



Financial Development and Economic Growth: Empirical Evidence from *High-Income Countries*

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Abstract. The purpose of this study will be to analyze financial development on economic growth high-income countries. This study uses the panel data with a fixed effect model approach. Data is secondary data starting from 1998–2019 sourced from the World Bank. The results showed that, domestic credit to private sector had a not significant effect on economic growth high-income countries, bank overhead costs had a not significant effect on economic growth high-income countries, net interest margin had a not significant effect on economic growth high-income countries, non-interest income has a significant effect on economic growth high-income countries, gross domestic savings has a significant effect on economic growth high-income countries.

Keywords: Financial Development · Economic Growth · Panel Data

1 Introduction

Economic growth achieved by a country can not be separated from the role of the financial sector. The development of the financial sector is based on the existence of institutions, instruments or markets that are the pillars to encourage a more optimal allocation of capital for investment purposes. In addition, a dynamic financial sector can bring structural changes as a form of increased innovation so that the economy of a country is in a stable condition [1].

The financial sector is a determining factor in supporting economic activities whose role is to provide financial resources. The intermediation function of the financial sector is expected to become an important element and develop optimally in the development policy framework of a country. Financial development can be seen from the indicators of financial institutions and markets that serve as a stimulus to encourage increased investment which has an impact on economic growth [2].

An efficient financial sector that can develop well can integrate financial institutions and markets which will enable financial services to adequately boost their performance and have the potential to withstand economic shocks. Good financial development in terms of structure can reduce obstacles for individuals or companies in obtaining financing from external sources. This can reflect how the financial sector works in encouraging the economy of a country which can be seen from access to finance. In developed countries, financial characteristics can develop rapidly and have a strong potential to bear

financial risks, this is certainly different from developing countries where the financial sector is still inadequate [3].

The financial sector is defined as institutions, instruments, markets, legal and regulatory frameworks that are formulated to reduce costs in obtaining information, entering into contracts, conducting transactions so as to encourage transactions between institutions and financial markets. Financial development as a factor, policies and institutions that lead to financial institutions (banks, insurance, mutual funds and pension funds) and financial markets (stock and bond markets) as well as wider access and financial services [4]. The characteristics of financial development in a country have provided a broader understanding of how the financial sector contributes to the pace and rate of economic growth, because indicators used such as financial institutions and markets are important features to achieve a strong financial sector [5].

The theory of financial development and economic growth can be studied from the early literature of [6] which emphasized that the financial sector as a provider of capital to help the economy continue to grow. In addition, the role of technological innovation is to become an important channel in exploiting the progress of the financial sector. [7] emphasized that to achieve economic growth, structural changes and financial instruments should be the main focus on financial institutions and markets. [8, 9] argue that financial liberalization is the basic principle in promoting economic growth by stabilizing real interest rates in order to increase savings which in turn become a channel for the economy.

Endogenous growth theory from [10–12]. This theory suggests that financial institutions and markets can reduce market imperfections, high information and transaction costs so as to achieve a level of efficiency so that the investments made can achieve high productivity. In addition, [13] emphasizes that financial intermediaries can encourage risk diversification leading to specialization and the use of technology that further increases production. [14] suggests that in the theory of endogenous growth, financial development encourages economic growth through the level of accumulated savings for investment purposes. Resources absorbed by financial institutions can increase the proportion of savings to carry out intermediation functions that are useful for service costs in transforming investments that are valuable to the economy.

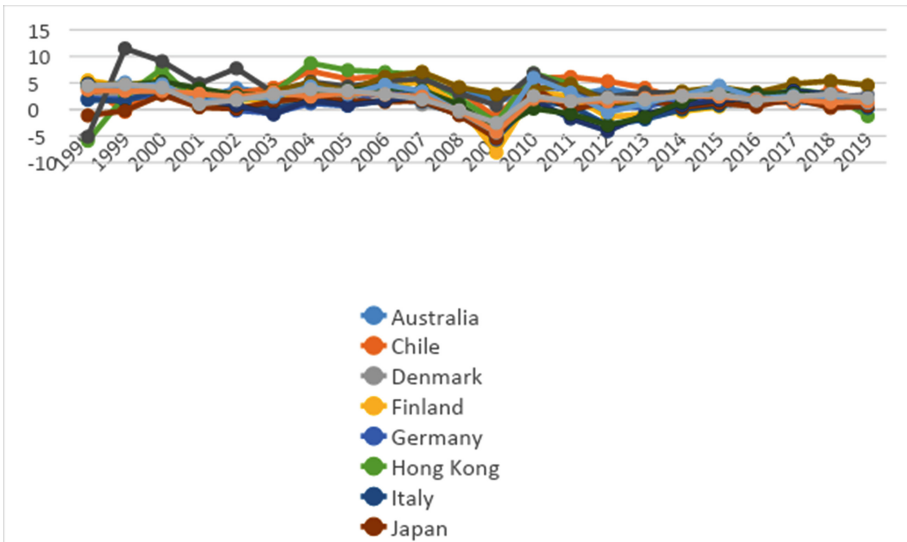
High-income countries have become countries that have a major contribution in contributing to the rate of global economic growth compared to *lower income countries* and *middle-income countries*. Therefore, the assessment seen from the financial sector, both from the perspective of institutions and financial markets, needs to be observed in several groups of countries. In *high-income countries*, the role of the bank and non-bank sectors is more efficient than that of *lower income countries*, *lower-middle income countries* and *upper-middle income countries*. The important role is driven by the financial sector in providing facilities to mobilize funds and allocate more productive financial resources to increase depth, efficiency, access and stability which can immediately see the different conditions in low, middle and *high-income countries* [5].

In general, the economic growth of *high-income countries* has maintained a stable and steady growth, however in this study it is seen that the economic growth conditions of *high-income countries* are also inconsistent in a positive condition. From the data attached to the World Bank, that in 2009 almost all countries recorded negative

growth due to the global financial crisis, except for Italy, Australia, Japan, Korea Republic and Poland, but the growth rate was also low, although Korea Republic was still growing at 6%. Economic conditions in several countries began to experience a phase of improvement such as in Finland, Hong Kong, United Kingdom, Germany, Spain, Sweden and several other countries. However, in the next few years, there tends to be a decline in almost all countries, indicating that *high-income countries* are still experiencing problems in the economy. For data on economic growth in *high-income countries*, see Graph 1.

From Graph 1, it can be seen that Korea Republic achieved the highest economic growth rate that occurred in 1999 at 11.46%. However, the average economic growth in South Korea has fluctuated and tended to decline in the last 10 years. Portugal experienced low economic growth in 2008 of 0.31% and experienced negative growth between 2011–2013. Large countries such as the United States have had stagnant economic growth in the last 10 years, however, the high growth experienced by the United States occurred in 1999 of 4.75%. Likewise, the United Kingdom experienced fluctuations with the lowest growth occurring in 2019 at 1.46%. Japan also experienced the same thing and achieved the highest growth in 2010 of 4.19% and tends to decline in the following year. In 2009 the phenomenon occurred when almost all countries had negative growth, such as in Finland (-8.07%), Denmark (-4.90%) and Sweden (-4.33%). Except for Australia, Korea Republic, Poland and Portugal which experienced positive but not too high economic growth. This phenomenon also occurred in several countries as a result of the 2008 financial crisis.

To analyze financial development and economic growth, there are two views generally put forward by [15], namely, the *supply-leading hypothesis* and *demand-following*



Graph 1. Economic growth date High Income Countries. *Source: World Bank, 2020*

hypothesis. The *supply-leading hypothesis* explains when financial institutions or markets can increase the supply of financial services that can encourage capital absorption so as to achieve economic growth. Meanwhile, *demand-following hypothesis* explains that when the economy in the real sector grows, the demand for financial services will be higher as a form of progress in financial institutions and markets. Along with the many new findings, there is a *causality effect*, either unidirectional or bidirectional in analyzing financial development on economic growth.

The literature that supports *the supply-leading hypothesis* include; [16–25]. Literature that supports *demand-following hypothesis* include: [26–35]. The literature that supports *two-way causality* include; [2, 3, 36–43].

From a broader literature perspective, research by [44] examines financial development and economic growth in France, Germany, United Kingdom, Japan, Korea Republic and the United States. The results of the study indicate that financial development in the country, which is based on banking and the stock market, can spur economic growth. [45] analyzes financial development and economic growth in OECD countries. With the result that financial development indicators can encourage an increase in output so as to be able to mobilize to achieve economic growth. [46] proves that the financial sector can provide a bridge in providing financial resources in achieving economic growth in developed and developing countries. [47] does not find that financial development can spur economic growth in Portugal.

[48] analyze the impact of financial development on economic growth in Sub-Saharan African countries. The results show that financial development can have a positive effect on economic growth as well as the contribution of the real sector output. [49] analyzes financial development and economic growth in 143 countries. With the result that financial development is able to have a positive impact on economic growth. Financial depth from the credit side can be a start for the financial sector in achieving the distribution of financial resources to productive sectors. [50] find that financial development has not been able to drive economic growth in 30 European countries. This is because the process of financial progress has been slow in achieving the transition, thereby reducing the contribution of the financial sector to the economy. [51] with the finding that financial development has a negative impact in 52 countries. [52] with the finding that financial development is able to contribute positively to economic growth in 40 countries. In contrast to the findings from [53] which suggests that financial development has a negative impact on economic growth both in the long and short term in 40 countries.

[54] finds that the financial sector is able to make a maximum contribution to the economic conditions in Nigeria. In addition, credit that continues to grow can accelerate convergence and lead to economic growth. [55] found that financial development can be a link to the growth of productive sectors, so that it can increase output that is useful for economic growth in Russia. [56] found that the financial development of domestic credit indicators can increase economic growth in Poland. [57] found that financial development can spur economic growth in the long and short term in Tunisia.

[58] analyzes financial development on economic growth. The results show that higher growth in financial development has not yet had a positive effect on economic growth in OECD countries. [59] shows that financial development can have a positive

effect on economic growth in European countries. [60] suggests that financial development has a positive influence on economic growth in India. [61] suggest that financial development undergoing structural changes can hamper economic growth and reduce investment and competitiveness in the short term. However, in the long term financial development can spur economic growth. [62] finds that financial development does not have a positive effect in OECD and G20 countries. [63] finds that financial development has a positive effect on economic growth in Sub-Saharan Africa. [64] found that there is a positive influence between financial development on economic growth in 24 African countries. [65] found that there is a positive effect of financial development on economic growth in India.

Research from [66] which analyzes savings and economic growth in Kosovo. The results show that savings can provide investment that can achieve economic growth. [67] found that savings can be a driving factor in achieving economic growth with investments that can increase output. [68] found that savings can have a positive effect on a country economy. [69] found that domestic savings and investment can drive economic growth in Ethiopia.

2 Method

This study aims to examine economic growth in *high-income countries* (Australia, Chile, Denmark, Finland, Germany, Hong Kong, Italy, Japan, Korea Republic, Poland, Portugal, Spain, Sweden, United Kingdom and United States) for the year 1998–2019. To analyze the effect of Economic Growth, the variables used are Domestic Credit to the Private Sector, Bank Overhead Costs to Total Assets, Net Interest Margin, Non-Interest Income to Total Income and Gross Domestic Savings. Sources of data in this study obtained from the World Bank publications. This research uses panel data method. Panel data is a statistical approach that is observational in many units or units over a period of time. In his observations, panel data can control heterogeneity so as to be able to identify or measure undetected effects [70]. The equation of the panel data method can be addressed as follows:

$$EG_{it} = \beta_0 + \beta_1 DC_{1it} + \beta_2 BOC_{2it} + \beta_3 NIM_{3it} + \beta_4 NII_{4it} + \beta_5 GDS_{5it} + \varepsilon_{it}$$

Descriptions:

EG	: Economic Growth
DC1	: Domestic Credit to Private Sector
BOC2	: Bank Overhead Costs to Total Assets
NIM3	: Net Interest Margin
NII4	: Non-interest Income to Total Income
GDS5	: Gross Domestic Savings
t	: Unit year (1998–2019)
i	: United States, Australia, Chile, Denmark, Finland, Hong Kong, United Kingdom, Italy, Japan, Germany, South Korea, Poland, Portugal, Spain and Sweden
β_0	: Constant

$\beta_1 \dots \beta_5$: Variable Coefficient X1, X2, X3, X4, X5

ε_{it} : Error of Term

To analyze research using panel data, there are several stages of approach that must be taken to select the most appropriate model to be used in this research. First, the Chow test to select the common effect model or fixed effect model ($H_0 = \text{CEM}$ and $H_1 = \text{FEM}$); second, the Hausman test to choose a fixed effect model or a random effect model ($H_0 = \text{REM}$ and $H_1 = \text{FEM}$); and third, the Langrange multiplier test to select the common effect model or random effect model ($H_0 = \text{CEM}$ and $H_1 = \text{REM}$).

3 Results and Discussion

3.1 Result

Based on the results of data processing with the panel data method, the results obtained for choosing the best model to be analyzed in this study.

1. Chow Test

Based on the results of the Chow test in the table above, it can be seen that the Chi-Square probability value is 0.0000 where this value is smaller than $= 0.05$. So, H_0 is rejected and H_a is accepted, so the Fixed Effect Model is more appropriate to use in this study than the Common Effect Model (Table 1).

2. Hausman Test

Based on the Hausman test results in the table above, it can be seen that the Chi-Square probability value is 0.0000 where this value is smaller than $= 0.05$. So, H_0 is accepted and H_a is rejected, so the Fixed Effect Model is more appropriate to use in this study compared to the Random Effect Model (Table 2).

3. Estimated Regression Results

In this study, there are variables of Domestic Credit, Bank Overhead Costs, Net Interest Margin, Non-Interest Income and Gross Domestic Savings as independent variables.

Table 1. Chow Test

Effect Test	Statistic	d. f.	Probabilita
Cross-section F	3.744319	(14,310)	0.00000
Cross-section Chi- Square	51.556809	14	0.00000

Source: Data Processed with Eviews 9

Table 2. Hausman Test

Test Summary	Chi. Sq Statistic	Chi- Sq	df	Probabilita
Cross-section random	27.479099		5	0.0000

Source: Data Processed with Eviews 9

Table 3. Result Estimate Regression Panel Data

Variable	Coefficient	Std. Error	t-Statistic	Probabilita
C	-6.341630	1.814354	-3.495255	0.0005
DOMESTIC CREDIT	-0.015792	0.004668	-3.383326	0.0008
BANK OVERHEAD COST	0.075395	0.215892	0.349326	0.7271
NET INTEREST MARGIN	0.235354	0.229060	1.027477	0.3050
NON-INTEREST INCOME	0.045786	0.014002	3.269959	0.0012
GROSS DOMESTIC SAVINGS	0.333901	0.052632	6.344068	0.0000

Source: Data Processed with Eviews 9

While the variable Economic Growth is used as the dependent variable. After testing the selection of the right model above, Table 3 shows the results of the regression estimation equation with the Fixed Effect Model.

Based on the results of the processed data above, the results of the panel data regression equation are as follows:

$$Y_{it} = -6.341630 - 0.015792X_{1it} + 0.075395X_{2it} + 0.235354X_{3it} + 0.045786X_{4it} + 0.333901X_{5it} + \varepsilon_{it}$$

From the regression equation above, it can be seen that domestic credit has no significant effect on economic growth with a regression coefficient of -0.015792. Meaning, if domestic credit increases by 1%, then economic growth *high-income countries* will decrease by -0.015792%. Bank overhead costs have no significant effect on economic growth with a regression coefficient of 0.075395. Meaning, if bank overhead costs increase by 1%, then economic growth *high-income countries* will increase by 0.075395%. Net interest margin has no significant effect on economic growth with a regression coefficient of 0.235354. Meaning, if the net interest margin increases by 1%, then economic growth *high-income countries* will increase by 0.235354%. Non-interest income has a significant effect on economic growth with a regression coefficient of 0.045786. Meaning, if gross domestic savings increases by 1%, then economic growth *high-income countries* will increase by 0.045786%. Gross domestic saving has a significant effect on economic growth with a regression coefficient of 0.333901. Meaning, if gross domestic savings increases by 1%, then economic growth *high-income countries* will increase by 0.333901%.

3.2 Discussion

1. The effect of domestic credit on economic growth *high-income countries*

Based on the processed data in Table 3, the results of hypothesis testing indicate that domestic credit has no significant effect on the economic growth of *high-income countries*. This means that when domestic credit increases, it will not have a significant impact on economic growth in that country. This result is evidence that domestic credit disbursed by financial institutions is still not able to encourage economic conditions in

order to achieve maximum growth. Domestic credit available at financial institutions is not optimally absorbed by the economic sector to be accumulated into capital and to be slow in increasing demand for domestic credit for both consumption and investment, so that it has not been able to support the production of goods and services in encouraging economic growth *high-income countries*.

2. The effect of bank overhead costs on economic growth *high-income countries*

Based on the results of the processed data in Table 3, the results of hypothesis testing indicate that bank overhead costs have no significant effect on economic growth *high-income countries*. This means that when the banks overhead costs increase, it will not have an impact on economic growth. This condition shows that the high bank overhead costs *high-income countries* make banks inefficient due to the high overhead costs incurred by banks. Overhead activities certainly require costs to support the banking sector in carrying out its function as an intermediary for financial institutions. The use of fees that are too high can reduce revenue, decrease service quality and lack of financing, causing banks to experience problems in carrying out their activities. This problem is the cause of the inhibition of the financial sector in having an impact on economic growth.

3. The effect of net interest margin on economic growth *high-income countries*

Based on the processed data in Table 3, the results of hypothesis testing indicate that the net interest margin has no significant effect on the economic growth of *high-income countries*. This means that when the net interest margin increases, it will not have an impact on economic growth. These results prove that the condition of *high-income countries* net interest margins resulting from repayment costs and borrowing from borrowers has not been able to encourage financial institutions to contribute to economic growth. The condition of net interest margins that are not yet good *high-income countries* can hamper the banking sector so that it experiences problems in absorbing income from loan repayments given to borrowers. Banks have a role in setting loan interest rates by considering the availability of available sources of funds. For this reason, banks must analyze the impact and risk of the interest rate offered in order to avoid market risk. As financial intermediaries, banks contribute to lending to borrowers and thus seek to withdraw loans in order to increase financial resources. When the bank is not able to manage finances properly, the bank will experience problems from the assets it receives and are not able to meet the needs of the bank in carrying out its services.

4. The effect of non-interest income on economic growth *high-income countries*

Based on the results of the processed data in Table 3, the results of hypothesis testing indicate that non-interest income has a significant effect on economic growth *high-income countries*. That is, when non-interest income increases, it will have an impact on economic growth. These results prove that when the banks income increases, the non-interest income will become an important factor for the bank to improve its performance in channeling financial resources. Banks that experience an increase in income will have an impact on bank activities and reduce financial risk. For this reason, banks do not only rely non-interest income, but also non-interest income which can increase bank capital. The ability to manage capital resources can determine the banks profitability so that it can improve services and assets in an effort to maximize banking functions. In this case,

non-interest income becomes important in increasing bank income, because this income is sought to anticipate a decrease in interest income when financial resources experience problems in distribution. To carry out its activities, the overall income from the bank generates the funds it has in order to be maximized in encouraging banking performance. The main focus of the bank is the driving factor in emphasizing the importance of financial institutions in managing financial resources that can be an effort to increase economic growth from the financial sector.

5. The effect of gross domestic savings on economic growth *high-income countries*

Based on the results of the processed data in Table 3, the results of hypothesis testing indicate that gross domestic savings has a significant effect on economic growth *high-income countries*. That is, when gross domestic savings increase, it will have an impact on economic growth. A good condition of gross domestic savings in a country is necessary to encourage banks to attract deposits that can be accumulated into capital so that they become financial resources owned by financial institutions. High domestic savings indicate that financial institutions have adequate capacity to channel the financial resources needed by the productive sector so as to encourage the rate of economic growth. The level of domestic savings absorbed by financial institutions can facilitate effective financial resources in allocating capital efficiently which can encourage development in the financial sector. Savings absorbed by the banking sector must be encouraged to become savings that will be accumulated for economic activities. In this case, economic activities that require resources, such as financial resources, become an important factor in encouraging economic activity, so that economic growth in a country can be achieved.

4 Conclusions and Suggestions

4.1 Conclusions

This study analyzes the effect of financial development on economic growth *high-income countries*. The variables used in this study are domestic credit, bank overhead costs, net interest margin, non-interest income and gross domestic savings. This variable is an indicator for development in the financial sector that has been formulated by the World Bank. The results showed that the variables of domestic credit, bank overhead costs, net interest margin, gross domestic savings and non-interest income had a positive effect on the economic growth of *high-income countries*. However, only the savings variable has a significant effect. This result proves that the financial sector of *high-income countries* has not been able to encourage economic growth. In addition, competitive conditions in the financial sector *high-income countries* may result in a decline in the function of financial intermediaries.

4.2 Suggestions

The results of research *high-income countries* are evidence that every country must focus on spurring development in the financial sector. Financial sector development can increase productivity, investment opportunities and reduce risk. In addition, the policies

formulated are expected to improve the quality of institutions and financial markets so that they play an active role in carrying out the function of financial intermediaries so as to spur more productive economic activities and contribute to economic growth.

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Alpon Satrianto: research idea, method, conclusion.

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