

The Role of Finance in Promoting Private Investment in Saudi Arabia 1970-1995



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Introduction:

One of the most important tasks in developing countries is the creation of financial institutions and capital markets to fill gaps in the kinds of credit and equity provided by private individuals and institutions. The advantages of introducing financial and capital markets in these countries are in terms of increased opportunities for savers, extended credit for investment and increased control over corporate management efficiency. Financial and capital markets creation gives more flexibility to the economic system, since increases in the variety and magnitude of financial institutions and services improve the allocation of saving and investment.

Literature on the development process stresses the importance of capital accumulation, and the role of financial institutions and capital markets in this process. Thus, accumulation of real physical capital has long been regarded as one of major factors in economic development. Investment also plays a major role in economic growth and stabilization and its fluctuation has a significant impact on the general functioning of the economy.

Governments in developing countries for a variety of reasons, intervene in the financial markets to keep the nominal interest rate on loanable funds low and below the rate that clears the market. This intervention discourages savings and, therefore, private investment since it causes private investment in developing countries to be restricted by lack of funds. Thus, in these countries where financial markets are underdeveloped or repressed, credit policy affects investment directly or indirectly through the stock of credit available to firms that have access to preferential interest rates rather than through the indirect interest rate channels. Because of the underdevelopment of capital markets, bank credit remains the most important source of investment financing, and one of the principal constraints on investment remains the quantity rather than the cost of fi-

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nancial resources. Thus changes and degree of credit availability are expected to have positive impact on private investment.

The Saudi Arabian economy depends on oil as the source of income for the government, which uses it for domestic expenditure and the change in this source of income directly and indirectly would affect the output of the other sectors. Because of the drop and fluctuations in oil prices in recent years there is uncertainty about the government's ability to maintain its past level of expenditures and economic policies. This uncertainty could have an adverse impact on the private sector decisions on future investment spending and in turn on the growth and stability of the economy. Before 1952 the monetary and financial system in Saudi Arabia was primitive. The country did not even have a currency of its own. Since the foundation of the Saudi Arabian Monetary Agency (SAMA) in 1952 the financial system in Saudi Arabia has undergone tremendous changes.

The aim and the main purpose of the paper are to examine whether the development of the financial sector and capital market have impacts on private investment and to determine the roles of the government policies in economic development in Saudi Arabia. The paper is organized as follows: first, the structure of Saudi Arabian economy is discussed briefly with emphases on the development of the financial system and capital market. The following section presents a brief discussion of the role of finance in economic development and the determinants of private investment in Saudi Arabia. Empirical results are then presented. The final section presents a conclusion and policy implications.

***The Nature of the Saudi Arabian Economy:*⁽¹⁾**

The economic system of Saudi Arabia is based on the principle of free economy where a substantial part of the production and distribution of goods and services is left to individuals and groups enjoying freedom in their dealings and transactions. Within the past two decades, the Saudi Arabian economy has encountered dramatic changes after the sharp increases in oil prices and income in the 1970's. It became dependent on the production of oil as the main source of national income. Oil is a national wealth extracted and utilized by the government in the interest of the public. There is no private ownership of oil or oil concessions. The revenues accruing from the sale of oil go to the national treasury to finance government expenditures. It is mainly through these expenditures, among other channels, that oil affects economic growth and development in Saudi Arabia.

This gives the government the ability to play a large role and dominant influence on the performance of the economy.

Given the primitive state of the economy of Saudi Arabia in general and the situation of the private sector in particular in the early stages of the development, it was deemed in late 1960's, that economic planning was necessary and essential for utilizing this wealth in the development process. This was necessitated by the shortage of the economic infrastructure and inability of the private sector to take on the development task. That was mainly due to the small size of the private sector and the nationwide shortage of human resources and underdevelopment of the financial and capital markets. The emphasis was put on developing the basic infrastructure and expanding social services and thus government spent massively on infrastructure during 1973 and 1982 period. The main objectives of the government, stated repeatedly in the development plans, were to increase the participation of the private sector through a structural change in the economy.

To pursue the development plans goals, the government took advantage of the rise in oil prices and income to industrialize and build a huge infrastructure. At the same time the private sector took advantage of these opportunities and participated in the construction of the infrastructure projects since the government adopted a policy of giving the private sector the opportunity to undertake many economic tasks and made it a policy not to engage in any economic activities undertaken by the private sector.

Private Investment:

The country was characterized by immense diversity and until at least the period of 1973-1974 oil boom, was fragmented geographically and economically. In general, because of its relatively small population the country suffers from small market size which denies many local producers the advantages of economies of scale. Historically since producers were dispersed geographically, they suffer from relatively high transportation and communication costs which in turn severely limited the opportunities for domestic trade. These elements have all worked to reduce the rate of return on many types of private investment, thereby enhancing the potential for an active role and intervention by the government.

Most attention was given to private investment. The government not only formulated policies designed to encourage private investment, but also participated directly in economic activities. The government indicated that public investment

purpose was to help to break down some of the discontinuities inherent in the early phases of the country's development. Most importantly in this regard, it helped to create an environment in which economies of scale could be obtained in many areas by the private enterprises. To facilitate a strong and more diversified private sector, the government helped to create a positive environment for the private sector and established new institutions to further the interest of the private sector. It aided the private sector in many ways and made available long term loans at low or free interest rate. The primary vehicles for carrying the government support for the private sector financial system development in the country are the specialized credit funding agencies. In short the government policy was to encourage the private sector to take an active role in the country's investment and economic growth and development.

Oil revenues facilitated the rapid growth and expansion of the government expenditures. In particular government investment as a percentage of total investment increased from slightly over 7 percent in 1960 to 42.9 percent in 1965, 53.3 percent in 1970, 47.5 percent in 1975 and 72.6 percent in 1980. Public sector share in total investment has declined somewhat in 1985 due to the oil price declines. Then it increased in 1990 to 57.2 percent to decline again in 1992 to 24.8 percent. Similarly, public sector consumption increased from slightly over 20 percent of total consumption in 1960 to 63.0 percent in 1965 percent in 1975 and 50.4 percent in 1982. Again this share fell slightly to 45.1 percent in 1985 due to the decline in oil revenues. It declined again in 1990 to around 40 percent.

The net result is that the expenditures of the public sector have risen as a percentage of total expenditures from around 20 percent to stay around 50 percent. This growth in the government sector has apparently not been at the expense of the private sector with overall private sector investment expanding at slightly under 9.8 percent per annum over the 1965-1985 period. The growth of the private sector for the period 1970-1992 was around 10 percent annum. The following table shows real private gross domestic investment (PGDIR) and real government gross domestic investment (GGDIR) between 1970-1995 in billion SR (1984=100).

Although the private sector in Saudi Arabia has developed rapidly, it is still dependent on the government initiatives. Looney (1990,155) noted that the private sector in Saudi Arabia was lagging behind "It appears that the private sector,

	1970	1975	1980	1985	1990	1995
PGDIR	7.246	18.168	30.408	35.408	22.650	57.000
GGDIR	6.426	22.560	70.172	32.443	34.417	18.000

while in general benefiting indirectly through the impact of oil revenues on overall purchasing power, had difficulties in efficiently absorbing these revenues. The private sector has clearly been demand rather than supply driven".

The Development of the Financial System in Saudi Arabia:

Before 1952 the monetary and financial system in Saudi Arabia was primitive and simple. According to Young (1983) there was no central bank or any other institution, private or public, discharging the function of a central bank. The country did not have a currency and it was dependent on a hybrid of foreign metallic currencies.

The need for advanced financial system was recognized, The increase in oil prices during the 1970's and economic development in the country which took place during the period of the 1970's and early 1980's also made it important to speed up the development of the financial and capital sector.

The Saudi Arabian financial system has undergone tremendous changes beginning with the foundation of SAMA in 1952. The increased monetization of the economy, the gradual adoption of commercial banking habits by citizens, and the actual institutionalization of commercial banking "Banking law" in 1965, the establishment of the specialized credit institutions, the regulations of the stock market in 1980's were the major developments in the financial and capital markets and the monetary system. These developments expanded the size of the financial sector significantly and increased domestic financial intermediation. As a result the private sector had the opportunity to expand its investment frontiers by borrowing from these institutions. The following table shows the rapid increase in domestic liquidity between 1970-1995 in Saudi Rials:

Domestic Liquidity (billion SR)

1970	1975	1980	1985	1990	1995
3.15	17.97	83.39	148.82	188.44	240.06

Saudi Arabian Monetary Agency (SAMA):

SAMA was established in 1952 and its activities fall within four broad categories: the issue of coins and notes, serving as a banker to the government, controlling financial institutions, and conducting monetary policy. In addition to the major functions of a central bank, SAMA provides other services to the banking sector and the economy. For instance it provides a clearing service for banks, it provides a banking training center, and it publishes a series of annual reports. Young (1983,133) reported that "The desire of the Saudi Arabian government to create a new institution to handle monetary affairs, to act its fiscal agent and for financial and economic research shows an appreciation of the important part that such an institution can play in the country's program".

Over the past three decades, the responsibilities and power of SAMA have steadily increased. Today, it serves most if not all of the roles traditionally associated with central bank.

Commercial Banks:

The history of commercial banking in Saudi Arabia started in 1926 with the establishment of the first branch of a foreign bank. By 1975 commercial banks consisted of two national banks and ten foreign owned banks. The two national banks at the time dominated the banking sector and the government did not allow foreign banks to open additional branches in the country. By 1977 the decision was made to nationalize (Saudization) foreign banks which involved transferring the majority of ownership of foreign bank to Saudi Arabian nationals. Such move enabled foreign banks to overcome the restraint placed on them. Now there are twelve banks with more than 1200 branches in the country. At the end of 1995 these banks had deposits of more than 195 billion SR, and total assets of more than 324 billion SR. The following table shows some of commercial banks activities between 1970-1995:

	1970	1975	1980	1985	1990	1995
T. Assets	2.93	15.71	73.92	150.25	232.06	341.16
T. Deposits	1.80	12.69	64.73	137.77	143.66	196.97
Cliaam P.S.	1.54	6.55	32.65	62.84	65.30	113.41
F. Assets	0.624	5.425	41.004	72.77	123.467	97.971

Commercial banks in Saudi Arabia serve the business community almost exclusively. They have played a limited role in the domestic economy and they have not engaged in medium or long term lending activities. Currently major commercial banks provide mainly short credit to the private sector. Over one third of bank credit finds its way into trade financing.

Until recently services to households were not advanced. Though the expansion which occurred recently has included some efforts to attract household funds, commercial banks have ignored this area of service for a long time.

With the increase in the country's wealth, which caused an increase in government spending, and the rapid economic growth and move toward industrialization, it became clear that banking practices were inadequate. This not only entailed the growth of existing institutions and agencies, but a massive reorganization of the financial system including commercial banks.

Commercial banks in Saudi Arabia have been financial "gap filling". Unable to compete with the cheap finance offered by the specialized credit agencies they have exploited those areas not favored by government finance or filled the gap for the government loans. The attractiveness of overseas investment has also been strong since the short run alternative for commercial banks in Saudi Arabia is to extend operations in international markets. The absence of sufficient domestic outlets for funds allow them a strong placement of funds abroad. But Euromoney (May, 1992, 58) suggested that one difference between now and the past is that the government is very keen for some state or quasi state owned companies to get their finance from the private sector. In the past, to a large extent, they would have been publicly funded. "This development is good for the banks".

According to Abdeen and Shook (1984) one of the major failures of the Saudi Arabian financial system has been the failure of commercial banks to become increasingly involved in the country's economic diversification.

Specialized Credit Agencies:

The inability of the existing financial institutions during the rapid growth of the economy to provide long term credit to finance private sector development led the government to start a massive reorganization of the financial sector. This principally came through the creation of new government sponsored financing agencies, reflecting greater public sector participation in financial provision and a narrow private sector involvement. These specialized credit agencies became the primary vehicles for carrying out government support of private sector financial system development. These agencies have been active in extending credit to the private sector. They received their capital and lending resources primarily from the government. They indirectly and effectively expanded the absorptive capacity of the economy since they were oriented toward injecting credit into the private sector. These credit agencies include: Saudi Industrial Development Fund, Real Estate Development Fund, Saudi Agriculture Bank, and Saudi Credit Bank. These specialized credit agencies have advanced the growth of the private sector and the financial system, but they are by no means substitute for the long term growth provided by an effective capital market. According to Abdeen and Shook (1984,193) "Accomplishing a diversified industrial base in a nation with single resource requires considerable participation of public as well as private investment, and this is the primary objective of these specialized credit agencies. These agencies performed an important economic diversification role during the development plans, following the Islamic principle of granting loans without interest". Specialized credit agencies total assets, credit to the private sector and outstanding loans in (billion SR) between 1976-1995 are in the following table:

	1976	1980	1985	1990	1995
T. Assets	17.47	92.38	185.40	203.00	227.61
Credit. P.S	12.135	24.276	8.372	3.962	3.357
Outstanding L	11.88	76.03	163.79	160.40	151.008

As Abdeen and Shook pointed out "The result is that the specialized credit agencies effectively became the conduit for government fiscal policy while also complementing the short term credit activities of the commercial banks through their long term financing activities".

Despite the important support the specialized credit agencies contribute to the capital growth the government repeatedly indicated that there is no intention to substitute these agencies for the commercial banking system.

The Stock Market

Compared to industrialized and some developing countries stock market in Saudi Arabia is a recent development. Only Saudi Arabian nationals are allowed to trade in shares of the Saudi Arabian public companies. Most companies that went public in Saudi Arabia were newly established corporations with large capital requirement and no operating history.

The earliest publicly traded companies were in the cement and regional electricity industries reflecting the phase of the development in the infrastructure in Saudi Arabia. The biggest jump in the number of publicly traded companies was in the period of 1976-1980 corresponding to a period of economic prosperity and growth in the country. During that period, nineteen new companies were offered to the public. An important feature of these stocks was the fact that the government insisted that these shares be offered at par value as a form of distributing to the public the newly acquired economic gains of the country. These floatations resulted in a tremendous shareholders interest in the stock market and a large segment of population becoming involved in buying and selling shares. Several more stocks were released in the market in 1981 when fifteen new companies in a variety of business were offered to the public. Currently there are about seventy companies with shares traded in the market. These companies are classified into six categories: Financial, Industrial, Cement, Services, Electricity, and Agriculture sectors.

An important step to develop the capital market was taken with the issuance in 1988 of the government development bonds, thereby promoting the potential for both savers and individual investors to increase their participation on the process of the capital market development.

By issuing bonds, the government was aiming to achieve two major objectives as stated by SAMA in its 1989 report.

- 1 - To maintain an adequate and normal level of public spending following the sharp decline in oil prices and revenues, by resorting to domestic borrowing to insure additional resources to complete development projects.
- 2 - To deepen the financial market in the country by creating secure investment instruments of reasonable yield to absorb national saving.

In november 1991, SAMA issued Treasury Bills (TB) with maturities of 4,13,26 and 52 weeks. The government continued to issue SR 1.5 billion weekly through SAMA. As of now, there is no secondary market for government bonds or (TB). They are sold to commercial banks and semi government agencies. Even though corporate laws allow companies to issue bonds, no corporate bonds are issued by now.

Finance in Economic Growth and Development:

Financial development is characterized by the increasing role of indirect finance and channeling savings to productive investment, hence, financial development and liberalization of the financial sector facilitate economic development and growth. The theory of the role of finance in the economy argues that increasing financial intermediation in the economy creates better opportunities for economic growth and development. Increasing financial resources by providing wide ranges of financial assets and liabilities to the public, brings into contacts a greater number of ultimate borrowers with ultimate lenders, facilitates the flow of inter-and-intrasectoral saving, distributes risk more evenly on investment, and takes advantages of administrative and other economies of scale in investing as well as mobilizing savings. The critical role of financial instruments in the context of economic development is that of facilitating and encouraging both saving and investment by providing efficient means for transferring claims over resources from savers (lenders) to investors (borrowers). Goldsmith (1969) argued that the more developed the financial structure, the faster will be the rate of economic development of a country. That is, financial development is perceived here as having a positive impact on economic growth and development. He stressed the connection between "a country's financial superstructure and its real infrastructure" and indicated that financial superstructure of an economy "accelerates economic growth and improves economic performance to the extent that it facilitates the migration of funds to the best user, i.e., to place in the economic system where the funds will yield the highest social return" (Goldsmith,

1969, 400). He further presented data showing a well defined upward secular drift in the ratio of financial institutions' assets to gross national product for both developed and less developed countries for 1860-1963 period. As he notes, through, it is difficult to establish "with confidence the direction of the causal mechanism, i.e., of deciding whether financial factors were responsible for the acceleration of economic development or whether financial development reflected economic growth whose mainsprings must be sought elsewhere" (Goldsmith, 1969, 48). He also attempted to measure the degree of institutional maturity in the financial market by using ratio of total financial assets to national wealth and showed that the higher the financial intermediation ratio (FIR) value the greater a nation's level of financial development. This and several other instruments have been used to denote the relative dimension of financial structure in different countries over long periods of time in order to identify the association between financial development and real economic growth (Adelman and Morris, 1967; Ayres, 1983, Cameron, 1972, Drake, 1980, Gurley and Shaw, 1967; Patrick, 1966). World Bank studies of the determinants of growth in less developed economies also show the growth of the capital stock as being a critical factor in explaining the rate of economic growth and that financial deepening contributes to the accumulation of capital. World Report (1989,29) notes, "as more saving moves through the financial system, financial depth increases. The financial systems of higher income countries are usually deeper than those in poor ones. They are also deeper in the most rapidly growing countries than in the lowest growing countries. Faster growth, more investment, and greater financial depth also contribute to growth by improving the productivity of investment. Investment productivity is significantly higher in the faster growing countries, which also have deeper financial systems. This suggests a link between financial development and growth." Drake (1980), Porter (1996), and Cameron (1972), indicated that financial development: (1) augments the quantities of real saving and capital formation from any given national income, (2) increases net capital inflow from abroad, (3) raises the productivity of aggregate investment by improving its allocation, (4) improves macroeconomic stabilization, "greater stabilization of the economy through monetary controls is attainable when the banking system is more widespread" (Porter, 1966,356), (5) banks provide a basic intermediary function between savers and investors, or surplus spending units, since they are unique in being able to supply liquidity to the economy by

creating money. "They are in a position not merely as the custodian of the stock of money but also to increase or decrease the stock. The consequences of this society at large can be considerable- and either favorable or unfavorable" (Cameron, 1972,7), (6) Cameron further suggests that the banking system may function as the provider of entrepreneurial talent and guidance for the economy as a whole. "As potential entrepreneurs, they may set their country on the road to continuing growth, or they may waste its resources in uneconomical or fraudulent activities" (Cameron, 1972,8). King and Levine (1993,515) further suggest that financial systems influence decisions to invest in productivity enhancing activities through two mechanisms: they evaluate prospective entrepreneurs and they fund the most promising ones. Financial institutions can provide research, evaluate, and monitor services more effectively and less expensively than individual investors; they also are better at mobilizing and providing appropriate financing to entrepreneurs than individuals. "Overall, the evaluation and sorting of entrepreneurs lowers the cost of investing in productivity enhancement and stimulate economic growth. Financial sector distortions can therefore reduce the rate of economic growth". Shaw (1973,9) suggests that "Real growth in financial institutions provides more investors with access to borrowing and gives them incentives to save and to accumulate the equity that makes borrowing cheaper". Goldsmith (1969,47) also documented that "the cost of financing is distinctly lower in financially developed than less developed economies". McKinnon (1973) and Shaw (1973) have argued that the credit markets of the developing countries are "fragmented" causing investment fund to be allocated inefficiently. They also argued that the limited development of financial markets, and the high cost of transacting in these markets account for the poor real performance of a variety of less developed economies. In particular, it appears that credit markets imperfections have serious consequences for economic growth. Poor financial institutions drastically reduce the quality of capital formation. Firms need credit to finance their operations and investment. Development of the financial sector enables them to seek funds from many sources. If they are credit rationed, it may be the availability of financing rather than the cost (interest rate) that has mere impacts on the investment decisions of these firms. Here, monetary policy and financial development affect investment by changing the availability of credit even without changing the interest rate. Thus, in contrast to developed countries, one of the principal constraints on investment, hence economic growth, in de-

veloping countries is the quantity, rather than the cost of financial resources (McKinnon, 1973; Leff and Sato, 1975; Fry, 1988). In this respect, both public and private financial institutions play important roles by providing the public with a wide range of financial assets in which to save, and a similar range of liabilities through which to make real and financial investments. Here, financial development, particularly from the view-point of less developed countries is the creation of a whole range of financial institutions and instruments and by growing sophistication of the monetary and financial system, both in terms of types of financial assets and institutions, including money and capital markets.

Governments in less developed countries for a variety of reasons, intervene to keep nominal interest rate on loanable funds low. Both Mckinnon (1973) and Shaw (1973) agreed that the higher the real interest rates the higher will be the amount of savings available in the economy. This as they suggest, will lead to higher investment spending and consequently, higher rate of economic growth. However, they differ in the mechanism through which the effect of higher real interest rates is transmitted through the economy to bring about higher growth. Mckinnon (1973) analyzed an economy with very limited possibilities of external finance for the fast majority of the investors. He argued that because of the lumpiness of investment projects, self-financed investors may find it convenient to accumulate funds in monetary assets first until they have enough resources to invest in higher yielding investment projects. Here, deposits may serve as a 'conduit' for capital formation (Molho, 1986), making deposits and capital complementary assets. Thus, the availability of deposits with positive real rates of return may encourage both saving and capital accumulation. Shaw (1973) on the other hand, emphasized external rather than internal financing possibilities as the effective constraint on capital formation. Focusing on the role of deposits (Inter-mediated funds) as a source of financing for investment projects, he argued that high deposit rates may stimulate investment by allowing the supply of credit to expand in line with the financing needs of the productive sectors of the economy.

Financial Development and Investment:

The beneficial effect of easy credit on private investment is well established. In contrast to developed countries, one of the principal constraints on investment in developing countries is the quantity, rather than the cost, of financial resources (McKinnon, 1973; Leff and Sato, 1975; Fry, 1980, 1982; and Shaw, 1973). Gov-

ernments in developing countries, for a variety of reasons, intervene to keep the nominal rate of interest on loanable funds low. With the rate of return on investment being high during the process of development, investors are not expected to equate marginal product of capital to its service cost. This causes private investment in these countries to be restricted by a lack of funds. The effect of keeping the interest rate on loanable funds below the rate that clears the market discourages saving and, therefore, private investment. The availability of bank credit also allows the private sector to import the needed equipment necessary for production. Thus, degree of availability of bank credit is expected to be positively correlated with private investment.

The complementarity between money and investment is reflected in the following demand for money function (McKinnon, 1973).

$$M/P = f [Y, I/Y, d-t^*]$$

Where M/P is the real broad money, Y real GNP, I/Y is the ratio of gross investment to GNP, and $d-t^*$ is the real deposit rate of interest (d in nominal deposit rate and t^* is expected rate of inflation). McKinnon complementary hypothesis may be expressed in terms of an investment function:

$$I/Y = f [r_t, d-t^*]$$

Where r_t is average real rate of return to physical capital complementary appears in the partial derivatives:

$$d(M/P)/d(I/Y) > 0, d(I/Y)/d(d-t^*) < 0, d(I/Y)/d(r_t) > 0$$

This implies that interest rate should be included in the investment, but for lack of reliable time series data on interest rate that variable may not be included directly in investment equation (Leff and Sato, 1988; Fry, 1988). However, Leff and Sato (1988,6) specify a variable related to the shadow price of credit. "Firms in developing countries often rely heavily on bank credit to finance additions to their capital stock. Accordingly, we specify the change in the stock of real credit." Also because monetary authorities generally maintain interest rates below market clearing levels, there is usually excess demand for credit (Leff and Sato,

1988; Fry, 1988; Blejer and Khan, 1984). For this reason Leff and Sato (1988,6) indicated that they "interpret movements in ΔCR (change in credit to the private sector) as reflecting shifts in the supply of credit".

Methodology:

Because of the problems inherent in the less developed countries, one line of research in studying private investment in these countries, following McKinnon (1973) and Shaw (1973) complementarity theory, advanced the hypothesis that private investment in these countries is positively related to the accumulation of domestic real balances and public investment, Laumas (1990). In another line of research attempt has been made to retain the neoclassical model, but it addressed explicitly the analytical and data problems involved in its application to developing countries. A number of studies have examined the factors affecting the productivity and performance of the private sector investment on developing countries and suggested that it is positively related to the growth of real output proxied by Gross Domestic Product (GDP), the government investment, and the availability of credit to the private sector, (Blejer and Khan, 1984; Cordoso, 1993; A. Khan, 1988; Oshikoya, 1994; Ramirez, 1994; Tun Wai and Wong. 1982).

$$IP = f(YR_t, GI_t, CR_t, IP_{t-1}) \quad (1)$$

Two methods of estimation are used to conduct the empirical test. First, two stage regression is conducted by using government investment and credit granted by commercial banks to the private sector as instruments,

$$IP = \beta_0 + \beta_1 YR_t + \beta_2 GI_t + \beta_3 CR_t + \epsilon_t \quad (2)$$

$$GI = \alpha_0 + \alpha_1 OR + \alpha_2 YR + \alpha_3 GI_{t-1} + v \quad (3)$$

It is assumed here that government investment (GI) is positively related to the growth of real non-oil private sector GDP (YR), oil revenue (OR) since more oil revenue is expected to increase government expenditures, including government investment and to one period lag of government investment (GI_{t-1}) since most government projects take more than one year to be completed.

$$BC = \delta_0 + \delta_1 YR + \delta_2 TD + \delta_3 INT + \delta_4 SB + u \quad (4)$$

Commercial banks credit to the private sector expected to be positively related to the growth of real non-oil private sector GDP (YR), total commercial banks deposits (TD) since the more deposits the banks have the credit these banks are expected to make available to the private sector, and to credit granted by specialized agencies (BS) because these agencies' loans cover only 50 percent of total costs of the project and the formula used is that commercial banks would make available credit which covers 25 percent of the costs, however BS loans could be a substitute for BC if project owners use their own savings to cover the other 50 percent without borrowing from commercial banks. It is also assumed that BC will be negatively related to foreign interest rate (INT). It is expected for an open economy, like Saudi Arabia with virtually no restrictions on capital mobility, that foreign interest rate may play a role in stimulating domestic savings since foreign assets become available alternative channels for commercial banks to allocate their deposits.

Variables in equations 1,2,3, and 4 defined as follows:

IP = real non-oil private investment,

YR = real non-oil private gross domestic product (GDP).

GI = real non-oil government investment

OR = oil revenue

CR = total credit to the private sector (CR = BC + BS)

BC = commercial credit to the private sector.

BS = specialized banks credit to the private sector.

TD = total commercial banks deposits, and INT = interest rate (Eurodollar rate).

PI_{t-1} = real non-oil private sector investment lagged on period.

GI_{t-1} = real non-oil government investment lagged one period,

and e, v, and u are error terms.

Second a simultaneous equation methods are used. Along with the above equations a production function and money demand equations are estimated:

$$YR = f(K, L) \quad (5)$$

$$\text{and } K = IP + (1 - \theta) K_{t-1} \quad (6)$$

Money demand function:

$$m = M/p = f(YR, INT) \text{ and } m/p = \theta_0 + \theta_1 YR + \theta_2 INT + \varepsilon \quad (7)$$

m is expected to be positively related to real income proxied by real non-oil

GDP (YR) and negatively to the price of holding money, interest rate proxied by Euro rate (INT).

where:

K = private capital

L = labor

M = nominal money balances

p = price level,

m = M/p = real money balance.

(m represents: M1 = Currencies in Circulation + Demand Deposits, and

M2 = M1 + Time Deposits),

β = capital depreciation,

β , α , δ and θ coefficients of the variables.

Since many economic time series variables are non-stationary (Nelson and Plosser, 1982), following Engle and Granger (1987) tests for unit roots and co-integration regressions are performed by using augmented Dicky-Fuller (ADF) and Engle-Granger cointegration tests (Dickey and Fuller 1981; Granger, 1986; Engle and Granger, 1987; and Hamilton, 1994). The ADF test involves regressing a particular variable on a constant, a time trend, the dependent lagged variable, and lags of the differenced series, since transforming the data into first differences can lead to the loss of important long run information, the co-integration test is employed to determine whether the set of variables possesses any long run relationships. This test first runs ordinary least squares (OLS) regression of a variable in level form on the levels of the remaining variables, a constant, and a trend variable. Using the estimated residuals from this co-integrating regression, the next stage involves running OLS of the differenced residual on the lagged residual term and lags of the differenced residual. ADF test for unit roots is based on the following regression,

$$\Delta Y_t = \alpha + \beta Y_{t-1} + \sum_{t=1}^n \delta \Delta Y_{t-1} + \varepsilon \quad (8)$$

The null hypothesis of the test is that Y_t is a non-stationary series. The test for cointegration can be estimated as follows,

$$Y_t = \delta X_t + u_t \quad (9)$$

then retrieving the residuals of the regression to estimate,

$$\Delta u_t = a + b u_{t-1} + \sum_{t=1}^n b_1 \Delta u_{t-1} + \varepsilon \quad (10)$$

where: α , β , and δ constants, Y and X are time series and ε is serially uncorrelated residual. the t -statistics value is used to test the null hypothesis of no cointegration in Y and X .

Determinants of Private Investment:

Growth of real GDP: the relationship between private investment and the growth of real output can be derived from a flexible accelerator model with the assumption that the production function has a fixed relationship between the desired capital stock and the level of real output.

Availability of Credit to the Private Sector: as explained above, in contrast to developed countries, one of the principal constraints on investment in developing countries is the quantity rather than the cost, of financial resources. The availability in developing countries is the quantity expand and import the needed equipments necessary for production. Thus the degree of the availability of credit is expected to be positively correlated with private investment. (Friedman, 1983; Galibs, 1979; Harris, 1979; King and Levine, 1993; Laumas, 1990; and Tybout, 1983).

Government Investment: it strongly influences private investment and the growth of the economy in developing countries and its significance depends on the type of public expenditure. It is believed that certain types of public sector investment provide a significant stimulus to private investment. On the other hand public investment could crowd out therefore discourage private investment. The overall relationship between public investment and private investment depends on the relative strength of the two effects.

Empirical Results:

Data used in this paper are annually data which covers the period 1970-1995. Monetary and financial data are obtained from SAMA annual reports, different issues. Real non-oil private sector GDP (YR), Private Investment (IP), and Government Investment (GI) are obtained from Ministry of Planning 'Facts and Figures' different issues. Interest rate (INT) which is proxied by Eurodollar rate is obtained from IMF-statistical data. All variables are in real terms and they have

been defined in terms of ratios to GDP or as percentage growth rates to minimize the effects of hetroskedastic residuals. Tables 1,2,3 and 4 show the result of the statistical tests.

A stationarity test was conducted first. Table 1 shows the results of the ADF test for unit roots which indicates that total credit to the private sector (CR) and commercial banks credit to the private sector are stationary at the 1 percent level, m2 is stationary at 5 percent level, credit by specialized agencies (BS) and m 1 are stationary at 10 percent level, private investment (IP) is a I (1) stationary, but evidence of unit roots hypothesis can not be rejected for non-oil private GDP (YR) and government investment. The cointegration test in table 2 suggests that IP and BS are integrated at the 5 percent level with first difference, IP is integrated with YR, GI, m1 m2 at the 10 percent level with first differences, but IP with CR and BC are not integrated. However PI is integrated with YR and CR is integrated at the 5 percent level after 3 differences.

- 1) The growth of GDP (YR) in tables 3 and 4 has the anticipated positive sign and significant at 10 percent level. An increase in real GDP has a positive impact on private investment. This is an indication that private investors react positively to changes in GDP.
- 2) As regards the effect of changes in credit to the private sector on investment in tables 3 and 4, even though estimated demand for money (m1 and m2) were positive but not significant as some studies would have suggested (Galbis, 1979), the results show that this variable (proxied by total credit to the private sector (CR), commercial banks credit to the private sector (BC), and specialized agencies' credit to the private sector (BS) has a positive and significant effect on private investment at the 1 percent level for CR and BC and 10 percent level for BS which implies direct role of monetary policy and the development of the financial sector in influencing private investment behavior. There is a complementarity between real balance and private investment. The significance of BC can be attributed to the fact that firms need commercial banks to finance their working capital and that small businesses with small projects which cost less than 4 million SR will not be financed by specialized credit agencies since the minimum loan granted by these agencies is 2 million SR will also need commercial banks loan (Fazzari and Pteresen, 1993; and de Melo and Tybout, 1986). This supports the structuralist school of thought

Table (1) ADF-Stationary Test

Vari./Lags	0	1	2	3	4
YR	-1.843	-1.869	-1.941	-2.010	-2.1856
IP	-2.981	-3.453**			
GI	-2.759	-2.946	-1.800		
CR	-4.804*				
BC	-5.755*				
BS	-3.200***	-2.762			
M1	-3.395***	-4.124**			
M2	-4.0622**				

Table (2) E-G Cointegration Test

Vari./Largs	0	1	2	3
IP, YR	-3.209	-3.58***		
IP, GI	-3.118	-3.624		
IP, CR	-2.482	-2.780	-3.332	-3.2668
IP, BC	-3.100	-2.716	-3.404	
IP, BS	-3.215	-4.000**		
IP, M1	-3.280	-3.771***		
IP, M2	-3.053	-3.700***		
IP, YR, GI	-2.996	-3.189		
IP, YR, CR	-3.345	-2.816	-3.281	-4.381**
IP, YR, GI, CR	-3.351	-2.764		

In all tables :

- * Significant at 1% level,
- ** Significant at 5% level,
- *** Significant at 10% level.

MacKinnon critical values:

For ADF Test: 1% - 4.3082
5% - 3.5731
10% - 3.2203

Cointegration Test: 1% - 5.3639
5% - 4.1237
10% - 3.749

Table (3) Two Stage Least Squar Test

1 - IP = 1.617 + 0.003 YR + 0.338 GI*** (1.288) (0.0121) (1.663) R = 0.28 D.W. = 1.96 F = 3.721
2 - IP = 0.7208 + - 0.0262 YR + 0.325 CR* (0.593) (- 0.1327) (4.465) R = 0.571 D.W. = 1.958 F = 10.633*
3 - IP = - 0.1665 + 0.1455 YR + 0.3887 BC* (- 0.0787) (0.5813) (2.684) R = 0.39 D.W. = 1.622 F = 6.680
4 - IP = 1.474 + 0.118 YR + 0.4331 BS*** (1.263) (0.5727) (1.839) R = 0.342 D.W. = 1.711 F = 4.503*
5 - IP = 2.3693 + 0.3693 YR*** - 32.177 INT (1.365) (1.815) (-1.2716) R = 0.025 D.W. = 1.972 F = 3.421**
6 - IP = 0.1532 + 0.2022 YR + 0.481 IP t-1 (0.1523) (1.201) (2.9528) R = 0.242 h = 1.11 F = 5.628*
7 - GI = - 0.425 + 0.1165YR + 0.0746OR* + 0.3598 GI t-1*** (- 0.243) (0.3384) (2.727) (1.845) R = 0.428 h = 1.18 F = 8.299*
8 - BC = 0.1436 + 0.04166 YR - 25.865 INT - 0.041655 BS + 0.521 TD* (0.0893) (0.1314) (-0.997) (-0.1242) (3.091) R = 0.332 D.W. = 2.010 F = 3.778*

* Significant at 1% level, ** Significant at 5% level, and *** Significant at 10% level.

Figures in parentheses are t-statistics:

R = adjusted R squared, D.W. = Durbin Watson, h = Durbin h Statistics,
and f = F - statistics

Table (4) Simultaneous Equations Tests

$$1 - IP = -0.1666 + 0.4562 YR^{***} + 0.2414 GI$$

$$(-0.121) \quad (1.642) \quad (1.498)$$

$$R = 0.318 \quad D.W. = 1.983 \quad F = 4.257^*$$

$$2 - IP = -0.910 + 0.251 YR + 0.4569 BC^*$$

$$(-0.524) \quad (0.8268) \quad (2.694)$$

$$R = 0.393 \quad D.W. = 1.973 \quad F = 5.366^*$$

$$3 - IP = -0.5792 + 0.3953 YR + 0.2233 m1$$

$$(-0.2479) \quad (1.0403) \quad (0.4845)$$

$$R = 0.237 \quad D.W. = 1.743 \quad F = 3.899^{**}$$

$$4 - IP = -0.7167 + 0.3953 YR + 0.1725 M2$$

$$(-0.2876) \quad (1.0403) \quad (0.4845)$$

$$R = 0.237 \quad D.W. = 1.743 \quad F = 3.899^{**}$$

$$5 - YR = 3.1296 + 0.2468 IP^{***} + 0.1650 GI^{***} + 0.8948 L$$

$$(1.4081) \quad (1.8472) \quad (1.8779) \quad (0.2387)$$

$$R = 0.643 \quad D.W. = 2.145 \quad F = 14.065^*$$

$$6 - m1 = 1.6615 + 0.5748 YR^* - 7.360 INT$$

$$(1.547) \quad (3.0827) \quad (0.3694)$$

$$R = 0.216 \quad D.W. = 1.537 \quad F = 5.1279^*$$

$$7 - m2 = 2.9474 + 0.7441 YR^* - 9.526 INT$$

$$(2.112) \quad (3.0697) \quad (0.3678)$$

$$R = 0.214 \quad D.W. = 1.811 \quad F = 5.085^*$$

* Significant at 1% level, ** Significant at 5% level, and *** Significant at 10% level.

Figures in parentheses are t-statistics:

R = adjusted R squared, D.W. = Durbin Watson, h = Durbin h Statistics,
and F = F - statistics.

which argues that financial institutions development will increase financial savings which in turn lead to higher capital formation (Gupta, 1984). These results support, among others, the findings of Galibs (1979), Laumas (1990) and OShikoya (1994).

- 3) Government investment (GI) in tables 3 and 4 was found to have positive impact on private investment, it is significant at the 10 percent level. This might be due to the fact that the government provides the infrastructure and services used by the private sector. This also suggests that there is a complementarity between private investment and government investment.

On the other hand, the weak positive relationship between private investment and government investment might be due to the fact that the government in Saudi Arabia owns natural resources and competes with the private sector in obtaining scarce resources as skilled labor and lately financial resources, Laumas (1990).

- 4) As expected interest rate (INT) in table 3 has a negative impact on private investment but not significant. However, it should be noted that interest rate used here is foreign to the economy (Eurodollar) and that most of the private investment was supplied by specialized credit agencies with low or free interest rate. There is no formal interest rate in Saudi Arabia and when interests are paid they are fixed by the monetary authorities. On the other hand it is expected as mentioned above that for an open economy like Saudi Arabia with no restrictions on capital mobility, that foreign interest rates to attract domestic savings.
- 5) Lagged value of private investment (IP_{t-1}) in table 3 has positive sign and significant at 10 percent. This might suggest that private investors adjust rapidly to changes affecting private investment.
- 6) All the estimated equations for (YR), (GI), (BC), and (m) have the expected signs but (BS) which turned out to be negative, which might be due to the fact that some investors resort to their own saving without a need to borrow from commercial banks which make loans granted by the specialized agencies substitutes for commercial banks loans to the private sector. It can be seen from the results that these variables have significant effects on private investment. They emphasize the important role assumed by the financial sector in stimulating investment in the economy through the credit market. Since higher investment enhances capital formation in the economy it will stimulate the growth of the economy.

Conclusion, Recommendations and Policy Implications:

With increased oil prices and revenues during the 1970's and early 1980's the government of Saudi Arabia spent massively on infrastructure and restructured the financial system, but with reduced oil revenues, however, there are concerns about the ability of the government to continue its past and current economic policies and maintain that level of expenditures.

Empirical results show that the growth of GDP and the availability of credit to the private sector have positive impacts on private investment. Government investment was found to have positive effects on private investment. There are signs of complementarity between the availability of credit to the private sector and government investment on one hand and private investment on the other, however, the relationship between private investment and government investment is weak.

Since the control over the domestic credit of the banking system in most developing countries as the case of Saudi Arabia-remains the principal tool of monetary policy, these results are important for understanding the broader issue of the real sector's response to changes in credit to the private sector and monetary policy. It appears that the private sector is constrained by the availability of financing rather than the cost of such financing.

The Saudi Arabian financial system remains inadequate. It has by no means achieved an advanced stage of financial development since it has not realized its full potential. Most of the economic growth witnessed in Saudi Arabia was a result of the government spending from oil revenue. Thus, the drop in oil revenue since 1983 would have an adverse effect on the economy. For Saudi Arabia to maintain its economic growth, it is important to have effective fiscal policy and monetary tools that will allow the necessary monetary policy to be carried out. In addition, the development of financial and capital markets is crucial for the economic development of the country. Studies of the determinants of growth in less developed countries show the growth of the capital stock as being a crucial factor in explaining the rate of economic growth. Developed financial and capital markets can mobilize savings and channel them to productive use. Financial market innovations should be directed to the determinants of growth, at the same time financial markets and intermediaries have to be intended to improve the productivity of investment. De Melo and Tybout (1986,581) conclude that, "Our results provide mild evidence that, with financial liberalization, small firms in-

creased their leverage and average financial costs relative to large firms, suggesting that there may have been some improvement in the credit allocation mechanism". Fazzari and Petersen's (1993,340) conclusion states that, "From marco perspective, our results may help explain cyclical fluctuations of inventories, long recognized as a major part of the business cycle. Inventories, as important part of working capital, will vary procyclically if financially constrained firms smooth fixed investment relative to variations in profits". In this respect, financial and capital markets should be designed and directed to meet several specific needs by: 1) making yields on financial instruments sufficiently attractive to raise new saving and divert savings from the alternatives of real estates investment and capital flight, 2) creating medium and long term debt markets to finance domestic investment, 3) providing access to new equity funds by corporations and to ownership of equity by the public, 4) insuring that investment in socially desirable sectors and infrastructure would receive enough financing, and 5) assuring that firms are not constrained by the shortage of liquidity.

It is important for policy makers to pay attention not just to the government policies and the level of its expenditure but also to the composition of this expenditure. Cuts in investment should fall only on investments that are not directly related to the development of infrastructure and social services. There should be an awareness of the consequences for private investment and long term growth of cross the board reduction in capital spending and expenditures that involve deep cuts in infrastructure investment. In short, there should be an effort to maintain adequate levels of investment in social and economic infrastructure.

Footnotes:

- 1- Information on the nature of the Saudi Arabian Economy and the financial sector draws in large part on government reports and information contained in:
 - 1) Ministry of Planning:
 - a - Five Year Plans 1970-1995.
 - b- Facts and Figures various issues.
 - 2) Saudi Arabian Monetary Agency (SAMA):
 - a- Annual Reports - various issues.
 - b- Money and Banking Statistics- Quarterly Report various issues.
 - 3) Said Ali, SAMA: Its Establishment and Accomplishments 1952 - 1991.

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