Economics Development Analysis Journal 7 (3) (2018)

Economics Development Analysis Journal

Http://journal.unnes.ac.id/sju/index.php/edaj

The Causality Variables of Financial Sector Deepening to Economic Growth in Indonesia 1986 - 2015

Pramesti Widiya Astuti✉

Economics Development Departement, Economics Faculty, Universitas Negeri Semarang

Article Info

Article history of this:
Received April 2018
Accepted June 2018
Published August 2018

Keywords:
Causality, financial sector deepening, economic growth, VECM

Abstract

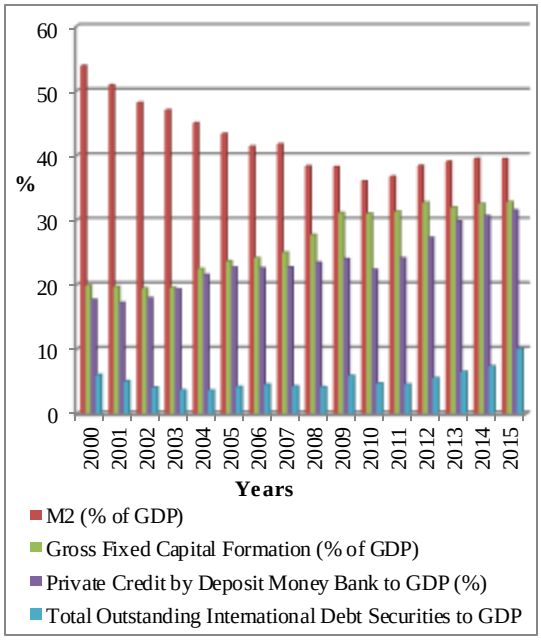
This study aims to examine the causality and role as the variables of the financial sector deepening with economic growth in Indonesia. The test of causality in this research acres using heading Granger Causality Test and VECM test. The tests are conducted using annual data from 1986 to 2015. The result of research using heading Granger Causality shows that there is no causality between M2 ratio with economic growth. While the ratio of private credit by deposit money banks and gross fixed capital formation ratio has a one-way causality with economic growth. The ratio of total outstanding international debt securities with economic growth has bidirectional causality. Based on the results of VECM in the long run, the ratio of private credit by deposit money bank has a negative effect on economic growth and the ratio of total outstanding international debt securities has negative effect and not significant on GDP.

✉Correspondence Author:
Journal's Room, L Building, FE UNNES Sekaran Gunungpati
Semarang 50229, Indonesia
E-mail: pramestiwidiya95@gmail.com

ISSN 2252-6965

INTRODUCTION

Economic growth is a process where there is an increase in the number of reply services on the use of real factors production or increase in real gross national product (Prasetyo, 2012). Sustained economic growth can be achieved by way of building a strong economic fundamentals by creating a wide range of instruments and products in the financial sector. The existence of the development of the financial sector will be able to encourage economic growth. Developments in the financial sector could be through increased efficiency of investment and the use of resources through investment.



Picture 1. Variables Of Financial Sector Deepening
Source: World Bank, (2017a & 2017b)

The existence of improvement on these variables financial ad that occurred from 2011 until 2015 is expected to provide the increase in economic growth in Indonesia through the existing financial system so that it can run the best possible in accordance with its function, i.e. the function of financial intermediaries. The higher the ratio of financial assets to GDP can mean there is an increase in the use of money in the economy and will enlarge the existing activities also expanded on financial institutions in the economy in a country (Nasution, 1990 in Ruslan, 2011).

Levine (1997) states that there are four stages of the financial sector development. First, the financial sector began to experience development. Second, the role of the banking sector is increasingly play an important role in channelling of credit compared with the central bank. Third, the growing nonbank financial sector and a fourth, the development of stock exchanges in the country.

According to the hypothesis of Patrick (Patrick, 1966 in Odhiambo, 2008), the direction of causality between financial development with economic growth changes during development is the development of the Financials will drive innovation in the real investment before modern continuous economic growth, and along with the growth of the capital stock of the impulse, gradually become less important so demand-response following became dominant.

On demand-following hypothesis States that every effort is beginning to develop the financial markets may lead to a waste of resources that could be allocated to more useful purposes in the early stages of growth. Along with the economic upturn, it sparked a growing demand for more financial services and thus will lead to greater financial development (Ohwafasa, 2013).

On the second view namely supply-leading hypothesis suggests that the existence of financial growth can encourage economic growth. This hypothesis argues that financial institutions that function properly can encourage economic efficiency overall, creating and expanding liquidity, mobilizing savings, increasing the capital accumulation, diverting resources from the traditional sectors (not grow) to encourage the growth of the sector that is more modern, and also promote a competent company (Ohwofasa, 2013).

The relationship between financial deepening variables with economic growth can also experience a two-way relationship in which the flow is called with the bi-directional

causality view. The bidirectional causality hypothesis view States that the existence of the development of the financial sector will boost the economy in the activities conducted through product innovation, as well as the service and the existence of technological advancement. On the deepening of financial variables with economic growth could also be there is no relationship of mutual influence which is also called the independent hypothesis (Schumpeter, 1912 in Ruslan, 2011).

Financial sector deepening will enhance economic growth because it can allocate funds effectively on potential sectors, minimize risks with financial product diversification, increasing the level of investment by the use of the efficient (Alejandro, 1985, Gregorio, 1999, in Tama, 2015).

A study carried Inggrid (2006), identify about the impact of the development of the financial sector to economic growth in Indonesia. First, the moneterisasi symptoms and securitization as part of the product innovation in financial products cause the behavior of the amount of money circulated that there is the community experienced a change. Second, the existence of the development of the financial sector made causation between monetary variables and variables in the sector gives you real-become more difficult predicted. This makes the function of the demand for money becomes less stable behavior when used as the prayers of monetary management tools.

On the other study showed that the financial sector deepening was found to be able to have a negative effect on economic growth in the study by Ardı and Damar (2006) in Turkey. The results of this research is contrary to previous research that there is a strong negative relationship between financial sector deepening and economic growth. This is due to the fact that at that time the main function of banks is to provide financing of the Turkish Treasury.

Know the role of the financial sector is very important. What is the financial sector deepening has influence and related or not. Therefore, this research aims to analyze more information about the causality and the influence of the variables of financial sector deepening to economic growth in Indonesia during the period of 1986 - 2015.

RESEARCH METHOD

This research is a type of quantitative research. The types of data that is used is a secondary data in the form of annual data (annual time series) on 1986 until 2015. The variables used among others diproksikan economic growth GDP growth, the ratio of the amount of money supply (M2), the ratio of private credit by deposit money banks (PSC), the ratio of gross fixed capital formation (GFC) and the ratio of total outstanding international debt securities (Total_Out).

Analysis methods used in this research is the Vector Error Correction Models (VECM). The tests must be passed in VECM method among other methods of testing pra-estimation that consists of a root unit test/test stasioneritas, lag optimum test, cointegration test, stability test of the VAR/VECM, and granger causality tests. After pra-estimation test is done, then done VECM test to see the relationship between short-term and long-term (Basuki & Parwoto, 2016).

Testing The Impulse Response Function to be done to see the response shock economic growth against the shock that occurs on the variables of the financial sector deepening. Then the last test the Forecast Error Variance Decomposition to see the massive comparison influence from each of the variables in the financial sector deepening ad affect the shock on the economic growth. This research used in consists of five model, to see the relationship between the variables a deepening of the financial sector and economic growth. Vector Error Correction Models (VECM) used in this research is :

1. $GDP_{growth_t} = \beta_1 + \beta_2 GDP_{growth_{t-1}} + \beta_3(\frac{M2}{GDP})_{t-1} + \beta_4(\frac{PSC}{GDP})_{t-1} + \beta_5(\frac{GFC}{GDP})_{t-1} + \beta_6(\frac{Total\_Out}{GDP})_{t-1} + \mu_t$

2. $\frac{M_2}{GDP_t} = \beta_1 + \beta_2 GDP_{growth_{t-1}} + \beta_3(\frac{M2}{GDP})_{t-1} + \beta_4(\frac{PSC}{GDP})_{t-1} + \beta_5(\frac{GFC}{GDP})_{t-1} + \beta_6(\frac{Total\_Out}{GDP})_{t-1} + \mu_t$

3. $\frac{PSC}{GDP_t} = \beta_1 + \beta_2 GDP_{growth_{t-1}} + \beta_3(\frac{M2}{GDP})_{t-1} + \beta_4(\frac{PSC}{GDP})_{t-1} + \beta_5(\frac{GFC}{GDP})_{t-1} + \beta_6(\frac{Total\_Out}{GDP})_{t-1} + \mu_t$

4. $\frac{GFC}{GDP_t} = \beta_1 + \beta_2 GDP_{growth_{t-1}} + \beta_3(\frac{M2}{GDP})_{t-1} + \beta_4(\frac{PSC}{GDP})_{t-1} + \beta_5(\frac{GFC}{GDP})_{t-1} + \beta_6(\frac{Total\_Out}{GDP})_{t-1} + \mu_t$

5. $\frac{Total\_Out}{GDP_t} = \beta_1 + \beta_2 GDP_{growth_{t-1}} + \beta_3(\frac{M2}{GDP})_{t-1} + \beta_4(\frac{PSC}{GDP})_{t-1} + \beta_5(\frac{GFC}{GDP})_{t-1} + \beta_6(\frac{Total\_Out}{GDP})_{t-1} + \mu_t$

RESULTS AND DISCUSSION

The Unit Root Test

Table 1. The Test Results of The Unit Root on Level

The Variables	Critical value Mac Kinnon (real rank 5%) The Level	The Value Of Phillip Perron The Level
Economic growth (GDP)	-1.95291	-1.913064
M2/GDP	-1.95291	0.137678
Private Credit by deposit money banks to GDP (%)	-1.95291	-0.335246
Gross Fixed Capital Formation (% of GDP)	-1.95291	0.559087
Total Outstanding International Debt Securities to GDP (%)	-1.95291	-0.18323

Source: secondary data, processed

The method used to test the unit root on this research is the Philips Perron, Test (PP Test). If the data contains the unit root / not stationary, then in upgrading the estimation of a model will have difficulty because of the trend of data tend to fluctuate not on averages (mean) (Basuki & Parwoto, 2016).

Test results stationery test on the variables of economic growth, the ratio of money circulated, private credit by deposit money banks ratio, the ratio of gross fixed capital formation and the ratio of total outstanding international debt securities indicates that the data is not stationary at the level or it can be said that the data contains the unit root. This can be seen from the values of statistics PP test greater than the critical value MacKinnon on the real level five percent.

Table 2. The Test Results of The Unit Root on The First Difference

The Variables	Critical value Mac Kinnon (real rank 5%) First Difference	The Value Of Phillip Perron First Difference
Economic growth (GDP)	-1.953381	-16.74655*
M2/GDP	-1.953381	-2.822149*
Private Credit by Deposit Money Banks to GDP (%)	-1.953381	-2.418444*
Gross Fixed Capital Formation (% of GDP)	-1.953381	-3.023153*
Total Outstanding International Debt Securities to GDP (%)	-1.953381	-4.497712*

Source: secondary data, processed

Based on table 2, variable economic growth, the ratio of money supply, private credit by deposit money banks ratio, the ratio of gross fixed capital formation, and the ratio of

total outstanding international debt securities already stationary in first difference. This is apparent from statistical value PP test smaller (more negative) than the critical value of MacKinnon on the real level of five percent. The use of different data on the rate level, is not recommended because it can eliminate long-term information. This means that the data used in this study have been stationary on the order of one I (1).

Granger Causality Test Results

Table 3. Granger Causality Test Results

Null Hypotesis:	F-stats	Prob.
D(M2) does not Granger Cause D(GDP)	0.98884	0.3879
D(GDP) does not Granger Cause D(M2)	1.02557	0.3751
D(PSC) does not Granger Cause D(GDP)	1.42255	0.2624
D(GDP) does not Granger Cause D(PSC)	62.4552	8.E-10
D(GFC) does not Granger Cause D(GDP)	2.12883	0.1428
D(GDP) does not Granger Cause D(GFC)	7.14080	0.0041
D(TOTAL_OUT) does not Granger Cause D(GDP)	7.12069	0.0041
D(GDP) does not Granger Cause D(TOTAL_OUT)	10.4123	0.0007

Source: secondary data, processed

Granger causality test results between the variable ratio of M2 with economic growth indicate that there is no relationship between the variables. Thus, prove that there exists the independent hypothesis.

On the variables of economic growth against the ratio of private credit by deposit money banks (PSC) did not occur, but the causality of the ratio of the ratio of private credit by deposit money banks (PSC) against economic growth have one-way causality (supply leading hypothesis). The existence of economic growth would require more capital to increase the activity of the economy in the community. It takes enough capital to improve the economy in this community activity largely offered by the banking sector through the distribution of credit for investment and working capital.

Granger causality test between the variable ratio of gross fixed capital formation (GFC) and economic growth (GDP) proved that there is a supply of the leading hypothesis between the ratio of gross fixed capital formation towards economic growth, which means on There is a one-way causality between both variables.

Granger causality test results of variable ratio of total outstanding international debt securities and economic growth indicate that there is a bi-directional causality view between the ratio of total outstanding international debt securities against economic growth (GDP) and economic growth against the ratio of total outstanding international debt securities, which means there are both on the relationships between variables.

The Results of The Estimation of VECM

Table 4. The test result VECM

Error Correction Term			-0.03433
T-table			2.05954
Variables	Coefficient	Std. Error	T-stats
D(GDP (-2))	-2.435819	0.37810	-6.44223
D(M2(-2))	0.955354	0.38116	2.50641
D(PSC(-2))	-0.238672	0.25373	-0.94066
D(GFC(-2))	2.229685	0.77998	2.85864
D(TOTAL_OUT(-2))	-6.186830	1.27571	-4.84971

Source: secondary data, processed

VECM estimation results in the long run shows that the variable ratio of money supply, private credit by deposit money banks ratio,

and the ratio of gross fixed capital formation has influence long-term economic growth. As for the variable ratio of total outstanding international debt securities have no effect on the long term, indicated by a value of the t-statistic is less than the value of the t-table with the real level of 5%. The results of this research, supports research Ghildiyal, Pokhriyal, and Mohan (2015) which states that in the long run, economic growth can be affected by the financial sector deepening.

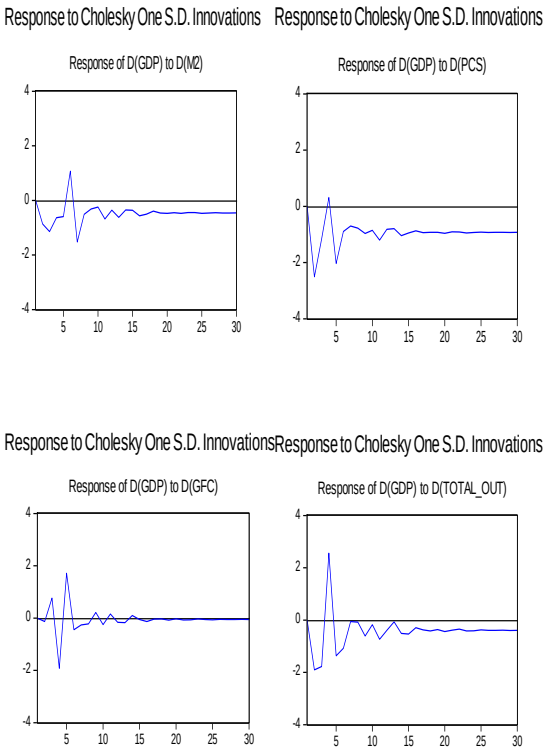
The ratio of money supply will affect positively and significantly to economic growth in the long term. The existence of positive influence that happened shows that availability of resources because the expansion will be a function of payment and deposits can create increased investment. The funds mobilized by this good, then have an impact on the improvement of economic growth.

The ratio of private credit by deposit money banks towards economic growth are significant and has the negative effect. These negative influences that does not correspond to the initial hypothesis which states that the ratio of private credit by deposit money banks against economic growth has a positive influence. This is due to the presence of an increase in the ratio of the banking credit in the private sector will be followed by an increase in banking credit risk will be. In addition, most of the credit disbursed in the form of banking credit investment credit instead of the consumerist can encourage economic growth (Swaningrum, 2014).

The ratio of gross fixed capital formation will effect positively and significantly to economic growth in the long term. The increase in economic growth can be accelerated through an increase in gross fixed capital formation which rapidly. This is due to one of the media to mobilize savings and channel it into businesses that are rated more productive to improve economic growth can be through the formation of gross fixed capital (Safari, 2016).

The ratio of total outstanding international debt securities has the negative effect and was not significantly to economic growth in the long term.

Results of The Impulse Response Function



Picture 2. Economic Growth Response To Shocks of The Variables of Financial Sector Deepening
Source: secondary data, processed

Based on the results of the IRF, Indonesia's economic growth response against the shock this monetization rate ratio does not run in accordance with the initial hypothesis, which is the ratio of the rate of monetization will effect positive toward economic growth. The negative response that occurs this indicates that an increase would amount to excessive money supply in the long run may harm the economy. The amount of the excess money supply encouraged an increase in price that exceeds the price level that had been expected. This result is inconsistent with that expressed by Mukhlis (2005) States that the greater the ratio of the amount of money circulating

against GDP will show an increasingly efisiennya financial system in terms of mobilizing funds so that it can accelerate the process of economic growth.

Shock at the ratio of private credit by deposit money banks responded negatively by economic growth due to the existence of an investment loan growth was still slow and largely credits consumer credits are disbursed. Excessive loan growth especially on the consumerist will credit increases aggregate demand which will have an impact on rising inflation.

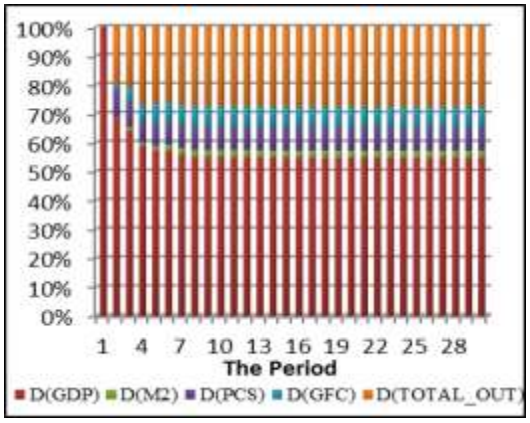
Policy authority must be able to anticipate the risks and can identify when considered excessive loan growth so as to memimbulkan the risks for the stability of the economy of the country (Utari, Arimurti, and Kurniati, 2012).

Shocks on the ratio of gross fixed capital formation by 1 standard deviation responded negatively by economic growth. An increase in gross fixed capital formation in that tremendously can lower economic growth. Gross fixed capital formation is the media to mobilize savings and channel it into businesses that are rated more productive so that at a certain period of increased economic growth is yet to be seen because of berfokusnya development efforts on more productive or infrastructure improvements.

Shocks on the ratio of total outstanding international debt securities by 1 standard deviation responded negatively and positively by economic growth at the beginning of the period. Ratio of number of jolts outstanding international bonds responded negatively by economic growth partly due to interest payments on debt undertaken by publishing new debt.

This will certainly have an impact on the rising debt interest payments. The ratio total outstanding international debt securities when passing the threshold will require resources that are allocated more to pay the principal and interest on debt so that economic growth will increasingly decline (Rachmadi, 2013).

The Results of Forecast Error Variance Decomposition



Picture 3. Forecast Error Variance Decomposition of economic growth in Indonesia

Source: secondary data, processed

The ability of the growth ratio of M2/GDP in explaining economic growth tend to experience increased in every period features, although at the beginning of a period of economic growth cannot be explained by the growth of M2/GDP ratio. Graph 3, can be seen that the contribution ratio of the private credit by deposit money banks tends to be constant and increasing against economic growth and greater than the contributions rather than the ratio of money supply, gross fixed capital formation and the ratio of international debt securities against economic growth. Contribution ratio of total outstanding international debt securities against economic growth tends to decline, but has a high contribution in addition to the value of the variable economic growth itself and variable ratio of private banking credit.

CONCLUSION

The ratio of private banking credit have a one-way relationship towards economic growth, and the ratio of the number of outstanding international bonds with economic growth have a two-way relationship.

Based on the results of the Impulse Response Function (IRF), just the jolts on the variables of financial deepening responded negatively by economic growth. Based on the results of the Variance Decomposition (VD) showed that the ratio of private banking credit variables are dominant in analyzing the impact of the financial sector deepening against economic growth. In pushing economic growth, it takes the role of the public and financial institutions in mobilizing funds that exist in society and also the use of would be outstanding foreign debt securities are also supposed to be directed towards the financing of investments the public so that economic development will be achieved and economic growth will experience an increase.

REFERENCES

Ardic, Oya P., & H. Evren, Damar. 2006. *Financial Sector Deepening and Economic Growth: Envidence From Turkey*. Turkey : Bogazici University

Basuki, Agus T., & Prawoto, N. 2016. *Analisis Regresi Dalam Penelitian Ekonomi & Bisnis : Dilengkapi Aplikasi SPSS & Eviews*. Depok : Raja Grafindo Perada.

Ghildiyal, V., Pokhriyal, A.K., Mohan, A. 2015. Impact Of Financial Deepening On Economic Growth In Indian Perspective: ARDL Bound Testing Approach To Cointegration. *Asian Development Policy Review. Volume 3 (3)*. pp. 49-60.

Inggrid. 2006. *Sektor Keuangan dan Pertumbuhan Ekonomi di Indonesia: Pendekatan Kausalitas dalam Multivariate Vector Error Correction Model (VECM)*. Surabaya : Kristen Petra University.

International Monetary Fund. 2017. *International Financial Statistics*. Accessed on June 14th, 2017

Levine, Ross. 1997. Financial Development and Economic Growth: Views and Agenda. *Journal of Economic Literature*. Volume XXXV. pp. 688-726.

Mukhlis, Imam. 2005. Analisis Financial Deepening di Indonesia Tahun 1975-2000. Ekofeum Online. *Jurnal Ekonomi Pembangunan*, FE UM

Odhiambo, Nicholas M. 2008. Financial Development in Kenya : a Dynamic Test of the Finance-led Growth Hypothesis. *Journal of Economic Issues*. Volume. 13 Part 2. pp. 21-36

Ohwofasa, Bright O., & Aiyedogbon, J. Olu-Coris. 2013. Financial Deepening and Economic Growth in Nigeria, 1986-2011: An Empirical Investigation. *Journal of Economic and Development Studies*. 1(1) : June 2013. pp. 24-42

Prasetyo, P. Eko. 2012. *Fundamental Makro Ekonomi*. Cetakan Keempat. Yogyakarta : Beta Offset.

Rachmadi, Arif L. 2013. *Analisis Pengaruh Utang Luar Negeri Terhadap Pertumbuhan Ekonomi Indonesia (Studi Kasus Tahun 2001-2011)*. Malang: Economics & Bussiness Faculty, Brawijaya University.

Ruslan, Dede. 2011. Analisis Financial Deepening di Indonesia. *Journal of Indonesian Apllied Economics*. Vol. 5 No. 2: Oktober 2011. Pp. 183-204

Safari, Menik F. 2016. Analisis Pengaruh Ekspor, Pembentukan Modal, Dan Pengeluaran Pemerintah Terhadap Pertumbuhan Ekonomi Indonesia. *Essay*. Yogyakarta: Economics Fakulty, Universitas Negeri Yogyakarta.

Swaningrum, Ayu. 2014. Hubungan Pertumbuhan M2, Pertumbuhan Kredit Perbankan, dan Pertumbuhan Kapitalisasi Pasar Saham Dengan Pertumbuhan Ekonomi. Essay. Sumedang: University of Padjajaran

Tama, Cintya M. 2015. Studi Financial Inclusion dan Financial Deepening Di Indonesia. *Essay*. Jember : University of Jember.

Utari, G.A Diah., Trinil, A., & Ina, Nurmalilia K. 2012. Pertumbuhan Kredit Optimal. *Buletin Ekonomi Moneter dan Perbankan, Oktober 2012*. Bank Indonesia

World Bank. 2017a. *World Development Indicators*. http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators#. Accessed on June 12th, 2017

World Bank. 2017b. *Global Financial Development Database*. http://databank.worldbank.org/data/reports.aspx?source=global-financial-development#. Accessed on June 12th, 2017