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Economic Prospects of Stock Market Development: A Comparison of Two Worlds

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The stock market is a crucial component of the financial system of any economy. This study proceeds with dynamic panel data investigation of the effect of development in the stock market on economic progress. The changes in the stock market are estimated using the market capitalization and stock value traded indicators. Based on the Fully Modified Ordinary Least Squares (FMOLS) estimates on selected economies, it is evident that stock value traded had a significant positive effect on the economic progress of both developed and developing economies. While market capitalization had a significant negative effect on the developed economies only. Finally, the study suggests that policymakers may design policies that enhance stock value traded.

Keywords*:* Stock Market, Economic Progress, Dynamic Panel Data Analysis.
JEL Classification: G0

INTRODUCTION

This study investigates the impact of development in stock market instrumented via market capitalization and traded stocks on the economic progress of selected 36 countries (18 developed and 18 developing countries). This quantitative assessment compares the development of stock market within developed and developing economies with an aim to see whether it has a supply leading effect or irrational prosperity effect on growth? After applying fully modified ordinary least square (FMOLS) and error correction model (ECM) based techniques on the data set ranging from 1998 to 2012, this study finds the significant and positive effect of stock market development in the form of traded stocks on economic progress both in developed and developing economies of the world.

In literature, generally, economists have defined two major streams for assessment of developments in stock markets of the world, they are coined as the market size and market liquidity. Market size is a measure of total amount capitalized in the market while market liquidity measures the number of stocks made available by listed companies representing market liquidity is measured through stock value traded (Levine & Zervos, 1998). Each of the measurement has its own peculiar merits and demerits in representing the stock market of both worlds. We would like to highlight that one should not ignore the number of listed companies and new shares issued in a particular year, otherwise, mere speculation (indicated by an increase in market capitalization) can mislead about the size of the market.

The debate about finance-growth nexus is not new. It has its origin in 1955 when Gurley and Shaw (1955) talked about the financial aspects of economic development. Then the debate was furthered by McKinnon (1973). Since then the debate about financial intermediation and growth has been divided into two strands; financial intermediation through a bank based and financial intermediation through market-based. In this vein of literature, we find studies like (Ajit & Banger, 1997; Atje & Jovanovic, 1993; Demetraides & Hussein, 1996; Demetraides & Luintel, 1996; Demirguc-Kunt & Maksimovic, 1998; Durusu-Ciftci, Ispir, & Yetkiner, 2017; Greenwood & Jovanovic, 1990; Harris, 1997; Levine, 1997; Levine & Zervos, 1998; Nagaishi, 1999; Pagano, 1993; Singh, 1997) which have discussed these two strands.

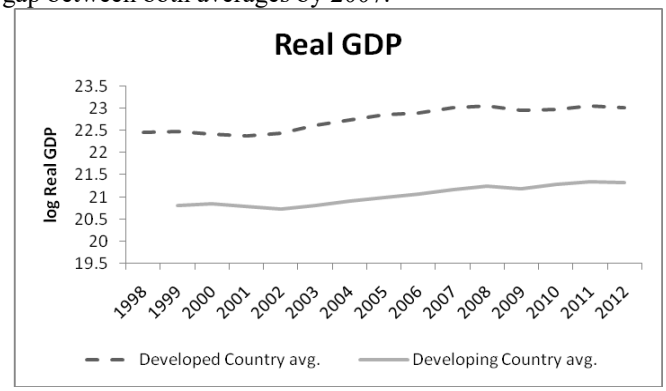
Now the discussion of the role of financial intermediation can be divided into four views – bank-based, market-based, financial services view and law & finance view. This division of views was identified by Beck and Levine (2002). However, our study focuses only on market-based view focusing on the contribution of the stock market. This narrow objective will allow us to investigate in detail the comparative impact of developmental efforts in the stock market on economic progress. Before this, empirical studies have proposed few means via which the development in the financial sector and stock market may benefit the economic progress, for instance (Filer, Hansouk, & Campos, 2000; Garcia & Liu, 1999; Pagano, 1993) identified;

1. Stock market helps funneling saving to firms
2. Development in the stock market improves the allocation of capital
3. Better financing sources increase the saving rate
4. It helps in reducing information and transaction costs
5. It lowers the cost of foreign capital and
6. Provides incentives to managers through equity-based compensation schemes, among others.

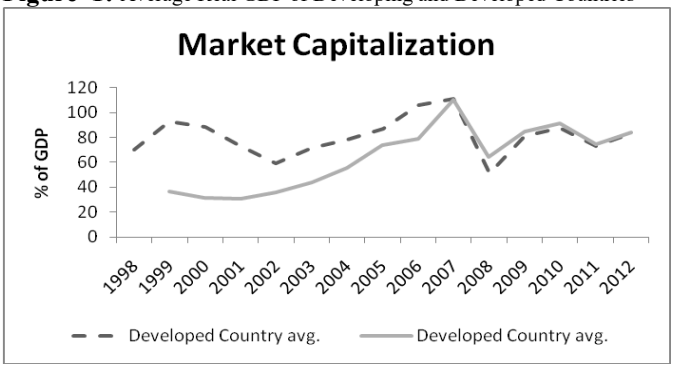
A mature and developed stock market provides a crucial contribution in promoting the economic progress of the country. It increases the interaction between the people who are financing providers and the financial sector which is the

user of finance. But the development of this market has its downturns too, if individuals are experiencing higher returns in the stock market, they will be inclined to invest in a speculative bubble rather than the real economy. This reduction in the real sector will shrink GDP (Devereux & Smith, 1994; Pan & Mishra, 2018).

This literary effort aims to explore and compare the effect of two forms of development in the stock market and its role the economic progress for a wide range of countries which are divided into two groups based on the level of development. This separation will reveal any difference in the influence of financial intermediation between developed and underdeveloped. In Figure - 1 below, we provide the trend of real GDP in both worlds. Interestingly, the trend is almost the same and the gap represents the difference in the development of the group of countries. Similarly, in Figure - 2, we present the trend in market capitalization for both the groups; the trend is higher in the developing countries which are reducing the gap between both averages by 2007.

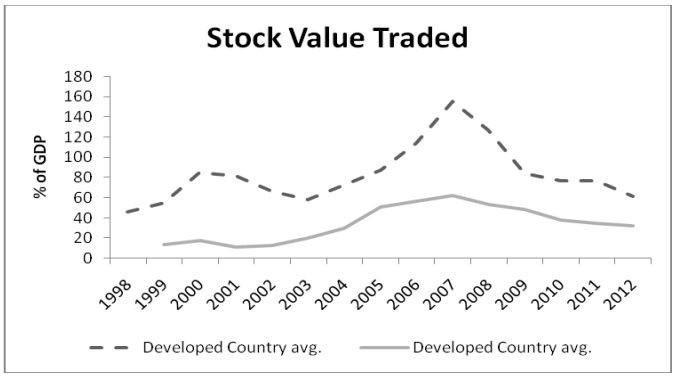


Figure–1: Average Real GDP of Developing and Developed Countries



Figure–2: Average Market Capitalization for Developed and Developing Countries

The other indicator in our stylized facts is the trend of stock value traded in both the groups in Figure – 3. Here the volatility in the stock value traded in developed is higher as compared to the developing economies, but in contrast to market capitalization, there is a visible gap. Further section two of the study has discussed the empirical studies which demonstrate the causal relationship between development in the stock market and economic progress.



Figure–3 Average Stock Value Traded for Developed and Developing Countries

LITERATURE REVIEW

This study has reviewed the available literature that has empirically analyzed the role of development in the stock market in the long-run growth of the economy while controlling for the labor force, inflation and FDI. Arestis, Demetriades, and Luintel (2001) studied the impact of development in the stock market on economic progress using quarterly data for five selected developed economies and where it was asserted that development in the stock market has a significant positive impact on economic progress. Beck and Levine (2002) estimated the effect of stock market development on economic progress using Generalized Method of Moments (GMM) technique for the sample period from 1976 to 1998 and they asserted that development in the stock market has a significant positive impact on economic progress following supply leading theory.

The study of Caporale, Howells, and Soliman (2004) studied the triangular association between economic progress, financial development and stock market development. They assessed the relationship using panel causality test, which was applied for the set of seven countries. They found that well-developed stock markets have a positive impact on economic progress. Shahbaz, Ahmed, and Ali (2008) explored the causal association between the development of the stock market and economic progress for Pakistan. They used Johansen multivariate and ARDL bounds testing cointegration approaches from 1971 – 2006 which led to a conclusion that national efforts to development stock markets can reap progress in short-run as well as in long-run. Similar results were reported by Nowbutsing and Odit (2009) for Mauritius using ECM and Rahman and Salahuddin (2009) for Pakistan using FMOLS. Hossain and Kamal (2010) also found the same growth-promoting results of development in the stock market for Bangladesh. While studying the dynamics of the stock market in Africa, Enisan and Olufisayo (2009) selected the seven African countries: Kenya, Cote D'Ivoire, Nigeria, Egypt, South Africa, Zimbabwe, and Morocco. Using two proxies for development in stock market: market capitalization and the stock value traded and applying ARDL bounds testing approach for all the countries they found the long-run relationship between development in the stock market and economic progress in all countries. However, the causality

results were mixed depending upon proxy and estimation technique used.

Afterward, the estimates of GMM technique exposed the growth-promoting the role of developmental efforts in the stock market in 27 developing economies for the period from 1991 to 2007 (Seetanah, 2008). However, after employing GMM technique on the sample period from 1995 – 2009, (Seetanah, Sawkut, Sannasee, & Binesh, 2010; Seetanah, Subadar, Sannasee, Lamport, & Ajageer, 2012) found the positive but insignificant impact of development in the stock market on economic progress in the least developed countries. The study explained that since least developed countries are still young and will have developed stock market gradually, therefore, the effect of development in the stock market found to be insignificant.

The results in the case of Nigeria are interesting, Ovat (2012) using the Granger causality test on the quarterly data set from 1980 – 2009, found that stock value traded and economic progress have a bidirectional relationship with each other, however, market capitalization has no relationship with economic progress in Nigeria, whereas Alajekwu and Achugbu (2012) using two proxies for development in stock market: market capitalization and stock value traded for the period from 1994 – 2008 and applying ordinary least square technique found that market capitalization has a significant but negative impact on output growth, whereas, stock traded has a significant positive effect on output progress. Furthermore, Rahimzadeh (2012) investigated the effect of development in the stock market on economic progress for a set of 11 the Middle East and North African (MENA) countries between 1990 – 2011, he revealed that development in the stock market has an insignificant effect on economic progress. During the same period, we see Jun (2012) who studied the causal association between output growth and financial development for the set of 27 Asian countries. After applying panel co-integration approach for the data series from 1960 – 2009, the study found a bidirectional causal association between output growth and financial development for the case of these countries. Antonios and Athanasios (2013) found unidirectional causality running from development in the stock market to economic progress and bidirectional causality between inflation and economic progress in the US. Bayar, Kaya, and Yildirim (2014) also found unidirectional causality running from stock traded and market capitalization to economic progress in Turkey.

Recent studies like (Durusu-Ciftci et al., 2017) applied steady-state growth model for the range of 1989-2011 using 40 country dynamic panel data model. The results asserted that developmental efforts in the financial / stock market have a positive long-run effect on GDP per capita. Hassan and Kalim (2017) studied the low HDI countries during 1989 and 2013. The studies availed market capitalization and stock traded to capture the development of the stock market. Authors pointed towards coordinated effort to boost the stock market and banking sector with an aim to achieve higher growth

Also, Pardhan (2018) constructed the panel data of G-20 countries to assess the effect of development in the stock market on economic progress. Based on the causality analysis between 1980 and 2015, the results indicated that there is two-way causality between development in the stock market and economic progress. These results are complemented by (Ogbeide & Akanji, 2018) for the case of BRICs countries in panel data setup whereby positive effect is confirmed between development in the stock market and economic progress. A study by (Pan & Mishra, 2018) for the case of Bangladesh between 1993 to 2016 using ARDL approach whereby in long run the effect of the stock market development has a positive direct effect on the economic progress but the long-run relation fails to converge which calls for better indicators of the stock market.

Surprisingly Devereux and Smith (1994) proposed that when the stock market becomes highly mature then it integrates the entire financial sector so much that it provides a hedge against any international risk that can occur to the economy. This hedging leads to a reduction in the precautionary saving by economic agents which may lead to depreciation in economic progress. Other possible reason for the negative effect of market capitalization on economic progress could be the global integration of the financial sector in which people trade foreign shares more instead of the domestic shares. Few studies indicated the negative effect of development in the stock market on economic progress. This relation is known as irrational prosperity whereby highly profitable stock market motivates people to invest in the stock market rather than the real economy which shrinks the real sector. A study by (Pan & Mishra, 2018) discussed the case of China where development in the stock market leads to a decrease in economic progress.

The crux of assessment of empirical studies indicates that the stock market may have a positive role determined by supply leading theory or a negative role determined by irrational prospect theory. Further, whether the difference in the effect of the stock market on progress may relate to the difference in the development level of the economy.

Impact of Controlling Factors on Finance-Growth Relationship

When estimating economic growth model, the importance of the labor force is well-grounded in the Solow growth model (Solow, 1956). Dewan and Hussein (2001) using fixed effect and random effect models for selected developing countries covering the period from 1966 – 1999 concluded that growth of labor force has a significant and positive impact on economic progress in these selected developing countries. Regarding the impact of inflation on economic progress Lucas Jr. (1973) investigated the output growth; inflation and unemployment tradeoffs for the selected 18 countries of the world. Using ordinary least square method on the data series from 1952 – 1967 the study found that inflation and output growth trade-off was found to be positive, whereas, inflation and unemployment tradeoff was found to be negative. The study provides interpretation from the supply side explaining

through misperception about relative prices. Ayyoub, Chaudhry, and Farooq (2011) used two models of inflation effect on economic progress. In the first regression model; the study finds that inflation is significant. However; in the second regression model, where authors use 7 percent inflation as a threshold level, the inflation becomes insignificant.

Carkovic and Levine (2005) who investigated the impact of foreign direct investment (FDI) on economic progress using GMM dynamic panel technique on the five years averaged data series from 1960 – 1995 for 72 countries. The study makes a comparative analysis of the estimates of OLS and GMM dynamic model for the five mainly conceptualized models, keeping FDI in all models with changing controls. The study shows that in most of the estimates of GMM; FDI has a positive and significant effect on economic progress. Similar results were found by Sukar, Ahmed, and Hassan (2007) for Sub – Saharan African countries by using panel data analysis for the period from 1975 – 1999. This study adds in literature by differentiating the effect of development in the stock market measured using size and liquidity of the market in terms of the level of development of the countries. This study helps in disentangling the size and liquidity effect with respect to the development of stock markets in short-run as well in long-run using panel Cointegration approach.

RESEARCH METHODOLOGY

For the estimation and differentiation of the contribution of the development in the stock market on the economic progress of the developed and underdeveloped economy, following panel data specification is utilized which is adopted from Rahman and Salahuddin (2009) who examined the relationship between the stock market and economic progress through the log-linear model. Log transformation of the variables helps us to shrink heteroskedasticity and the coefficients become elasticities instead of slopes which enable comparability (Benoit, 2011). The equation of the stochastic model is given below:

$$LGDP_{i,t} = \alpha_1 + \beta_{11} LMC_{i,t} + \beta_{12} LST_{i,t} + \beta_{13} LLF_{i,t} + \beta_{14} LCPI_{i,t} + \beta_{15} LFDI_{i,t} + \varepsilon_{i,t} \quad -(1)$$

Equation (1) is panel models constructed for developed and developing countries where i values for each country respectively and t shows the time period from 1998 to 2012. Here LGDP is a log of Real Gross Domestic Product, LMC is a log of Market Capitalization, LST is a log of Stock Value Traded, LLF is a log of Labor Force, LCPI is a log of Consumer Price Index and LFDI is a log of Foreign Direct Investment.

Construction of Independent Variables

The variables which are considered in the study in order to quantify the model of assessing the role of development in the stock market on economic progress are Stock Value Traded (LST) and Market Capitalization (LMC). The stock traded is the primary indicator of liquidity in the stock market. The increase in the number of stocks being traded in the market shows an increase in the number of firms who are using this instrument to acquire funds mainly for investment in output expansion as a percent of GDP. Market capitalization our second indicator of stock market development measures the total number of outstanding shares of the company multiplied by its sale price indicating the size of the market as a percent of GDP. Our controls in the estimation model are labor force, inflation, and foreign direct investment. Labour force according to the Cob-Douglas production function is a major determinant for the increase in economic progress. This labor force indicator includes individuals who are not institutionalized and are willing and able to work. This variable will incorporate the effect of a change in labor resource available for the firms, which are parallel to the financial resource in the economy. Inflation is incorporated using the Consumer Price Index (CPI). This variable represents the role of prices on the real GDP which is expected to be different for developing and developed economies. Prices can play their role from the demand side as well as from the supply side in influencing the economic progress. Foreign Direct Investment (FDI) is incorporated in this study to analyze the foreign inflow of capital for the sake of financial assistance for the firms. As FDI is attracted towards higher expected returns so increase in the capital inflow would lead to the realization of higher returns which are beneficial for the economy. FDI has certain positive spillovers which are controlled in finance-growth relation.

Data Sources

For the assessment of the role of development of the financial market and economic progress of developed and developing economies, the secondary data have been acquired from World Development Indicators (WDI) for the period of 1998 to 2018 for selected 36 countries. **Country Selection**

The sample of 36 countries was further divided into selected developed and developing worlds shown in Table – 1 in the appendix on the basis of World Bank Atlas method, where countries which have more than $10066 per capita national income is considered as developed and countries lower than $3256 per capita national income are considered as developing. The idea behind the construction of two groups is to compare the difference in the maturity level of stock markets in developed and developing economy and who does this difference influences the economic progress.

Variables specification

Table – 4: Description of Variables

Variable Names	Composition of the Variables	Definition and Units	Data Source
LGDP	Log [Real Gross Domestic Product]	It is the market value of all the valuable goods within the boundary of the country. (Units: Dollars)	WDI (2013)
LMC	Log [Market Capitalization]	It is the product of share price and the number of shares outstanding. It indicates the size of the stock market and the ability to mobilize capital in the economy to diversify risk. (Units: % of GDP)	
LST	Log [Stock Value Traded]	It indicates the value of shares being traded. A country having a higher value of shares traded show a high level of liquidity in capital allocation. (Units: % of GDP)	
LLF	Log [Labour Force]	It includes both employed and unemployed persons available for work in the country. (Units: Number of people)	
LINF	Log [Consumer Price Index]	It represents the increase in the price of goods and services. (Units: Index)	
LFDI	Log [Foreign Direct Investment]	It is the investment by the company of the different countries in the existing company to expand the current business or by purchasing the company. (Units: Dollars)	

Estimation Technique

Constructing the panel data specification for the following equation

$$LGDP_{i,t} = \beta_{0i} + \beta_1 LMC_{i,t} + \beta_2 LST_{i,t} + \beta_3 LLF_{i,t} + \beta_4 LCPI_{i,t} + \beta_5 LFDI_{i,t} + \varepsilon_{i,t} \quad \text{-- (2)}$$

As all the thirty-six economies taken in this study are different in terms of all other factors which are not included in this model. To incorporate this, the intercept is allowed to be different for each cross-section. These differences between the cross-section are also called as unobserved heterogeneity.

Estimation Results

The presence of unobserved effects among cross-sections is tested by using Cross-Sectional Heterogeneity Test. The results reported in the Table – 5 show that the probability value of the F – test is found to be significant hence it concludes that cross-sections are heterogeneous, therefore, one should apply the fixed effect and random effect models instead of applying ordinary least square (OLS) method. As estimates of OLS turn out to be inefficient in the presence of unobserved heterogeneous effects. Moreover, the estimates of simple fixed effect model were found considering 14 years from 1998 to 2012 for both developed and developing worlds and these estimates confirmed the presence of autocorrelation using Wooldridge panel autocorrelation test and heteroscedasticity using modified Wald test. Due to the presence of these issues, estimates of fixed effect specification turn to be inappropriate and hence it suggests that the included variables may be tested for stationarity. The results are presented in the following Table – 5:

Table – 5: Cross-sectional Heterogeneity Test

Developed Countries			
Test	**Statistic**	**d.f.**	**Prob**
Effects F Test	203.91	(17,234)	0.000*
Developing Countries			
Test	**Statistic**	**d.f.**	**Prob**
Effects F Test	426.55	(17,234)	0.000*

*** Significant at 1%**

After discussing the results of Table – 5, the presence of unit root problem is tested (in Table – 6) and variables are found to be time-variant (I(1)) based on consensus by the majority of panel unit root tests. The presence of unit root problem confirms that the results of simple fixed effect model are spurious and in order to break this spuriousness panel Cointegration may serve the purpose (Breitung & Pesaran, 2004; Choi, 1999; Im, Pesaran, & Shin, 2003; Maddala & Wu, 1999). Once panel Cointegration between proposed variables is confirmed, then the impact of proposed variables can be estimated for the long-run and short-run for both developed and developing economies. The estimated results of panel unit root test and panel Cointegration test are presented in the Table – 6 and Table – 7 respectively.

Table – 6: Panel Unit Root Test

At Level Variables	**Developed Countries**			**Developing Countries**		
	IPS	**Fisher-ADF**	**Fisher PP**	**IPS**	**Fisher-ADF**	**Fisher PP**
Real GDP	3.03	10.62	10.48	6.01	5.09	5.74
	(0.99)	(1.00)	(1.00)	(1.00)	(1.00)	(1.00)
CPI	6.56	18.33	51.54	-4.31	29.52	40.85
	(0.99)	(0.99)	(0.045)	(0.00)*	(0.76)	(0.27)
Labor Force	0.69	46.10	34.92	3.85	39.16	33.42
	(0.75)	(0.12)	(0.52)	(0.99)	(0.33)	(0.59)
Market Capitalization	-1.78	11.58	9.97	2.74	15.87	11.58
	(0.04)"	(1.00)	(1.00)	(0.99)	(0.99)	(1.00)
Traded Stocks	-0.46	31.59	33.12	0.04	30.90	11.57
	(0.32)	(0.67)	(0.60)	(0.51)	(0.71)	(0.99)
FDI	-3.02	18.45	21.28	-1.04	7.75	5.34
	(0.00)*	(0.99)	(0.97)	(0.14)	(1.00)	(1.00)
At First Difference Variables	**Developed Countries**			**Developing Countries**		
	IPS	**Fisher-ADF**	**Fisher PP**	**IPS**	**Fisher-ADF**	**Fisher PP**
Δ(Real GDP)	-5.61	91.69	87.56	-7.64	119.7	128.3
	(0.00)*	(0.00)*	(0.00)*	(0.00)*	(0.00)*	(0.00)*
Δ(CPI)	-8.17	127.2	150.4	-15.1	219.9	297.2
	(0.00)*	(0.00)*	(0.00)*	(0.00)*	(0.00)*	(0.00)*
Δ(Labor Force)	-4.76	86.24	85.10	-3.79	74.78	90.10
	(0.00)*	(0.00)*	(0.00)*	(0.00)*	(0.00)*	(0.00)*
Δ(Market Capitalization)	-9.11	140.9	211.0	-9.78	149.1	163.6
	(0.00)*	(0.00)*	(0.00)*	(0.00)*	(0.00)*	(0.00)*
Δ(Traded Stocks)	-5.32	88.28	89.84	-6.18	100.3	100.1
	(0.00)*	(0.00)*	(0.00)*	(0.00)*	(0.00)*	(0.00)*
Δ(FDI)	-13.4	194.9	244.8	-8.94	147.6	209.2
	(0.00)*	(0.00)*	(0.00)*	(0.00)*	(0.00)*	(0.00)*

*** Significant at 1% " Significant at 5%**
Result of I(1) is based on the majority of the tests being insignificant at level

Table – 7: Kao Residual Based Panel Cointegration Test

Developed Countries	**Coefficient**	**t – statistic**	**Probability value**
ADF		-5.48	0.00*
Residual Convergence	-0.39	-7.89	0.00*
Developing Countries			
ADF		-2.12	0.02*
Residual Convergence	-0.27	-5.99	0.00*

*** Significant at 1%**

Table – 7 shows the Kao residual-based Cointegration test (Kao, 1999) for both developing and developed worlds, showing the presence of Cointegration. This test ensures that the proposed model of stock market development to affect economic progress is a viable equilibrium model in a longer time horizon such that it can be used by policymakers to intervene in any unfavorable change. It can be seen from the results that the nature of Cointegration is different for both country sets. In the case of developed countries, the residuals are converging to its zero mean faster (39% each time period) as compared to developing countries (27% each time period) of every 100% random shocks in equilibrium. This shows that if there is any intervention in the model via usage of any policy option in the form of independent variables proposed and any external random shock, the economic growth will adopt in the direction depicted in the economy restore the equilibrium in economy, and this adoption is 12% faster for the case of developed economy.

Long Run Coefficients

Table - 8 depicts the long-run panel data regression results using Fully Modified Ordinary Least Square Model (FMOLS) model which is the dynamic version of simple FE model (Baltagi & Kao, 2000), for the period of 1998 to 2012 for selected developed and developing worlds. According to these results, the overall stock market is significantly contributing to assuring economic progress for both country cases.

Table – 8: Long Run FMOLS Coefficients - Real GDP

Variables	**Developed Country Coeff. (Prob.)**	**Developing Country Coeffi. (Prob.)**
Market Capitalization	- 0.04 (0.02)*	-0.02 (0.22)
Stock Trade	0.13 (0.00)*	0.04 (0.00)*
Labor Force	0.88 (0.00)*	1.51 (0.00)*
FDI	0.01 (0.02)*	0.11 (0.00)*
CPI	1.73 (0.06)*	-0.02 (0.00)*

Post Regression Diagnostics

Residual Stationarity	**LLC (Prob.)**	**Fisher-ADF (Prob.)**	**Fisher PP (Prob.)**	**Decision**
Developed	-7.59	101	64.4	I(0)
	(0.00)*	(0.00)*	(0.00)*	

Developing	-5.44 (0.00)*	109 (0.00)*	116 (0.00)*	I(0)

Heteroskedasticity test (BPG)	**Sample**	**R^2**	**$N*R^2$ ~ Chi Sq**	**Decision**
Developed	228	0.04	9.12	**No Heteroscedasticity**
Developing	221	0.04	8.84	**No Heteroscedasticity**

***Significant, BGP critical value = 9.48**

While assessing the contribution of stock market liquidity, long-run estimates assure that, if we increase stock value traded in the economy by 1%, it will translate to a 0.13% and 0.04% increase in the economic progress of the developed world and developing world respectively. Since the average level of stock traded in a developed economy is 85.8% and in developing the economy is 34.4% as a percent of GDP, this higher liquidity of the stock market in developed economies are showing higher fruitful effects in determining economic progress.

The average stock market in a developed economy is 90.6% and in developing the economy is 18.4% on average (calculated using descriptive statistics), there is a marked difference in the size which is translated into a bigger difference in its effect. Although there is a negative relationship between market capitalization and economic progress, it is insignificant for the case of developing economies. However, for the case of developed economies, it seems to be against intuition as suggested by (Pan & Mishra, 2018). The reason for the negative relation is identified by Devereux and Smith (1994), according to them if financial markets are highly developed and integrated then it will be used as a risk-sharing avenue and it will reduce the precautionary saving which consequently may reduce economic progress. Another reason can be that from 2007 developed countries faced sub-prime crises which can be observed by the lower than 3 kurtosis values of real GDP of developed countries, these extraordinary conditions could lead to diminishing the growth-promoting effects. However, this change in conditions did not reveal itself in regression issues which could have prompted to use structural break dummy.

For the case of the labor force, an increase in labor force significantly increases the economic growth by 0.88% in developed and 1.51% in developing world respectively as per (Solow, 1956), developing countries have higher elasticity because of the fact that they also have higher rate of unemployment and bigger labor force (95.7 million people for developing and 24.6 million people for developed) on average. For the case of FDI, 1% increase in the developed economies shows 0.01% increase in growth, while for the case of developing countries 1% increase in the FDI increases economic progress by 0.11% on average, these results are similar to (Carkovic & Levine, 2005; Sukar et al., 2007).

CPI is considered as general price level in the economy, for producers increase in the prices signal incentive for higher profitability, hence 1% increase in the CPI significantly increases economic growth by 1.73% also for the case of developing economies it is opposite such that increase in CPI leads to decrease in the growth by 0.02% because it is already too high (107.7 for developed and 101.5 for developing on average) and volatile as suggested by (Lucas Jr., 1973). Post regression diagnostics show that there is no hint of multicollinearity, no heteroskedasticity as test values are lower than critical values and no autocorrelation as residuals were stationary in both developed and developing country regression results. Hence it can be said that these results are valid and suitable for inference and policy implication.

Difference between Stock Market Impacts

Now the question rests upon the fact that does the contribution of stock market instruments differ for the case of developing and developed the world? Firstly, it can be answered by nature of slope coefficients which stock market variables (market capitalization and stock trade) represent in Table-9. Secondly, using the country-specific intercepts generated in Table - 9 using equation 2, it can be seen that the value of coefficients totally differs across the two groups of developed and developing countries. These results can also be explained from Table – 5 where developing countries show higher heterogeneity.

Short Run Coefficients

Table 10 reports the short-run dynamics which were estimated using the first difference transformation of equation 2 and also adding the lagged residual generated from equation 2. This approach is adapted from (Wang, Lin, & Yang, 2012). In Table 10, the coefficient of ECM (-1) is significant negative, which asserts that changes in economics progress are sensitive in the longer horizon to all forms of policy interventions which may change the selected independent variables. For the case of developing economies, all the variables are significant in terms of their contribution in economic progress in the short-run while for the case of developed economies all the variables are significant other than the CPI.

Table – 9: Country Specific Intercepts

Developed Countries		**Developing Countries**	
Country	**Intercept**	**Country**	**Intercept**
Australia	-0.32	Argentina	-5.88
Finland	-0.42	Bangladesh	-9.15
Italy	-0.11	Brazil	-7.33
Netherlands	-0.51	China	-9.76
Portugal	-0.89	Colombia	-6.59
Spain	-0.56	Cote d'Ivoire	-6.92
Sweden	-0.28	Saudi Arabia	-4.82
United Kingdom	-0.28	India	-9.87
United States	-0.11	Indonesia	-8.39
Austria	-0.08	Jordan	-4.99
Belgium	-0.08	Kenya	-7.64
Canada	-0.25	Malaysia	-5.86
Denmark	-0.21	Mauritius	-3.99
France	-0.10	Mexico	-6.37
Germany	-0.13	Morocco	-6.55
Japan	-0.10	Pakistan	-8.38
New Zealand	-0.10	Nigeria	-8.01
Norway	-0.20	South Africa	-6.20
Dispersion	0.28	Dispersion	1.67

Generated from FMOLS

Table – 10: Short Run Coefficients - ΔNominal GDP

	Developed Country		**Developing Country**	
Variables	**Coefficient**	**Prob.**	**Coefficient**	**Prob.**
Intercept	0.04	0.00*	0.07	-0.00*
ΔMarket Capitalization	-0.07	0.00*	-0.09	0.00*
ΔStock Trade	0.10	0.00*	0.06	0.00*
ΔLabor Force	0.83	0.00*	-1.44	0.01*
ΔFDI	0.01	0.00*	0.04	0.00*

ΔCPI	-0.62	0.24	-0.01	0.00*
ECM (-1)	-0.23	0.00*	-0.27	0.00*
Post Regression Diagnostics				
R^2	0.69		0.32	
F Stat (Prob.)	73.65 (0.00)*		15.44 (0.00)*	
***Significant at 1%**				

Table-11 constitutes homogenous and non-homogenous causal relationships of development in the stock market with economic growth as per (Dumitrescu & Hurlin, 2012; Granger, 1969; Nasreen, 2011). For the case of developing countries market capitalization, stock Trade, FDI and labor force cause economic growth in terms of both causal tests. Hence stock markets are playing a significant positive long-run role for economic progress.

For the case of developed economies, market capitalization, FDI, CPI and labor force are causing economic growth depicted by the causality tests. Hence it can be said that the stock markets are showing a causal tendency in developing markets too.

Table – 11: Homogenous and Non-Homogenous Causality Tests

	Homogenous Causality		**Non-Homogenous Causality**	
	W Stat.	**Prob.**	**F-stat.**	**Prob.**
Market Capitalization does not cause Real GDP				
Developed Countries	6.42	0.00*	13.31	0.00*
Developing Countries	11.22	0.00*	17.70	0.00*
Stock Trade does not cause Real GDP				
Developed Countries	2.91	0.91	0.28	0.75
Developing Countries	5.73	0.00*	6.02	0.00*
Labor Force does not cause Real GDP				
Developed Countries	4.99	0.02*	2.40	0.09*
Developing Countries	4.19	0.00*	0.34	0.71
FDI does not cause Real GDP				
Developed Countries	2.76	0.94	2.56	0.07*
Developing Countries	3.02	0.00*	0.61	0.54
CPI does not cause Real GDP				
Developed Countries	6.11	0.00*	9.27	0.00*
Developing Countries	1.36	0.82	0.88	0.41

*** Significantly causing at 1% ** significantly causing at 10%**

CONCLUSION AND POLICY IMPLICATIONS

This study has put forward a consolidated parallel assessment of developed and developing economies in terms of contribution of expansion of the stock market on economic progress. For this dynamic panel data model was constructed for 18 developed and 18 developing economies using panel Cointegration framework, revealed major differences in the nature of both sets of countries. Hence this accounts for the difference in maturity and institutional structure of stock markets. Conclusively stock market became a long-run determinant of economic growth where it is playing its role in mobilizing the savings for the individuals and finance for the firms. Building from the theoretical role of stock value traded, market capitalization; the investigation of difference in marginal effects of the stock market in the developed and developing world reveals that there is an observable difference between both the of countries. For both type of countries stock value traded shows the significant positive impact on economic progress in long-run. Surprisingly the effect of market capitalization in developed economies is negative which is probably due to the higher level of financial integration and subprime crises in the developed economies.

The study has concluded after using various methods like coefficient comparison; residual convergence, equilibrium convergence, and country-specific intercepts revealed that matured stock markets in developed economies have fruitful effects on economic progress as compared to that of the immature stock markets in developing economies. Therefore, the effects of development in the stock market on economic progress have found to be significantly different for matured and immature stock markets respectively. Moreover; the estimated results of co-integration and Granger causality tests also reveal that collectively development in the stock market causes the economic progress of both developed and developing the country.

This study proposes that in order to spur growth, new firms and entrepreneurs must be promoted to enter into business and enlist in the stock market so that the liquidity of the stock market can increase which has a positive impact in both developed and developing economies. More the firms to list more the stocks will be diversified in the trading which will attract more investors. Also surprisingly the size of the market indicator hampers progress for the developed economies shows that if instead of increasing stock traded, the value of shares rise it will reduce the precautionary saving from the people as markets will become integrated enough to hedge any future risk. Further only boosting the market value without expansion of base in terms of new shares, will attract the speculative (bubble based) returns which do not have any association with the real activities. So here policymakers can try to increase the other forms of saving to compensate for the decrease in the total saving in order to stop the harmful effect on the progress.

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Appendix

Table – 1: Country Groups

Developing Countries	Developed Countries
Argentina, Bangladesh, Brazil, China, Colombia, Cote d'lvore, India, Indonesia, Jordan, Kenya, Malaysia, Mauritius, Mexico, Morocco, Nigeria, Pakistan, Saudi Arabia, South Africa.	Austria, Australia, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, United Kingdom, United States.