RESEARCH ARTICLE

REGIONAL DIMENSION OF FINANCIAL SECTOR POLICIES AND ITS IMPACT ON REGIONAL ECONOMIC GROWTH IN INDONESIA

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ARTICLE INFO	ABSTRACT
	The global economy slow-down have seriously impact to financial market performance and Indonesian economic as well. However, as a consequently, some macroeconomic targets might be difficult to be realized. Although economic slowdown still running away, some aspect of regional resources can be managed optimally for encouraging national target of economic growth of Indonesia. This study focuses on the impact of central authorities of fiscal and monetary policy combined that will be impact on regional dimension context, especially for investigating financial market nd deepening process that might be have significant impact to riel sector in regional economic context. This research found that the real GDP growth of the three economic corridor have difference performance impact and outcome between Java corridor, non Java with mineral and forest production (Sumatra, Kalimantan, Sulawesi, Papua) and non Java tourism and Food production (Bali, NTB, NTT).

INTRODUCTION

The financial development issues have more focused on the potential effects of financial as the key for economic growth ((McKinnon, 1973; Shaw, 1973), and furthermore by the next process, that financial development impact both of economic growth and the distribution of income inequality (Demirguc-Kunt and Levine (2009). According to the Human Development Report in 2011 shown that overall income inequality has tendency to be increased. A poorly developed financial system may therefore increase the persistence of the gap between the rich and poor. Although the policy stance of financial development will be correctly done, but the policy impact to some regions might be differ between regions. The financial development process or the general quality of a financial system may affect capital allocation, jobs and income distribution which in turn has an effect not only for economic growth of one country in general, but also on the demand for labor across sectors, thus influencing income levels for different parts of the regions. A number of studies have linked finance to inequality with analyses based on arguments of the growing literature on finance and inequality that primarily focuses on the potential effects of financial development in the distribution of income effect to the nations.

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The development of the financial sector is believed to have impact some macroeconomic functions that are the financial intermediation, the international capital mobility and supporting more financial deepening for encouraging economic growth. Some pioneering study such as Goldsmith (1969), and some research focused on the relationship between financial deepening and economic growth (Beck and Levine, 2004; Beck, Demirguc-Kunt, Luc and Levine, 2008), otherwise, poorly developed financial system may therefore increase the persistence of the gap between the rich and poor. In addition, financial development or the general quality of a financial system may affect capital allocation, which in turn has an effect not only on economic growth in general, but also on the demand for labor across sectors, thus influencing income levels for different parts of society. While it is still too early to accurately gauge the full impact of the financial development to regional income distribution form in Indonesia economic is strong related which each-other, however, it is clear that the regional economic resources and the quality of local government managerial and its policy power because of decentralization power delegation from central authority to the 34 provinces in Indonesia become perform different outcome. The benefit from liberalizing the financial market will be almost improving banking industry intermediations and therefore open more opportunities for entrepreneur and investors to achieve some capitals they need to finance their operational cost, so that the capital market captures high

relation and more deepening financial transactions (Beck and Levine, 2000), than encouraging economic growth. This paper also support as Marcelin and Mathur, (2013) states that the slow process of financial market development would be impact to banking intermediation and that the financial market become captures as financial shallows. Although the financial development become more liberalized in Indonesia, it still become crucial issues for connecting between financial development and income inequality between regions. The strategic issues that how financial capital market conditions would be impact to real economic activity with the same policystance, but with the different outcomes (Carlino and DeFina, 1998). Updating macroeconomic policy issues indicates discussion continue heatedly debated within a large body of literature (Owyang and Wall, 2009); Duran and Edim, 2014).

Based on conventional theory of monetary economics that monetary policy is primarily designed to discuss for national purposes, such as price stability, money aggregates instrument, interest rate policy, but its might be impact slightly different across regions and sectors (Carlino and DeFina, 1999); Anagnostou and Papadamou, 2012; Goodness and Ragan, 2012) and as we continueing to search that Indonesia monetary policy decisions may have strong effects in some regions and have just a little effects into others regions, wille be further impact to be consequently of the increasing income inequality between regions in Indonesia. The conventional theory of inflation targeting formulated by Bernanke and Gertler, (1995), and Taylor (2000) as policy recommendation for Central Bnk of Indonesia and its policy implication as one monetary policy for all regions, will be continue heatedly debated within the reasons of why some regions may respond more strongly or little respond is the policy challenging topic both theoretically and empirically as some study selected found (Carlino and DeFina, 1999); Anagnostou and Papadamou, 2012; Goodness and Ragan (2012), Agus M Ridwah (2012). Indonesia have more than 240 billion population, with Jakarta as the center of government and also the center of trade and industries distributed alongside of Java, otherwise there are some regions outside Java were less developed areas.

Literature Reviews

The macroeconomic modeling is developed in this reasearch based on some literatures that more focused on interest rates sensitives rather than the monetary aggregates instrument policy. Bernanke and Gertler, (1995), Taylor (1993), Anagnostou and Papadamou, 2012) that summarized the interest rates channel as the instrument for supporting economic growth via credit channel and its macroeconomics impact at the next periods to the form of regional income redistribution and inflation.

Regional Dimension of Financial Development Performance

The initial development of financial development theory would be hypothesis that the interest rate policy as one monetary policy stance to many regions (the sixth regions), than responsiveness of a region to a monetary policy shock depends on its industrial structure. (Carlino and DeFina, 1998; population density (Carlino and DeFina, 1999). Some regions

that become the center of manufacturing industries have more responsive of interest rates instrument sensitives to output (Ridhwan et al., 2010). The second channel that interest rates instrumens is sentitives to make different outcome in regional setting is the credit channel that might be slightly differs between regions is that according to the fact that the regions look very sensitive to the related firms sized and banking sizes that performs different service and access to financial resources.

The cooridor Java is the central of manufacturing with large firms generally have greater financial access resources compared with other regions outside Java. The third channel would be different perform in some regions will be concerns with the transmission of monetary policy via exchange rate, as we assumes that regions cannot closed to internasional trade market, however, exchange rates play important role in supporting export–import activities (Jalil, 2012); Mah et al., 2010). In this cases, the trade sensitives to exchange rates is depend on competitiveness based of the regions. The Fourth channel would be the role of financial deepening that might be perform in different outcome. As Levine and Zervos (1996) states that financial development empirically have strong relation with economic growth. Gordon dan Winton (2001) argue that the financial reform and development in some countries since 1970's empirically improved economic growth of the nations. The financial reform and liberalization of Singapore was improved financial structure more effectively (Yong and Nah (2012. Another study of financial deepening reported by Ang (2005) for Malaysian financial liberalization that successfully support the better condition for the country financial marjet structure.

In the case of financial deepening channel, Francis et al., (2011) have found that the impact of monetary shock is slightly different between regions in United Kindom. The differencies respond in monetary shocks mainly caused by regional density of population and the scale of government service of that regions. Cortes and Kong (2007) reported the centralized monetary policy stanch of China have different impact and outcome between regions. These differences would be occurs because of different geographic of industrial activities and agricultural area. In industrial sector, transaction is more gradual rather than in agricultural region.

Macroeconomic Modeling

Regional dimension of monetary policy will be developed based on Dow dan Montagnoli (2010) that evaluating the monetary policy instrument as suitable for financial market development in the regions. The first model developed is to design the financial market formulation in thase regions, and at the second steps is to examine the monetary shocks of using interest rates as monetary policy instrument, and for any reason of open economy that currently updates, so that the monetary shocks also come from the movement of fluctuation of exchange rate dynamics. While it is both of interest rate and exchange rates are monetary policy instruments and conducted as one policy for many regions, and we tends to believes as Dow and Montagnoli (2010), Cortesd and Kong (2007) that the centralized monetary policy stanced have different outcome because of different in economic industrial structure of the regions (Ridhwan et al., 2011); Francis et al., 2011).

MATERIALS AND METHODS

Data Sources

The data used of this research is come from regional time-series data pubished by Statistical office Jakarta (BPS, 2015). The time series data available is depend on the macroeconomic variable that design for. We used 25 series data from 1989 to 2015, which that devided into three economic corridor of Indonesian economy. The first economic corridor is the trade and manufactured centered Java economic corridor. The second economic corridor includes Sumatra, Kalimantan, Sulawesi and Papua as known potentially in mine and mineral sources production.

The Third economic corridor is Bali, NTB and NTT that can be identified as the tourism and food ad plantation production. We believe the three type of economic corridor will be take as the similarity of economic sourves, social problems and manpower available for economic development process.

Data Analysis

The limitation of data series that less than 30 years of data sample, because of that data sources limitation, than TSLS methods impossible to use (see Pyndick and Rubinfeld (1994). However, we developed the three model separated supporting by ordinary least square (OLS) methods of trime series data sources. We consider the Granger test of stationary ECM and cointegration testing procedure to evaluate the quality of data series that are stationaire or not and aonther steps of autocorrelation test that must be important in the case of time series data quality.

Research Hypothesis

We follow the empirical model of Beck, Demirguc-Kunt, Luc and Levine, 2008; Beck and Levine, 2004; Johansson and Wang (2014), and Jalil (2012) to test the financial deepening of selected regions in Indonesia, and its relation to forming economic growth among regions. Economic growth (y_t) is dependent variable that influences by domestic financial saving (fs), domestic financial credit (fc), and macroeconomic variable control of regional inflation (Inf). We used regional inflation as controlled variables that expected to support the main modeling of financial development for encouraging economic growth at the region level

$$y_t = \alpha_1 + \beta_1 fs_t + \beta_2 fc_t + \beta_3 \inf + e_1$$

The equation above is developed for investigating the prediction model of financial deepening of the three block regions in Indonesia and its relation to economic growth.

RESULTS AND DISCUSSION

Statistical Testing Procedure of Time Series

To achieve the core objective of this paper of analyzing the macroeconomic impact of the three economi corridor of Indonesia, sucah as Java corridor, outside Java of mine production (Sumatra, Kalimantan, Sulawesi and Papua), and outside Java for tourism (Bali, and Nusa Tenggara), this macroecomic of corridor is design to adopted ann ordinary least squate methods to investigate the impact of economic growth and financial development within b the regions. We investigated the role of financial market of saving mobility and financial market of credit transaction mobility, while regional inflation will be take part as controllable macroeconomic variable. We estimated using OLS regression methods, and prepared that regression methods under evaluation of stationarity of series testing of error correction model (ECM) for detecting the short run stability of data series, and considering the co integration testing of Granger procedure to test whether the model have forming of long run stability or not. We used test for the stationarity of the variables to ascertain their order of integration, we used Granger representation (Gujarati, 2004). Table 1 presented the stationarity short run stability test of ECM model. As shown in Table 1, the short run stability of ECM test indicated only model 1 has 5% significant level, otherwise the model 2 and model 3 fail to capture the significant level of 5%.

Table 1. Stationary ECM Test

Modeling	Type of Corridor	t-statistics	Prob.
Model 1	Bali Nusra Tourism	2.391	0.0314
Model 2	Java Region	0.015	0.9875
Model 3	Outside Java Mine	1.295	0.2160

Sources: Own calculation.

However, although the model does not satisfy in ECM methods, we do believe that the long run stationary test indicates by integration will be more consider ability rather than in short run stability. According to calculation of integration test as shown in Table 2, presented that all model are integrated based on probability level of t-statistics less than 5%. The probability value of less than 5% as presented in Table 2 is assign to be a successful long run stability of all the model includes in this research, therefore we can concluded that the data sources are satisfied enough to be used in OLS time series modeling.

Table 2. Stationary Cointegration Test

Modeling	Type of Corridor	t-statistics	Prob.
Model 1	Bali Nusra Tourism	4.726	0.0002
Model 2	Java Region	2.978	0.0080
Model 3	Outside Java Mine	3.357	0.0035

Another test of time series data is the fact that under the residual testing procedure of Breusch-Godfrey serial correlation LM test indicated that all the model assign free of autocorrelation.

Estimation of Economic Corridor Indonesia

Another evaluation of data series are assigning the F-statistical test and the power of explation of the model calculated with R^2. Table 3 presented the final calculation of all the model tht are significant with 5% and have information quality of the explanation power to model 1 that has $R^2 = 0.89$, model 2 with $R^2 = 0.84$ and finally model 3 with $R^2 = 0,91$.

Based on these statistical test evaluations, we can therefore used all the model for prediction of financial deepening as supporting economic growth of the separated regions in Indonesia. Table 3 presented the statistical test of F-statistics and the power of quality model R2.

Table 3. F statistical significant test and the Power of Explanation R2

Model Name	Discription	F-Statistics	Prob.	R2
Model 1	Bali Nusra Tourism	44.039	0.0002	0.89
Model 2	Java Growth Center	30.004	0.0010	0.84
Model 3	Non Java Mineral Product	56.982	0.0004	0.91

We have conclude that the financial deepening that hyphotesizes (Beckers *et al.,* 2010), and Montagoli *et al.,* 2010) consistency supported by this empirical explanation. But, in contrast, we have note that not of the region have the same statistical sign. When we focus on the existence of partial contribution to the research model, we found that the market segment of financial saving and credit realization are difference between regions. This is our first empirical evidence that the central authority become considering policy action to have a look that the financial market performance have different impact and outcome to regional economic growth. The second empirical research we have found that the regional inflation impact is negatively to gross domestic product (Yt), so that our basic theoretical model support the empirical of fenomenon relation between GDP and inflation. We than used functionaly the regional inflation as controllable macroeconomic variables that consistence for all the models we builds.

Table 4. The Effect of Financial Market on Regional economic Growth

Intercept	Bali (Model 1)	Java (Model 2)	Non Java Mine (Model 3)
Financial market of Saving	13.228	-1.782	-1.636
	t = (11.34)	t= (2.253	t= (2.934)
Financial Market of Credit	-12.268	4.052	5.248
	t= (5.669)	t= 5.419	t= (9.591)
Regional inflation	-0.329	-0.088	-0.115
	t= (2.829)	t= 2.173	t= (3.043)

We have argued that financial development affects economic opportunities but with disproportionately across regions in Indonesia. In a financially market growth of the country, wealthy individuals have better access to financial support and impact to the real sector opportunities due to compared with nations with have constraints in the financial system. Table 4 presents the main results from the baseline regression. The dependent variable is the regional economic growth of the three economic corridor of Indonesia that empirically have different impact of financial development but with the consistence with regional inflation outcome as controllable variables. Since impact of GDP growth empirically vary within regions, however, regional inflation is in line with the growth literature, where is the growth of regional GDP is become negatively relation to inflation. According to Table 4, we have found that all the parameter predictions and interaction terms are significant, suggesting that the effect of GDP does change with initial financial deepening fluctuations and regional inflation dynamics. Regional GDP growth is negatively associated with domestic financial saving for Java (Model 2) and outside Java mine (Model 3), otherwise Bali (model 1) have positive sign of financial saving to Bali region GDP growth. A contradiction statistical sign also indicated in financial credit market that is in negatively sign in financial credit relation to regional economic growth of the model. The prediction of market credit realization is negatively effect to Bali GDP growth, otherwise, the rest of model predictions

indicated the negative statistical sign of fibabcial credit to regional economic growth of Bali Nusra Region. Some factors might be cause why Java economic center have more the same characterized in financial market prediction to economic growth compared with Bali Nusra. The first differentiation we can identify is the size of regions of Java and outside Jave such as Sumatra, Kalimantan, Sulawesi and Papua that potentially supporting by Jawa as the central industry and manufacture, and at the same aspects of those of Sumatra, Sulawesim, Kalmantan and Papua are potentially supporting by mineral product, oil and gas and some natural lands resources. Otherwise, Bali and Nusra is caputres as reatively small regions with tourism and crops productions.

Keeping other things equal, a region with small region and limited economic sources will benefit more from economic growth from more riches regions such as Java and Sumatra will become more improving the financial market and trades. Moreover, we confirm that our main hypothesis of a positive relation between financial market performance in the regional context, as a matter of fact, that our empirical research have found in difference impact and outcome. While all partial statistical testing were significant with 5%, but with different statistical sign. More importantly, the coefficient on financial market performance in regional context, that all statistical level of significane by 5% also support by stable cointegration testing procedure, hence our empirical research concludes that the regional dimension of fiscal or monetary policy stance should be aware to look forward and that might be formulated the differerent policy action based on regional setting in the long run.

Conclusions and Recommendations

The empirical results so far suggest that financial development in regional setting context increases the level of regional PDB growth. This effect is likely due to a more efficient effort of financial market and supporting the speed of real sector performance of the region. The central authorities have the same policy stance, but empirically have the different impact and outcome within region. It has been argued that central authorities adopt one policy action for all regions such as financial policies, and interest rate restrictions, credit allocation regulations, capital account controls, and barriers to entry in the banking sector in order to achieve faster economic growth. In the presence of incomplete information, however tends to have barrier for market mechanism to play clearly, that why fiscal and monetary policy action have different impact and outcome in regional context in Indonesia. Some components that are infrastructure, decentralization, leadership and natural resources could be the significant factors that slowly responses of policy injection of regional economic growth. The slow policy response can be such the case of Pareto optimal problems by providing a direct allocation of limited financial resources, than directly entering the face of partly solving the problems of market failure and financial instability.

Limitations and future extensions

This study's results are subject to certain limitations that need to be considered. First, this model is more simplified rather than an extension model is needed to make an effort that regional economic model of financial development become

more realistic solution in correlation with the regional GDP growth. Future research should be directed towards developing a sound empirical base to extend the results and include more data sample and variables inserting to predict regional dimension impact of of some fiscal and monetary policies combined esfecially for the case of Indonesia.

REFERENCES

Aduda, J., Chogii, R., Murayi, T. 2014. The Effect of Capital Market Deepening on Economic Growth in Kenya. *Journal of Applied Finance & Banking*, Vol. 4 No. 1.

Agrawal, P. 2001. Interest Rate, Exchange Rates and Financial Deepening in Selected Asian Economies. ASEAN Economic Bulletin.

Ang, J.B. 2005. Financial liberalization, financial sector development and growth: evidence from Malaysia. Brookings discussion paper in international economics.

Ariyanti Deasy, 2000. Macro-Financial Links and Monetary Policy Management in Indonesia. The Centre for Central Banking Studies, Bank Indonesia.

Badan Perencanaan Pembangunan Nasional. 2011. Masterplan Percepatan dan Perluasan Ekonomi Indonesia 2011-2025. Jakarta: Kementerian Koordinator Bidang Perekonomian.

Badan Pusat Statsitik, 2014. Statistik Indonesia. Jakarta: BPS.

Bank Indonesia, 2008. Financial Deepening To Support Monetary Stability and Sustainable Economic Growth. Occasionaly Paper Nomor 47. The South-East ASEAN Central Banks.

Bernanke, B.S., Gertler, M. 1995. Inside the black box, the credit channel of monetary policy transmission. *Journal of Economic Perspectives,* Vol. 9, pp. 27-48.

Bittencourt, M. 2010. Inflation and financial development : Evidence from Brazil. *Journal Economic Modelling*, University of Pretoria.

Carlino, G., DeFina, R.H. 1998. The differential regional effects of monetary policy. *Review of Economics and Statistics*, Vol. 80, pp. 572-587.

Chang, SC., Wu, CH. 2011. The Relationship between Financial Deepening and Economic Growth in Taiwan. Taiwan: National Formosa University.

Demirgiuc-Kunt, A., Levine, R. 2001. Financial Structure and Economic Growth: Cross-Country Comparison of Banks, Markets, and Development. Cambridge, Massachusetts: The MIT Press.

Desai, R.M.l Freinkman, L.M., Goldberg, I. 2003. Fiscal Federalism and Regional Growth Evidence from Russion Federation in the 1990s'. World Bank Policy Research Working Paper 3138, World Bank, Washington DC.

Diamond, D.W., Rajan, R.G. 2012. Illiquid banks, financial stability and interest rate policy. *Journal of Political Economy*.

Dornbusch Rudiger, Fischer Stanley. 2008. Macroeconomics, McGraw-Hill Companies, New York.

Dow, S.C., Montagnoli, A. 2010. The regional transmission of UK monetary policy. Regional Studies, Vol. 41, pp. 797-808.

Ductor, L., Grechyna, D. 2015. Financial development, real sector and economic growth. International Review of Economics and Finance.

Francis, N., Owyang, M.T., Sekhposyan, T. 2011. The local effects of monetary policy. Working paper series, Federal Reserve Bank of St. Louis.

Fulford, S.L. 2013. The effects of Financial Development in the short andlong run: Theory and evidence from India. Journal of Development Economic.

Galbis, Vicente. 1977. Financial Intermediation and Economic Growth in Less-developed Countries: A Theoretical Approach. *Journal of Development Studies*, Vol. 13, No. 2, pp. 58-72.

Goedon, Robert, J. 2004. Macroeconomics. Nine Edition. Addison-Wesley.

Gujarati, Damodar, 2004, Basic Econometrics. McGraw-Hill Book Company.

Gujarati, Damodar, R. 2004. Basic Econometrics, fourth edition. The McGraw-Hill Companies,New York.

Gurley, J., Shaw, E. 1960. Money in a Theory of Finance. USA: Brooking USA. Institution Washington DC.

Hamori, S., Hashiguchi. 2012. The effect of financial deepening on inequality. Some international evidence. *Journal of Asian Economic.*

Isik, Nihat, Acar, Mustafa. 2006. Does the Effectiveness of Monetary Policy on Output Depend on Openness? *Journal of Economic and Social Research*, Vol. 8 No. 1, pp. 1-18.

Jalil, A, 2012, Modeling income inequality and openness in the framework of Kuznets curve: New evidence from China. Economic Modeling.

King, R.G., Levine, R. 1993. Finance and Growth: Schumpeter Might Be Right. *Quarterly Journal of Economic*, Vol. 108, pp. 717-737.

Kuznet, S. 1995. Economic Growth and Income Inequality Author, *The American Economic Review*, Vol. 45, No. 1 (Mar. 1955), pp. 1-28.

Levine, King; Levine, Ross. 1993. Finance and growth: Schumpeter Might be Right, Quartely Journal of Economics, Vol. CVIII, pp. 716-737.

Levine, R., Loayza, N., Beck, T. 2000. Financial Intermediation and growth: Causality and Causes. Journal of Monetary Economics, Vol. 46.

Levine, R., Zervos, S. 1996. Stock development and long run growth. Policy research department publication, The World Bank.

Mah. Ji S, 2013, Globalization, decentralization and income inequality: The case of China. Economi Modeling.

Marcelin, Isaac; Mathur, Ike, 2013. Financial development, institusions and banks. Internasional review of financial analysis, Vol. 31, pp. 25-33.

Masoud, N and G. Hardaker, 2012.The Impact of Financial Development on Economic Growth: Empirical Analysis of Emerging Market Countries. *Studies in Economics and Finance,* 29 (3):1086-7376.

Mathieson, Donald J. 1980. Financial Reform and Stabilization Policy in a Developing Economy. *Journal of Development Economics*, Vol. 7, No. 3

McKinnon, Ronald I., Edward Shaw, 1973. Money and Capital in Economic Development. Washington D.C.: Brookings Institution.

McNelis, Paul D. Inflation Targeting In Emerging Market Economies: A General Equalibrium Model For Bank Indonesia. Washington: Department of Economics, Georgetown University.

Meza, F., Urrutia, C. 2011. Financial Liberalization, structural change and real exchange rate appreciations. Journal of International Economics.

Mishkin, Frederick. 1996. The channels of monetary transmission: lessons for monetary policy. National Bureau of Economic Research Working Paper, No. 5464.

Pyndick & Rubinfeld, 1994. Econometric Model and Forecast.

Rajan, R., Zingales, L. 1998. Financial Dependence and Growth. *American Economic Review,* Vol. 88, pp. 559-586.

Republik Indonesia. 1999. Undang-Undang Republik Indonesia, Nomor 33 Tahun 2004 tentang Perimbangan Keuangan antara Pusat dan Daerah. Jakarta.

Ridhwan, M.M. 2013. Regional Dimensions of Monetary Policy in Indonesia. Tinbergen Institute Research Series, No. 499. Amsterdam, Rozenberg Publishers Bulletin of Indonesia economic studies.

Taylor, J. 1995. The monetary transmission mechanism: An empirical framework. *Journal of Economic Perspectives*, Vol. 9, pp. 11-26.

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