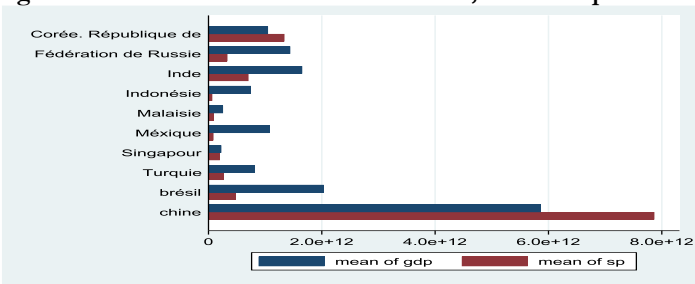


Source: Prepared by the Researchers by Drawing upon World Bank Data

From the above curve, we can notice that GDP had known multiple changes, where we also note that it has reached the highest value (Peak Value) for China in 2018 at 10, 79 $*10^{12}$ fixed US $ in 2010, by exceeding sixty times for countries with the lowest values, as Malaysia and Singapore at 16,25 $* 10^{10}$, 13,48 $* 10^{10}$, respectively, in 2000, 2001, respectively. While China's minimum value and the second largest value of India are promoted.

2.2.2 Total Stock Price Values

Fig 02 : Total Stock Price Values evolution,2000-2018 perid.

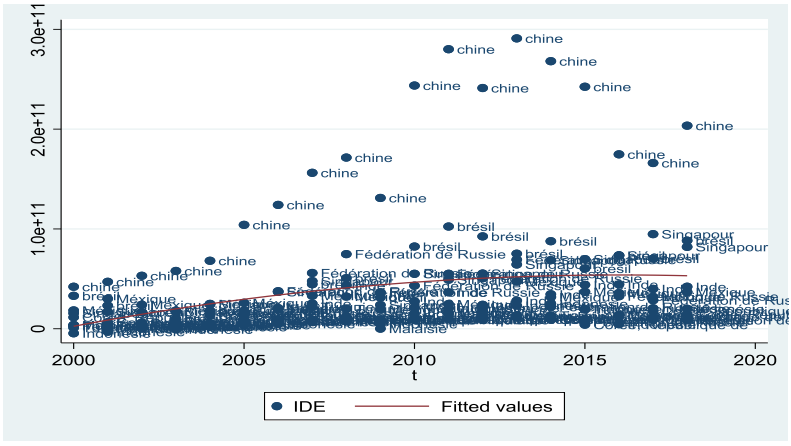


Source: Prepared by the Researchers by Drawing upon World Bank Data

According to the above-mentioned figure, we note that China curve began to rise until it reached the highest total stock price value by 3,9326 $*10^{13}$ US $ in 2015, followed by the Republic of Korea, which valued at 2,45574 $*10^{12}$ in 2018 (16 times according to china's total stock price value), and by India, Brazil, Turkey, Singapore, Malaysia, and so forth.

2.2.3 Foreign Direct Investment (FDI)

Fig 03: Foreign Direct Investment Evolution.

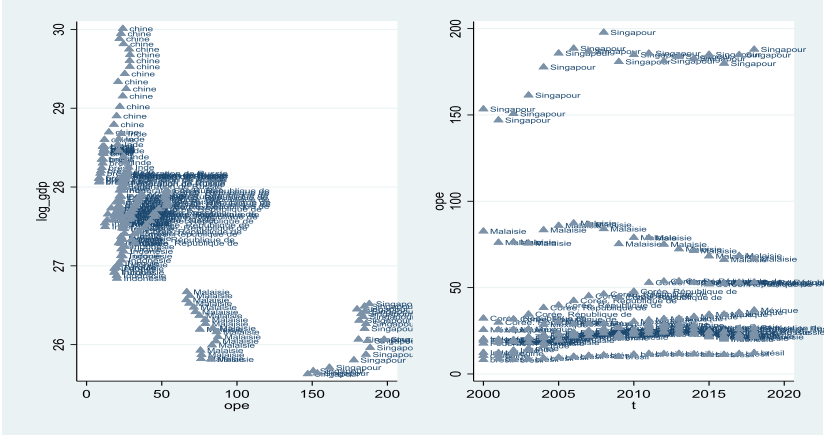


Source: Prepared by the Researchers by Drawing upon World Bank Data

The above figure helps us to note that FDI reaches the highest value in China in 2013 by 29,09 * 10^{10} fixed U.S. dollar (U.S. $) in 2010, and is accompanied by GDP in the same direction. Also, we figure out that Indonesia, Malaysia, Turkey, and Russia reached the lowest values in 2000, 2009, 2000 and 2000, respectively.

2.2.4 Trade Opening

Fig 04: Trade Opening Evolution

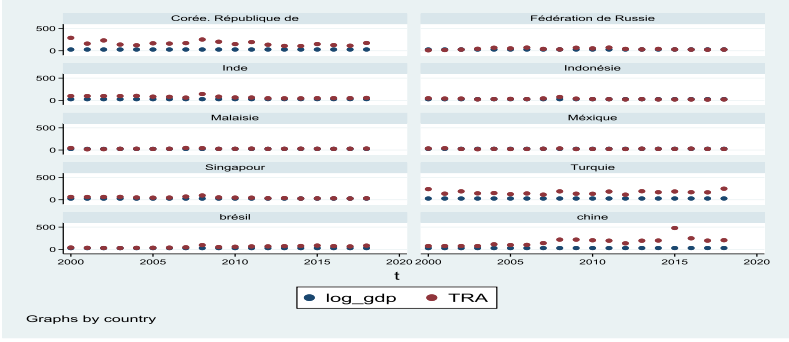


Source: Prepared by the Researchers by Drawing upon World Bank Data

According to Figure (04), we can note that trade opening reaches its highest ratios in Singapore, especially in 2008, by 197.83%, followed by Malaysia, South Korea by 87, 36% and 53,79% in 2008 and 2013, respectively. However, Gross Domestic Product (GDP) had known the largest decrease than other States, as well as Malaysia. Whereas, Brazil, China, Russia, Turkey and Indonesia had reached their lowest trade opening rate in 2002, 2001, 2000, 2001 and 2003, respectively.

2.2.5 Domestic Shares Turnover Rates

Fig 05: Turnover rate of domestic stocks
in the selected sample countries(2000-2018)



Source: Prepared by the Researchers by Drawing upon World Bank Data

According to the aforementioned figures, China reached the highest current stock turnover by 480% in 2015, followed by the Republic of Korea by 289% in 2000, Turkey by 247% in 2018, and Indonesia by 48% in 2000.

3. Model Estimation Using Panel Data

The standard study had conducted by taking a group of emerging countries, namely: China, India, Brazil, Malaysia, Indonesia, Mexico, Russia, Turkey, Korea and Singapore over the period 2000 to 2018.

3.1 Standard Model Formulation

After identifying study variables and after making reference to the GDP dependent variable and the remaining explanatory variables, we formulate the model as follows:

$$GDP = f(\mathrm{SP}, \mathrm{TRA}, \mathrm{OPE}, \mathrm{IDE})$$

By performing the Multiple Linear Regression technique to estimate standard model parameters, the linear model formula will be as follows:

$$GDP_{it} = \mathrm{B}_0 + \mathrm{B}_1\mathrm{SP}_{it} + \mathrm{B}_2\mathrm{TRA}_{it} + \mathrm{B}_3\mathrm{OPE}_{it} + \mathrm{B}_4\mathrm{IDE}_{it} + \mu\mathrm{i}.$$

Where:

is the dependent variable , where i = entity and t = time. GDP_{it}

SP_{it}, TRA_{it}, OPE_{it}, IDE_{it}: represents independent variables.

B_0 ،B_1،..... ،B_8 represents model parameters,

$\mu\mathrm{i}$: is the error term.

3.2 Study variables descriptive statistics

At the outset, we conduct a series of statistical tests on the explanatory variables represented in the study model and a sample consisting of ten emerging countries. These data are illustrated by the following table:

Table 02 : Descriptive Statistics of Explanatory Variables

Test 1	Minimum	Maximum	Mean	Std. Dev	OBS
GDP	1.35E+11	1.80E+13	1.52E+12	1.79E+12	190
SP	9.64E+09	3.93E+13	1.14E+12	3.72E+12	190
TRA	10.45018	480.2873	81.35767	69.13757	190
OPE	8.13	197.83	45.18158	48.25076	190
IDE	-4.5E+09	2.91E+11	3.80E+10	5.33E+10	190

Source: Prepared by the Researchers depending on STATA.16 Outcomes

According the above mentioned data in table (02), and during that period, the average total stock price values in the sample were estimated by 1.14E + 12, with a deviation level of 3.72 E + 12 between countries, which shows the variation in the levels of total stock price values. As for

the average local stock turnover rate, it was estimated at 81.35767 between countries with a higher value of 480.2873, and a lower rate of 10.45018. This confirms the relative difference in stock turnover among sample countries. The rate of trade opening had reached the highest value, estimated at 197.83 in Singapore, indicating its trade opening degree, while Brazil had reached the lowest value of 8.13, with a variation level of 48.25079. Also, we can figure out that FDI had known considerable differences in the sample countries, where the highest value had reached 2.91E + 11 and the lowest value - 4.55 E + 09.

3.3 Variables correlation

Table 03 : Correlation Coefficients

	GDP	SP	TRA	OPE	IDE
GDP	1.0000				
SP	0.7882	1.0000			
TRA	0.4990	0.6231	1.0000		
OPE	-0.3215	-0.0987	-0.1850	1.0000	
IDE	-0.3215	0.6784	0.3993	-0.0357	1.0000

Source: Prepared by the Researchers depending on STATA.16 Outcomes

According to the previous mentioned table, it can be seen that the correlation matrix could reflect the following findings:

- There is a strong and statistically significant correlation between the dependent variable GDP and the explanatory variable of the stock price aggregates, where the correlation coefficient is estimated to be 78, 82%.
- A negative correlation between Economic Growth and current stock turnover, which is only 50%.
- A negative correlation between Economic Growth and both FDI and Trade Opening, which is only 35%.

3.4 Variables linear relationship

Table 04 : Variables linear relationship

VARIBLES	VIF	1/VIF
SP	2.33	0.430003
TRA	2.15	0.464330
OPE	1.38	0.726341
IDE	2.51	0.398413
Mean VIF	2.09	

According to the displayed data in the above table, it can be seen that all VIF values are less than 5, as well as VIF average is 2.09; hence, no existence of any multiple linear relationship problem. So, we can rely on all selected explanatory variables in the model.

4. Model Estimation Findings

To illustrate the nature of the economic growth and explanatory variables association, we have applied the aggregate regression model, the fixed effects model and the random effects model, through adopting Time-Series and Cross-Sectional Data Methodology. All these are displayed in the following table:

Table 05 : Estimation Findings of Fixed Effects and Random Effects Models

Number of obs : 190, Number of group : 10 , The time length : 2000-2018 Dependent Variable(GDP) , The unit (GDP) : $ US constants de 2010.			
***Independent* Variables**	***Pooled Regression***	**Fixed Effects**	Random Effects
SP	0.1710647 (0.0183718)***	0.1861474 (0.0188055)***	0.1710647 (0.0183718)***
TRA	-1.37e+09 (1.02e+09)	-3.67e+09 (1.44e+09)**	-1.37e+09 (1.02e+09)
OPE	-1.02e+10 (1.31e+09)***	-6.46e+08 (6.64e+09)	-1.02e+10 (1.31e+09)***
IDE	19.15577 (1.211328)***	14.10926 ***(1.511931)	19.15577 (1.211328)***
C	1.17e+12 (1.22e+11)***	1.09e+12 (3.18e+11)***	1.17e+12 (1.22e+11)***
Multiple R2	R-squared = 0.892 & Adjust. R2 = 0.9833	R-squared 0.805 & Adjust. R2 =0.883	R-squared = 0.8929 & Adjust. R2 = 0.9833
F-Statistics	910.24	105.27	910.24
P-value	0.000	0.000	0.000

Notes: ** and * denotes 5% and 10% significance levels, respectively.**
Source: Prepared by the Researchers depending on STATA.16 Outcomes

To ascertain the appropriate model, Hausman test (1978) was conducted to assess the selection between a fixed or random effect models, as well as finding out the applied effects of the fixed intercept parameter. If this latter is shifting and discrete among countries, it will adopt the fixed effects model, while if it is fixed, it will be considered to

be within the random error bound, so the random effects model is the model of this case.

4.1 Hausman Test

The Hypotheses:

- ✓ H0: The random effects model is the appropriate option.
- ✓ H1: The fixed effects model is the appropriate option.

The aforementioned data are displayed in the following table:

Probability	Chi-Sq. Statistic
0.0074	9.81

According to the above mentioned findings, Hausman's test findings pointed out the reduction of the statistical value (Chi-Sq. Statistic), with a value of 9.81 for tabular value at a Freedom Degree of 8, with a statistically significant level of 95%, which is estimated at 38.18. Also, Prob (F-statistic) value is smaller than 5%, so the null hypothesis is rejected, whereas the alternative hypothesis, which states that the fixed effects model is the appropriate option. Therefore, there are individual effects for all countries that are not dissimilar over time.

4.2 Model Parameters Analysis Using Fixed Effects Model

Building on table (05) findings, the dependent variable and the explanatory variables have significant association through the correlation coefficient, estimated at 80.57%. Moreover, the model's statically significance through F-Statistics can be seen. In addition, the majority of the explanatory variables parameters are statically significance, except for trade opening; therefore, the research study findings can be illustrated as follows:

- Stock Price Values Aggregates and Economic Growth are

experiencing a positive correlation, so it appears that sample countries count on the stock market to devote available financial resources in promoting investment; therefore, boosting Economic Growth. China reached the high value that exceeds 90% of GDP, especially in 2015, while local stock turnover rate and economic growth have experienced a negative association. According to this finding, we can draw a conclusion that the fiscal surpluses originating from foreign stock and the economic growth have played a positive role in investment financing. The findings are congruent with multiple studies, namely Choong's, Chee-Keong's, et al. study (2010); Pradhan's, R.P study (2018); and so forth.

- Economic growth and foreign direct investment have known a positive association. Thus, this result is complying with the economic theory that aligns itself with multiple studies, namely: Borensztein's and Jong-ha Lee's study (1998); and Fan's and Yu Hao's study (2020), which state that Foreign Direct Investment contributes more in economic growth improvement, in terms of the host country's technology, compared to local investment.

5. Conclusion

This study is aiming at examining the contribution degree of financial markets, through Total Stock Price Values and Foreign Direct Investment (FDI), in promoting the Economic Growth of emerging countries sample during (2000-2018) using Panel Data Technique. According to the obtained findings, Total Stock Price Values have a positive effect on the economic growth that is affected negatively by local stock turnover, demonstrating that foreign-traded stock have had a positive effect on the economic growth, which is affirmed by FDI and Economic Growth positive relationship .The study recommends applying more accurate and effective models, as well as expanding the sample size.

REFERENCES:

Anwar, S., & Nguyen, L. P. (2010). Foreign direct investment and economic growth in Vietnam. Asia Pacific business review, 16(1-2), 183-202.

Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does foreign direct investment affect economic growth?. Journal of international Economics, 45(1), 115-135.

Choong, C. K., Baharumshah, A. Z., Yusop, Z., & Habibullah, M. S. (2010). Private capital flows, stock market and economic growth in developed and developing countries: A comparative analysis. Japan and the World Economy, 22(2), 107-117.

De Santis, G. (1997). Stock returns and volatility in emerging financial markets. Journal of International Money and finance, 16(4), 561-579.

El-Wassal, K. A. (2005). Understanding the growth in emerging stock markets. Journal of Emerging Market Finance, 4(3), 227-261.

Fan, W., & Hao, Y. (2020). An empirical research on the relationship amongst renewable energy consumption, economic growth and foreign direct investment in China. Renewable Energy, 146, 598-609.

Foresti, P. (2006). Testing for Granger causality between stock prices and economic growth.

Koojaroenprasit, S. (2012). The impact of foreign direct investment on economic growth: A case study of South Korea. International Journal of Business and Social Science, 3(21).

Oskooe, S. A. (2010). Emerging stock market performance and economic growth. American Journal of Applied Sciences, 7(2), 265.

Pradhan, R. P. (2018). Development of stock market and economic growth: the G-20 evidence. Eurasian Economic Review, 8(2), 161-181.

Pradhan, R. P., Arvin, M. B., & Hall, J. H. (2019). The nexus between economic growth, stock market depth, trade openness, and foreign direct investment: the case of ASEAN countries. The Singapore Economic Review, 64(03), 461-493.

Torres-Reyna, O. (2007). Panel data analysis fixed and random effects using Stata (v. 4.2). *Data & Statistical Services, Priceton University*, *112*.

Zhang, K. H. (2001). Does foreign direct investment promote economic growth? Evidence from East Asia and Latin America. Contemporary economic policy, 19(2), 175-185.