The Mediation Effect of Country Risk in the Nexus Between Stock Market Development and Economic Growth: Evidence From Developing Countries

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Abstract

The aim of this paper was to investigate the mediation effects of a country's (a) political risk (PR), (b) economic risk (ER), and (c) financial risk (FR) in the relationship between domestic stock market development (SMD) and economic growth (EG) in developing countries. SMD was measured: (a) once by total value of domestically-traded stock as a percentage of GDP (TVDTS/GDP), (b) once by stock market turnover ratio (SMTR), and (c) once by stock market capitalization as a percentage of GDP (SMC/GDP). EG was measured in terms of annual growth of real GDP (GDPG). PR, ER and FR were measured using the World Bank's International Country Risk Guide's political, economic and financial risk scales, respectively. Structural equation modeling was used to analyze panel data from 23 developing economies for the years 2007-2017. Our results revealed a significant positive indirect effect of TVDTS/GDP on GDPG through PR and FR, and a significant positive indirect effect of SMTR on GDPG through PR.

Keywords: developing countries, stock market development, economic growth, country risk

1. Introduction

As a significant component of an economy's financial system, the stock market can significantly contribute to a country's economic development. Building on the finance-led growth hypothesis (Schumpeter; 1912; Goldsmith, 1969; McKinnon, 1973; Shaw, 1973), stock markets facilitate efficient mobilization of domestic savings into investments, which can contribute to economic expansion. Nonetheless, given the fact that the stock market is a double-edged weapon -that could also lead to economic downturn, there is an urging need to elucidate the channels through which stock market development (SMD) affects economic growth (EG). This urge is even stronger in the context of developing economies, which are characterized by less efficient channeling of funds. In an attempt to address this knowledge gap, this study aims at investigating the mediation effect of country risk factors on the SMD-EG nexus. According to (Calverley, 1990), country risk refers to the potential losses that can be incurred by investing in a given country due to political, economic and financial obstacles and/or instabilities in this country.

This paper is organized as follows. The next section addresses the SMD-EG nexus, and the mediation role of country risk in this nexus. Afterwards, the methodology section demonstrates the operationalization of the study variables, sources of data, and the statistical methods used to test the study hypotheses. Subsequently, our empirical findings are represented and discussed. The last section of the paper involves our conclusions, theoretical contributions, practical implications of our findings, study limitations, and recommendations for future research.

2. Literature Review

Coined by Schumpeter (1912), and popularized by Goldsmith (1969), McKinnon (1973) and Shaw (1973), the finance-led growth hypothesis argues that financial development (FD) has positive implications for a country's growth trajectory. Building on the works of those pioneers, the academic literature has been flooded with empirical investigations of the relationship between FD and EG. Nonetheless, the findings of those investigations are characterized by great inconclusiveness.

For instance, in a 2015 study, Creel et al. (2015) reported a positive relationship between stock market liquidity and EG. Further, Durusu-ciftci et al. examined panel data from 40 countries for the time period 1989-2011 using Augmented Solow-Swan growth model. The results reported by Durusu-ciftci et al. implied that stock market liquidity had positive long-run effects on steady-state-level GDP per capita. Furthermore, Araoye et al. (2018) disclosed a positive long-run relationship between SMD (as being measured by market capitalization and market turnover ratio) and EG (as being measured by GDP) in Nigeria for the period 1985-2014.

Nonetheless, Rioja and Valev (2004) argue that the FD-EG nexus is country-conditioned, and consistent with that, reported that countries with lower per-capita income exhibited a less clear relationship between FD and EG than those countries with higher per-capita income. Moreover, Law and Singh (2014), Arcand et al. (2015), and Ibrahim and Alagidede (2018) revealed that in the FD-EG relationship, there is a threshold beyond which the favorable effect of FD on EG fades, and, eventually, FD tends to harm growth. Per se, to help resolve this dilemma, the effect channels in the FD-EG nexus need to be elucidated.

Perhaps one important mediator in the FD-EG nexus is country risk. Consistent with Calverley (1990), country risk refers to the potential losses that can be incurred by investing in a given country due to political, economic and financial obstacles and/or instabilities in this country. Consistently, the PRS Group (1998) defines country risk as the potential negative impacts of political, economic and financial events in a given country on the business climate, in such a way that investors would lose money -or not make as much money as expected- when they invest in this country. Country risk can be decomposed into: (1) political risk -PR; the potential that a country's political events and conditions cause losses to investors in this country (Oetzel et al. 2001); (2) economic risk -ER; the risks associated with unstable economic conditions (PRS Group, 2014); and (3) financial risk -FR; the probability of incurring losses by investing in a given country due to this country being unable and/or unwilling to finance its official, commercial, and trade debt obligations (PRS Group, 2014).

There is strong rationale for expecting that country risk -with its three constituent components; political, economic, and financial- mediates the relationship between SMD and EG. First, since stock market performance is sensitive to a country's political instabilities (Kara & Karabiyik, 2015), thus healthy stock market indicators signal low levels of a country's political risks. Second, a well-functioning stock market signals to foreign investors a good level of economic stability within the country. This is particularly reflected in S&P Global Ratings', Moody's, and Fitch Ratings' sovereign credit rating methodologies. Third, a strong stock market indicates a high level of financial stability, which subsequently indicates a low level of a country's financial risk (Allen & Wood, 2006). Low levels of a country's political, economic and financial risks are typically reflected in that country's favorable risk ratings by credit-rating agencies. Such low levels of a country's risks motivate foreign investors to: (1) invest in that country's debt instruments, providing the government with funds that could be invested in improving the business infrastructure, and (2) make direct investments in that country. Both would result in increasing the domestic product of the economy. In academic literature, three common indicators of SMD are: (a) total value of domestically-traded stock as a percentage of GDP (TVDTS/GDP), (b) stock market turnover ratio (SMTR), and (c) stock market capitalization as a percentage of GDP (SMC/GDP). As such, and rationalized by the preceding discussion, we are going to test the nine following hypotheses:

H1a-c: TVDTS/GDP has a positive indirect effect on GDPG through PR (H1a), ER (H1b), and FR (H1c).

H2a-c: SMTR has a positive indirect effect on GDPG through PR (H2a), ER (H2b), and FR (H2c).

H3a-c: SMC/GDP has a positive indirect effect on GDPG through PR (H3a), ER (H3b), and FR (H3c).

3. Research Methodology

3.1 Sample

Our sample involved 253 observations -for the years 2007-2017- from 23 developing economies (based on the 2018 Morgan Stanley Capital International classification). Those countries are: Egypt, Brazil, Chile, China, Colombia, Czech Republic, Greece, Hungary, India, Indonesia, Malaysia, Mexico, Peru, Philippines, Poland, Qatar, South Africa, Thailand, Turkey, UAE, Pakistan, Korea and Russia.

3.2 Study Variables Operationalization and Sources of Data

In the present study, the independent variable (SMD) was measured: (a) once by total value of domestically-traded stock as a percentage of GDP (TVDTS/GDP), (b) once by stock market turnover ratio (SMTR), and (c) once by stock market capitalization as a percentage of GDP (SMC/GDP). The selection of these three metrics was motivated by their low arbitrariness as opposed to other indicators of SMD. With regards to the dependent variable (EG),

annual growth of real GDP (GDPG) was used as a measure. Last, regarding the mediators (PR, ER and FR), reverse-scores of the ICRG's country political, economic and financial risk ratings were used, respectively. TVDTS/GDP, SMTR, SMC/GDP and GDPG data were all obtained from the World Bank's World Development Indicators database, while PR, ER, and FR data were retrieved from the 2020 ICRG report.

3.3 Methods of Testing the Study Hypothesis

To test our nine hypotheses, structural equation modeling -in IBM SPSS AMOS version 25.0- was used to examine three parallel-mediation models (Model 1, Model 2 and Model 3). In Model 1, the independent variable was TVDTS/GDP, the dependent variable was GDPG, and the mediators were PR, ER and FR. In Model 2, the independent variable was SMTR, the dependent variable was GDPG, and the mediators were PR, ER and FR. In Model 3, the independent variable was SMC/GDP, the dependent variable was GDPG, and the mediators were PR, ER and FR. To establish the mediation effect of a mediator (M) in the relationship between an independent variable (X) and a dependent variable (Y), X must exhibit a statistically significant indirect effect on Y through M (Baron & Kenny, 1986; Preacher & Hayes, 2004).

4. Findings

4.1 Descriptive Statistics and Correlations

Tables 1 and 2 exhibit the descriptive statistics and the correlations among the study variables, respectively. As shown in Table 1, GDPG of the 23 developing economies included in this study averages 3.86%, with a maximum of 19.58% and a minimum of -9.13%. Further, as revealed in the table, these economies enjoy low GDPG volatility, as indicated by a standard deviation of only 3.78%. Moreover, as shown in Table 1, TVDTS/GDP averages 34.88, with a maximum of 355.42, a minimum of 0.22, and a standard deviation of 42.66. SMTR averages 60.06, with a maximum of 480.29, a minimum of 0.73, and a standard deviation of 59.14. Further, the statistics reported in Table 1 clearly indicate that the stock markets of those developing economies are highly bubbled, where stock market capitalization, on average, accounts for 64.34% of real GDP. The high volatility of TVDTS/GDP and SMTR, as well as the low SMC/GDP designate that those developing economies are highly risky, and could constitute safe home for hot money.

The statistics reported in Table 1 also reveal that the involved economies' PR is high, as it averages 35.35, with a minimum of 19.38, and maximum of 55.71. Financial and economic risks of those economies are also substantially high, averaging 60.79 and 63.36, respectively. Also, it is shown by Table 1 that the developing economies involved in the study are politically unstable, as PR shows the highest volatility among the country risks with a standard deviation of 9.33, while FR and ER exhibit standard deviations of 4.20 and 4.73, respectively.

As shown in the matrix of correlations among the study's independent, dependent, and mediator variables (Table 2), GDPG is positively correlated with TVDTS/GDP and SMTR. Also, TVDTS/GDP is positively correlated with SMC/GDP and SMTR. With regard to country risks, GDPG, TVDTS/GDP, and SMC/GDP are all significantly negatively correlated with FR, where a one unit increase in FR reduces GDPG, TVDTS/GDP and SMC/GDP by 44%, 20%, and 21% of that unit, respectively.

Further, as shown in Table 2, there is significant negative correlation between GDPG and ER, while TVDTS/GDP and SMTR are significantly positively PR. The positive correlation between TVDTS/GDP, SMTR and PR confirm the descriptive statistics showing that developing economies are driven by hot money searching for liquid and politically unstable economies.

Table 1. Descriptive statistics of the study variables

Variable	Descriptive statistics					
	Mean	Standard deviation	Maximum	Minimum	Skewness	Kurtosis
TVDTS/GDP	34.88	42.66	355.42	0.22	2.95	3.76
SMTR	60.06	59.14	480.29	0.73	2.52	10.45
SMC/GDP	64.34	54.25	352.29	10.01	2.40	7.33
GDPG	3.86	3.78	19.59	-9.13	0.12	3.13
PR	35.35	9.33	55.71	19.38	0.13	-0.90
ER	63.36	4.73	73.67	50.00	-0.29	0.42
FR	60.79	4.20	72.17	52.00	0.40	0.06

Table 2. Correlations among the study variables

Variable	TVDTS/GDP	SMTR	SMC/GDP	GPDG	PR	ER	FR
TVDTS/GDP	1	.075*	0.44*	0.20*	0.28*	0.08	-0.20*
SMTR	0.75*	1	-0.11	0.14*	0.29*	0.10	-0.03
SMC/GDP	0.44*	-0.11	1	0.09	-0.05	-0.05	-0.21*
GDPG	0.20*	0.14*	0.09	1	0.09	-0.49*	-0.44*
PR	0.28*	0.29*	-0.05	0.09	1	0.53**	-0.07
ER	0.08	0.10	-0.05	-0.50**	0.53*	1	0.43*
FR	-0.20*	-0.03	-0.21*	-0.44*	-0.07	0.43*	1

* Significant at the 0.05 level

4.2 Hypotheses Testing Results

Table 3 exhibits the total, direct and indirect effects pertaining to examining Models 1, 2 and 3. With regards to Model 1, as shown in Table 3, the results disclose a significant positive total effect of TVDTS/GDP on GDPG (Effect = +0.018, $P<0.05$). Further, the results reveal: (a) a significant positive indirect effect of TVDTS/GDP on GDPG through PR (Effect = +0.010, $P<0.05$), supporting hypothesis 1a; (b) an insignificant negative indirect effect of TVDTS/GDP on GDPG through ER (Effect = -0.005, $P>0.05$), failing to provide support for hypothesis 1b; and (c) a significant positive indirect effect of TVDTS/GDP on GDPG through FR (Effect =+0.002, $P<0.05$), providing support for hypothesis 1c.

With regards to Model 2, as shown in Table 3, the results reveal a significant positive total effect of SMTR on GDPG (Effect = +0.009, $P<0.05$). Further, the results reveal: (a) a significant positive indirect effect of SMTR on GDPG through PR (Effect = +0.07, $P<0.05$), providing support for hypothesis 2a, (b) an insignificant negative indirect effect of SMTR on GDPG through ER (Effect = -0.004, $P>0.05$); failing to provide support for hypothesis 2b; and (c) an insignificant indirect effect of SMTR on GDPG through FR (Effect = 0.000, $P>0.05$), failing to provide support for hypothesis 2c.

Regarding Model 3, as shown in Table 3, SMC/GDP exhibits a positive total effect on GDPG (Effect = +0.006, $P>0.05$). Moreover, the results reveal: (a) an insignificant negative indirect effect of SMC/GDP on GDPG through PR (Effect = -0.001, $P>0.05$); (b) an insignificant positive indirect effect of SMC/GDP on GDPG through ER (Effect = +0.002, $P>0.05$); and (c) an insignificant positive indirect effect of SMC/GDP on GDPG through FR (Effect = 0.001, $P>0.05$). Per se, hypotheses 3a-c were all not supported.

Table 3. Results of examining Models 1, 2 and 3

Effects	Model 1		Model 2		Model 3	
	Path	Estimate of effect	Path	Estimate of effect	Path	Estimate of effect
Total	TVDTS/GDP → GDPG	+0.018*	SMTR → GDPG	+0.009*	SMC/GDP → GDPG	+0.006
	TVDTS/GDP → GDPG	+0.010*	SMTR → GDPG	+0.006*	SMC/GDP → GDPG	+0.004
Direct	TVDTS/GDP → PR	+0.060*	SMTR → PR	+0.045*	SMC/GDP → PR	-0.008
	TVTDS/GDP → ER	+0.010	SMTR → ER	+0.008	SMC/GDP → ER	-0.004
	TVDTS/GDP → FR	-0.020*	SMTR → FR	-0.002	SMC/GDP → FR	-0.016*
	PR → GDPG	+0.170*	PR → GDPG	+0.166*	PR → GDPG	+0.181*
	ER → GDPG	-0.540*	ER → GDPG	-0.535*	ER → GDPG	-0.548*
	FR → GDPG	-0.090	FR → GDPG	-0.109	FR → GDPG	-0.093
Indirect	TVDTS/GDP → PR → GDPG	+0.010*	SMTR → PR → GDPG	+0.007*	SMC/GDP → PR → GDPG	-0.001
	TVDTS/GDP → ER → GDPG	-0.005	SMTR → ER → GDPG	-0.004	SMC/GDP → ER → GDPG	+0.002
	TVDTS/GDP → FR → GDPG	+0.002*	SMTR → FR → GDPG	0.000	SMC/GDP → FR → GDPG	+0.001

* Significant at the 0.05 level

(Bootstrapping method)

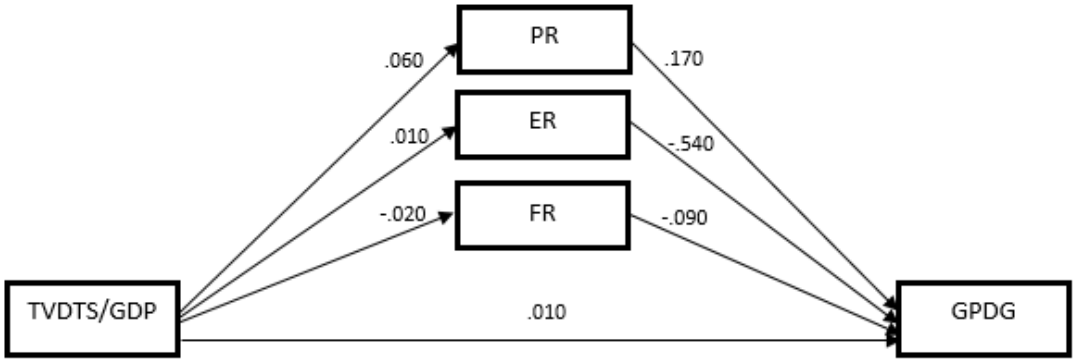

Figure 1. Structural Model 1 (with direct effects)

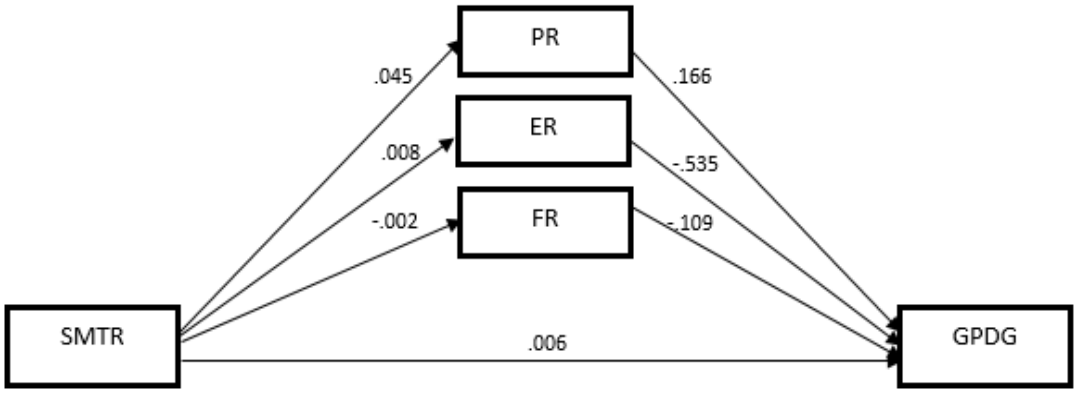

Figure 2. Structural Model 2 (with direct effects)

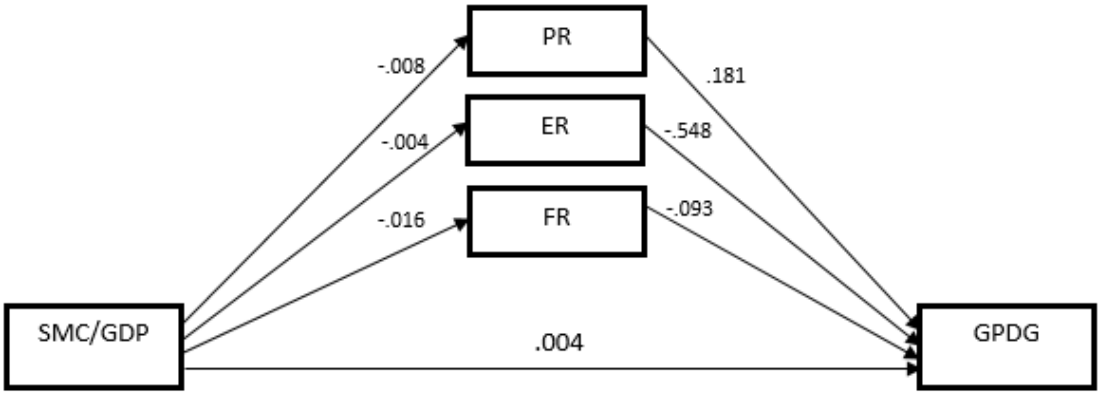

Figure 3. Structural Model 3 (with direct effects)

5. Conclusions

This study hypothesized a mediation effect of each of the three components of country risk (political, economic and financial) in the relationship between SMD and EG. Our structural equation modeling results revealed: (1) a significant positive indirect effect of TVDTS/GDP on GDPG through PR and FR, and (2) a significant positive indirect effect of SMTR on GDPG through PR.

The results support our rationalization for expecting a mediation effect of country risk on the SMD-EG nexus. As per our rationale, healthy stock market indicators designate to foreign investors low levels of political, economic and financial risks in a given economy. Lower levels of a country's risk attract foreign direct investment into that country, as well as foreign investment in its debt, each of which can significantly contribute to economic growth.

Our findings contribute to theory through elucidating one of the channels through which SMD impacts economic development in a country. As aforementioned, the SMD-EG nexus had already received substantial attention by researchers, reporting mixed results pertinent to the nature of the relationship between the two variables. Therefore, the mechanisms through which SMD impacts EG needed to be clarified. This constituted a critical issue, especially in the context of developing economies, given the questionability that developing economies' inefficient fund channeling sheds on the validity of the finance-led growth hypothesis in developing countries.

In conclusion, the stock market is a double-edged weapon that could either result in economic downturn or lead to economic growth, which makes it important for shareholders, investors, and more importantly for governmental

policy-makers to acquire a better understanding of how stock markets contribute to the country's economic prospects. Motivated by the findings of the present study, it is important that policy-makers make sure they have stable financial, political and economic environments that will, altogether, create a generally more inviting climate for foreign investments, and subsequently for economic growth.

The findings of the present study must be considered in light of two limitations. First, most of the financial data were available on only an annual basis. Therefore, time-series data were available for a rather short period and, consequently, the analysis was limited to 253 data points. Second, the study neglects other independent variables that might have an effect on growth. Recommendations for future research, therefore, include conducting a similar study using more comprehensive data, in terms of both, sample size and independent variables. Further, future investigations are also necessary to validate the mediation effects disclosed by the present study in developed countries.

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