Journal of Trade Science

ISSN 1859-3666

Volume 8 Number 1 March 2020

CONTENTS

Page

Journal of Trade Science 8:1 (2020) 30 - 41
ISSN 1859-3666

INPUT - OUTPUT STRUCTURE AND SOURCES OF OUTPUT GROWTH OF VIETNAMESE BANKING AND FINANCE SECTOR IN 2007-2016

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Riceived: *7th September 2019* ***Rivised***: *9th December 2019* ***Approved***: *17th December 2012*

The paper uses the input-output analysis (IO analysis) to analyze the supply-demand structure and identify sources of the output growth of Vietnamese banking and finance sector in the period of 2007-2016, which induces some implications for the sector's further development. The analysis results show that, on the supply side, the input consumption level of the sector is still high, so the sector needs to improve the technology to reduce costs and increase value added. Demand for products and services of the sector is mainly for businesses and is continuing to move in the direction of increasing market proportion of these customers. Finally, among the factors that contributed to the sector's output growth, the technology has not been much improved while the ability to produce import substitutes is very limited. Therefore, Vietnamese banking and finance sector needs to continue investing in technology and management to enhance its operational efficiency to compete in the international market.

Keywords: *banking, finance, input-output structure, supply-demand structure, IO, Vietnam*

1. Introduction

Over the past 15 years, Vietnamese banking and finance sector has been strongly fluctuating with macroeconomic fluctuations. The period 2005-2009 was the rapid growth period of the sector in terms of number of institutions, credit volume, and assets. The period 2010-2014 saw many difficulties of the system with low credit growth, high bad debt; many banks lost liquidity, mergers and acquisitions occurred, and many scandals in the sector were discovered. Then from 2015 until present, the banking and finance sector has recovered positively.

Being considered the capital circulation system of the national economies, macroeconomic fluctuations always directly affect the banking and finance sector and vice versa. A healthy banking and financial system can limit the negative fluctuations of the economy, stimulate development, while an unhealthy banking and financial system can spread negative fluctuations quickly, and lead to an economic crisis. The health assessment of the sector needs to analyze structural features, including supply-demand structure, from which to form judgments and implications for improvement. However, up to now, there has been no research to analyze the supply-demand structure of the banking and finance sector of Vietnam.

This paper analyzes the supply-demand structure, the shift in the structure, as well as identifies sources of output growth of Vietnamese banking and finance sector to draw implications for its development in the future. The paper uses input-output (IO) analysis. This is the method that many scholars have used to conduct analysis of supply-demand structure of industries and economies (see for example Hayashi 2005, Kofoworolaand Gheewala 2008, Germany and Linh 2018). The paper is organized as follows: After the introduction, part 2 gives an overview of Vietnamese banking and finance sector. Part 3 describes the research methodology. Section

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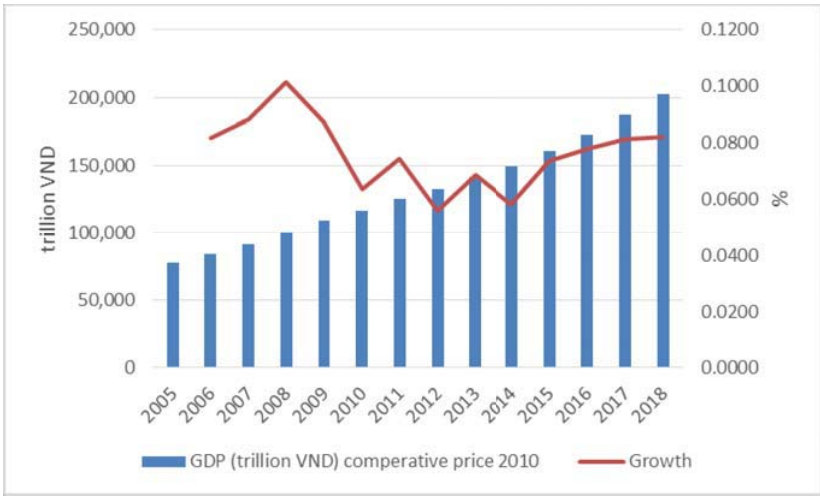
4 presents the empirical results and analysis before the main conclusions are drawn in section 5. The paper presents an economic perspective on the supply-demand structure of the banking and finance sector of Vietnam.

2. Overview of Vietnamese banking and finance sector and studies of sectoral structure

According to the General Statistics Office of Vietnam, the banking, finance and insurance sector (hereinafter referred to as banking and finance) includes (1) financial intermediation services (except insurance and social insurance), (2) insurance and reinsurance services, (3) other financial services. In 2018, the gross domestic product of the banking and finance sector reached 295 trillion VND, accounting for 5.3% of the national GDP (GSO, 2019). Of the total value of the sector, intermediary financial services accounted for 81.1%, insurance and reinsurance services accounted for 14.6% and 4.3% was the contribution of other financing services. Thus, financial intermediation services (except insurance) play a dominant role in the whole sector.



(Source: General Statistics Office 2019)

Figure 1: *Gross domestic product and growth rate of bankingand finance,*

The value of gross domestic product at constant prices of the banking and finance sector has continuously increased, but the growth has changed over the years. Based on the fluctuations of the gross domestic product, the past 10 years of the sector can be divided into 3 stages. The development stages of the banking and finance sector coincided with the general fluctuations of the Vietnamese economy.

The period 2005-2009 was the booming period of the banking and financial system in terms of number of institutions, credit volume, and assets with an average growth rate of 9.0% per year. By the end of this period, the number of domestic commercial banks reached 42. In just 5 years, domestic credit volume increased by 4.6 times, leading to asset bubbles in the stock and real estate markets (Nguyen Xuan Thanh 2019).

The precarious period was 2010-2014 with an average growth rate of 6.4% per year. During this period, credit growth was unstable due to macroeconomic fluctuations, restructuring businesses reduced financial leverage, stock market and real estate market plunged. Bad debt started to rise to an alarming level as a result of the previous booming growth. Many banks revealed weaknesses and lost liquidity when the State Bank tightened monetary policy to fight inflation in 2008 and 2009 and were forced to restructure and merge. A series of violations in the field of banking and finance led to instability in the operation of the system. In September 2012, according to the State Bank, the bad debt ratio of Vietnam's banking system was 8.82%. The number of joint stock commercial banks in early 2010 was 42 which decreased to 36 at the end of 2014 (VCBS 2016).

Recovery period was 2015-2018 with an average growth rate of 7.9% per year. During this period, in terms of policy orientation, credit growth of 17-18% was considered a condition to ensure GDP growth at 6.6-6.8% (Nguyen Xuan Thanh 2019). Expanding business helped increase demand for

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loans for production. The measures to handle bad debt and restructure the banking sector in the previous period showed their effectiveness. The pilot application of Basel II Capital Treaty to 10 commercial banks enhanced the safety of the system. During this period, bad debt decreased significantly, to 2.55% in 2016 (VCBS 2016). The remaining number of commercial banks at the end of 2018 was 31 (State Bank of Vietnam 2019).

Studies of supply-demand structure of an economic sector or the whole economy help assess changes in the production structure of the sector as well as the relationship of one sector with other economic sectors and the whole economy. Such studies are applied to various sectors including service sector, banking and finance sector. Hansda (2001) used the supply-demand structure analysis to assess the sustainability of economic growth based on the service sector of the Indian economy. The study concludes that the service sector of India, including the banking and finance sector, has a prominent role compared to other economic sectors in stimulating the development of the economy through providing input for them. Jue et al. (2004) used supply-demand structure analysis to determine the spillover effects of the financial industry on the total output value of Chinese economy. The study concludes that the financial sector has a stronger influence on the demand side than on the supply side. In other words, the Chinese financial industry can stimulate other economic sectors and the whole economy through providing products and services as inputs to other economic sectors rather than through using products and services of other industries as their inputs. Aldasoro and Angeloni (2014) applied the analysis of interdisciplinary structural relations in the banking industry to assess the interbank relationship and the systematic nature of the German banking industry. In Vietnam, however, there has been no research on exploiting the structure analysis to investigate the banking and finance sector, and assess the supply and demand factors affecting its output growth.

3. Methodology

Input - output tables record transaction between economic sectors, each producing a product and at the same time consuming products from other industries. The table consists of three basic quadrants (figure 1). Quadrant I represents intermediate input by column and intermediate demands by rows. Quadrant II represents the final demand of the economy which consists of household final demand, government final demand, accumulated assets, exports minus imports. Quadrant III expresses primary input or value added of the economy which includes worker's income, fixed assets depreciation, production tax, and surplus value.

Intermediate transactions Intermediate demand/intermediate inputs I	Final demand II	Total output
Primary input/value added III		
Total inputs		

(Source: Leontief 1986)

Figure 1: *Input - output (IO) table*

To operationalize the method, assume that the economy has four sectors. Quardrant I is a square matrix

$$\begin{bmatrix} x_{11} & x_{12} & x_{13} & x_{14} \\ x_{21} & x_{22} & x_{23} & x_{24} \\ x_{31} & x_{32} & x_{33} & x_{34} \\ x_{41} & x_{42} & x_{43} & x_{44} \end{bmatrix}$$

where x_{ij} denotes the output of sector i used by sector j as an intermediate input.

Quadrant II - the final demand matrix and quandrant III - the value added matrix are expressed as follows:

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$$c = \begin{bmatrix} c_1 \\ \vdots \\ c_4 \end{bmatrix}, \; v = \begin{bmatrix} v_1 & \cdots & v_4 \end{bmatrix}$$

where c_j refers to the total final demand of sector i whereas v_j refers to the added value of sector j.

The total output of the economic sectors is represented by the matrix:

$$x = \begin{bmatrix} x_1 \\ \vdots \\ x_4 \end{bmatrix}$$

where x_i denotes the total output of sector i.

From the intermediate transaction matrix, it is possible to calculate the technology matrix A.

$$A = \begin{bmatrix} a_{11} & \cdots & a_{14} \\ \vdots & \ddots & \vdots \\ a_{41} & \cdots & a_{44} \end{bmatrix}$$

where $a_{ij} = x_{ij}/x_j$. Technology matrix A represents the ratio of intermediate input to total output of industry j.

To assess the banking and finance service inputs in other sectors, the matrix of ratios of intermediate-input from sector i to total intermediate input of sector j is calculated. This matrix is expressed as follows:

$$D = \begin{bmatrix} d_{11} & \cdots & d_{14} \\ \vdots & \ddots & \vdots \\ d_{41} & \cdots & d_{44} \end{bmatrix}$$

where dij = aij/aj * 100

Structural Decomposition Analysis (SDA) using the IO model is widely used in studying the sources of economic changes over time (Pei et al. 2011). This model can be applied to analyze the determinants of output growth, added value, consumption, and labor productivity at the national or sectoral level. In order to analyze the impact factors of the output changes of banking and finance sector over stages, the author uses the factor analysis method in Roy et al. (2002) applied at the sectoral level. The basic idea of this method is to analyze the growth of output of a certain economic sector according to intermediate input, final consumption, import and export and other basic impact factors. This means that any change in economic output between the two points of time can be explained by the changes of impact factors. Bekhet (2009) argues that this analytical method overcomes the staticness of the IO model and, therefore, can help uncover changes over time in technical coefficients and inter-industry interactions.

Roy et al. (2002) define four sources of output growth, including:

(1) The effect of domestic final demand occurs when an increase in economic output is used to meet domestic demand.

(2) The effect of import-substitution production is calculated by the change in the ratio of imports to aggregate demand. This implies the assumption that imported products can perfectly replace domestic products.

(3) Export effect occurs when output growth is due to export demand (demand from abroad).

(4) Technology effect shows the relationship between industries over time due to the change of production technology as well as the replacement of different inputs.

From the above idea, we have the following formula:

$$x_i = u_i\,(d_i + w_i) + e_i$$

Where x_i represents the total output of the economic sector, ui is the proportion of domestic supply which can be calculated as $u_i = (x_i - e_i)/(d_i + w_i)$. d_i and w_i are domestic factors affecting the output of the economic sector, respectively. d_i is domestic consumption demand, and wi is a domestic intermediary demand. e_i is total exports and is therefore an external factor affecting changes in economic output.

Overall we have:

$$X = \hat{U}D + \hat{U}AX + E$$

Replace the gross domestic demand (W) by the product of the technical factor (A) and the total output (X). After adding the unit matrix, the above equation can be transformed into:

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$X = (I - \hat{U}A)^{-1}(\hat{U}D + E)$

Replace $R = (I - \hat{U}A)^{-1}$, the equation above can be rewritten into:

$X = R(\hat{U}D + E)$

Output growth can be analyzed from influencing factors based on this formula and is presented in Table 1.

2016 is built from the statistical data of enterprises, exports, imports and the Vietnam Household Living Standards Survey (VHLSS) of the General Statistics Office, which is then balanced by the Ras method (Lahr and de Mesnard 2004; Trinh and Phong 2013).

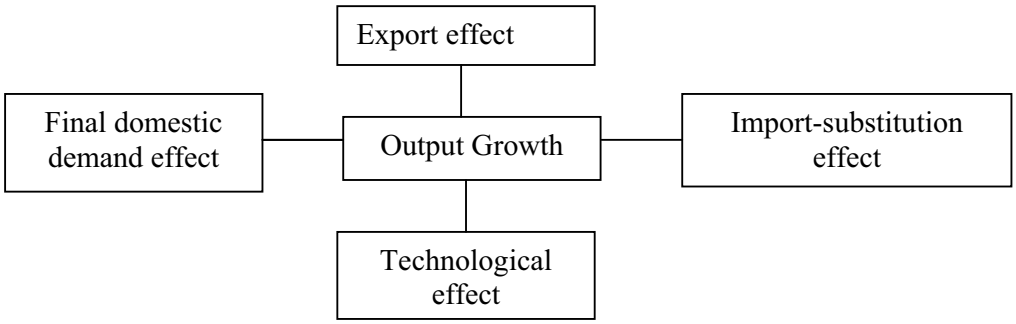
Table 1: *Analysis of source of sectoral output growth*

Factors	Equation
Change in banking and finance sector output	$\hat{Z}(X_1 - X_0) = \hat{Z}\left[R_1(\hat{U}_1 D_1 + E_1) - R_0(\hat{U}_0 D_0 + E_0)\right]$
Final demand effect	$\hat{Z}R_1\hat{U}_1(D_1 - D_0)$
Export effect	$\hat{Z}R_1(E_1 - E_0)$
Import-substitution effect	$\hat{Z}R_1(\hat{U}_1 - \hat{U}_0)(D_0 + W_0)$
Technology effect	$\hat{Z}R_1\hat{U}_1(A_1 - A_0)X_0$

(Source: Author describes from the equations)

To explain the decomposition analysis more clearly, Figure 3 describes the factors affecting the output growth of Vietnam's banking and financial sector.

Due to the complexity, IO tables are usually only developed and published every 5 years. Because the supply-demand structure of the economy is relatively stable over a period of time, an IO table can rep-



(Source: Author describes from the analysis of impact factors)

Figure 3: *Factors affecting output growth of banking and finance sector*

The raw data used in structural and structural shift analysis in the banking and finance sector include three tables of IO, i.e. IO 2007, IO 2012 and IO 2016 of Vietnam at current prices. Table IO 2007 and IO 2012 issued by the General Statistics Office comprises 138 and 164 sectors, respectively (General Statistics Office 2010, 2015). Table IO

resent a period of years before and after. Thus, the 3 IO table used can represent the 3 stages of development of Vietnamese banking and finance sector indicated through the above analysis. In more details, the IO 2007 table represents the period 2005-2009, the IO 2012 table represents the period 2010-2014, and the 2016 IO table represents the

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period 2015-2018. Therefore, the comparative analysis based on these IO tables can show changes in the supply-demand structure of the banking and finance sector of Vietnam.

To perform the analysis, the author firstly grouped 138 economic sectors of IO 2007 table and 164 sectors of IO 2012 and 2016 tables into 20 major sectors according to the General Statistics Office's official sector list (Table 2). Next, following the transformations according to the equations shown above, the author in turn calculates the matrix of technical factor A, matrix of intermediate-input ratios D, and a series of matrices to identify factors affecting the change in output of Vietnam's banking and financial sector between 2007-2012 and 2012-2016.

Table 2: *Economic sectors of Vietnam General Statistics Office*

Code	Sector	Code	Sector
N1	Agriculture, forestry and fishery	N11	Financial operations, banking and insurance
N2	Extractive	N12	Real estate business
N3	Manufacturing and processing industry	N13	Professional activities, science and technology
N4	Producing and distributing electricity, gas, hot water, steam and air conditioning	N14	Administrative activities and support services
N5	Water supply; activities of management and treatment of garbage and waste water	N15	Activities of the Communist Party, socio-political organizations; State management, security and defense; Compulsory social security
N6	Construction	N16	Education and training
N7	Wholesale and retail; Repair of automobiles, motors, motorbikes and other motor vehicles	N17	Health and social assistance activities
N8	Transport, warehousing	N18	Arts, fun and entertainment
N9	Accommodation and catering services	N19	Other service activities
N10	Information and communication	N20	Activities of hired labor in households producing material products and self-consumption services of households

(Source: General Statistics Office, 2019)

4. Supply - demand structure analysis of the banking and finance sector of Vietnam in the period of 2007 - 2016

4.1. Input structure of Vietnamese banking and finance sector

Table 2 shows the input and value added coefficients of the banking and financial sector over the years. In 2016, the intermediate input coefficient of banking and finance products and services was 0.52 and the value added coefficient was 0.48, meaning that for every 1 VND of output, there was 0.52 VND of intermediate input bought from other economic sectors, and 0.48 VND of value added created by the sector. A sector is considered to be efficient if it can save input and creates more added value. Basically, banking and finance is a service sector so the input coefficient is lower and the value-added coefficient is higher than those of other industrial and agricultural sectors.

When comparing the fluctuations of input coefficient of the sector over the years, it can be seen that the input ratios decreased from 2007 to 2012 and then increased significantly from 2012 to 2016. Unlike manufacturing industries the reduction in intermediate input ratios clearly reflects the technological progress (technology that saves the consumption of raw materials and fuels), for service sectors in general, this is not obvious. The application of technology to Vietnamese banking and finance sector has undergone dramatic changes since 2011 with the guiding documents of the State Bank such as IT application plan of the State Bank of Vietnam in the period of 2011- 2015 issued in the Decision No. 627/QD-NHNN dated April 6, 2011 of

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the Governor of the State Bank of Vietnam, the Plan on IT application in the banking sector during the period 2013-2015 issued in the Decision No. 2752/QD-NHNN dated 27/11/2013 of the Governor of the State Bank of Vietnam. By 2018, over 80% of credit institutions have provided Internet Banking, Mobile Banking and most credit institutions have implemented online banking services; more than 64% of credit institutions have made electronic payment and card payment; 65% of credit institutions have deployed customer support through Call Center; 40% have implemented resource management (ERP), work performance evaluation (KPI) management, etc. (Ha Thuy Linh 2018). Although the progress of banking and financial technology is still continuous, the intermediate input coefficient of the banking and finance sector of Vietnam has not follow a downward trend. This shows that it is the expansion or contraction the operation of the system a factor affecting the input coefficient of Vietnamese banking and finance sector in the 2007-2016 period. More specifically, as the industry expands, the intermediate input ratio out of the total output value tends to increase and the added value decreases (2007, 2016). In contrast, when the sector narrows down its operations, the intermediate input ratio tend to decrease and the added value ratio increases (in 2012).

A closer look at the intermediate input components shows that although some types of input have increased and decreased over time, there have been some inputs that have kept the strong upward trend, including information and communication (N10) and professional services, science and technology (N13). These are kinds of expenses related to long - term investment in banking and financial technology and are expected to create good effects on the next development stage of Vietnamese banking and finance sector.

Table 3: *Input coefficients of banking and finance sector*

Year	2007	2012	2016
Intermediate input coefficient	0.48	0.40	0.52
Value added coefficient	0.52	0.60	0.48

(Source: Author's calculation)

Table 3 lists the top 5 sectors providing the largest shares of the intermediate input for Vietnamese banking and finance sector. These 5 industries provide up to 90% of the intermediary input value for the banking and finance sector. Compared over the years, the list of these 5 industries has generally not changed. This shows the relative stability of the intermediate input structure of Vietnamese banking and finance sector. Among these 5 important inputs, only the real estate expense proportion is volatile. In 2007, real estate expenses accounted for 0.2% of the industry's total input consumption, by 2012 and 2016, this figure increased sharply to 7.5% and 7.7%, respectively. This figure is consistent with the situation of expanding the network of branches, service offices of many banks and financial institution in the years 2008-2010 in Vietnam.

Table 4: *Important intermediate input of the banking and finance sector*

Year	2007	2012	2016
Manufacturing and processing industry	9.5%	9.1%	12.1%
Information and communication	3.3%	2.6%	3.3%
Finance and banking insurance	77.1%	69.3%	63.2%
Real estate business	0.2%	7.5%	7.7%
Professional activities, science and technology	2.2%	4.0%	5.6%
Total	**92.3%**	**92.5%**	**91.9%**

(Source: Author's calculation)

ISSN 1859-3666

4.2. Output structure of Vietnamese banking and finance sector

Table 4 shows the output structure of Vietnam's banking and financial sector. Products and services of the sector are used for (1) intermediate demand (i.e. for production of other economic sectors), (2) final demand, (3) accumulative investment needs and (4) net exports (exports minus imports). Because banking and finance is a service sector, it does not contribute to the accumulation of fixed assets of the economy, so the demand for its products and services for investment and accumulation is zero. Accumulative investment, according to IO table, is understood as investment demand and accumulation of fixed assets, which is different from the conventional investment concept. The data shows two characteristics in the output structure of Vietnamese banking and finance sector in the period of 2007-2016. Firstly, there is a big shift in the direction of increasing the proportion to serve intermediate demand. This shows that banking and financial services have well penetrated the activities of other economic sectors, thereby spreading and increasing its influence on production activities of the whole Vietnamese economy. Secondly, the industry's trade deficit increases to meet domestic demand. Import of banking and financial services are transactions between foreign banks, foreign financial institutions and Vietnamese residents. The opening to international competition in the banking and financial sector, on the one hand, creates an open market for Vietnamese banks and financial institutions, on the other hand, also creates challenges, forcing domestic financial institutions to provide high - quality services to be able to compete with foreign financial institutions.

Table 5 presents the shift in the list of the most important "customer" sectors of the banking and finance of Vietnam. There are three sectors with a high and stable proportion of use of banking and finance services and products over the years which includes Insurance Banking and Finance (N11), Manufacturing Industry (N3), and Wholesale and Retail; Repair of automobiles, motors, motorbikes and other motor vehicles (N7). The banking and financial sector is itself's most important customer. In 2016, the self consumption accounted for 38% of the total value of products and services of the whole sector. On the one hand, this can show the close co-operation and support between Vietnamese banks and financial institutions. On the other hand, it can show cross ownership issues, roundabout transactions among Vietnamese banking and finance system in recent years. According to the data at the end of 2011, there were 8 joint stock commercial banks having ownership relation with 4 state-owned commercial banks and at least 6 joint stock commercial banks being shareholders of another joint stock commercial bank. Typically, Vietcombank owned 11% of Military Bank, 8.2% of Eximbank, 4.7% of Orient Bank, 5.3% of Saigon Bank. Eximbank owned a 10.6% stake in Sacombank, 8.5% stake in Viet A Bank (Luyen and Tuan 2017). Manufacturing industry always needs large capital investment for production, so it is also a large and stable customer of the banking and finance sector. The retail and wholesale industry in recent years has also worked closely with banks and financial institutions to develop forms of credit to support customers, thus its consumption of financial services increased significantly from 2007 to 2012 and then continued to be stable until 2016.

The remaining sectors have strong shifts. Mining (N2) and Accommodation and Food Services (N9) moved from a low-consumption position to a high-

Table 5: *Output structure of banking and financial sector*

Year	2007	2012	2016
Intermediate demand	64%	82%	86%
Final demand	36%	36%	31%
Accumulated investment needs	0%	0%	0%
Net export	0%	-18%	-17%
Total demand	100%	100%	100%

(Source: Author's calculation)

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consumption position of banking and financial services, while the Production and distribution of electricity, gas, hot water, steam and air-conditioning (N4) and the Construction industry (N6) are moving in the opposite direction, from the high-consumption position to the low-consumption position of banking and financial services. Note that for the construction industry, although in absolute terms, the value of consumption of banking and finance services did not decrease from 2012 to 2016, because other industries tended to increase spending on banking and finance services, it was excluded from the list of 5 industries with the highest proportion of banking and financial services usage in Vietnam.

and 2012-2016, followed by the technology and import-substituting factors. The ability of domestic production to replace imports in both periods was only about 8%, meaning that for every 100 VND of additional production output, only 8 VND was stimulated by import-substitution production. This implies that Vietnamese banking and finance sector did not compete well with foreign rivals and Vietnam still imported significant amounts of banking and financial services in the last 15 years.

Table 7 further analyzes the impact of the final demand factor on the change in Vietnamese banking and financial sector's output. In final demand, household demand played a dominant role in generating growth for the sector. Although decreasing

Table 6: *Top five sectors consuming products and services of the banking and finance sector*

Year	2007	2012	2016
Extractive	*	*	5%
Manufacturing and processing industry	13%	23%	19%
Producing and distributing electricity, gas, hot water, steam and air conditioning	5%	*	*
Construction	5%	6%	*
Wholesale and retail; Repair of automobiles, motors, motorbikes and other motor vehicles	5%	15%	17%
Accommodation and catering services	*	5%	4%
Finance and banking insurance	58%	34%	38%
Total intermediate demand	**100%**	**100%**	**100%**

** Industry does not belong to top 5 sectors using products and services of the banking and finance sector (Source: Author's calculation)*

4.2. The sources of output growth of Vietnamese banking and finance sector

Factors affecting the output growth of Vietnamese banking and finance sector which were determined according to Roy et al. (2002) include (1) domestic final demand, (2) exports, (3) import-substitution production and (4) technology. Table 6 shows that domestic demand and exports were the two most important factors that boosted Vietnamese banking and financial sector's output in 2007-2012 compared to the period of 2007-2012, household demand contributed the most, up to 41.81% of the total contribution of 48.05% of domestic demand to the output growth of the sector in the period of 2012-2016.

5. Conclusion

Using the data and IO analysis, the paper presents the supply-demand structure, the shift in the supply-demand structure, as well as sources of the output growth of Vietnamese banking and financial

ISSN 1859-3666

Table 7: *Sources of output growth of banking and financial sector*

Period	2007-2012	2012-2016
Domestic final consumption	54.70%	48.05%
Export	23.08%	29.95%
Import substitution	8.15%	7.86%
Technology	14.07%	14.14%
Total	**100.00%**	**100.00%**

(Source: Author's calculation)

Table 8: *Final demand factors affecting the output growth of banking and financial sector*

Period	2007-2012	2012-2016
Household consumption	48.11%	41.81%
Government consumption	0.74%	1.18%
Accumulation of fixed assets	4.93%	3.57%
Accumulated working assets	0.92%	1.49%
Gross domestic consumption	**54.70%**	**48.05%**

(Source: Author's calculation)

sector in period 2007-2016. From the analysis in section 4, some main points can be drawn about the structure of Vietnamese banking and finance sector.

Firstly, the intermediate input coefficient (the banking and finance sector consumes products and services of other industries) tends to fluctuate with the expansion or contraction of the sector's activities. This intermediate input spending ratio was high in 2007, slightly decreased in 2012, then increased again in 2016, reflecting quite accurately the development stages of the banking and finance sector in recent years. The highlight of the intermediate input structure of Vietnamese banking and financial sector is that the expenditure ratios for machinery, information and communication, and scientific services have been maintained over two stages. Typically these are investment expenditures related to banking technology and are the foundation for creating landmark changes in order to develop products and services and improve the operational efficiency of the sector. Continuing focus on technological processes should be the concern of Vietnamese banking and finance sector in the coming period in order to save input cost and create more added value for the economy.

Secondly, in terms of output, intermediate demand of corporate customers and final demand of household customers always account for the highest proportion in the output structure of products and services of Vietnamese banking and finance sector. Moreover, over the 10 years, from 2007 to 2016, the banking and financial sector has shifted towards increasing the proportion of products and services for intermediate consumption (i.e. for the production of other sectors in the economy). This is a positive shift, whereby the banking and financial sector can spread to other sectors, thereby contributing more to the growth of the whole economy. As such, Vietnamese banking sector should build strategy to keep corporate and household customers, as these would continue to be the main source of revenue and profit for the sector. The sector was continuously a net importer in the period of 2012-2016. Import is an indispensable trend as the economy integrates more deeply into the world, however, the increasing trend of import of services puts Vietnamese banking and finance sector in the face of challenges which requires enhanced mobilization of internal resources to be able to compete with foreign rivals in the future.

Thirdly, the analysis of the sources of the output growth of Vietnamese banking and finance sector in the period of 2007-2016 shows that the most important impact factor is domestic demand, followed by exports, technology, and finally import-substitution production. The contribution of imported alternative production factor has been low and reduced over time, reflecting the limited international competitiveness of Vietnamese banking and finance institutions. This is also confirmed in a number of other studies such as Hoi and Ket (2011), Ivory and Huyen (2019). Vietnamese banking and financial sector needs a solid capacity building strategy to be ready to compete in the open market in the next

ISSN 1859-3666

period. In addition, although technology has made an important contribution to the change of the sector's output, the technology element has not made a breakthrough through two stages of industry development.

Banking and finance is an important economic sector, the lifeblood of the economy. Over the past years, Vietnamese banking and finance sector has undergone significant changes in the direction of investing in modern technology, restructuring according to international standards and improving operational capacity, thus achieving important achievements. However, from the analysis of the article, it can be seen that, in the coming period, Vietnamese banking and finance sector needs to continue improving its operations in the direction of (1) further strengthening the banking technology process, (2) maintaining corporate and household customers and (3) enhancing competitiveness to increase exports and reduce imports of services. An effective banking and financial sector is the premise for the development of other industries and the whole Vietnamese economy.◆

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ISSN 1859-3666
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Summary

Bài báo sử dụng phương pháp bảng đầu vào - đầu ra (IO analysis) để phân tích cấu trúc cung cầu và xác định các yếu tố ảnh hưởng tới gia tăng sản lượng của ngành tài chính ngân hàng Việt Nam trong giai đoạn 2007-2016, từ đó rút ra những lưu ý cho sự phát triển tiếp theo trong tương lai. Kết quả phân tích chỉ ra, về phía cung, mức tiêu hao vật chất của ngành còn lớn vì vậy ngành cần tiếp tục cải thiện quy trình công nghệ để giảm chi phí và tăng giá trị gia tăng tạo ra. Cầu sản phẩm dịch vụ của ngành tập trung chủ yếu cho doanh nghiệp và đang tiếp tục dịch chuyển theo hướng tỷ trọng tăng lên của đối tượng này. Cuối cùng trong các yếu tố đóng góp vào gia tăng sản lượng của ngành, yếu tố công nghệ vẫn chưa được cải thiện nhiều và khả năng sản xuất thay thế nhập khẩu còn rất hạn chế. Do vậy ngành tài chính ngân hàng Việt Nam cần tiếp tục đầu tư về công nghệ và quản lý để tăng cường hiệu quả hoạt động và cạnh tranh với thị trường mở quốc tế.

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