IOSR Journal of Economics and Finance (IOSR-JEF)
e-ISSN: 2321-5933, p-ISSN: 2321-5925.Volume 10, Issue 5 Ser. V (Sep. – Oct 2019), PP 44-49
www.iosrjournals.org

Investigating the Relationship between Inflation, Trade Openness, GDP and Financial Development in Developing Country: Using Regression Approach

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Abstract: *The world is witnessing continent of Asia's changing so much is anticipated to change the rear concerning the global economic landscape, The following paper investigates the effect of inflation on financial development in Philippines by using data from 1986 until 2018. Correlation and multiple regression are employed to analyze the data. The independent variables are used inflation, trade openness and gross domestic product, while dependent variable is financial development which measured by ratio of board money to GDP. The results found that trade openness and inflation have negative relationship and statistically significant on financial development. Meanwhile, gross domestic product has positive effect on the financial development. Therefore, a policy should manage the low level of inflation in order to boost the acceleration of financial development.*

Keywords: *Inflation, Financial Development, Multiple Regression, Philippines*

Date of Submission: 11-10-2019 Date of acceptance: 26-10-2019

I. Introduction

Now the world is witnessing Asia's transformation that's anticipated to alter the face of the world economic landscape. With the development of Asia in phrases of economic system, affect and living situations during the last half of a century, a lot of the recent literature have identified its potential to be an economic stronghold.Relative to the surging boom in Asia, the image on Philippine boom has been combined. But, the predicted contribution of as well as effect on the Philippines from this promising Asian outlook is much less than ideal. In the 1950, the Philippines had the second one highest consistent with capita GDP in Asia. What was once considered as the Philippines' counterparts in Southeast Asia: Malaysia, Indonesia, Thailand and Vietnam at the moment are described as high performing economies and are targeting first world statuses, whilst the Philippines is working in less or a low-growth trajectory in comparing to them.(Alba, 2007).

It is commonly idea that there is a negative lengthy-time period relationship among inflation and growth and a positive lengthy-time period relationship between financial development and growth. the present empirical literature shows that the finance-growth relationship is extra strong than the inflation-growth relationship (Ridzuan et al., 2018).Interaction among inflation and economic is an issue of incredible significance and debate many of the macroeconomists. Inflation additionally offers the negative impact for the long-time period growth. Despite the fact that the debate approximately the specific relationship among inflation and growth stays open, the query of the existence and nature of the hyperlink among inflation and economic growth has been the concern of enormous interest and debate. According toMallik and Chowdhury (2001), distinctive schools of thought provide distinctive proof on this relationship. For instance, structuralist believes that inflation is important for economic growth, while the monetarist see inflation as negative to economic growth. international trade is stated to be the engine of economic growth. in spite of an large effort to give an explanation for this phenomenon, the relationship among financial marketplace development and trade openness and integration into the world economy continues to be an enigma(Niroomand, Hajilee, & Al Nasser, 2014).One of the most thrilling and major issues mentioned via beyond researchers is financial development since the development of financial market system is more important for economic growth.

Financial development is one vital element for economic growth and also play essential function in reducing income inequality (Levine, 1999). As mentioned byChoong and Chan (2011)that the definition of financial development refers back to the high-quality, quantity and the effectiveness of financial intermediation services for all people from the complete services of financial institutions.

The remainder of this current paper is prepared as follows. Section 2 reviews the literature on financial market development and trade openness. Section 3 outlines Methodology, Data collection and measurement of variables,Hypothesis and Research Framework. Then section 4 presents the Analysis & Findings, and finally Section 5 summarizes the major Conclusion and recommendation. This paper explores whether inflation, Trade Openness and GDP can affect the Financial Development firms in the Philippines.

II. Literature Review

Economic studies offers empirical proof of productivity and supply-aspect effects of trade openness on domestic output and as a result on economic growth by using increasing capital formation and overall issue productivity (Shahbaz, 2012).Many studies, for example,(Mahawiya, 2015) showed that countries that promote more openness of the financial sectors and trade that will lead to more financial development. This study used dynamic panel approach for a data of Economic Community which of West African States and Southern African Development Community from 1980 to 2011. By using another estimation technique which is the generalized method of moments analysis, other study investigated 11 SADC countries from 1996 to 2010, found evidence of the importance of the institutional quality (including low corruption, improving kind regulation quality, improving government accountability ,maintaining rule of law to the financial development(Mbulawa, 2015). Another study by (Ayadi, Arbak, Naceur, & De Groen, 2015)Casual observation showed that the financial systems in the SEMC are not able or to divert the financial sources which can be available to them as funding opportunities to private enterprises. Used a sample of both EU-MED & SEMC for the years from 1985 to 2009, the effects showed that robust legal institutions, good democratic governance and good enough implementation of financial reforms may have a considerable positive effect on FD only after they form a comprehensive package. Furthermore, inflation undermines banking development, but much less so while the capital account is open. Government debt growth weakens credit growth. Finally, capital inflows seem to primarily have an income effect, increasing income and thereby national savings, and for that reason increasing the provision of credit.Niroomand et al. (2014)Conducted a recent researchbetween trade openness and financialmarket development. The Niroomand developedtwo model as short-run&long-run model foreighteen emergingeconomies from 1980 up to 2011. Estimates from all models confirmed that financial market development, which include both the stock market and the banking sector, has significant impact on trade openness in each short-run and long-run phenomena in the majority of countries. Notwithstanding many similarities amongst emerging economies, additional evidence indicates that the link among either stock market development or banking sector development with trade openness works through each country's specific structure.Meanwhile,(Zainudin & Nordin, 2017)investigated study used panel datasets from four selected Asian countries comprisingPhilippines, Malaysia, Thailand and Singapore,estimation techniques used pooled ordinary least square (POLS) estimation and SUR System estimation to examine the factors contributed to the financial development of those countries. Using POLS estimation technique, it is found that the explanatory variables of real income and trade openness are strongest significant determinants of financial development for all of the selected Asian countries under study. The Durbin-Watson Test conducted for POLS model however discovered that there is evidence of positive autocorrelation among the residuals. Considering this result and a major problem of POLS model which facade the heterogeneity that may exist among the countries, the second estimation technique, SUR system was then used to reflect more efficient results and estimations. The results of SUR system estimation showed that real income is the most important significant determinant of financial development only for Singapore and Thailand, while trade openness is the most important significant determinant of financial development only for Malaysia and Philippines. Thus, estimation using SUR indicates more specific finding of the most important significant determinant of financial development for those ASEAN countries. Therefore, policymakers, government and relevant agencies might promote necessary policies such as encouraging more trade liberalization among countries as this could enhance economic growth&financial development.

Ridzuan et al. (2018)Conductedstudy investigated thelong & short inflation led growth nexus in addition to finance led growth nexus for the duration of the period starting from 1985 – 2010 the study used time series technique. Besides inflation, the researcher covered other significant variables including real gross domestic investment, foreign direct investment inflow and openness ratio to border the scope of this research. The findings found out that inflation led growth nexus is valid for Malaysia and contributed the very best growth towards Malaysia economy compared to financial development and different selected macroeconomic determinants.

(Ho & Odhiambo, 2018)analyzed the macroeconomic drivers of stock market development in the Philippines from 2001 up to 2016. In general, the study investigated the effect of banking sector development, economic growth,exchange rate,inflation rate, trade openness and stock market liquidity on stock market development in Philippine. The results showed that trade openness has had a negative effect on Philippine stock market development in the long run, while banking sector development and the exchange rate have had positive affects at the developmentof the Philippine stock market in the short run. Those findings are robust to opportunity specifications of the model.

(Sucuahi, Alvarez, Gudes, & Parsacala, 2016)examine the influence of inflation rate to stock price growth among many companies located in the Philippines. Study used sample fromseventy three companies in the Philippines. This researchexamine a descriptive correlation design which was good investigated the relationship between variables. Secondary data used of the inflation rate and stock prices were collected. Study founding showed inflation rate can positively influence the stock price growth among companies'locatedPhilippines. Other study conducted in Pakistan by Munir and Kiani (2011)Which investigated inflation and trade openness which used annual time-series data for the period from 1976 up to 2010. The result showed that there is a significant positive long-run relationship between inflation and trade openness, which rejects similar research done in Pakistan by Romer‟s.

Satyanarayana Murthy, Kumar Patra, and Samantaraya (2014)Investigated the inter-relationship and direction of causality among 3 macroeconomic variables likeeconomic growth then financial development and lastly trade liberalization. The result of showed that there exists a long-run association among trade openness, financial development and economic growth. This paper also showed unidirectional causality that runs from financial development and economic growth to trade openness.

study conducted in Kuwait by Saaed and Hussain (2015) which have been empirically examine the causal relationship betweentrade openness, financialdevelopment, and GDP. Study used VAR technique from 1977 up to 2012. Empirical finding identified,Cointegration analysis suggested that there is no cointegration vector between financial development, GDP, and the degree of opennessof the economy. Granger causality examined by on VAR models showed that there is a causal relationship between financial development, economic growth & the trade openness of the economy.

Altaee, Saied, Esmaeel, and Adam (2014)Investigated study on Oman and argue that there is a huge debate on the effect of financial development & trade openness on the economic growth. The study examine the effect of financial development, trade openness on economic growth in gulf country specifically in Omanfrom 1972 up to 2012. The Granger causality test indicated unidirectional causality from economic growth to financial development, while empirical results derived from VDCs showed that trade openness shock is the most important source of shock to GDP and financial development. Indicating unidirectional causality running from trade openness to the other two series. Shock to trade openness is important sources of variability for its own at first, but this self-effect diminishes in a very small portion. The result indicated that economic policies aimed at trade openness have a good statistically significant effect on financial development and economic growth.

III. Methodology

3.1Data collection and measurement of variables

The collection of data was made from secondary data from World Bank over the period of 1986 until 2018. All the variables used in this research are financial development measured by ratio of ratio of broad moneyto GDP (Abbey, 2012; Hasan, 2018). Meanwhile, inflation which measured by consumer price index (Hami, 2017; Ehigiamusoe, Guptan, & Narayanan, 2019). Trade openness proxied by the combination of exports and imports (Khan, 2015; Ho&Njindan, 2018). Gross domestic product is used to measure the economic growth (Hasan, 2018; Ehigiamusoe, Guptan, & Narayanan, 2019).

3.2 Hypothesis

Ho: there is no relationship between inflation, Trade Openness, GDP and financial development
Ha: there is significant between inflation, Trade Openness, GDP and financial development

3.3Multiple Regression Model

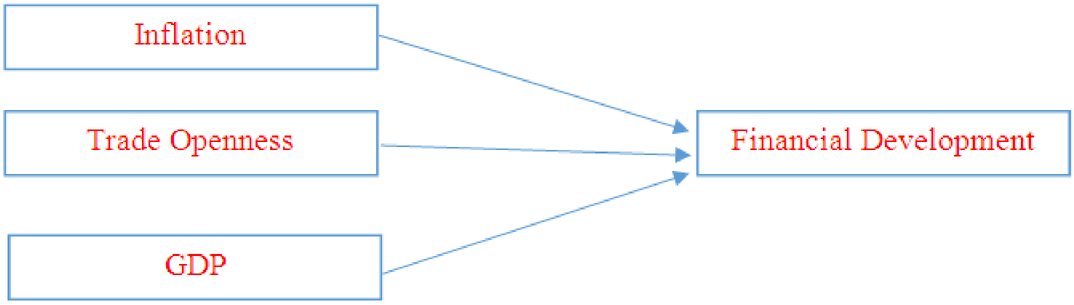
Regression analysis investigation was applied in the present study for testing the hypothesis of the relationship between IV and DV. The regression equation below is formulated to explain the relationship:

$$FD = \alpha_0 + \beta_1 INF + \beta_2 TO + \beta_3 GDP + \varepsilon$$

Where: FD refer to financial development, INF denotes inflation, TO is trade openness, GDP is gross domestic product and ε is error term.

3.4 Research Framework

The following Research Framework shows the graphical representation of the research model of this study



IV. Analysis and Findings

4.1Descriptive Statistics

Table 1 demonstrates the descriptive statistics of the variables. The first variable trade openness (TO) has 33 observations and the mean value of it is -4.86 with standard deviation of 3.76. The maximum and minimum value of this variable is 3.90, -12.70, respectively. Regarding the financial development (FD) reveals that the mean value of it is 34.321 with a minimum of 14.9 and a maximum of 69.1 as well as standard deviation of 14.01. On the other hand, the inflation (INF) has the minimum value is 1.1 and maximum value is 19.3.Tthe mean value of inflation is 6.05 with standard deviation 4.01. Furthermore, gross domestic product (GDP) shows the mean value is 4.54 with standard deviation is 2.20. The minimum and maximum value of this variable is -0.58 and 7.63, respectively.

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean
TO	33	-12.70	3.90	-4.8606
FD	33	14.9	69.1	34.321
INF	33	1.1	19.3	6.048
GDP	33	-.58	7.63	4.5400

4.2 Correlations

Table 2 demonstrates the correlation among the variables from this correlation analysis, we can know the relationship between financial development and independent variable. Trade openness (TO) shows negative correlation around 0.75 with financial development. It means that as the increasing number of trade openness, the effectiveness on financial development willdecrease. With relation to the correlation between inflation (INF) and financial development, indicate that there is a negative correlation shown by the value of 0.41. Thus, reducing number on inflation will higher the performance of financial development. Furthermore, gross domestic product (GDP) reveals the positive correlation with financial development around 0.32. It indicates that decreasing number of GDP, will reduce financial development.

Table 2: Pearson Correlation

		FD	TO	INF	GDP
FD	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	33			
TO	Pearson Correlation	-.755**	1		
	Sig. (2-tailed)	.000			
	N	33	33		
INF	Pearson Correlation	-.410*	.068	1	
	Sig. (2-tailed)	.018	.708		
	N	33	33	33	
GDP	Pearson Correlation	.324	.011	-.429*	1
	Sig. (2-tailed)	.066	.953	.013	
	N	33	33	33	33

4.3 Multiple Regression

In table 3 represents the impact of independent variable to dependent variable. According to Sekaran and Baougie (2017) that it has significant relationship if probability less than 5% and vice versa. The result found that trade openness (TO) has negative impact on financial development and highly significant. It supported by Ho and Njindan (2018) that trade openness has negative relationship especially in middle income sub-Saharan. On the other hands, inflation (INF) found negative significant on financial development. This result is similar as the research conducted by Hami (2017) and Ehigiamusoe, Guptan, and Narayanan, (2019). Furthermore, gross domestic product (GDP) shown the positive impact and statistically significant on financial development. It supported by Hasan (2018) who found there is positive impact between GDP and financial development in Indonesia. It also found by Ehigiamusoe, Guptan, and Narayanan, (2019) that GDP has robust positive effect on financial development in high and middle income countries.

Table 3: Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	20.321	5.088		3.994	.000
	TO	-2.750	.355	-.739	-7.741	.000
	INF	-.934	.369	-.267	-2.527	.017
	GDP	1.383	.670	.218	2.064	.048

V. Conclusion

In paper, we have examine the impact of inflation on financial development in Philippines. The indicator of financial development measured by broad money supply to GDP. The data take from World Bank for period 1986 until 2018. This study utilized correlations and multiple regression. The results reveals that GDP statistically significant and positive effect on financial development. Meanwhile, trade openness and inflation have negative significant impact on financial development. The important conclusion that emerged from the analysis that lower inflation has contribution on the increasing of financial development. Therefore, the policy makers need to take consideration and carried on to reduce the level of inflation rate for development of financial system and thereby for economic growth.

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Hafnida Hasan, " Investigating the Relationship between Inflation, Trade Openness, GDP and Financial Development in Developing Country: Using Regression Approach. "IOSR Journal of Economics and Finance (IOSR-JEF), vol. 10, no. 5, 2019, pp. 44-49.