

Market-based or bank-based financial system drives the economic growth? Evidence from Indonesia

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Abstract

This paper examines the role of market-based and bank-based financial systems to the economic growth. Particularly, it tests whether the market or bank-based financial system that has a bigger contributions to the growth. Using Indonesian data over 1981-1996 and 2000-2008 periods, the result suggests that bank-based financial system drives much of the economic growth in this country. However, when taken simultaneously, the results suggest that banking and stock market sector does not well explain the economic growth. Another financial system, which is a traditional financial system, that is mostly used by the SME may be well explaining the economic growth in Indonesia.

Keyword: Output growth, stock capitalization, stock turnover, bank loan.

INTRODUCTION

Past literature shows that the development of money and capital market has contributed to the economic growth of a country. Bagehot [1] and Schumpeter [2] are among initial studies in this area, which argue that there is a relationship between financial system and economic growth. As the advancement of economic activities, financial system becomes more complex and includes various types of institutions, such as banks, insurance companies, mutual funds, as well as securities markets. Banks and securities market is among such institutions that have a significant role in the modern financial system. This is because they can directly affect the allocation of an excess fund from the lenders to the borrowers' productive economic activities, and eventually it will enhance the economic growth.

Most studies on financial systems development and economic growth nexus indicate diminishing role of stock markets. Levine and Zervos [3] find that both stock market liquidity and banking development are positively and simultaneously correlated to future economic growth, capital accumulation, and productivity growth. They further suggest that banks provide greater financial services than that provided by the stock market. Schmidt [4] also find a similar conclusion by conducting a survey of external funds sources for non-financial business in United States. His survey reveals that stocks are not the most important source of external financing for businesses. Huge attention by the media on the stock market makes many people have the impression that stock market is the most important source of financing for American

corporations. He shows the stock market accounted for an only small fraction (9.2%) of total external financing. Moreover, he pointed out that banks, in the form of bank loans, are the most important sources of external financing (55.3%) used by the businesses. Empirical findings which imply that banks have a significant role to the economic growth seem to support the idea Stiglitz [5], Bhide [6] that banks are more efficient than equity markets to improve resource allocation and corporate governance.

However, similar studies in the area of financial systems development and economic growth relationship are minimal in Indonesia, especially after the Asian financial crisis in 1997-1998. The Asian financial crisis had a negative impact to both stock market and banks in Indonesia. During the end of 1997-1998, rapid currency depreciation had made public debt to reach US\$60 billion, causing real GDP growth and inflation were recorded at -13.7% and 77%, respectively. Starting in 1999, some measures have been taken by the authority to stabilize the economic condition, and both stock market and banking sector were also on their way for recovery. Thus, this paper is to analyze the relationship between Indonesian financial system development and economic growth, particularly to test whether the market-based or bank-based financial system that has a greater contributions to the economic growth after the Asian financial crisis. The rest of the paper is organized as follows. Section 2 provides a literature review on the correlation between financial system development, especially stock market and banks, and economic growth. Section 3 describes data and methodology that are used in this study. Section 4 evaluate and discuss the empirical results. Finally, Section 5 presents the conclusion of this study.

Literature Review

Levine and Zervos [3] focus on the relationship between economic growth and financial system development using both banks and stock markets indicators. Their study covers a sample of 42 countries over the period 1976-1993 using cross sectional regressions. They find that the initial level of stock market development liquidity and the initial level of banking development are positively and significantly associated with long term economic growth, productivity growth and capital accumulation. They also find that stock markets size, as measured by market capitalization to GDP ratio, is not correlated with growth indicators. Rousseau and Wachtel [7] contribute to the growing literature by using panel data method developed by [8]. They show that both stock markets and banks development contributed to spur economic growth. Arestis, Demetriades and Luintel [9] study the relationship between financial system development and economic growth. After controlling for the effects of the banking system and stock market volatility, the results support the view that both banks and stock markets may be able to promote economic growth. Levin [10] finds that cross-country examination of which view of financial structure is more consistent with the data. His result indicates that although overall financial development is robustly linked with economic growth, there is no support for either the bank-based or the market-based view. He shows that stock market liquidity and banking development both positively predict output growth, capital accumulation, and productivity improvements when entered all together in regressions, even after controlling for economic and political factors. the value traded to GDP ratio on subsequent development provides they fail to find a similar effect for bank lending. Hondroyannis provides and Papapetrou [13] assess empirically the relationship between banking system and stock market development with economic performance for the case of Greece over the period 1986-1999. Greece is a medium size EU country where the financial liberalization process started back in the early

eighties. The empirical results suggest that there exists a bi-directional causality between finance and growth in the long run. They show that both bank and stock market can promote economic growth in the long run, although their effect is small. Moreover, they also find that the contribution of stock market financing to economic growth appears to be substantially smaller when compared to bank financing. Deidda and Fattouh [14] find that both bank and stock market development have a positive impact on output growth, but the impact of bank development is lower the higher is the level of stock market development, which is contradict with Levine and Zervos [3] finding.

Nevertheless, other studies have also revealed that financial system development is irrelevant to economic growth. Harris [15] finds that the correlation between financial system development and output growth is weak. His study covers a sample of 49 countries over the period 1980-1991. Naceur and Ghazouani [16] study using a dynamic panel model with GMM estimators and an unbalanced panel data from 11 MENA region countries. Their finding reinforce the idea that no significant relationship between banks and stock market development to economic growth. The association between bank development and economic growth is even negative after controlling for stock market development. They argue that this is probably due to the underdeveloped financial systems in the MENA region that hamper economic growth. Rousseau and Xiao [17] suggest that GDP and stock market development is cointegrated when the control variables are included in the analysis. Specifically, there is a long-run relationship between these variables when taken all together. Moreover, there is a unidirectional causality running from stock market development to economic growth. On the other hand, they find that stock market development, as measured by market size and trading volume, do not contribute significantly to output growth. Moreover, Ergungor [18] indicates that financial system structure is irrelevant to economic growth. He finds that there is a nonlinear (contingent) relationship between financial system structure and economic growth. Countries that have an inflexible judicial system grow faster when they have a more bank-oriented financial system.

Summarizing, some studies find that competitive stock markets reduce the counterproductive monopoly power of banks and boost innovation projects. Other studies argue that both banks and stock markets contribute to economic growth by improving information dissemination and reducing transaction costs. However, the literature is lack of study in analyzing whether market-based or bank-based system that has more contribution to the output growth in a country, especially in emerging markets like Indonesia. Thus, this study is aimed to fill that gap.

Data and Methodology

The lacks of theoretical underpinning in the relationship of economic growth and financial system have been a problematic in determining the variables to be included in the model. To overcome this problem, previous research can be used to guide the construct. Two indicators of stock market development are generally used in previous literature, namely market capitalization and liquidity [3]. Market capitalization measures the stock market size and it is equal to the value of domestic shares listed in domestic exchanges divided by GDP. Levine and Zervos [3] find that an initial measure of stock market liquidity is a strong predictor of economic growth. In their

study, they use an assortment of stock market development measures, including the overall size of the market (market capitalization relative to GDP), stock market activity (the value of trades relative to GDP), and market liquidity (the value of trades relative to market capitalization). However, unlike [3], Beck and Levine [11] define market liquidity as the total number of share traded over a period divided by the average number of share outstanding of the period. Market liquidity plays important role in financial markets and affect the pricing process in the market and the market anomalies. Empirical studies suggest that the higher the shares turnover, the more liquid the shares of the companies and the lower the transaction cost. In this study shares turnover is used to measures market liquidity, which is equal to the value of domestic shares traded in domestic exchanges divided by the value of listed domestic shares.

Cross-country researches have analyzed on how well bank identify profitable activities, exert corporate governance, mobilize resources, manage risks and facilitate transactions. Even so, economists have not been able to accurately measure these financial services for a broad cross-section of countries. Consequently, researchers traditionally use measures of banking sector overall size to proxy the financial depth [19, 20]. This financial depth indicator does not measure the liabilities of banks, central bank or other financial intermediaries, nor does this financial depth identify where the financial system allocates capital. One indicator of bank development that is widely used to predicted economic growth is bank credit. According to [3] bank credit is defined as the value of loans made by commercial banks and other deposit taking banks to private saving sector divided by GDP. Bank credit improve the open traditional financial depth measures of banking development by isolating credit issued by the banks, in contrast to credit issued by the central bank or other intermediaries, and identifying credit to the private sector, as oppose to credit issued to the public sector. King and Levine [21, 22] show that bank development, as measured by total liquid liabilities of financial intermediaries (M3) divided by GDP helps explain economic growth in a sample of more than 80 countries.

Moreover, several indicators are available as indicators to economic growth. However, output growth that is measured by real GDP per capita growth is the widely used one [23]. Below is the specification of the regression models that are used in this study.

Full model :

$$Y = \alpha_0 + \sum_{i=1}^n \beta_i X_i + \sum_{i=1}^n \gamma_i Z_i + \varepsilon_0 \quad (1)$$

Stock model :

$$Y = \alpha_1 + \sum_{j=1}^n \beta_j X_j + \varepsilon_1 \quad (2)$$

Bank model :

$$Y = \alpha_2 + \sum_{k=1}^n \gamma_k Z_k + \varepsilon_2 \quad (3)$$

Refer to the above equations; equation (1) is the specification for full model, in which economic growth is explained by stock market and bank development measures. Equation (2) is the specification for stock model, in which economic growth is explained by stock market development measures. And equation (3) is the specification for bank model, in which economic growth is explained by bank development measures. In all equations, Y is the economic growth measured by the real GDP per capita, X_i is the explanatory variables that represent the stock market development (stock capitalization and stock liquidity), Z_j is the explanatory variables that represent the banks development (bank loan and liquid liabilities), and ε_n is the error terms.

Data used in this study is yearly data from 1981 to 2008. Data is taken from IFS-IMF (International Financial Statistics-International Monetary Fund) database. Table 1 present descriptive statistics of economic growth, stock market development, and bank development over two periods of time (1981-1996 and 2000-2008). The two periods are selected to avoid bias due to Asian financial crisis in 1997-1999. During 1981-1996 and 2000-2008, the average output growth is 8.3% and 12.3%, respectively. Table 1 also provides the probability of test of normality. Based on the Jarque-Bera test, all variables in the models are considered normally distributed.

TABLE 1. Descriptive statistics for 1981-1996 and 2000-2008

	Output growth	Stock cap.	Stock turnover	Bank loan	Liquid liabilities
1981-1996					
Mean	0.0830	0.0744	0.1948	0.2958	0.2970
Median	0.0782	0.0069	0.1896	0.2598	0.2716
Maximum	0.1178	0.3475	0.4940	0.5120	0.4767
Minimum	0.0635	0.0007	0.0158	0.0904	0.1524
Std. deviation	0.0175	0.1136	0.1537	0.1525	0.1083
Jarque-Bera	1.4982	5.3924	1.0040	1.7957	1.4334
Probability	0.4727	0.0674	0.6053	0.4074	0.4883
Observation	16	16	16	16	16
2000-2008					
Mean	0.1233	0.2822	0.4732	0.2046	0.4306
Median	0.1212	0.2717	0.4348	0.2156	0.4303
Maximum	0.1451	0.5534	0.8247	0.2283	0.4958
Minimum	0.1072	0.1360	0.2703	0.1723	0.3804
Std. deviation	0.0131	0.1313	0.1589	0.0242	0.0457
Jarque-Bera	0.6835	1.2704	1.9944	1.2429	0.9895
Probability	0.7105	0.5298	0.3688	0.5371	0.6096
Observation	9	9	9	9	9

Note: stock cap. is stock capitalization.

Moreover, Table 2 shows the correlation between variables in the models. Note that during 1981-1996 stock capitalization and stock turnover are positively and significantly correlated to output growth at the 5% level. However, bank loan and liquid liabilities are not significantly correlated to output growth.

TABLE 2. Variables correlation

	Output growth	Stock cap.	Stock turnover	Bank loan	Liquid liabilities
1981-1996					
Output growth	1.000				
Stock capitalization	0.933** (0.000)	1.0000			
Stock turnover	0.617* (0.001)	0.459 (0.073)	1.0000		
Bank loan	0.962** (0.000)	0.814** (0.000)	0.735** (0.001)	1.0000	
Liquid liabilities	0.979** (0.000)	0.848** (0.000)	0.693* (0.003)	0.995** (0.000)	1.0000
2000-2008					
Output growth	1.0000				
Stock capitalization	0.863** (0.003)	1.0000			
Stock turnover	0.557 (0.119)	0.810** (0.008)	1.0000		
Bank loan	0.905** (0.001)	0.715* (0.031)	0.340 (0.370)	1.0000	
Liquid liabilities	-0.952** (0.000)	-0.722* (0.028)	-0.358 (0.345)	-0.974** (0.000)	1.0000

Note: (1) output growth is the real GDP growth divided by population; (2) stock capitalization is the value of domestic shares divided by GDP; (3) stock turnover is the value of domestic shares trade divided by stock market capitalization; (4) bank loan is the bank loan to private sector divided by GDP; (5) liquid liabilities is the total liquid liabilities in the banking sector divided by GDP.

Findings

Table 3 provides the regression result of the stock and bank models for 1981-1996. All variables in each model are significant. In the stock model, stock market capitalization and stock market turnover (liquidity) are positively related to output growth. Stock market capitalization and stock market turnover are significant at 1% and 5% level, respectively. The goodness of fit between the explanatory variables and the dependent variable is explained by the adjusted R^2 . In the stock model, the adjusted R^2 is 0.9014 which means that the variation of output growth is strongly related to the variation of stock market capitalization and stock market turnover simultaneously. Unlike the stock model, the bank model also reveals interesting result. In this model, banks loan is negatively related to output growth. On the other hand, total liquid liabilities is positively related to output growth. Banks loan and total liquid liabilities of banks are significant at 5% and 1% level, respectively. The negative relationship between banks loan and output growth can probably be explained as follows. During 1981-1996, the country witnessed a rapid expansion of banks loan due to banking sector liberalization. The loan expansion is actually contributed to the GDP growth but at the same time the country also experience overheated economy due to rapid growth of the economy. Nevertheless, this positive economic growth also causes high growth in the population. The combine effect of overheated economy and high population growth diminish the output growth figure in

the real term. This is why it looks like that banks loan per GDP is negatively related to real GDP growth per capita, when in fact in absolute number banks loan and the current price GDP is moving positively. The variation of output growth is also strongly related to the variation of bank loan and bank's liquid liabilities as indicated by the adjusted R^2 of 0.9681. Comparing the adjusted R^2 , we find indication that bank-based model is better in explaining the output growth than market-based model. This suggests that during 1981-1996 banking sector provides bigger contribution to the Indonesian economic growth than stock market.

TABLE 3. Regression result in stock model and bank model for 1981-1996

Stock Model	B	Std. error	t-statistic	Prob.
Constant	0.0682	0.0022	30.0528	0.0000
Stock capitalization	0.1270	0.0140	9.0168	0.0000** *
Stock turnover	0.0272	0.0104	2.6187	0.0212**
R^2	0.9146			
Adjusted R^2	0.9014			
F-statistic	69.6177			
Prob (F-statistic)	0.0000			
Bank Model				
Constant	0.0205	0.0065	3.1102	0.0083
Bank loan	-0.1282	0.0513	-2.4981	0.0267**
Liquid liabilities	0.3380	0.0722	4.6792	0.0004** *
Coefficient of correlation	0.9723			
Coefficient of determination	0.9681			
F-statistic	228.6804			
Prob (F-statistic)	0.0000			

Note: ** significant at 5% level and *** significant at 1% level.

Moreover, Table 4 shows the regression result of the full model for 1981-1996. Taking the four variables into the regression simultaneously, only two variables are significant. Stock market capitalization and total liquid liabilities of banks are significant at 1% and 5% level, respectively. On the other hand, stock market turnover and banks loan are not significant. During 1981-1996, stock market in Indonesia is still in its infancy. Stock markets in their early development are typically marked by low stock turnover because the number of investors exists in the market is still small. In this phase, the stock market is mostly driven by large investors in small number. This probably explains why the stock market turnover during that time is insignificant. Further, the explanation to banks loan insignificance in the simultaneous model is probably similar to the above mentioned one.

TABLE 4. Regression result in full model for 1981-1996

	B	Std. error	t-statistic	Prob.
Constant	0.0461	0.0041	11.2389	0.0000
Stock capitalization	0.0539	0.0062	8.5669	0.0000***
Stock turnover	-0.0039	0.0036	-1.0940	0.2973
Bank loan	0.0028	0.0287	0.1004	0.9218
Liquid liabilities	0.1103	0.0415	2.6559	0.0223**
Coefficient of correlation	0.9964			
Coefficient of determination	0.9951			
F-statistic	770.2699			
Prob (F-statistic)	0.0000			

Note: ** significant at 5% level and *** significant at 1% level.

Table 5 provides the regression result of the stock and bank models for 2000-2008. In the stock model, only stock market capitalization that is positively related to output growth. The stock market capitalization is significant at 1% level. The variation of output growth is quite strongly related to the variation of stock market capitalization and stock market turnover as indicated by the adjusted R^2 of 0.7391 (down from the 1981-1996 stock model). The bank model also suggests that only total liquid liabilities is significant. The total liquid liabilities is significant at 5% level. The variation of output growth is also quite strongly related to the variation of bank loan and total liquid liabilities of banks as indicated by the adjusted R^2 of 0.8867 (also down from the 1981-1996 bank model). Comparing the adjusted R^2 , we reconfirm the indication that bank-based model is better in explaining the output growth than market-based model.

TABLE 5. Regression result in stock model and bank model for 2000-2008

Stock Model	B	Std. error	t-statistic	Prob.
Constant	0.1057	0.0074	14.1169	0.0000
Stock capitalization	0.1200	0.0308	3.8931	0.0080***
Stock turnover	-0.0342	0.0254	-1.3447	0.2273
Coefficient of correlation	0.8043			
Coefficient of determination	0.7391			
F-statistic	12.3349			
Prob (F-statistic)	0.0074			
Bank Model				
Constant	0.3378	0.1213	2.7838	0.0318
Bank loan	-0.2265	0.2820	-0.8032	0.4524
Liquid liabilities	-0.3903	0.1496	-2.6090	0.0402**
Coefficient of correlation	0.9150			
Coefficient of determination	0.8867			
F-statistic	32.3112			
Prob (F-statistic)	0.0006			

Note: ** significant at 5% level.
*** significant at 1% level.

This suggests too that during 2000-2008 banking sector provides bigger contribution to the Indonesian economic growth than stock market. The development of Indonesian financial system during 2000-2008 probably contributes to the insignificance of some variables in the models. In the aftermath of Asian financial crisis, Indonesian authority has imposed some measures to strengthen the banking sector. These measures somehow affect the behavior of bankers in channeling the loans. Bankers are very cautious in distributing the loans. As the result, much of the fund in the banks cannot be distributed as loans, instead they were invested in government securities. Beside, after the crisis, many of the people have lost their purchasing power considerably due to inflation. Their saving power has gone lesser because most of their income is consumed. This probably explained why the total liquid liabilities of banks have negative relationship to the output growth during 2000-2008¹. The development of Indonesian stock market after the financial crisis even signifies the present of large, but in small number, investors. These large investors are mainly international or foreign investors. As previously explained, this suggests why stock market turnover is not significantly related to the output growth.

Moreover, Table 6 shows the regression result of the full model for 2000-2008. Taking the four variables into the regression simultaneously, only one variable is significant. Total liquid liabilities is significant at 5% level. On the other hand, stock market capitalization, stock market turnover and banks loan are not significant². This suggests that probably there is another system apart from the two financial systems that can explain the Indonesian economic growth better. Traditional financial system that is being used by most of micro, small and medium size enterprises (MSME) in Indonesia may be well explained the output growth. This is because the country has also witnessed that its economy had been cushioned by the MSMEs activities from further deepening during the Asian financial crisis. It has been the case for MSMEs that they cannot easily access the stock market and banking sector for their financing need. To fulfill their financing requirement, they usually used personal equity or informal financing institutions.

TABLE 6. Regression result in full model for 2000-2008

Variable	B	Std. error	t-statistic	Prob.
Constant	0.3127	0.0648	4.8257	0.0085
Stock capitalization	0.0369	0.0178	2.0623	0.1082
Stock turnover	0.0008	0.0109	0.0785	0.9412
Bank loan	-0.2712	0.1527	-1.7757	0.1504
Liquid liabilities	-0.3359	0.0803	-4.1796	0.0139**
Coefficient of correlation	0.9841			
Coefficient of determination	0.9682			
F-statistic	61.9224			
Prob (F-statistic)	0.0007			

Note: ** significant at 5% level.

¹ We run bank model regression which includes two period data (25 observations) and the result is similar to the finding in bank model for 1981-1996 where liquid liabilities is significant and positively related to economic growth.

² We run full model regression which include two period data (25 observations) and find that stock market turnover and banks loan is not significant. This result is similar to the finding in full model for 1981-1996 where stock capitalization and liquid liabilities are significant and positively related to economic growth

Conclusion

This paper study the empirical correlations of economic growth with stock market and bank development variables using yearly data over 1981-1996 and 2000-2008 periods. The results indicate that bank-based model is better in explaining the output growth than market-based model for both time periods. This suggests that banking sector provides bigger contribution to the Indonesian economic growth than stock market. However, when stock market and bank development variables are simultaneously taken together in the model, three out of four variables are not significant in explaining the output growth. This suggests that probably there is another system apart from the two financial systems that can explains the Indonesian economic growth better. Traditional financial system that is being used by most of micro, small and medium size enterprises (MSME) in Indonesia may be well explained the output growth. This is because the country has witnessed that its economy had been cushioned by the MSMEs activities from further deepening during the Asian financial crisis. It has been the case for MSMEs that they cannot easily access the stock market and banking sector for their financing need. To fulfill their financing requirement, they usually used personal equity or informal financing institutions. Further research is suggested to study the nexus between traditional financial system that is widely practiced by the Indonesian SMEs and the economic growth. Another interesting research would be to implement the same study on other countries, especially in Asian region that was affected by the Asian financial crisis too.

Reference

- [1] W. Bagehot,. *Lombard Street*. Homewood. IL: Irwin.(1873)
- [2] J. A, Schumpeter, *The Theory of Economic Development*. Cambridge, Mass: Harvard University Press, (1911).
- [3] R. Levine and S. Zervos, *Stock Markets, Banks, and Economic Growth*. American Economic Review, 88, (1998) 537-558.
- [4] R. H, Schmidt, *Differences between financial system in European Countries: Consequences for EMU*, (2001) 222.
- [5] J. Stiglitz, *Credit markets and the control of capital*. J. Money Credit Bank. 17,(1985) 133–152.
- [6] A. Bhide, *The hidden costs of stock market liquidity*. Journal Finance Economic. 34, (1993) 1–51.
- [7] P. L, Rousseau and S. Xiao, *Banks, stock markets, and China's 'great leap forward'*. Emerging Markets Review, 8 (2007) 206-217.
- [8] M. Arellano, and S. Bond, *Some tests of specification for panel data: Monte Carlo evidence and an application to employment*. Rev. Economic Student. 58, (1991) 277–297.

- [9] P. Arestis, P.O. Demetriades and K.B. Luintel, *Financial development and economic growth: The role of stock markets*. Journal of Money, Credit and Banking, 33 (2001) 16-41.
- [10] R. Levine, *Bank-based or market-based financial systems: Which is better?* Journal of Financial Intermediation, 11 (2002) 398-428.
- [11] T. Beck, and R. Levine, *Stock markets, banks, and growth: Panel evidence*. Journal of Banking and Finance, 28, (2004) 423-442.
- [13] G. Hondroyannis, S. Lolos and E. Papapetrou, *Financial markets and economic growth in Greece*, Journal of International Financial Markets, Institutions and Money, 15 (2005) 173-188.
- [14] L. Deidda and B. Fattouh, *Banks, financial markets and growth*. Journal of Financial Intermediation, 17 (2008) 6-36
- [15] R. D.F. Harris, *Stock market and development: A reassessment*. Europ.Econ Rev. 41,(1997) 139-146.
- [16] S.B. Naceur, and S. Ghazouani, *Stock markets, banks, and economic growth: Empirical evidence from the MENA region*. Research in International Business and Finance, 21 (2007) 297-315.
- [17] P. L. Rousseau and S. Xiao, S. *Banks, stock markets, and China's 'great leap forward'*. Emerging Markets Review, 8, (2007) 206-217.
- [18] O.E. Ergungor, *Financial system structure and economic growth: Structure matters*. International Review of Economics and Finance, 17 (2008) 292-305.
- [19] R. W. Goldsmith, Yale University Press, New Haven.(1969).
- [20] Mc. Kinnon, I. Ronald, *Money and capital in Economic Development* (Washington DC: Broking Institution (1973).
- [21] R. G, King, R.Levine, *Finance and growth: Schumpeter might be right*. Quarterly Journal of Economics 108, (1993a) 717–738.
- [22] R. G, King, R. Levine, *Finance, entrepreneurship, and growth: Theory and evidence*. Journal of Monetary Economics 32, (1993b) 513–542.
- [23] R, Levine, *Financial development and economic growth: views and agenda*. Journal Economic. Lit. 35, (1997)688–726.