Relationship between Financial Liberalization and Economic Growth in Emerging Economies: The Case of Vietnam

TRAN HUY HOANG

University of Finance and Marketing – hoangth@ufm.edu.vn

NGUYEN HUU HUAN

University of Economics HCMC – huanguyen@ueh.edu.vn

NGUYEN THI THUY LINH

Long Thanh District Committee, Dong Nai Province – thuylinhmof@yahoo.com

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ABSTRACT

This paper examines the process of financial liberalization in Vietnam over the period from 1993 to 2013. On adopting Vector Error Correction Model (VECM), the results suggest that there is a long-term relation between economic growth and financial liberalization, in which the financial market liberalization and financial services liberalization provide better support during the growth of Vietnam's economy. In addition, using various techniques including Granger causality test, impulse response analysis, and variance decomposition, the paper also clarifies the motives for financial liberalization from the process of short-term financial development and economic growth in the country.

1. Introduction

The association between financial liberalization and economic growth has captured interests of managers and researchers both in and out-country. Since the first studies of McKinnon (1973) and Shaw (1973), along with the widespread acceptance of financial liberalization concepts, many countries have made efforts to liberalize the financial sector by removing controls over interest rates and credit, allowing free access to financial markets, and particularly, in the branch of finance and banking, granting autonomy to commercial banks and promoting the capital account liberalization. However, after the financial liberalization, many developing countries found their financial markets less stable, while financial institutions become more fragile due to multiple unusual business activities involving high risk levels and a range of factors arising in the legal framework and supervisions.

Currently, not only is Vietnam being a member of international organizations such as the UN, WTO, IMF, WB, ADB, APEC, ASEAN, but it has also implemented the multilateral free trade agreements with ASEAN countries, South Korea, Japan, and China, or signed the bilateral economic partnership agreement with Japan. Concerning the monetary banking sector, the integration process is often connected with the liberalization of financial markets, opening up plenty of opportunities while posing many challenges.

To clarify the process of financial market liberalization and financial services liberalization, as well as its effects on the economy, we conduct an empirical study based on the proposed theories and findings from previous relevant researches. Our primary aims are to assess the Vietnam's financial liberalization over the past period along with its relation to and/or impact on economic growth. Based on the results, we propose recommendations in order to further improve the financial system and promote its effective role in boosting the growth.

2. Theoretical bases and research framework

2.1. Theoretical bases

The efficient allocation of resources was referred to in the classical growth model of Solow (1956). In such approach the liberalization of the capital accounts helps increase the allocation of resources and international products. International capital flows from

diverse sources help promote economic growth. Capital tends to move from low-interest-rate to high-interest-rate countries, and its flows to developing countries contribute to reduced cost of capital, stimulate investment and growth, and also enhance living standards (Fischer, 1998, 2003; Obsfeld, 1998; Rogoff, 1999; Summers, 2000). Financial liberalization has been a stimulus to changes in economic policy in developing countries over the past two decades.

To illustrate the forecast theory from Solow's (1956) classical growth model in connection with the impact of financial liberalization on economic growth, in this study we assume that two factors producing output include capital and labor, as presented in the Cobb-Douglas production function:

$$Y = F(K, AL) = K^{\alpha}(AL)^{1-\alpha} \quad (1)$$

Let $k = \frac{K}{AL}$ be the capital per unit of labor and $y = \frac{Y}{AL}$ be output per unit of labor. Developing Eq. 1, we have:

$$y = f(k) = k^{\alpha} \quad (2)$$

Let s_t be the volume of savings in the national income at period t, and assume that δ, n, and g are rate of return from capital, labor growth, and total production growth respectively. Savings are accumulated from internal and external sources. The following equation shows the impact of capital on cost of labor force:

$$k_t^{\circ} = s.f(k_t) - (n + g + \delta).k_t \quad (3)$$

Source: Solow's model

When $k_t = 0$, the economy is at point A as prescribed in Figure 1. At A the capital-labor ratio (k) is a constant. When k_t is different from zero, the equilibrium point of K is not a constant. The output-labor ratio ($\frac{Y}{AL}$) grows at rate g, and eventually, the equilibrium value of marginal product equals interest rate plus required rate of return from capital:

$$f'(k_{s.state}) = r + \delta \quad (4)$$

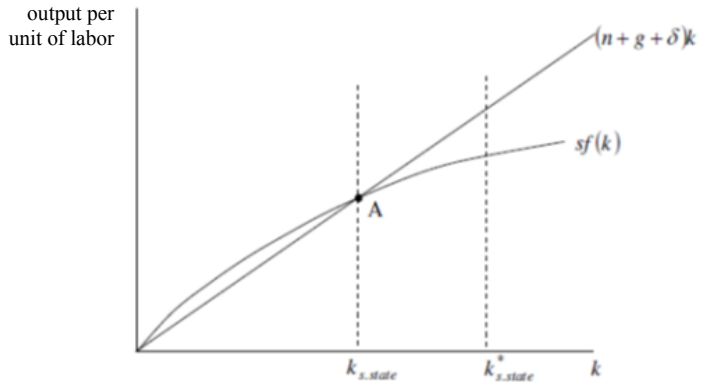


Figure 1. Capital account liberalization from Solow's (1956) classical model

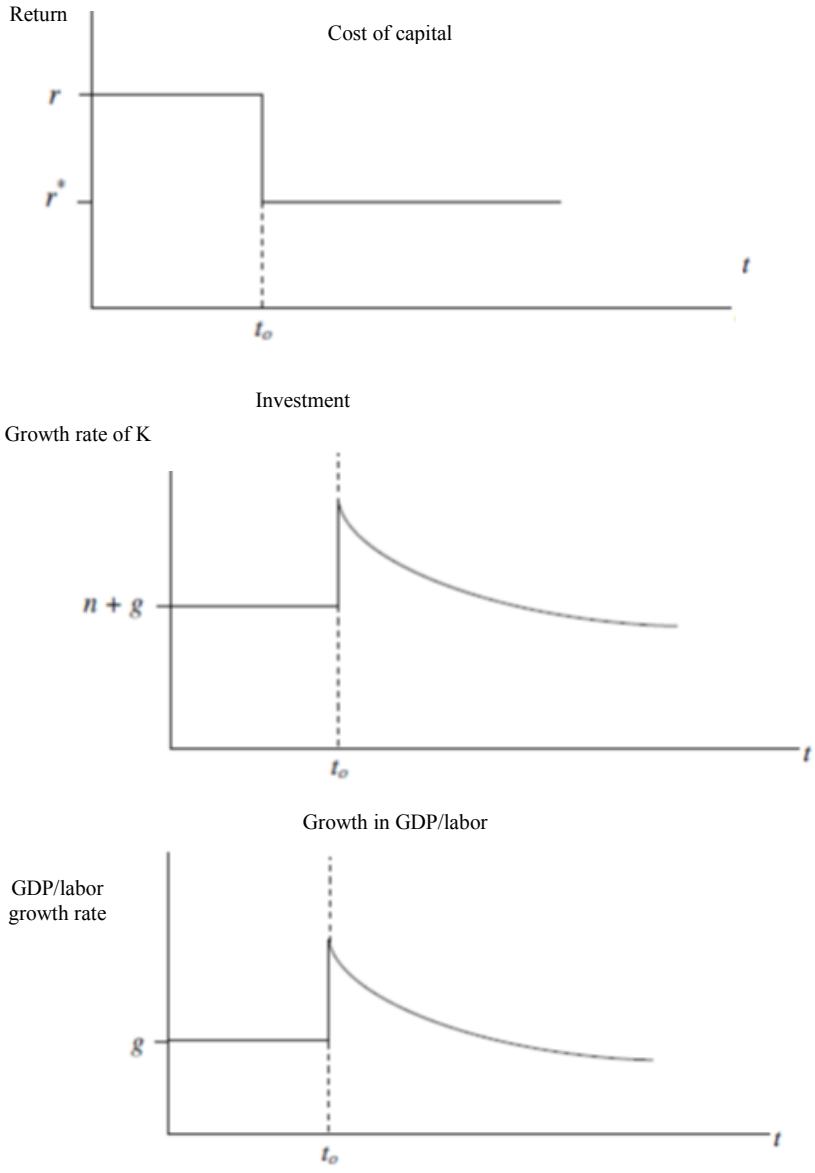
Eq. 4 clarifies the equilibrium condition of capital flows. This equation is highly suitable to make clear the motivation for investment and growth in various countries during financial liberalization since its impact can be realized through change in cost of capital due to interest rate difference δ. Let r^* be world interest rate, and assume that it is lower than domestic rate (developing countries demand less capital per unit of labor than developed countries) and that economies of developing countries are small, this will mean that it produces no effect on global prices.

For the above assumption, openness in developing countries to serve the liberalization of capital flows will make major difference between domestic and international rates; as such, capital moves into the developing countries due to higher interest rates, causing a shift in equilibrium point from $k_{s.state}$ to $k^*_{s.state}$. After the movement, under the liberalization impact the rate of marginal return tends to equal world interest rate plus rate of return from capital:

$$f'(k_{s.state}) = r^* + \delta \quad (5)$$

A rise in rate of return from capital will have an effect on growth as in growth in output per unit of labor that can be presented using the following equation: $\gamma\frac{Y}{AL} = \alpha\frac{k^*}{k} + g$. Growth rate of k leaves out $n+g$ at certain points during the transition and should be larger than zero in different periods of time; thus, the growth in output per unit of labor would reflect an increase in the short run.

Figure 2 plots the return curve, growth in required rate from capital and output per unit of labor, and logarithm of output per unit of labor in the process of capital account liberalization in accordance with Solow's (1956) classical growth model.



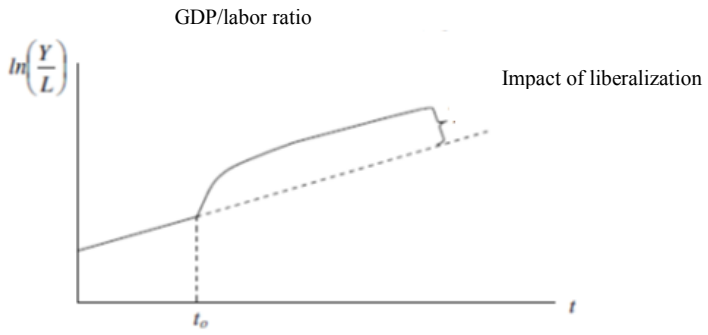


Figure 2. Impact of liberalization process on cost of capital, investment, and growth

Based on both Solow's and Cobb Douglas's proposed models, this study aims to verify the liberalization impact on economic growth in such a developing country as Vietnam and, in addition, clarify the role of the liberalization process in stimulating growth, increasing wage, and improving people's living conditions. A rise in labor cost is also shown thanks to external capital sources upon the existence of difference in domestic and world rates.

2.1.1. Financial liberalization and growth

Liberalization of the financial sector refers to elimination or loosening of regulatory controls over domestic financial institutions. Still, the definition is seemingly too narrow in further clarifying the concepts of financial liberalization.

Kaminsky and Schmukler (2003) offered a broader definition, according to which, financial liberalization involves removing regulations on the domestic financial sector, the capital account, and the stock market. This implies that the financial liberalization only occurs when two (one) out of three sectors are fully (partially) liberalized.

Johnston and Sundarajan (1999) considered financial liberalization as a set of reforms and policy measures loosened to transform the financial system and structure into a free market-oriented system in an appropriate legal framework. The financial liberalization entails different measures to reduce controls over organizational structures, instruments, and activities of agents in various segments of the financial sector. These may involve internal or external regulations (Chandrasekhar, 2004). Clearly, financial sector opening focuses on eliminating pressures that restrict financial activities and market forces (interaction between supply and demand forces), acting as the price mechanism of financial services (Sulaiman et al., 2012).

Additionally, liberalization of foreign exchange markets, including current and capital account openness, aims to boost economic growth based on export-oriented policies. McKinnon (1973) and Shaw (1973), with financial repression paradigm, postulated that interest rate, if controlled and regulated by other components of the financial system, not only weakens the effects of financial intermediation but also hinders efficient allocation of resources, which entails the slow growth of the economy. A liberal interest regime, as argued by these scholars, prompts the conversion of savings from unproductive real assets to financial assets, whereby it expands the credit supply in the economy.

Overall, past theories mostly assume that a positive relation exists between financial sector liberalization and economic growth of a country. The present study, therefore, will focus on verifying the arguments.

2.1.2. Impacts of financial liberalization on financial and economic growth through two transmission channels:

Trade openness as the first channel

The objectives of financial operators and institutions (supply) are to create competitiveness and reduce the rigidity of financial development. These activities are merely to increase the efficiency in the operations of financial institutions, and to combine foreign competition and liberalization of capital flows in order to motivate these institution to reach a higher level of development (Rajan & Zingales, 2003), thereby promoting economic growth.

As regards the relation between trade liberalization and financial liberalization:

Haggard and Maxfield (1993) observed that trade openness is a prerequisite for removing capital controls. According to Aizenman and Noy (2004), a two-way relation exists between this factor and financial openness, although the latter has more tendency to result in the trade openness than others. Tornell et al. (2004) verified that financial liberalization has usually been followed by the process of trade liberalization over the past two decades.

Demand as the second channel

Do and Levchenko (2007) maintained that financial development is endogenous and is determined by external financial demand. Effective trade liberalization may increase

the demand for external finance via specialization, innovation, and technological transfer, thus resulting in both financial and economic growth.

2.1.3. Financial market liberalization

McKinnon (1973) and Shaw (1973) viewed financial market liberalization as removing legal controls over the financial market. This implies that the market participants include not just the public sector, but the private sector and foreign investors, and equality is also shared among the market agents.

2.2. Empirical researches

Kasekende and Atingi-Ego (2003), examining the case of Uganda, performed an analysis of financial liberalization with its impact on the banking industry and on the real sector. Employing the data from Q1/1977 to Q3/1995 and using VAR model to specify such factors as GDP, commercial bank credit to the industrial sector, premium on official exchange rate, lending rate, and CPI, they found that the financial liberalization generates increased efficiency in the banking business and that a rise in credit to the private sector is conducive to economic growth after the liberalization. Furthermore, the study presented positive evidence that supports the McKinnon–Shaw analysis.

Adopting the endogenous growth model and using annual data series for the period of 1970–2002 besides the ECM-based analysis of short- and long-term effects of the studied variables, Akpan (2004) explored the impact of financial liberalization, realized through an increase in real interest rates and financial deepening (M2 relative to GDP), on economic growth in Nigeria. Additionally, the sole factor of interest rate liberalization, suggested by the low coefficient of the real deposit rate, cannot possibly accelerate the growth. The findings, nevertheless, indicate the positiveness of the liberalization impact in Nigeria.

Tokat (2005) evaluated the impact of financial liberalization on macro variables for the case of such two emerging countries as Turkey and India between 1980 and 2013. The results indicated that increased interdependence exists among the fundamentals after the liberalization, providing further evidence of increasing effects of foreign economic performance on the two nations' macro factors and also articulating the benefits of the process. Okpara (2010), in an investigation into financial liberalization impact on macro factors in Nigeria, such as real GDP, financial deepening, national savings, foreign direct

investment, and inflation rate, found that positive contributions are made by different variables thanks to the liberalization, and those of real GDP are the most significant. This accounts for higher growth as a result of the process of opening economic activities.

With the case of Iran, Banam (2010) attempted to analyze the growth of the economy, in addition to examining its determinants, under the influence of financial liberalization using Johansen cointegration tests for the time series data during the years of 1965–2005. The financial liberalization index is proxied by multiplying by -1 the financial repression index that also involves reserve requirement ratio, interest rate controls, and directed credit programs. The financial liberalization was found to have a significantly positive impact on the growth by the GDP estimate, and its findings serve to further support the argument by McKinnon (1973) and Shaw (1973) that the more liberal financial system may promote the economic growth through increased investments and productivity.

Bashar and Khan (2007) addressed the impact of financial liberalization on economic growth in Bangladesh by analyzing the data from Q1/1974 to Q2/2002, using cointegration and error correction approaches. By using different factors, including per capita GDP, gross investment as share of GDP, labor force as share of population, secondary enrolment ratio, trade openness indicator, real interest rate, and net capital inflows as share of GDP, their findings suggest that the coefficient of the variable of financial liberalization policy is significantly negative, which hints that the financial liberalization negatively impacts on the economy of Bangladesh.

Averaging the data across five year periods for bank private credit, liquid liabilities, stock market capitalization, and value traded (all expressed as a percent of GDP) with regard to the inflation–financial sector nexus during 1960–1995, Boyd et al. (2001) found that with low or moderate inflation rates, any rise in the inflation is conducive to a significant drop in banking institution credits to the private sector, the bank liability issues, the stock market liquidity, and the trading volume.

In another study conducted in Pakistan, Munir et al. (2010) documented the short- and long-term relationships among investment, savings, real interest rate on bank deposits, and bank credit to the private sector, coupled with the financial liberalization effects on the country's key macro variables. Analyzing the 1973–2007 data, they indicated that the liberal financial system does not have positive impacts on private credit and private investment as a result of negative real interest rates over a few years due to

high inflation rates in the nation. According to Achy (2012), who sought to verify the wave of financial liberalization along with its various impacts on savings, investment, and economic growth via cross-country regression analysis of five MENA countries (Egypt, Morocco, Tunisia, Jordan, and Turkey) between 1970 and 1998, the liberalization process actually comes in line with Keynes' viewpoint, readily being perceived as an opponent of financial development.

Using OLS regression for the sample of ten new EU member countries and Turkey over the years of 1995–2007, Ozdemir and Erbril (2008) clarified the nexus between long-run growth and a few liberalization indicators in addition to underpinning the predictions of new growth theory. As also evidenced by their analytical and empirical findings, the financial liberalization can be grasped as a pronounced policy instrument for promoting economic growth.

Fowowe (2004), with a 1978–2000 data set of 19 countries in Sub-Saharan Africa, addressed the effectiveness of financial liberalization policies on economic growth of the studied sample. Two indices, including the first and second indices of the pre- and post-financial liberalization respectively, were adopted, besides other control variables such as initial income per capita, investment, life expectancy, exports and imports as a ratio to GDP, and debt service ratio. OLS and random effects techniques were used to evaluate the sensitivity of the findings. The empirical estimates demonstrated a positive association between the growth and the financial liberalization policies.

Economic growth, triggered by financial openness, is a key factor considered by Adam (2011) to not prove beneficial to the poor. Surveying the case of Ghana over such a marked period as 1970–2007 and using Johansen cointegration approach and Ganger causality, along with Annually Standard of Living Index to stand for poverty and financial liberalization index formulated based on Principal Component Analysis, the author argued that there exists a positive nexus, albeit out of proportion, between growth and living standard.

Nair (2004) highlighted the effects of financial sector liberalization measures on household sector saving rate from 1970 to 2000, exploring the negative impact of the constructed financial sector liberalization index on household savings due to a rise in credit availability as a result of the liberalization process that engenders improved consumption instead of the saving rate. Nair (2004) also provided empirical evidence to disprove earlier literature as proposed by McKinnon (1973) and Shaw (1973).

Obamuyi (2009), in an investigation into the nexus between interest rates and economic growth in Nigeria, employed time series and annual data for the period of 1970–2006. Indeed, real lending rates were indicated to have a significant impact on the growth. The similar case is true as argued by Odhiambo (2009), using cointegration and error correction methods for capturing the impact of interest rate reforms on the growth of Keynia. Concluding the empirical findings, Odhiambo (2009) stressed that the liberalization of interest rate induces increasing growth via its impact on financial deepening.

Accordingly, existing literatures on financial liberalization are found to not arrive at consistent reasoning. Some confirm the role of the financial liberalization in driving other macroeconomic factors as extensively evidenced from developed countries, while others approve the opposite, notably for the cases of underdeveloped or developing countries like Nigeria, Bangladesh, and so on.

3. Research data

Time series data collected for the analyses cover the period between Q1/1993 and Q4/2013, depending on which we can conclude the relationship between financial liberalization and economic growth in Vietnam. The data sources are provided by IMF, General Statistics Office of Vietnam, Ministry of Planning and Investment, and State Bank of Vietnam.

4. Methodology

Based on previous empirical findings, we propose a vector error correction model (VECM) for examining the long-run liberalization–growth nexus.

4.1. VECM approach

$$\Delta X_t = \mu + \psi_1 \Delta X_{t-1} + \psi_2 \Delta X_{t-2} + \ldots + \psi_p \Delta X_{t-p} + \Pi X_{t-1} + \varepsilon_t$$

where X denotes the vector of variables ($\Delta X_{t-p} = X_{t-p} - X_{t-p-1}$), p is the optimal lag length, μ is the vector of intercepts, ψ_{t-p} is the vector of first differences at lag length p, Π is the matrix of cointegration coefficients/rank of the matrix, and ε_t is the vector of residuals.

Granger causality allows for the identification of causal relations among variables. According to Granger (1969), this kind of relation exists when a certain variable in the past or present can predict future value of the other.

Next, as suggested earlier, an impulse response function indicates to what extent shocks of a variable impact on others over the whole period of time, which helps determine dynamic relationships among different variables in the model.

After assuming a shock at time *t,* we adjust endogenous variables over time, which will then be compared to those without the shock impact (in real process). The impulse response accordingly serves as a fundamental difference between these two series.

Variance decomposition functions as a replacement for impulse response to provide an overview of the dynamic structures of a VAR model. Contrary to the impulse response approach, decomposing variance sequences are to obtain compactness related to forecasting ability or to reduce uncertainty in one equation to the variance of error terms in all equations, in addition to further capture the variables in the model in their forecasting others.

4.2. Research model

To examine the linkage between financial liberalization and growth in the Vietnam's economy, we develop the following equation:

GGDP = f(Open, Capitalinflow, M2GDP)

As presented above, in this study we construct the analysis based on trade openness (Zingales, 2003) as a transmission channel and impact of liberal capital inflows on economic growth by means of a classical approach (Solow, 1956). Particularly, a combination between foreign competition and liberalization of the capital flows would motivate financial organizations to be in further progression, thus enhancing efficiency of financial institutions and promoting economic growth. Moreover, Haggard and Maxfield (1993) argued that the trade openness is such a prerequisite of removing controls over capital sources; for such reason the transmission mechanism can be suggested as follows:

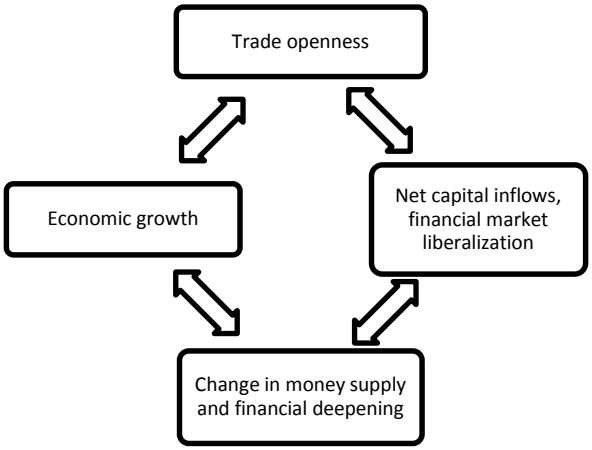


Figure 3. Transmission mechanism from financial liberalization to economic growth

Financial market liberalization: determined by net capital inflows to Vietnam and used to evaluate in real sense the financial liberalization in relation to removing capital controls and attracting foreign investment, including various inputs from FDI, ODA, FPI, remittances, and other financial transfer sources.

The liberalization of financial market, as commented by McKinnon (1973) and Shaw (1973), refers to the elimination of regulations on controlling the market, which implies that participation is not limited to the public sector, but extends to the private one and foreign investment projects. Furthermore, all financial market participants are to be fairly treated, and with the help of policy loosening and investment encouragement, the process would facilitate the liberal capital flows along with further external sources and higher growth rates. Still, this would often follow domestic trade openness sequences.

Trade liberalization: trade openness, calculated using total exports plus imports as a share of GDP to estimate the level of openness of the economy; removing tariff and non-tariff barriers promotes the openness and enables smooth flows of goods. The process itself fosters the capital flow liberalization across countries (Haggard & Maxfield, 1993).

Financial development or financial services liberalization: financial deepening, measured by the ratio of money supply to GDP; financial development or financial services liberalization is a mediating variable, directly affected by financial liberalization measures of the government. These measures focus on regulating the macro economy

during changes in capital inflows, or technological transfer results in better functions of financial institutions, therefore triggering economic growth (Arestis, 2005).

Economic growth: proxied by GDP growth rate, which is employed to assess how financial liberalization affects economic growth in both short and long terms.

Table 1

Description of variables in the model

Variable	Notation	Description	Sources
Foreign capital inflows	Capinflowlog	FDI+ODA+FPI+remittances+ official capital transfers	IMF, Ministry of Planning and Investment
Openness of economy	OPenlosm	(imports+exports)/GDP	IMF, Ministry of Industry and Trade
Financial deepening	M2GDPLSM	M2/GDP	IMF, State Bank of Vietnam
GDP growth	GDPGLOSM	$(GDP_t-GDP_{t-1})/GDP_{t-1}$	IMF, General Statistics Office of Vietnam

Table 2

Descriptive statistics of variables

	OPENLOSM	CAPINFLOWLOG	GDPGLOSM	M2GDPLSM
Mean	-9.834124	-0.682002	-0.159705	1.175786
Median	-9.760412	-0.815714	-0.207180	1.293588
Maximum	-9.107328	1.123955	0.375701	2.459814
Minimum	-10.59166	-1.897120	-0.551661	-0.038244
Std. dev.	0.438206	0.719726	0.229183	0.767492
Skewness	-0.242892	0.795077	0.462215	-0.043854
Kurtosis	1.989171	3.113560	2.488304	1.744159
Jarque-Bera	2.725150	5.506556	2.418878	3.433796
Probability	0.256001	0.063719	0.298365	0.179623
Sum	-511.3744	-35.46413	-8.304668	61.14087

	OPENLOSM	CAPINFLOWLOG	GDPGLOSM	M2GDPLSM
Sum sq. dev.	9.793232	26.41829	2.678765	30.04126
Obs.	52	52	52	52

Seasonal adjustments have been made to all the studied variables, using Census X12-ARIMA method.

5. Empirical findings

In this study we eliminate the trend and seasonality of the data series and then employ a Dickey–Fuller test to capture their stationarity.

Table 3

Results of stationarity testing

		ADF
Level	GDPGLOSM	0.9886*
	CAPINFLOWLOG	0.3671
	OPENLOSM	0.0000
	M2GDPLSM	0.0043
First difference	GDPGLOSM	0.0304*
	CAPINFLOWLOG	0.0000
		p-value

* with trend and intercept

After deciding on the stationarity of the data series, we conduct maximum eigenvalue and trace tests for cointegration.

Table 4

Results of cointegration testing

Null hypothesis	Trace statistics	Max-Eigen statistics
There is no cointegrating relation.	115.1102	60.3593
	(0.0000)	(0.0000)
There is at most one cointegrating relation.	54.7419	36.7778

Null hypothesis	Trace statistics	Max-Eigen statistics
	(0.0000)	(0.0000)
There are at most two cointegrating relations.	17.9678	14.12695
	(0.0208)	(0.0525)
There are at most three cointegrating relations.	3.836810	3.836810
	(0.0501)	(0.0501)

Comparing Trace and Max-Eigen statistics with critical values at 5% significance level allows us to reject the null hypothesis that there is no cointegrating relation between GDP growth and explanatory variables. The test results demonstrate that at most three cointegrating equations or three cointegrating vectors exist at 5% significance level.

Table 5

Results of cointegrating relations and adjustments to equilibrium

	Model
	Cointegrating vector
GDPG	1
CAPITALINFLOW	0.03271
OPENLOSM	-0.7550
M2GDP	-0.0075
Short-run adjustments to long-run equilibrium (Dependent variable: GDPG)	
α_{11}	-0.4317

All the variables in cointegration equations are statistically significant.

Table 5 displays cointegrating relations and short-run adjustments to long-run equilibrium of the VECM model. By taking the value of 1 for the coefficient of GDP, we arrive at long-run relationships between economic growth and the variables that proxy for the liberalization process. Additionally, we also find evidence of the positive long-run relationships, which implies that removing barriers to the liberalization and extending financial deepening are beneficial to the growth of such an emerging economy

as Vietnam. This result is consistent with the findings of Ozdemir and Erbril (2008) and Obamuyi (2009).

In the past years the process of financial services liberalization has come into effect through the Government's measures to loosen capital controls, permit more foreign investment in the financial sector, and increase foreign ownership rates in Vietnam's credit institutions. Also, allowing the establishment of 100% foreign-owned institutions helps the financial system operate more efficiently, enhance competitiveness, and promote the development of modernized financial services through technological transfer, which creates the potential for higher financial deepening realized by the M2/GDP ratio and long-run economic growth impact. The positive effects of the financial services liberalization on growth should be perceived with delight as the policies on the liberalization process have become effective and given active support for greater integration of the economy. Moreover, the liberalization of financial services through removal of administrative controls over the financial sector has been conducive to increasing financial depth and contributed to the domestic economic growth in the long run.

Nonetheless, we find an inverse relationship between net capital inflows and economic growth in Vietnam, which agrees with previous findings suggesting that the foreign capital flows only favorably affect the growth of developed countries. This is because emerging economies see most of the capital sources flowing into various sectors that adversely influence local environment, such as heavy industry, chemical industry, or those highly dependent on foreign contractors, where there is the absence of the recipients of technological transfer or even the operators. Particularly, the growth of these sectors has involved changing business and natural systems, exerting impact on others, including agriculture, forestry, and fishing sector or tourism and hospitality industry, and impeding investment stimulation and sustainable development sequences.

Testing for model stability

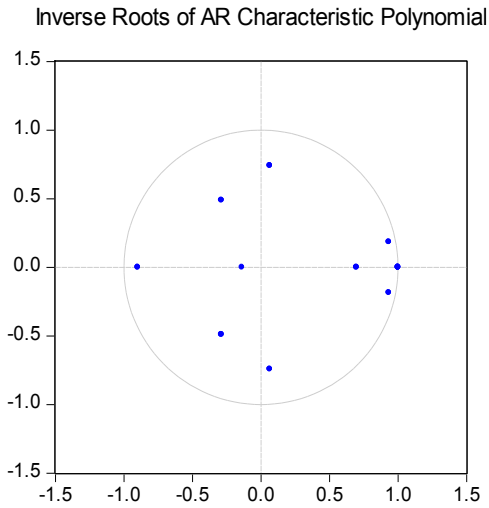


Figure 4. Inverse roots of AR characteristic polynomial

As suggested by Figure 4, all the roots lie inside the unit circle, indicating both the suitability and stability of the model in use.

Testing for Granger causality

Table 6

Results of Granger causality after VECM

	p-value	Chi^2
D(CAPINFLOWLOG) does not Granger-cause D(GDPGLOSM)	0.5231	1.2961
D(OPENLOSM) does not Granger-cause D(GDPGLOSM)	0.1117	4.3843
D(M2GDPLSM) does not Granger-cause D(GDPGLOSM)	0.1502	3.7911
D(OPENLOSM) does not Granger-cause D(CAPINFLOWLOG)	0.1101	4.4132
D(GDPGLOSM) does not Granger-cause D(CAPINFLOWLOG)	0.0412	6.3788
D(M2GDPLSM) does not Granger-cause D(CAPINFLOWLOG)	0.0402	6.4276
D(GDPGLOSM) does not Granger-cause D(OPENLOSM)	0.0000	20.529
D(CAPINFLOWLOG) does not Granger-cause D(OPENLOSM)	0.0144	8.4790
D(M2GDPLSM) does not Granger-cause D(OPENLOSM)	0.0000	20.199
D(GDPGLOSM) does not Granger-cause D(M2GDPLSM)	0.0008	14.210
D(CAPINFLOWLOG) does not Granger-cause D(M2GDPLSM)	0.0112	8.9827
D(M2GDPLSM) does not Granger-cause D(M2GDPLSM)	0.0000	34.634

The results of Granger causality show that in short terms the variables that proxy for financial liberalization virtually does not Granger-cause economic growth, which may result from relatively high lag length recorded from the liberalization impact, which can merely be determined over the long run. In the short run, additionally, adjustments to a policy, especially a macro one, have little effect.

Proxy variables for financial deepening and growth have short-run causality relation with financial liberalization. This implies that increasing economic growth and financial development accelerate the liberalization process in Vietnam under the demand of economic integration into the organizations of which it has been and is going to be a member.

The results also display two-way relations between trade openness and financial deepening, as well as capital account openness and financial deepening, thereby confirming the suitability of using transmission channels for various impacts. Furthermore, the openness of capital account has effect on the trade openness, which comes in line with previous findings from Tornell et al. (2004) and Aizenman and Noy (2004).

Impulse response analysis

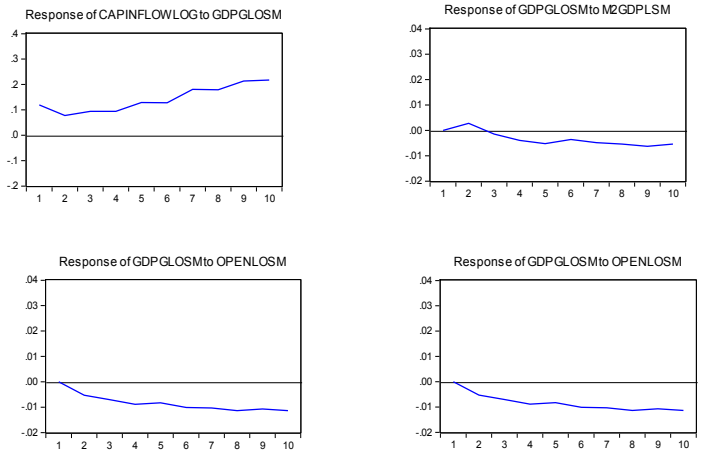


Figure 5. Analysis of impulse response functions

The impulse response analysis shows that shocks of economic growth have positive effects on attracting foreign capital for domestic investments. With the demand for high growth rates in such an emerging economy as Vietnam, absorption of foreign capital is

inevitable since national savings can hardly meet the capital requirements during the rapid growth pace.

In addition, shocks of foreign investment have negative effects on growth in the short run, implying that more attention should be paid to the quality of foreign capital inflows to Vietnam in coming years. Actually, over the past time there has been too much focus on foreign investment in the quantitative fashion rather than on efficiency of investment projects or effective allocations to essential industries for sustainable development. As a consequence, most of the capital sources have flown to pollution-causing industries, in which low-cost employment and loose controls over environmental issues can be capitalized on, and a large amount entering the real estate sector as a speculation channel has been causing a real estate bubble that adversely affects the stability of the national economy.

Likewise, trade openness has a negative impact on growth in short terms, indicating that no good efforts have been made by the country in its economic integration process, when increased trade deficit arose along with the larger trade openness. The majority of domestic enterprises are small- and medium-scaled with limited capital investment and low levels of technological advancements; thus, extending to a larger arena involves greater challenges posed to the domestic industrial sector that also faces intense competition from multinational corporations. The Government, thus, should adopt policy on stimulating the growth and facilitating technological capability of these enterprises for further competitiveness enhancement.

Moreover, the development of financial services has little impact on short-run growth since it takes a long enough period of time for the process of technological transfer and changes in inputs and/or outputs to exert effects on the economic growth.

Variance decomposition analysis

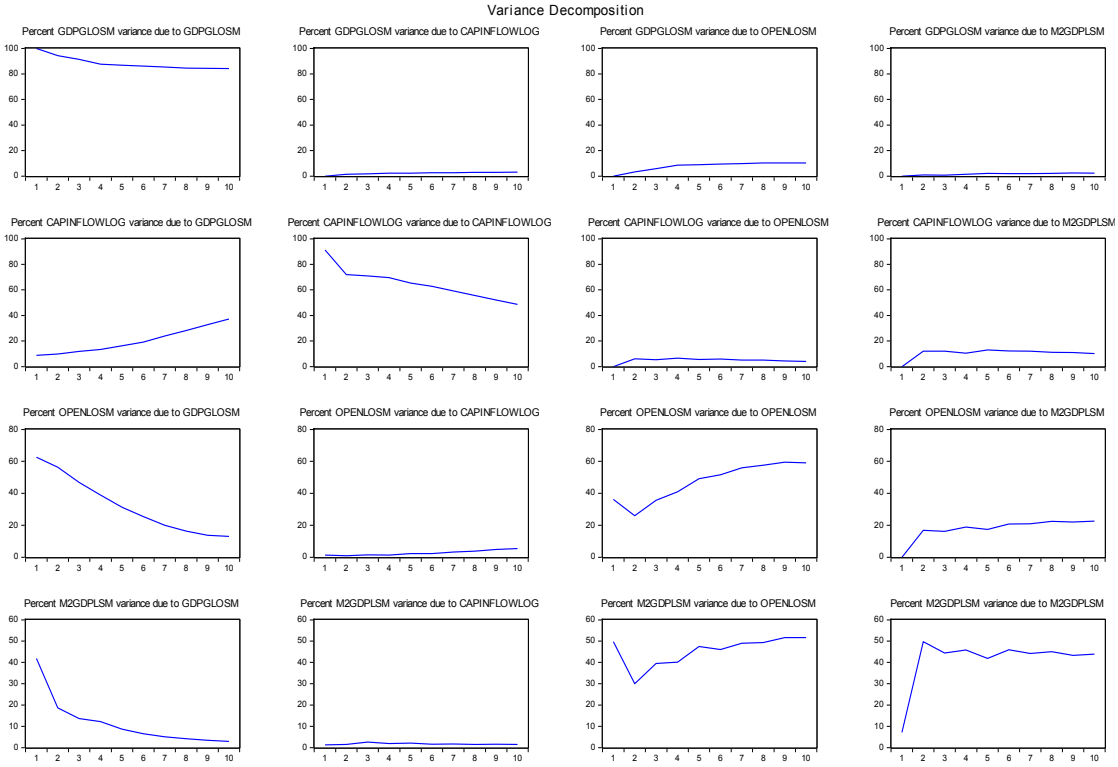


Figure 6. Analysis of variance decomposition

The results of variance decomposition analysis demonstrate the levels at which endogenous variables in the model mutually explain each other; specifically, the variable of economic growth explains about 20% of openness variance and about 40% of the variance in openness of capital inflows from the tenth period onward. This implies that growth is a stimulant to the process of trade and financial market liberalization in Vietnam under the urgent need for capital sources and goods exchange in such an emerging economy.

In an opposite direction the levels of explanation of growth variance reflected by openness of the economy and foreign capital inflows are not high, reaching approximately 10% from the tenth period. This result, similar to that from Granger causality testing, suggests that the process of trade and financial market liberalization does not significantly promote growth in the short run.

Concluding remarks

Overall, the analytical results indicate that a long-run relationship exists between financial market/trade liberalization and economic growth in Vietnam; however, this does not truly prove positive to the economy as foreign capital inflows have a negative impact on long-term growth. Furthermore, financial services liberalization through increased competitiveness within the financial sector and technological transfer has a positive effect on economic growth in the long run. Thus, clarifying the change in the financial structure and strengthening the financial sector have more positive impacts than the quantitative change through trade and capital flows openness in recent years.

Concerning the short-term nexus, the results of Granger causality reveal that accelerating the economic growth pace and financial development process has become a motivation for financial liberalization in Vietnam over the past years. Similar findings are also attained by both analyses of impulse response and variance decomposition with respect to the long-term relation, whereby openness of trade and openness of capital flows has negative effects on the growth. Meanwhile, shocks of economic growth, in an opposite direction, favorably affect the simultaneous openness of trade and capital flows as with a radical demand during the integration process, notably for maintaining the growth rates.

6. Further discussion and implications

Liberalization of the financial market and financial services is an inevitable trend in the process of development and integration; however, the downside of liberalization is such that it may lead to increased risk and instability of the economy. Any deviation from long-term equilibrium, if not properly controlled by the market regulation measures adopted by the Government, may also involve unsustainable economic growth. Hence, besides endorsing the financial sector liberalization, it is necessary to deal with the uncertainty when reducing administrative controls, and also to plan a detailed itinerary for greater integration of the financial system while shocks to the economy can be avoided.

One striking result from this study compared to the previous ones indicates a not-so-good impact of financial liberalization on growth over the past periods, which voices concerns about the readiness of the domestic industry in the integration trend. True integration does not fully imply economic openness with no regard to whether the

national economic entities are well prepared for global competitions. In fact, when the economy features a young industry and fledgling businesses or production and consumption heavily depends on other countries, the openness without appropriate regulations will accidentally be supportive to foreign enterprises in their manipulating the domestic manufacturing sectors, and worse still, domestic enterprises not only fail to integrate into the world market, but also suffer losses even in the home market. Therefore, there is a strong need for a sound mechanism to evaluate and regulate the process of integration in order to well absorb (significantly lessen) its positive (negative) impact on the economy.

In addition, specific planning and adopting mechanism to attract foreign investment in key industries contributing to sustainable growth like information technology or high-tech for an aim to capitalize on advanced technological transfer are clearly needed. However, there should be reduction in or prohibition of investment in pollution-causing industries such as exploitation of natural resources/minerals or chemical/steel manufacturing for a growing trend toward green development along with sustainability■

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