IS THERE A LINK BETWEEN FINANCE, INVESTMENT AND GROWTH?: EXPERIENCES OF DEVELOPING COUNTRIES

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Abstract

Artikel ini mencoba mencari bukti-bukti empiris di berbagai negara mengenai pernyataan Bank Dunia -- "Finance is the key to investment and hence to growth"-- dengan cara mengeksplorasi berbagai hasil penelitian yang berkaitan dengan sektor keuangan, investasi dan pertumbuhan ekonomi di beberapa negara terutama berkembang. Berdasarkan hasil-hasil kajian empiris yang telah dilakukan oleh beberapa pakar ekonomi dunia menunjukkan kesimpulan yang bervariasi, akan tetapi secara garis besar dapat dikatakan bahwa sisi finansial mempunyai peranan besar pada investasi dan pertumbuhan, akan tetapi masih banyak faktor lain yang menjadi faktor kunci dalam pertumbuhan ekonomi.

Kata kunci : Pertumbuhan Ekonomi, Investasi

A. Introduction

Economic growth is one of the macroeconomic development objectives. Many economists do the studies to examine the determinants and the key of growth. In its report, World Bank (1989: 25) states that "Finance is the key to investment and hence to growth." It is described that financial services help to transfer and mobilize saved resources from savers to the useful and efficient uses. Financial services not only create economic activity to be costless and riskless, but also increase income of the savers and borrowers. They will lead economic growth. In the opposite, if there is no financial services an economy faces a self-sufficient and then production would not increase sufficiently, output and income would not rise, finally rapid and high growth of economic would not occur. It is also described that quantity and quality of financial services and the efficiency of providing financial services are crucial factors toward economy. This paper will discuss above statement and investigate the link between finance, investment and growth with particular focus in developing countries.

The remainder of the paper is organized as follows. Part 2 discusses some growth models but in this paper will emphasize on Solow-Swan model.

Part 3 presents some empirical evidences. Concluding remarks are contained in part 4.

B. Theoretical Framework

1. Growth in Neoclassical Model

According to the neoclassical model, any positive quantity of investment brings investors closer to their target capital stock. This lowers the demand for investment next period. As a result, investment declines from one period to the next. Eventually, there is only enough investment each period to replace depreciated capital. At that point the economy has reached its steady state, where the capital stock and income stop growing (Lansburg & Feinstone, 216-222).

Graphically neoclassical model shows how the capital stock grows from one period to the next as follow:

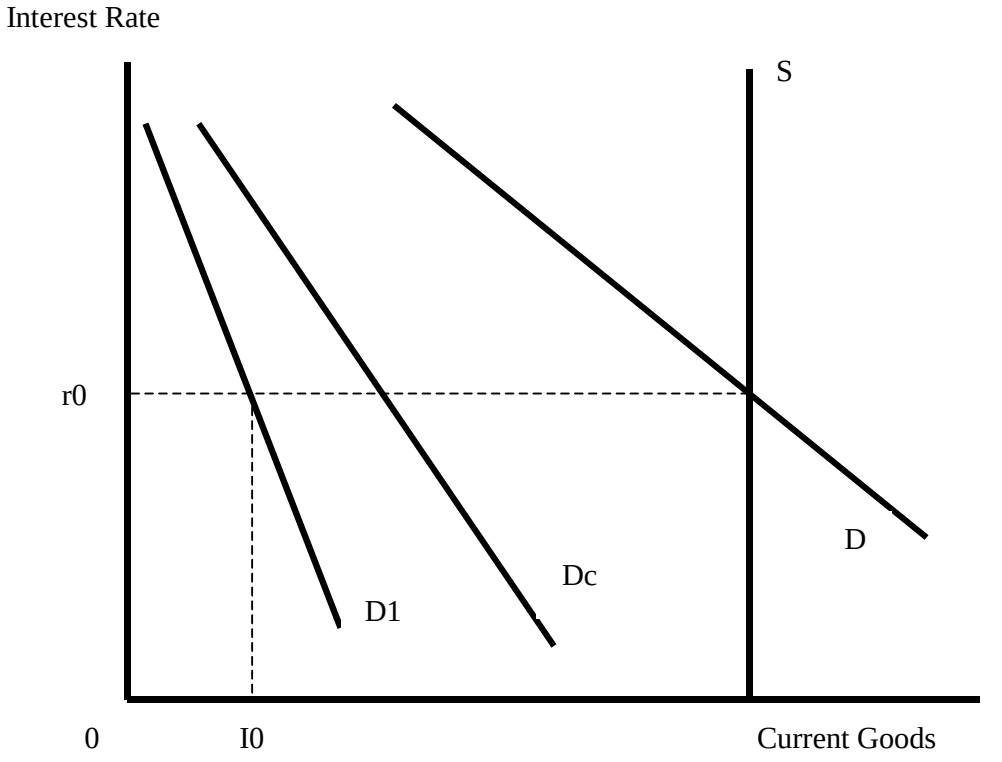

Figure 1 (a). Goods market equilibrium during this period

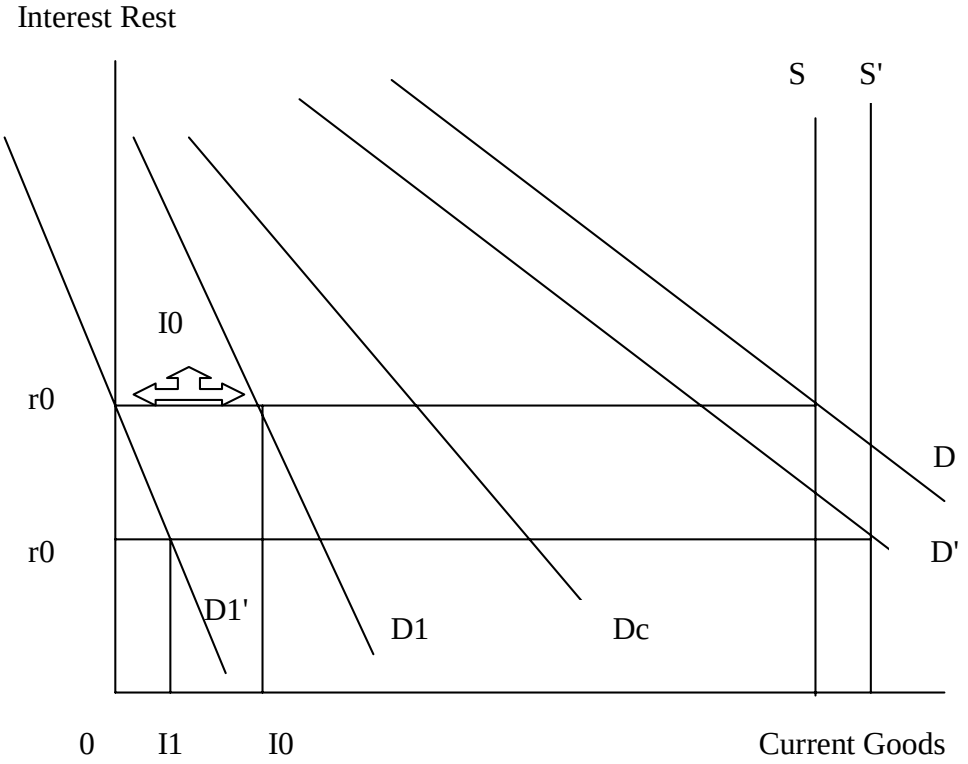

Figure 1 (b). Goods market equilibrium during next period

In this period's (figure 1a) investment increases I0 units to the capital stock, output rises in the next period, so the aggregate supply curve shift to the right from S to S'. But this period's investment also leads investment demand D1 to shift leftward by I0 from D1 to D1', so that total demand also shift to the left from D to D'. Furthermore the interest rate falls from r0 to r1 and less quantity I1 is invested in the second period. In the long run, in each period, investment is lower than it was before. Eventually, one period's investment becomes indistinguishable from zero, and the growth of the capital stock comes to a virtual halt. According to the model, the capital stock grows ever more slowly over time and finally stops growing (Lansburg & Feinstone, 217).

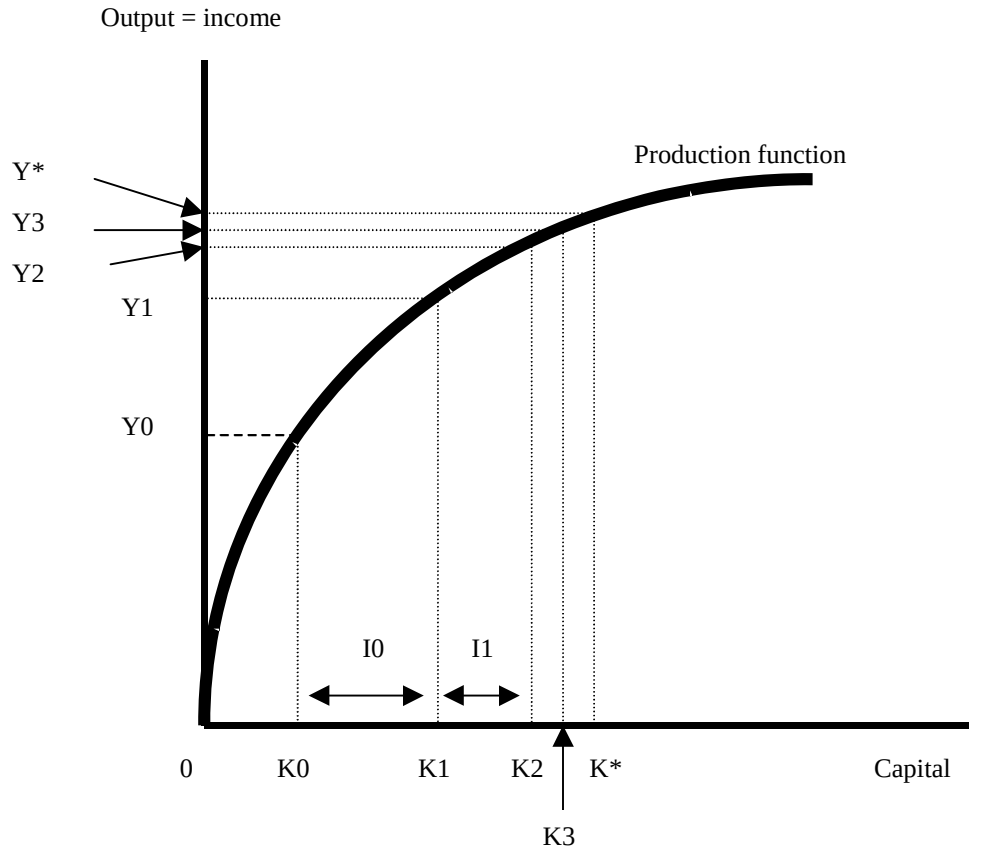

Figure 2. Convergence to the steady state

Figure 2 shows that the capital stock grows from period to period, it grows by smaller increments and finally ends up to a virtual halt. After several periods, the capital stock gets close to a level K*. Based on figure 2, the economy eventually reaches a steady state, which is all economic variables retain the same values from one period to the next period (Lansburg and Feinstone, 220-221).

2. The Solow - Swan Model of Economic Growth

The Solow-Swan model illustrates that an increase in the stock of capital leads to a higher level of output and faster growth at least in the short to medium term. Once the new level of output is reached, growth returns to initial level. In the long run economic growth of this model consist of a production function and a capital accumulation equation. The former relates the inputs in the economy

to the outputs produced, while the later describes how capital accumulates in the economy.

In the Solow-Swan model, the development of the capital-labor ratio drives the economic growth. The capital-labor ratio become less and less over time because of depreciation, population growth, and grows over time because of investment. The capital-labor ratio grows from one period to the next period, but grows by less in each succeeding period. Per capita output grows along with the capital-labor ratio, in way that can be read off the per-worker production function. A one shot change in the saving rate or in the technology can change the steady state and cause the economy to grow until the new steady state is reached. In this model, the only plausible source of continued growth is a stream of improvement in technology. A one shot increase in the population affects current growth but not the steady state. An increase in the population growth rate reduces the steady state capital labor

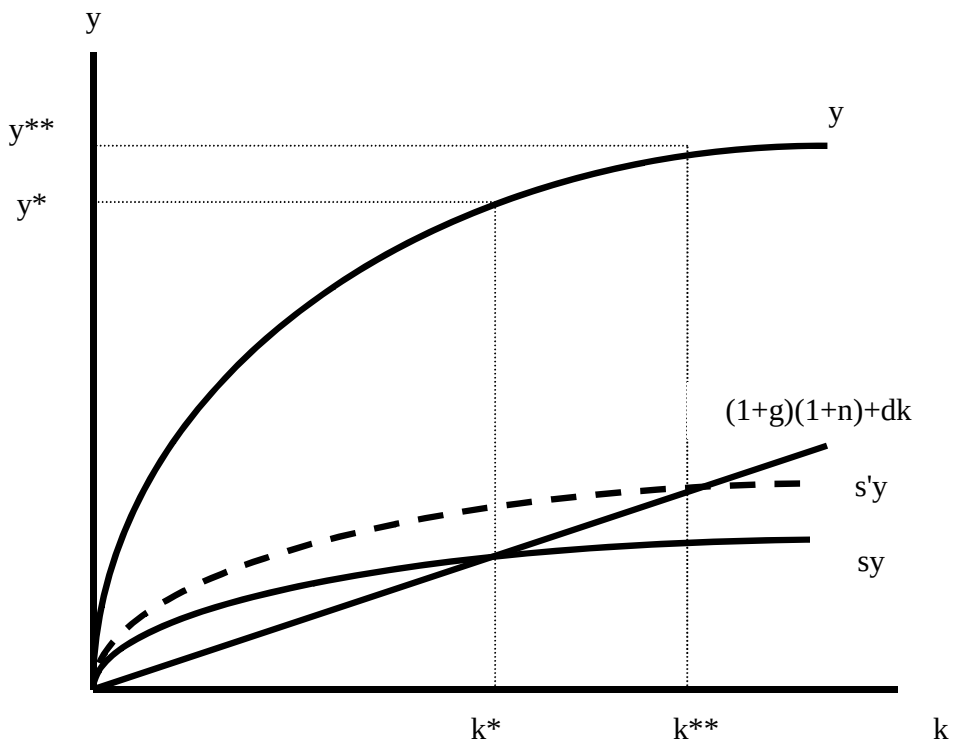

Figure 3. The Solow-Swan model

ratio. The Solow-Swan model leads us to distinguish between developing economies, which have not yet reached their steady states, and mature economies, which have reached their steady state. In developing economies, investment should be the primary engine of growth, while in mature economies, growth hinges on technological progress (Lansdburg and Feinstone, 223-238).

We can extract the Solow-Swan model from Claus's paper as follow. The Solow-Swan model assumes that the economy exhibits constant returns to scale in capital (K) and labour (L). Doubling the input capital and labour result in double the output. In closed economy capital accumulation is as follow:

$K_{t-1} - K_t = sY_t - dK$

Since the domestic saving must equal domestic investment. Where sY_t is private saving, and d is the rate of depreciation. The link between saving, investment and output can be described with the Solow-Swan diagram.

Here we assume that productivity grow at a constant rate g and labour force, which equals population, grows at rate n. The above diagram shows that, say an increase in the saving rate s to s'. The steady state capital per efficiency worker increases from k* to k** and income per efficiency labour goes up from y* to y**.

Before rising in the saving rate, the ratio of income to efficiency labour (y*) is constant ($\Delta y^* = 0$); income grows at the same rate as efficiency labour. The increase in the saving rate leads to an

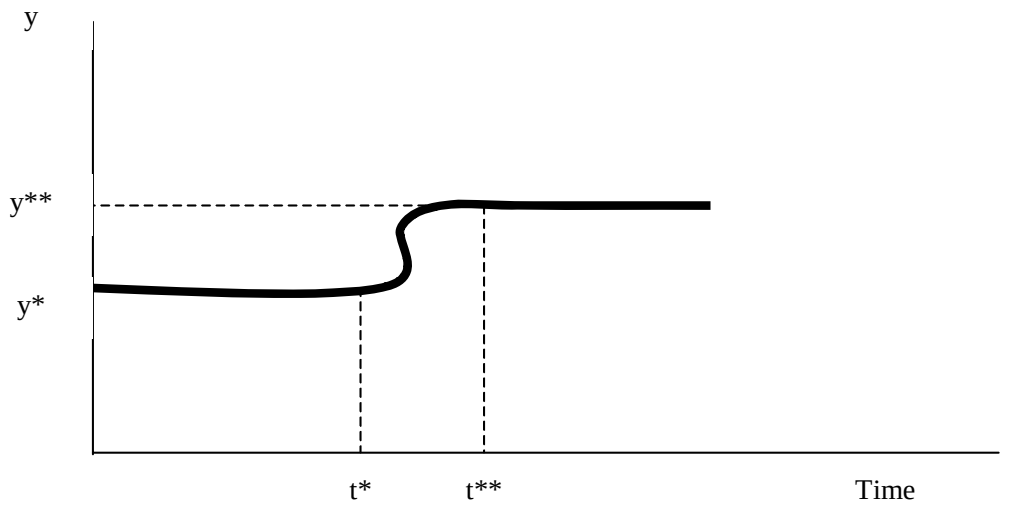

Figure 4. Growth rate of income per efficiency worker

increase in the efficiency labour capital stock from k* to k** and income from y* to y**. To move to the higher equilibrium stock of capital k**, capital must grow faster for some time than efficiency labour since faster capital stock accumulation, income will also temporarily grow faster than efficiency labour. However, once the new steady state is reached, capital and income will grow at the same rate as efficiency labour (Claus, Haugh, Scobie, 2001).

According to the model, an economy goes through two stages. First it progresses toward the steady state, and then it remains there. However, technological progress can cause the steady state itself to move. Thus there are two kinds of economic growth: growth in developing economies, which have not yet reached their steady states, and growth in mature economies, which have reached their steady state but continue to grow as the steady state advances. In a developing economy, the saving rate is the major factor in determining the rate of economic growth. While in a mature economy growth can depend more on technological progress than on the saving rate (Lansburg and Feinstone, 1997: 228-238).

3. **McKinnon-Shaw**

In the seventies economists debated issue of financial and monetary policy. The main of the debate was interest rate policy, which often resulted in the imposition of below market rates and then discourage people to save since the below market rates create disincentive to save and finally retarding the process of financial deepening. This flow will end up at the lag of investible resources and growth retardation. McKinnon and Shaw stated that financial repression had retarded the growth of many developing countries. They also argued strongly for interest rate liberalization as a critical input into the process of growth and development (Kendall, 2001)

C. Empiric Evidences

1. Fiji

In the past three decades Fiji has emphasized the role of investment as one of the main strategies for economic growth. Fiji government has implemented various policies to ensure an increase in investment through the export promotion strategy, liberalizing financial market and the banking sector, macroeconomic stability, providing basic infrastructure and education facilities, and promoting foreign direct investment (Gounder, 2001)

Several studies have found that FDI promotes economic growth by stimulating private fixed investment. Based on his study for Fiji in 2000, Gounder found that FDI has a positive impact on growth, however this impact declines in the long run. In the growth literature saving is regards as an important determinant of investment.

Using an augmented Solow-Swan growth model, Gounder (2001) did study on long term growth in Fiji. Gounder found that although the size of investment coefficient declines in the long run, the coefficient is positive and significant at the one percent level. The estimated total investment coefficient suggest that a one percentage point increase in the investment ratio in Fiji is associated with an increase in GDP growth rte of almost half percentage point. The significant of the policy variable indicates that Fiji has good policy to promote investment that would generally have significant benefits for long run growth. Empirical result for Fiji shows that private investment has a larger impact on growth than public investment and consistently contributes to growth in the short and long run. The result for Fiji also to some extent indicate that public investment plays a complementary role to the private sector and the factors of growth indicate increasing return to scale.

2. Guyana

Kendall (2000) examined growth in Guyana by using McKinnon-Shaw model. Based on above figure we can see that during 1965-1995 financial repression exist in the Guyanese economy. The direct indicator of financial repression is the average real saving deposit rate -9,7%. While other indirect indicators of financial repression are the huge increasing in the fiscal deficit on the current account which averaged 9.9% of GDP and rising of the current account deficit in the balance of payment.

In his research, Kendall (2001) uses The McKinnon and Shaw model comprises two important hypotheses with respect to the financial liberalization on saving, investment and growth. These

Table 1: Selected Macroeconomic Indicators (percentage) in Guyana (1965 - 1995)

Item	1965-1995	1965-1987	1988-1991	1992-1995
Ratio of Gross Domestic Savings to GDP	20.4	18.2	25.2	28.1
Real Savings Deposit Rate	-9.7	-4.1	-54.3	4.9
Export of Goods and Services/ GDP	63.1	58.4	65.4	87.9
BOP Current Account Balance/ GDP	-12.5	-10.0	-35.4	-4.0
Fiscal Current Account Balance /GDP	-9.9	-10.7	-16.1	0.5
Inflation	20.0	11.4	75.9	11.4
Real GDP Growth	1.1	0.3	-1,2	7.4

Source: IMF Financial Statistics

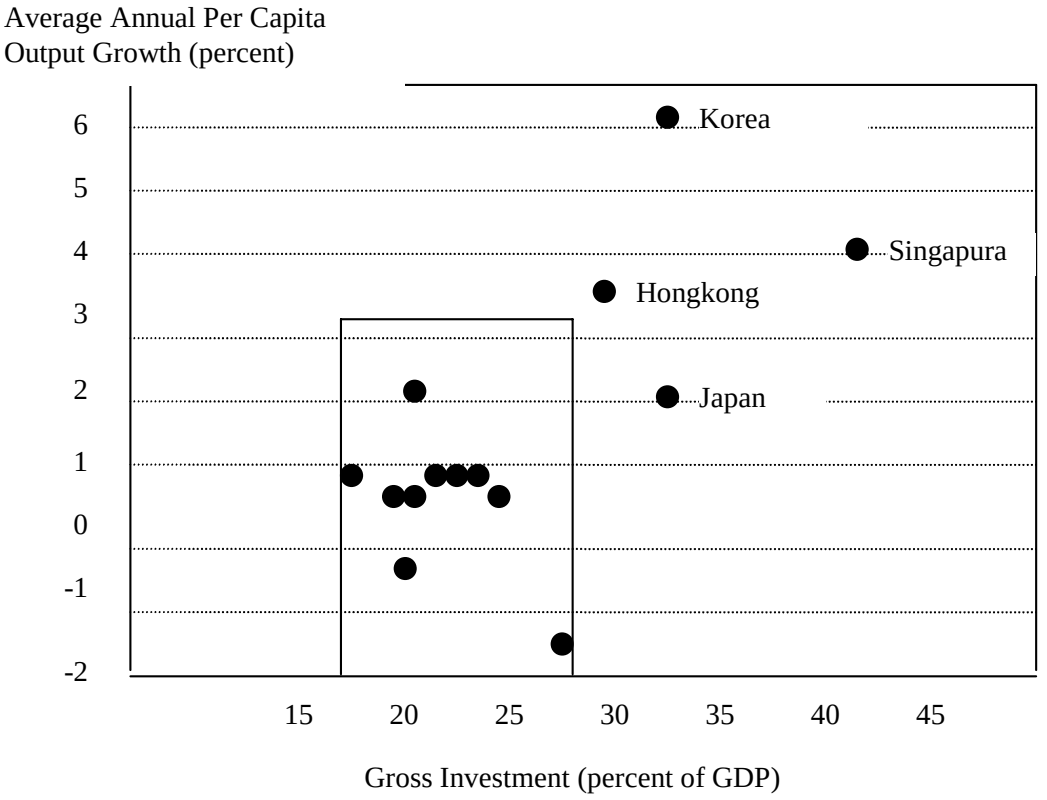

Figure 5a: Investment as s percentage of GDP versus Average Annual Growth Rate, 1980 - 1991

are:

a) That a rise in expected real deposit interest rate leads to an increased savings income ratio.
b) That income expands with the increase in expected real deposit interest rate.

The result of this study is that the coefficient of the interest variable is of the correct sign and significant, providing empirical to the McKinnon and Shaw hypothesis that increases in the ratio of savings to GDP are due to rising real deposit rates. A one-percentage point rise in the interest rate would have led to a 0.1 percentage point rise in the ratio of gross domestic savings to GDP. Furthermore this study provides empirical support for the McKinnon and Shaw hypothesis and underscores the inappropriateness of the policy of financial repression. Indications are that

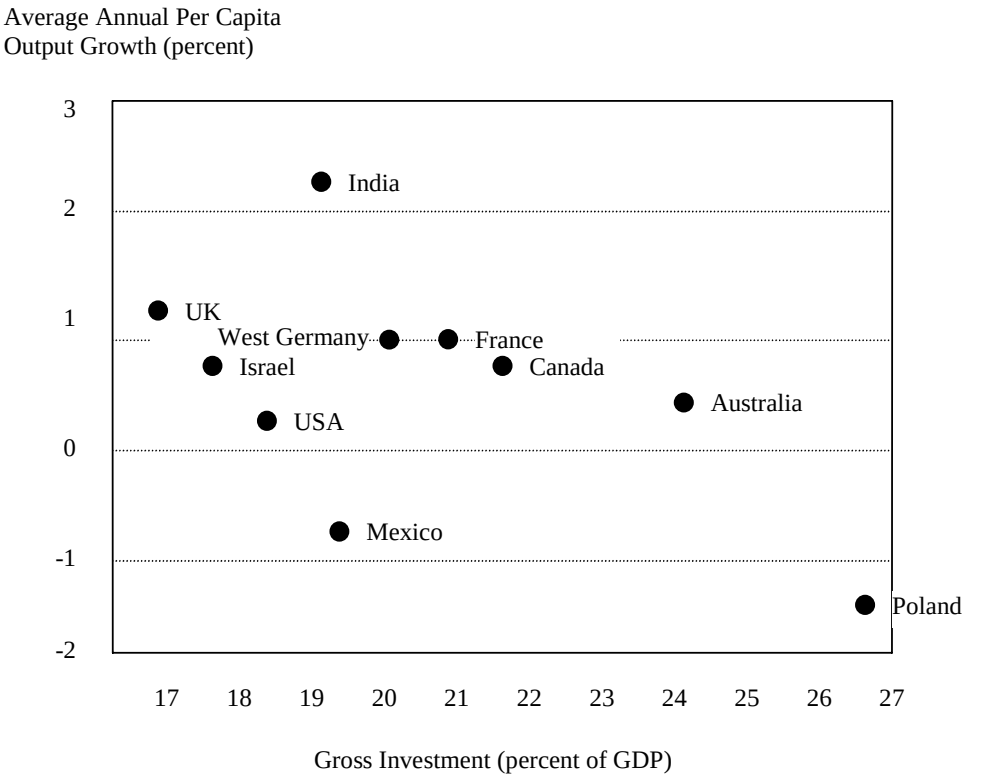

Figure 5b: Investment as s percentage of GDP versus Average Annual Growth Rate, 1980 - 1991

interest rate liberalization much earlier in the period could have led to increased savings, investment and growth.

3. International Evidence

Lansburg and Feinstone (1997) support the Solow-Swan growth model with this following international evidence. To test the implication of Solow-Swan model, Lansburg and Feinstone measure saving rates and rates of economic growth in several countries. Based on theory we know that aggregate saving equal aggregate investment, so that in their study Lansburg and Feinstone use investment to measure savingt. Figure 5 is a plot of saving, which is measured by investment against growth rates for 14 counties. Figure 5 (b) is a blow up of the boxed area in figure 5 (a).

From these figure we can see that Korea, Singapore and Hong Kong have high rate in economic growth from their extremely high saving rate. In contras Mexico and Israel with much lower saving rates, tend to cluster at the lower

left of that figure. This indicates that they experienced very little growth over the period. This gives support to the Solow-Swan model's prediction that high saving rates are crucial for growth in developing countries. In figure 5 (b) seem that there is little correlation between saving rates and growth rates,. However, this is also consistent with the Solow-Swan model, because most of these countries are mature economies (developed counties), i.e. USA, West Germany, UK, and France. All these countries have been heavily industrialized for two hundred years now. So we can presume that these developed countries have already reached their steady states and tend to rely on technological advancement rather than saving rate for further their economic growth.. In figure 5 (b) we can see that Poland has different pattern with other developing countries, where this country has very high rate of saving but its economic growth is negative. According to Solow-Swan model, high saving rates lead to growth. Where saving equal investment, so that saving in one period result in more capital and more production in the next period. Poland in the 1980s was a command or centralized economy, directed by bureaucrats with little sense of market reality. A lot of their investment ended up being wasted (Lansdburg and Feinstone, 1997: 238-240)

3. Cross Countries

Levine and Carkovic (2001) analyze the link between stock market, banks and economic in 54 countries. To measure stock market development they use the Turnover Ratio measure of market liquidity, which equals the value of the trades of shares on domestic exchanges divided by total value of listed shares. It indicates the trading volume of the stock market relative to its size. Some models predict countries with illiquid markets will create disincentives to long run investment because it is comparatively difficult to sell one's stake in the firm. In contras, more liquid stock market reduces disincentives to long run investment, since liquid markets provide a ready exit option for investors.

To measure bank development they use Bank Credit, which equal bank claims on the private sector by deposit money bank divided by GDP. This measure isolates loans given by deposit money banks to the private sector. It excludes loans issued to governments and public enterprises.

To assess the strength of the independent link between both stock market and growth and bank development and economic growth, they control for other for other growth determinants.

Table 2: Financial Development and Growth 1975 - 1998

Country	Bank Credit	Turnover Ratio	Market Capitalization	Per Capita Growth (%)
Argentina	0.16	0.33	0.07	0,96
Australia	0.48	0.32	0.61	1.75
Austria	0.82	0.41	0.08	2.16
Bangladesh	0.17	0.11	0.02	2.49
Belgium	0.44	0.14	0.30	1.89
Brazil	0.17	0.54	0.14	1.13
Canada	0.49	0.36	0.50	1.45
Chile	0.42	0.07	0.51	4.20
Colombia	0.14	0.09	0.09	1.74
Costa Rica	0.17	0.01	0.06	0.93
Cote d'Ivoire	0.32	0.03	0.06	-0.61
Denmark	0.39	0.25	0.25	2.21
Egypt	0.25	0.12	0.09	3.43
Finland	0.61	0.29	0.29	2.25
France	0.78	0.38	0.23	1.76
Germany	0.93	0.87	0.21	1.98
Greece	0.23	0.23	0.13	1.79
Hong Kong	1.36	0.39	1.42	4.20
India	0.22	0.48	0.15	3.05
Indonesia	0.29	0.27	0.09	3.45
Israel	0.53	0.52	0.36	1.63
Italy	0.55	0.38	0.14	2.05
Jamaica	0.23	0.08	0.26	-0.85
Japan	1.03	0.48	0.65	2.35
Jordan	0.55	0.13	0.54	1.36
Kenya	0.22	0.03	0.14	0.42
Korea	0.46	1.01	0.23	5.51
Malaysia	0.59	0.32	1.21	3.76
Mauritius	0.23	0.10	0.11	1.80
Mexico	0.14	0.47	0.17	1.23
Netherlands	0.77	0.46	0.53	1.89
New Zealand	0.47	0.24	0.56	0.68
Nigeria	0.11	0.01	0.05	-0.61
Norway	0.48	0.46	0.21	2.88
Pakistan	0.23	0.34	0.09	2.55
Peru	0.09	0.20	0.10	-0.12
Philippines	0.28	0.28	0.28	0.56
Portugal	0.69	0.28	0.11	2.93
Singapore	0.79	0.38	1.27	5.15
South Africa	0.51	0.08	1.25	-0.60
Spain	0.78	0.52	0.24	2.02
Sri Lanka	0.19	0.10	0.13	3.28
Sweden	0.42	0.35	0.47	1.23
Switzerland	1.41	1.64	0.89	0.95
Taiwan	0.83	2.32	0.42	6.14

Country	Bank Credit	Turnover Ratio	Market Capitalization	Per Capita Growth (%)
Thailand	0.59	0.70	0.26	5.05
Trinidad and Tobago	0.28	0.08	0.18	1.40
Tunisia	0.50	0.07	0.10	2.36
Turkey	0.14	0.65	0.08	2.65
United Kingdom	0.75	0.38	0.84	1.98
United States	0.64	0.61	0.69	1.85
Uruguay	0.29	0.04	0.01	1.75
Venezuela	0.20	0.13	0.08	-0.86
Zimbabwe	0.15	0.07	0.18	0.15

Source: Levine and Carkovic

Table 2 presents data on financial development growth over the period 1975-1998. There is a wide variation of bank and stock market development across the sample, not only between developed countries and developing countries but also among developing countries themselves. While Taiwan had a Turnover Ratio of 232% of GDP over the 1975-1998 period, Nigeria on the other hand had a Turnover Ratio of only 1% of GDP. Taiwan lent 83% of GDP to the private sector over the 1975 - 1998 period, Peru's bank lent only 9% of GDP. In their study, Levine and Carcovic (2001) found that the Turnover Ratio and Bank Credit are positively and significantly related to economic growth. The dynamic panel result confirms that banking sector development and stock market liquidity exert a positive influence on economic growth. The result strongly suggests a positive relationship between financial development and economic growth.

Beck, Levine and Loayza, (1999) evaluated the empirical relationship between the level of financial intermediary development and economic growth, total factor productivity growth, physical capital accumulation, private saving rates. They found that financial intermediaries exert a large, positive impact on total factor productivity growth, which feeds through to overall GDP growth; and the long run links between financial intermediary development and both physical capital growth and private saving rates are tenuous. Their paper's result support the view that better functioning financial intermediaries improve resource allocation and accelerate total factor productivity growth with positive repercussions for long run economic growth.

Atanasio, Picci and Scorcu (1999) analyzed contemporaneous correlation and dynamic models and applied the concept of Ganger causality to denote the fact that a variable is correlated with

the lagged values of other. They claimed that dynamic correlation can be quite different from the contemporaneous ones. Their main findings were as follow: first, growth and saving seem to be mutually and positively related. Second, lagged saving rate are positively related to current investment rates. Third, lagged investment positively Granger causes saving. Last, growth positively Granger causes investment

D. Conclusion

The role of finance in enhancing investment and then economic growth has attracted attention of many economists. They tried to examine this phenomenon very deeply. Their conclusions are varied but we can summarize that it is true that finance has a big role toward investment and economic growth. However finance is not the only key to investment and growth. There are many other factors that also act as key to economic growth. In other word Finance is a necessary condition but not a sufficient condition for investment and growth.

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