

The Efficiency of Financing Economic Development Process in Egypt

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Abstract

The process of economic development in Egypt cannot be described as a successful one, especially during the first decade of the 21st century. In spite the high economic growth rates achieved in some years during the considered time period; however, this time period has witnessed high rates of unemployment, inflation and poverty.

Where the efficiency of financing the process of economic development is considered the main determinate of the success of this process in any economy, as it permits the economy to grow while maintaining the two evils of any economy, unemployment and inflation, at safe and stable rates; this calls for studying the efficiency of financing the development process in Egypt and its main constraints.

Although the level of saving in Egypt is weak and tends to deteriorate overtime due to low levels of incomes; however, the main constraint in the process of capital formation is the inefficient use of those savings rather than their size.

Where financial system is the main responsible for the efficiency of mobilizing and utilizing savings in any economy; then this study focus on studying the efficiency of the Egyptian financial system on achieving economic development goals. The study revealed a number of weaknesses regarding efficiency of the Egyptian financial system as follows:

- Egyptian financial system plays insignificant role in attracting portfolio investment flows.
- Egyptian financial system plays insignificant role in enhancing the efficiency of utilizing savings.
- Egyptian financial system may direct a considerable amount of savings to conspicuous consumptions and other unproductive uses.
- There is an evidence of spread of the informal financial sector in the Egyptian economy.

The study indicates another constraint to the process of economic development which is the ability to mobilize and use foreign exchange. On one side, lack of foreign exchange leads to inability to obtain foreign intermediate and capital goods that are necessary for economic growth; on the other side, lack of foreign exchange leads to devaluation of Egyptian pound which considered the main cause of inflation in the Egyptian economy.

In general, it can be said that the Egyptian financial system has failed to achieve economic development goals.

Keywords: economic development, financial system, domestic and foreign savings and exchange

1. Introduction

Any economy strives after achieving a successful economic development process that enables to alleviate poverty and reach a suitable level of economic and social stability. The success of the economic development process depends mainly on the amount, type and nature of the carried-out investment projects in the economy, and the economic sectors that these investments are devoted to. This makes the ability to attract savings and then directing them to their productive investments the main determinant of the efficiency of any economic development process.

While financial markets are the main responsible for mobilizing domestic and foreign savings and then directing them to their best and useful investments, this makes the efficiency of financial markets a governor factor in the

process of economic development. In other word, the efficiency of financial system determines, to a great extent, the success of the economic development process in achieving its goals.

What is worth mentioning is the reciprocal relationship between economic development process and financial system efficiency and size. An efficient financial system stimulate the process of economic development; and at the same time a successful economic development process increases the level of incomes and makes investment in financial markets more profitable, which ultimately increases the level of savings devoted to the financial system and increases its size and transactions (Samy, Samier, & Omran, 2007).

In addition to the role that market mechanism play in mobilizing and directing savings to achieve economic development goals, the government has an irreplaceable role in the success of any economic development process. Governments have to participate in the process of economic development directly, by carrying-out productive investment projects, and/or indirectly, by carrying-out infrastructure projects such as roads, bridges, tunnels, railways, electricity stations...etc. Moreover, government policies (fiscal and monetary policies) and institutional regulations must be designed in a way that stimulate, direct, and in some cases even control private economic activity so as to ensure a harmonious relationship between the desires of private business and the social objectives of the central government. Thus, investment projects should not be random, aimless and selected just on the basis of financial analysis or individual benefit but also on the basis of economic and social analysis, as these projects have to be consistent with the overall development program and take into account indirect repercussions and long-term objectives of the economy. In this way the economy may avoid misallocation of present and future resources and reach an allocation of resources that is in the best interest of long-run social and economic plans (Todaro, 2000, pp. 623-225).

1.1 Research Problem

It can be said that the process of economic development in Egypt is not a successful one, as it failed to reach its goals over several decades. This failure appears in a number of economic variables such as high rates of unemployment, low and unsustainable economic growth rates, increase in poverty rates, and high inflation rates.

In spite that there are many factors behind this failure; however, nothing spoils the economic development process as much as the inability to mobilize savings and/or the inefficient allocation of these savings on productive ventures. Many theoretical and empirical literatures regarding the link between financial system and economic development assert that there is a positive relationship between them, as the growth of the financial system is associated with the country's economic development (Lunitel & Khan, 1999; and Shan et al., 2001).

The size of the financial market in Egypt has dramatically increased starting from the 1990s, as a response to the modernization and liberalization of its financial system that appears in allowing 100 per cent foreign ownership of insurance companies, allowing foreign operations in Egypt's stock exchange, allowing private exchange companies, and finally the consolidation of the banking system in 2003; however, the link between the growth of the financial market and economic development is still missing, which called for studying the reasons behind this missing relationship.

1.2 Research Importance

Failure of the economic development process may lead to undesirable consequences in the economy, and its effects may extend to threaten the social and political stability of the country. This was the case in Egypt, after years of bad economic conditions and low living standards, the anger and indignation of the Egyptian people increased to reach its peak and ended with the outbreak of the 25th of January revolution. The main demand of this revolution was to improve the economic and living standards of citizens.

The efficiency of financing the process of economic development is the main determinant of the success of this process. Accordingly, this research examines the efficiency by which the economic development process in Egypt is financed starting from the point savings are mobilized to the point that these savings are allocated on different investments and uses, in order to determine the strengths and weaknesses of financing the economic development process.

In this context, section three of the study covers the ability of the Egyptian financial markets to mobilize savings, while section four covers the efficiency of allocating those savings on different investments in a way that stimulate a sustained and balanced growth of the entire economy and to achieve the goals of economic development process.

1.3 Research Objectives

A. Identifying the factors that limit mobilization of domestic savings and attraction of foreign savings in Egypt.

B. Determining the efficiency of utilizing savings.

C. Assessing the role of financial system in achieving economic development goals.

1.4 Research Hypotheses

A. Domestic savings decision in Egypt depends mainly on the ability or capacity to save rather than the willingness to save.

B. Egyptian financial system plays insignificant role in enhancing the efficiency of utilizing savings.

D. In the process of economic growth, banking system and stock market are complement rather than they are substitute.

1.5 Research Time Limitation

This research covers the first decade of the 21st century, and the first three years of the second decade.

1.6 Research Methodology

A. Graphical and Tabular Descriptive Techniques:

Arranging, summarizing and presenting data by using tables and suitable graphical techniques, which enable data to produce useful information about the considered variables and make proper decisions based on the information generated.

B. Econometric Analysis:

Developing regression models that help in analyze the relationships between different economic variables and measure the effect of these variables on each other.

1.7 Research Plan

Section (1): General Framework of the Research.

Section (2): Literature Review.

Section (3): The Efficiency of Mobilizing Savings and Foreign Exchange.

Section (4): Financial System and Economic Development Goals.

Section (5): Concluding Remarks.

Section (6): Research Recommendations.

2. Literature Review

▪ Ihtisham Abdul Malik and Shehal Amjad, "Foreign Direct Investment and Stock Market Development in Pakistan", Emerald, Journal of International Trade Law and Policy, Vol. 12, No. 3. 2013.

The study found the following main results:

- There is a complementary role of foreign direct investment in the stock market development of Pakistan. Thus, the government of Pakistan must pass a law that protects foreign investors' interest and assets from changing government policies.

- There is a negative relationship between exchange rate and stock market development; then, appropriate monetary policy can minimize the volatility of exchange rate and hence promotes stock market development and gain the confidence of both foreign and domestic investors.

▪ Najeb Masoud and Glenn Hardaker, "The Impact of Financial Development on Economic Growth", Emerald, Studies in Economics and Finance, Vol. 29, No. 3, 2012.

The study found the following main results:

- Stock market has played a significant role in emerging markets.

- Stock market size and liquid indicators are positively correlated with real per-capita GDP growth rate.

- Financial sector development in an emerging market is significant in its process of economic growth.

- Stock markets offer opportunities primarily for trading risk and boosting liquidity; while banks concerns with establishing long-term relationships with companies because they seek to acquire information about projects and managers in order to enhance corporate control.

- Stock market and banking sector development indicators have played significant and complementary roles in economic growth process.

- Tarek El-Ghamrawy, “The Islamic Banking Model: A Prospective Channel for Development in Egypt”, The Egyptian Center for Economic Studies, Working paper No. 171, August 2012.

The study found the following main results:

- Banks play a weak intermediation role in Egypt; and this represents a constraint on economic development in Egypt.
- Islamic banking system has the potential of a more efficient allocation of resources for investment relative to the conventional banking system.
- MalakReda, “Measuring Banks Efficiency Post Consolidation: The Case of Egypt”, The Egyptian Center for Economic Studies, Working paper No. 173, November 2012.

The study found the following main result:

- Mergers and acquisitions of banks resulted in higher managerial efficiency that is attributed to improvement in scale efficiency, but it didn't manage to improve the process of intermediation or decrease its cost.
- Mobolaji Hakeem I., “Banking Development, Human Capital and Economic Growth in Sub-Saharan Africa”, Emerald, Journal of Economic Studies, Vol. 37, No. 5. 2010.

The study found the following main results:

- Human capital accumulation and financial development are both needed for accelerating of growth in Sub-Saharan Africa.
- Financial development in Sub-Saharan Africa does not have much impact on economic growth. This may be due to long history of financial repression in the region; poor development of financial institutions in the region; poor infrastructural facilities; high transaction cost; weak property right and inefficient legal system.
- Physical capital is relatively much important determinant of economic growth in Sub-Saharan Africa compared to human capital.
- Anastassios Gentzoglani¹, “Financial Integration, Regulation and Competitiveness in Middle East and North Africa Countries”, Emerald, Managerial Finance, Vol. 33, No. 7. 2007.

The study found the following main results:

- The link between stock market and economic growth exists only in the group of high income countries and this relation is relatively weak for low income countries.
- Establishment of sound institutions and well-defined regulatory policies are necessary to spur economic growth, as they needed to protect investors' rights and encourage them to invest in real and financial assets in the MENA region.
- Samy Ben Naceur, Samir Ghazouani, and Mohamed Omran, “The Determinants of Stock Market Development in the Middle-Eastern and North African Region”, Emerald, Managerial Finance, Vol. 33, No. 7. 2007.

The study found the following main results:

- Saving rate, financial intermediary (especially credit to the private sector), stock market liquidity (especially the ratio of value traded to GDP) and stabilization variable (inflation rate) are important determinants of stock market development; while the level of income and investment are not significant.
- Financial intermediaries and stock markets are complementary rather than substitutes in the process of economic growth.
- To promote stock market development in the MENA region it is important to encourage savings by appropriate incentives, to improve stock market liquidity, to develop financial intermediaries and to control inflation.

From the previous presentation we can say that:

- In spite that stock market and banking sector development has played significant and complementary roles in economic growth process in some developing countries; however, financial development in other developing countries does not have much impact on economic growth. This may be attributed to the level of income in each country, as the link between stock market and economic growth exists only in the group of high income countries.

- Even after the consolidation of the Egyptian banking system in 2003, it still plays a weak role in the process of economic development in Egypt, as banking system didn't manage to improve the process of intermediation or decrease its cost.

3. The Efficiency of Mobilizing Savings and Foreign Exchange

The prior-saving approach to finance development states that saving is a prerequisite of investment, so the first task is to increase the level of savings to finance investment as this approach believes that savings will readily find investment outlets (Thirlwall, 2003).

Accordingly, the ability of carrying-out investments, as a cornerstone of any economic development process, is based primarily on the ability of attracting and mobilizing domestic and foreign savings, where savings are necessary to fund required investments.

3.1 Mobilizing Domestic Savings

Examining the performance of domestic savings in Egypt, through the first decade of 21st century and the first three years of the second decade, illustrates not just the weak performance of domestic saving, but also its tendency to deteriorate over the considered time period.

The Hodrick-Prescott Filter (HP) is used to generate a trend component from a time series regarding the level of gross domestic savings of Egypt as a percentage of GDP.

Figure 1 illustrates that gross domestic savings as a percentage of GDP starts at 12.9% in 2000 and it ends at 7.2% in 2013; and its average was 13.6% (standard deviation 2.9%) during the considered time period, see Table 1.

Table 1. Gross Domestic Savings (GDS) as a percent of GDP and their trend

Year	GDS as a % of GDP (%)	Trend (%)	Gap (%)
2000	12.9	14.2	-1.3
2001	13.4	14.5	-1.1
2002	13.6	14.7	-1.1
2003	14.3	14.9	-0.6
2004	15.6	15.1	0.5
2005	15.7	15.1	0.6
2006	17.1	15	2.1
2007	16.3	14.7	1.6
2008	16.8	14.2	2.6
2009	12.6	13.5	-0.9
2010	14.1	12.7	1.4
2011	13	11.7	1.3
2012	8	10.7	-2.7
2013	7.2	9.7	-2.5

Sources: Column (2) the World Bank, World Development Indicators on the internet. Column (3), Hodrick-Prescott Filter's outcomes. Column (4) author's calculations based on Columns (2) and (3).

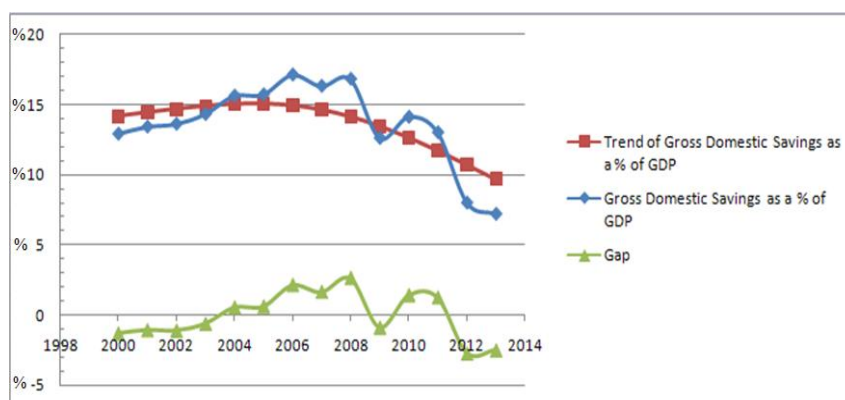


Figure 1. Gross domestic savings as a percent of GDP and their trend

Source: Table 1.

The trend of the domestic saving as a percentage of GDP tends to be stable during the first half of the first decade then it takes a negative slope starting from the year 2006. The gap between the trend and actual data of gross domestic saving as a percentage of GDP was negative in several years; however this negative gap has widened in years 2012 and 2013 as a normal consequence of 25th of January revolution. The figure also shows that the second half of the first decade was a prosperity period for domestic savings, as the gap between the trend and actual data of gross domestic saving as a percentage of GDP was positive. The fluctuations in the performance of Egyptian savings and its tendency to deteriorate require studying the causes behind this modest or even bad performance of the domestic savings.

The level of domestic saving in any economy depends on the capacity (ability) to save and/or the willingness to save. The capacity to save is related to the average level of per capita income, the distribution of income between the rich and the poor, and the dependency ratio; while the willingness to save is related to the rate of interest on deposits, the range and availability of financial institutions and assets, and the rate of inflation.

Factors that determine the capacity and willingness to save will be examined through developing two regression probabilistic models.

The first regression model examines determinants of the capacity to save, as it examines the effect of per-capita income growth rate (X_1), Gini coefficient (X_2), and dependency ratio (X_3) on percentage change in gross domestic savings (Y), see appendix (1-a) and Table 2.

Table 2. Determinants of the capacity to save

Year	Percentage Change in Gross Domestic Savings (%)	Per Capita Income Growth Rate (%)	Gini Coefficient	Dependency Ratio (%)
2000	2.3	3.7	32.7	69
2001	0.5	1.9	34.4	67
2002	-11.6	0.7	33	65
2003	-4.4	1.5	32.4	64
2004	8.5	2.4	35.2	62
2005	18	2.7	32.14	61
2006	26	5.1	31.2	60
2007	24.3	5.3	30.77	60
2008	25.1	5.4	30.8	59
2009	-17.1	2.9	30.1	59
2010	22.3	3.4	28.9	59
2011	2.6	0.1	28.3	59
2012	-14	0.5	27.7	58
2013	-3.5	0.4	30.8	59

Sources: Columns (2 and 4) the World Bank, World Development Indicators on the internet. Column (2), Egypt Human Development Reports and World Development Indicators of the World Bank. Column (6), author's calculations based on WDI.

The printout of the regression analysis illustrates the validity of the model (R^2 and adjusted R^2 are 61.1% and 49.4% respectively, F statistic is 5.24 with p-value 0.020); however, the t test shows that there is little evidence to infer that both Gini coefficient and dependency ratio are linearly related to changes in gross domestic savings. The only variable that is linearly related to the dependent variable is per-capita income growth rate.

This makes the level of per-capita income the main responsible for the weakness of the level of domestic savings in Egypt. Figure 2 confirms the findings of the regression analysis as it clearly illustrates the strong positive relationship between the level of per-capita income and gross domestic savings. The data of both two variables take the same downward sloping trend; moreover their movements are similar to a large extent during the considered time period.

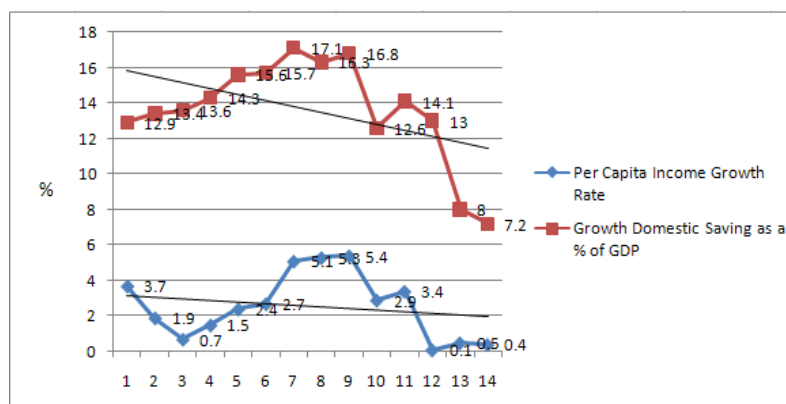


Figure 2. Gross domestic saving as a percent of GDP versus per capita income growth rate

Source: The World Bank, World Development Indicators on the internet.

The second regression model examines determinants of the willingness to save, as it examines the effect of inflation (X_1), interest rate on short-term deposits (X_2), number of banks branches (X_3), number of mutual funds (X_4), number of corporations listed in the stock market (X_5) and stock market size (Market Capitalization as a % GDP) (X_6) on percentage change in gross domestic savings (Y). See appendix (1-b) and Table 3.

The printout of the regression analysis illustrates that the model is invalid and that the null hypothesis is true (R^2 and adjusted R^2 are 64.8% and 34.6% respectively, F statistic is 2.14 with p-value 0.171).

Table 3. Determinants of the willingness to save

Year	Δ Consumer Price Index (%)	Interest rate on Short-term Deposits 1-3 months (%)	Number of Banks Branches	Number of Mutual Funds	Number of Corporations Listed in the Stock Market	Stock Market Size = Market Capitalization as a % GDP (%)
2000	2.7	9.45	2305	13	1076	15.6
2001	2.3	9.48	2415	14	1110	8.9
2002	2.7	9.32	2501	22	1151	9
2003	4.5	8.22	2588	22	978	6.7
2004	11.3	7.72	2783	21	795	8.6
2005	4.9	7.23	2847	25	744	29.8
2006	7.6	6.02	2944	31	595	46.4
2007	9.3	6.1	3056	37	435	48.7
2008	18.3	6.59	3297	42	373	59.1
2009	11.8	6.49	3443	57	306	43
2010	11.3	6.23	3502	70	212	26.6
2011	10.1	6.74	3573	77	213	10.8
2012	7.1	7.64	3610	85	213	11.7
2013	9.5	7.9	3651	89	212	9.2

Sources: Central Bank of Egypt, Annual Report and Economic Review, different editions. Column (6), author's calculations based on data extracted from the Egyptian Exchange Yearbook and Ministry of Economic Planning.

Based on the previous analysis it can be said that the weakness of the level of domestic savings in Egypt referred primarily to the ability or capacity to save rather than the willingness to save; and more precisely it referred to the low level of per-capita income. In addition, the missing relationship between interest rates on deposits and domestic savings indicates that the income of the majority of Egyptian people is still below the level of subsistence consumption.

The findings of the two regression models are consistent, as they explain each other. On one hand, people with low level of income have high marginal propensity to consume so they spend more than they save, on the other hand, people with low level of income and saving tend to be risk averse, so the rate of interest and the range and availability of financial institutions and assets are not effective in changing their saving attitude. Moreover, the

rate of inflation does not affect the rate of saving which indicates that the real balance effect of inflation works in favor of consumption only.

Accordingly, the efficiency of mobilizing domestic savings during this phase is based mainly on the ability to increase the level of investment relative to GDP (Investment/GDP ratio); and this takes us to one end of the reciprocal relationship between economic development process and financial system efficiency, as an efficient financial system is able to promote investments and ultimately increase the levels of incomes and savings.

3.2 Mobilizing Foreign Savings

The process of financing economic development can be supported from abroad. In other word, foreign savings can participate in the process of economic development through three main channels: foreign direct investment (FDI), foreign indirect investment (foreign investments in financial market or portfolio investment) and borrowing and foreign assistance. While this section of the study concerns with mobilization of savings, so this point will concentrate on the efficiency by which the Egyptian economy, in general; and financial market, in particular, is able to attract foreign savings. In this context, it can be said that domestic savings for investment have been supplemented by foreign savings.

Figure 3 shows that although the growth of both FDI and portfolio investment flows fluctuate around negative slope trend line; however, the flows of FDI are relatively stable compared to portfolio investment flows, as portfolio investments flows tend to be very volatile over the considered time period.

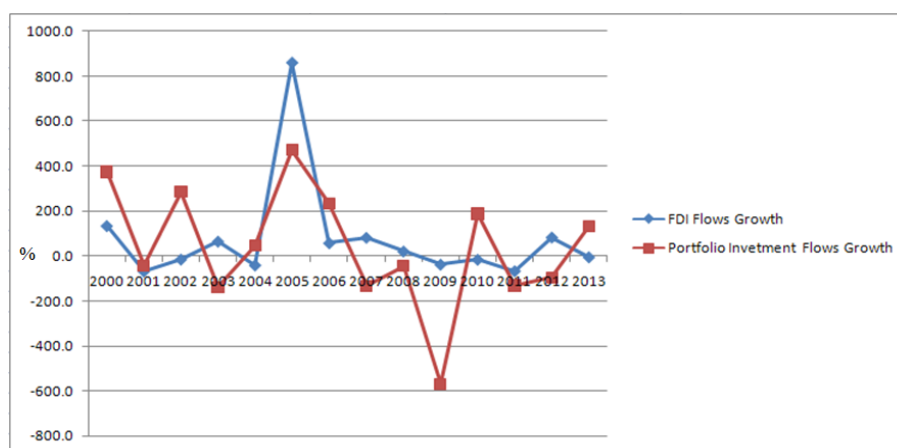


Figure 3. Percentage change in FDI and portfolio investment flows in Egypt

Source: Author's calculations based on data extracted from Ministry of Finance, The Financial Monthly Report, different editions. See Table 4.

Table 4. FDI and portfolio investment flows in Egypt

Year	FDI Flows (Million \$)	Portfolio Investment Flows (Million \$)	%Δ in FDI	%Δ in Portfolio Investment Flows
1999	711	-174	-	-
2000	1656	473	1.33	372
2001	509	261	-0.69	-44.8
2002	428.2	998.9	-0.16	283
2003	700.6	-405.2	0.64	-140
2004	407.2	-225.6	-0.42	44
2005	3910.8	831.1	8.58	469
2006	6111	2764	0.57	232
2007	11053.2	-936.7	0.81	-134
2008	13236.5	-1373.6	0.20	-46
2009	8113.4	-9210.7	-0.39	-570
2010	6758.2	7879.3	-0.17	185
2011	2188.6	-2550.9	-0.68	-132
2012	3982.2	-5025.3	0.82	-97
2013	3753	1477.4	-0.06	129

Sources: Ministry of Finance, The Financial Monthly Report, different editions.

The bad performance of portfolio investments flows is related particularly to status of the Egyptian economy or country fundamentals (market size, macroeconomic satiability, degree of openness, and vulnerability) which considered the main determinants of capital flows (Carlos Andres Amaya G. & Peter Rowland, 2006), in addition to the competence of the Egyptian financial market. It can be said that the performance of portfolio investment flows attributed to pull variables (domestic or endogenous variables) rather than push variables (external or exogenous variables). For instance, when negative consequences of 2007 financial crisis prevailed in USA and most of European economies, international interest rates decreased and risk factor increased, the Egyptian economy didn't manage to attract foreign capital investments in the form of FDI and portfolio investment flows; by contrast, the growth of both investments fluctuated in the negative zone during the time period 2008-2010. Montiel and Reinhart suggest that external factors can explain the size and timing of capital inflows while internal or domestic factors determine the ability of the economy to attract these capital flows (Montiel, Peter, Carmen, & Reinhart, 1999).

Regression analyses are used to examine potential drivers for portfolio investment flows in Egypt. The first regression analysis examines the effect of country fundamentals on portfolio investment flows (Y), while the second regression analysis examines the effect of financial market indicators on portfolio investment flows (Y).

Regarding the first regression analysis, ratio of investment to GDP (X_1), inflation rate (X_2), ratio of current account balance to GDP (X_3), exports growth rate (X_4), ratio of public budget deficit to GDP (X_5), dollarization (X_6), and ratio of domestic liquidity (M2) to total reserves (X_7) have been chosen as indicators of country fundamentals.

The regression model fits well (R-Sq = 95.8% R-Sq(adj) = 90.8%, F statistic is 19.4 with p-value 0.001), and after applying stepwise regression three variables revealed as main predictors of portfolio investment flows in Egypt: inflation rate, ratio of current account balance to GDP and ratio of public budget deficit to GDP. Review appendix (2-a) and Table 5.

Table 5. Main fundamentals of the Egyptian economy

Year	Ratio of Investment to GDP (%)	Inflation Rate (%)	Ratio of Current Account Balance to GDP (%)	Exports Growth Rate (%)	Ratio of Public Budget Deficit to GDP (%)	Dollarization (%)	Ratio of Domestic Liquidity to Total Reserves (%)
2000	18.9	4.9	-1.2	19	4.8	21.7	5.6
2001	17.7	1.9	-0.03	14	7	24.6	6
2002	18.3	3.2	0.7	11	9.8	26.6	5.5
2003	16.9	6.8	2.4	31	10.4	31.2	5.5
2004	16.9	11.7	4.3	51	9.5	32.6	5
2005	18.0	6.2	3.2	19	9.6	28.1	4
2006	18.7	7.4	1.6	18	8.2	28.2	4
2007	20.9	12.6	2.1	19	7.5	26.7	3.9
2008	22.4	12.2	0.5	28	6.8	24.1	4.2
2009	19.2	11.2	-2.3	-12	6.9	23.4	4.5
2010	19.5	10.1	-2	-1	8.1	20.2	4.8
2011	17.1	11.7	-2.6	9	9.8	21	9.6
2012	16.4	12.4	-3.9	-3	10.8	20.7	12.4
2013	14.2	9	-2.1	15	13.7	21.3	13

Sources: Columns (2, 4, 5 and 6) Ministry of Finance, The Financial Monthly Report, different editions. Columns (3, 7 and 8), The World Bank, World Development Indicators on the internet.

The outcomes of the regression analysis are rational as follows:

- Inflation rate, as an indicator of macroeconomic stability, is negatively related to portfolio investment flows. High inflation rates indicate that the economy is highly volatile, and this negatively affects the flow of capital to the economy.
- Ratio of current account balance to GDP, as an indicator of degree of openness and availability of liquidity (foreign exchange), is positively related to portfolio investment flows. More open economies with abundant foreign exchange are able to attract more capital flows.

- Ratio of public budget deficit to GDP, as an indicator of country's vulnerability, is negatively related to portfolio investment flows. Countries with high public budget deficit may resort to increase the level of taxes on capital gains, which negatively affect the flow of capital in the economy.

The second regression model, which examines the effect of financial markets' indicators on portfolio investment flows in Egypt (Najeb Masoud & Glenn Hardaker, 2012), is invalid ($R\text{-Sq} = 76.8\%$, $R\text{-Sq}(\text{adj}) = 49.7\%$, F test = 2.83 with P value 0.113). See appendix (2-b) and Table 6. Where:

X_1 = Stock market capitalization as a percent of GDP (measures the size of the stock market).

X_2 = Turnover ratio (the value of trades of shares as a percent of stock market capitalization).

X_3 = Average return on EGX30 (percentage change in EGX30 index).

X_4 = Risk on investment in EGX30 (Standard deviation of EGX30 index).

X_5 = Stock market activity or liquidity (the value of trades of shares as a percent of GDP).

X_6 = Financial position of commercial banks as a percent of GDP.

X_7 = Lending to the private sector as a percent of GDP.

Table 6. Financial market indicators

Year	Stock Market Capitalization as a Percent of GDP (%)	Turnover Ratio (%)	Average return on EGX30 (%)	Risk on investment in EGX30 (%)	Stock market liquidity (%)	Financial Position of Commercial Banks as a Percent of GDP (%)	Lending to the Private Sector as a Percent of GDP (%)
2000	36	43.8	-0.17	2.1	15.6	124.3	60.5
2001	31	28.6	-0.14	1.52	8.9	125.9	64.7
2002	32	27.9	0.01	0.9	9.0	138.1	71.6
2003	41	16.3	0.38	2.38	6.7	152.5	76.7
2004	43	18.1	0.34	1.52	8.7	151.7	74.4
2005	74	35.2	0.38	1.76	29.8	145.0	76.2
2006	72	53.7	0.06	2.09	46.5	141.4	74.6
2007	86	47.3	0.18	1.08	48.7	151.8	73.4
2008	45	111.7	-0.31	2.55	59.1	145.4	69.7
2009	41	89.6	0.14	2.11	43.0	121.9	64.9
2010	40	65.8	0.07	1.34	26.6	117.1	61.7
2011	19	50.3	-0.31	1.94	10.8	105.2	58.7
2012	24	49.2	0.18	1.83	11.7	99.7	55.1
2013	24	37.9	0.1	1.32	9.2	99.3	58.1

Sources: Columns (2, 4, 5 and 6) Ministry of Finance, The Financial Monthly Report, different editions. Columns (3, 7 and 8), The World Bank, World Development Indicators on the internet.

According to the previous analysis, the main determinants of portfolio investment flows in Egypt are country fundamentals, in general, and macroeconomic stability, degree of openness, and country's vulnerability, in particular.

While the values of the two variables that are negatively related to portfolio investment flows in Egypt (inflation rate and ratio of public budget deficit to GDP) are fluctuating around upward sloping linear trends, and the values of the variable that is positively related to portfolio investment flows in Egypt (current account balance to GDP) are fluctuating around a downward sloping linear trend, as it is shown in Figure 4 below; then this may explain the deterioration of portfolio investment flows to Egypt through the considered time period.

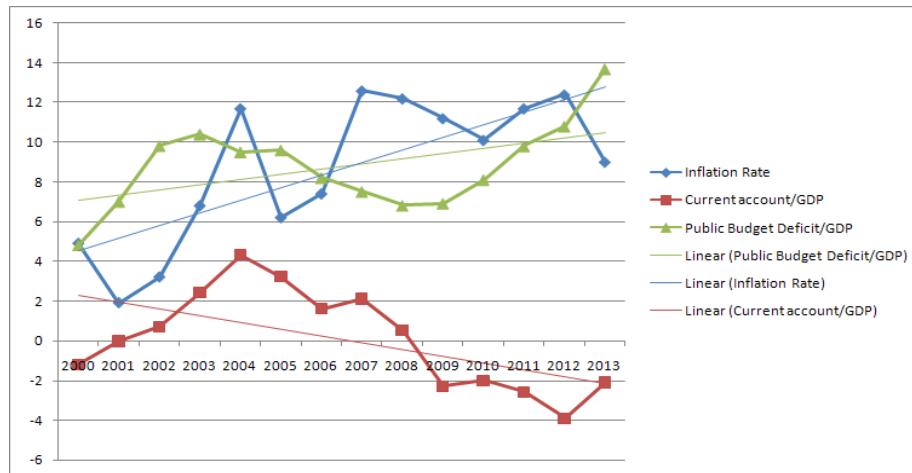


Figure 4. Egyptian economy main fundamentals and their trends

Source: Table 5.

3.3 Mobilizing Foreign Exchange

For most developing countries domestic saving is not the only constraint to investment, lack of foreign exchange may represent another constraint to investment. The gap between domestic savings and investment spending is covered by the gap between imports and exports of goods and services. This way to financing the gap between domestic investments and savings works without inflationary pressures just if there are ample foreign exchanges and there are unemployed resources in the economy. If a country lacks the necessary foreign exchange that permits to finance the gap between domestic investment and saving this may lead to inflationary pressures. The main source of those inflationary pressures is the devaluation of the country's local currency. On the other hand, if the resources in the economy are fully employed, this will also lead to inflationary pressures or demand pull inflation.

Based on Harrod-Domar growth model, capital-output ratio (k) determines the relationship between economic growth rate (g) and domestic saving rate (s). In other word, capital-output ratio shows the efficiency of using domestic savings to achieve a suitable economic growth rate.

$$g = s/k$$

Where:

g = potential economic growth rate based on the level of domestic savings.

s = Domestic saving ratio = Domestic saving/GDP.

k = capital-output ratio = change in capital formation (ΔK) or investment (I)/ Δ GDP.

On the same trend of Harrod-Domar growth model we can experience the efficiency of using imports of intermediate and capital goods to achieve a suitable economic growth rate.

$$g = m \times im$$

Where:

g = potential economic growth rate based on the level of foreign exchange.

m = productivity of imports = Δ GDP/Imports.

im = the ratio of intermediate and capital goods imports to GDP.

The comparison between the potential economic growth rates generated by the two models may help in determining the efficiency of using both domestic savings and foreign exchange. If the potential economic growth rate generated by the domestic savings is higher than the one generated by imports, then the economy is classified as foreign-exchange constrained, and there will be waste in using domestic resources, so ways must be found to use the unused domestic resources in order to generate more foreign exchange and/or raise the productivity of imports. On the other hand, if the potential economic growth rate generated by the domestic savings is less than the one generated by imports, then the economy is classified as saving constrained, and there

will be waste in using foreign exchange, so ways must be found to use the unused foreign exchange in order to augment domestic saving and/or raise the productivity of domestic resources.

Figure 5 illustrates that during the first decade of the 21st century, potential economic growth rate generated by domestic savings exceeded the one generated by foreign exchange in Egypt. This implies inefficient use of domestic savings to generate ample foreign exchanges and/or the productivity of imports is relatively low (See Table 7). After the 25th of January revolution, the economic growth rate of Egypt turns to be savings-limited. This implies inefficient use of foreign exchanges, or more precisely, foreign exchanges were directed for consumption purposes rather than production purposes.

Table 7. Potential economic growth rate generated by domestic savings and imports

Year	Potential Economic Growth Rate Generated by Domestic Savings			Potential Economic Growth Rate generated by Imports		
	Domestic Savings/GDP	capital-output ratio	Economic Growth Rate	Δ GDP/Imports	Intermediate goods/GDP	Economic Growth Rate
2001	0.134095	3.42	3.92	0.232	0.132	3.07
2002	0.139087	3.43	4.06	0.235	0.133	3.13
2003	0.142994	1.83	7.83	0.386	0.128	4.95
2004	0.15578	1.21	12.85	0.483	0.116	5.62
2005	0.157103	1.82	8.63	0.303	0.123	3.71
2006	0.162862	1.46	11.15	0.380	0.169	6.43
2007	0.162728	1.22	13.31	0.490	0.138	6.75
2008	0.167951	1.33	12.62	0.436	0.194	8.45
2009	0.125504	1.36	9.21	0.445	0.177	7.88
2010	0.142632	1.43	9.97	0.512	0.152	7.79
2011	0.129823	1.43	9.11	0.486	0.178	8.66
2012	0.079657	1.26	6.31	0.502	0.172	8.64
2013	0.074545	1.40	5.33	0.409	0.168	6.86

Sources: Authors calculations based on data extracted from Ministry of Finance, The Financial Monthly Report, different editions.

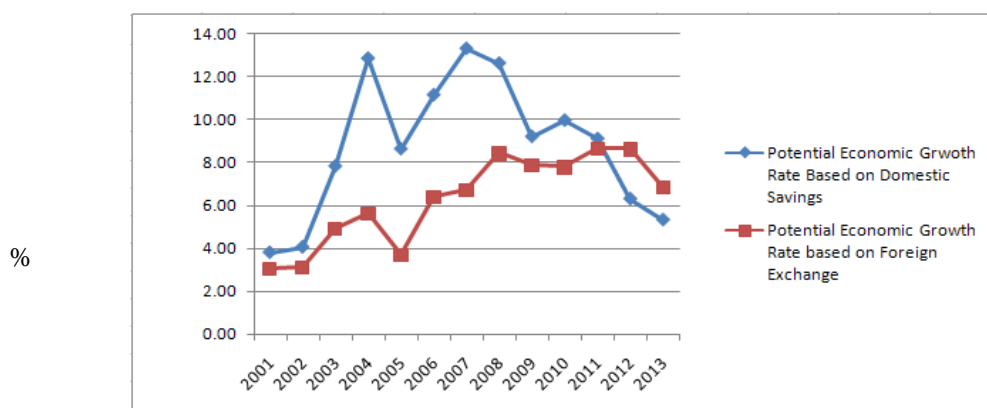


Figure 5. Potential economic growth rate generated by domestic savings and foreign exchange

Source: Author's calculations based on data extracted from Ministry of Finance, The Financial Monthly Report, different editions.

In a developing country such as Egypt, misuse and/or lack of foreign exchange is a main constraint to investment and economic growth, as foreign exchange is necessary to obtain foreign intermediate and capital goods. In addition, lack of foreign exchange results in devaluation of the Egyptian pound, which considered the main cause of inflation in the Egyptian economy.

4. Financial System and Economic Development Goals

This section examines the efficiency by which the Egyptian economy allocates and directs savings to achieve the objectives of the economic development process. This starts by examining the efficiency of utilizing savings.

4.1 Efficiency of Utilizing Savings

As mentioned before, carrying-out investments is the cornerstone of any economic development process. While savings are the main resources in the process of carrying-out investments, then it is useful to measure the efficiency of utilizing savings (the ability of savings to carry-out investments). In this context, savings are considered inputs while investment spending is considered the output in the process of carrying-out investments.

A Data Envelopment Analysis (DEA) methodology will be used to estimate the investment spending (output) frontier for the purpose of calculating the efficiency of utilizing savings (input) (Coelli T. J., 1996). Appendix (3) illustrates the results of output-orientated DEA for the production of single output (investment spending) using a single input (savings). The analysis shows three concepts of efficiency: Over all technical efficiency, pure technical efficiency and scale efficiency. Over all technical efficiency is a measure of technical efficiency under the assumption of constant returns to scale (CRSTE) and it measures inefficiency in production due to technical and/or scale inefficiency. Pure technical efficiency is a measure of technical efficiency under the assumption of variable returns to scale (VRSTE) and it measures inefficiency in production due to just technical inefficiency (the inefficiency of processing). Finally, scale efficiency measure which determines inefficiency in production due to the size of resources or inputs relative to the outputs (Sunil Kumar & Rachita Gulati, 2008). According to efficiency scores provided by the three measurements of efficiency, three output (investment) frontiers have been estimated, see Table 8 and Figure 6.

Table 8. Output-orientated data envelopment analysis results

Year	Investment Spending (Billion EGP)	Savings (Billion EGP)	Overall Technical Efficiency Frontier (Billion EGP)	Pure Technical Efficiency Frontier (Billion EGP)	Scale Efficiency Frontier (Billion EGP)
1999	64	41.1	84.5	64.0	84.5
2000	64.4	44	90.4	70.7	82.5
2001	63.6	48.1	98.9	80.1	78.5
2002	69.2	51.7	106.3	88.4	83.3
2003	70.5	59.7	122.8	106.8	81.0
2004	82.2	75.6	155.4	143.5	89.2
2005	96.8	84.6	174.1	164.1	102.7
2006	115.7	105.7	217.5	212.7	118.3
2007	155.3	121.2	249.3	248.1	155.9
2008	200.5	150.4	309.4	258.0	240.4
2009	200	130.8	269.2	258.1	208.6
2010	235.3	172.1	353.8	258.0	322.8
2011	234.5	178	365.8	258.0	332.6
2012	258.1	125.5	258.1	258.1	258.1
2013	248.6	130.7	268.8	258.2	259.0

Sources: Columns (2 and 3) Ministry of Finance, The Financial Monthly Report, different editions. Columns (4, 5 and 6), author's calculations based on data extracted from DEA.

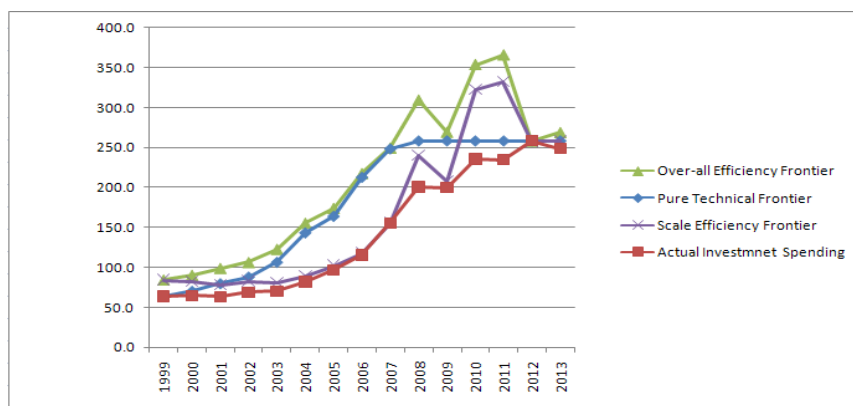


Figure 6. Overall, pure technical and scale efficiencies frontiers for investment spending

Source: Table 8.

The output orientated Data Envelopment Analysis (DEA) of savings (input) and investment spending (output) illustrates the followings:

- Actual investment spending lies below overall efficiency frontier during all years of the considered time period except year 2012.
- The gap between actual investment spending and both pure technical efficiency and scale efficiency frontiers clarifies that the low efficiency of transforming savings into investments is due to the inefficiency of managing savings (to organize savings to produce investments) rather than savings' scale inefficiency. The average constant returns to scale technical efficiency score was 68% (standard deviation 13%) during the considered time period.
- The gap between actual investment spending and scale efficiency frontier began modestly and then it starts to narrow until the Egyptian economy achieved scale efficiency with respect to savings in years 2006 and 2007. Despite the emergence of the gap again in 2008; however, it did not last long until it disappeared in 2009. In 2010, the gap started to widen and reached its peak in 2011. In 2012, the gap disappeared again, and then it modestly appeared in 2013. The average scale efficiency score was 87.2% (standard deviation 10%) during the considered time period.
- In 1999, actual investment spending was on the pure technical efficiency frontier; however, in 2000 the gap between actual investment spending and pure technical efficiency frontier emerged and started to widen till the year 2010, where the gap started to contract until it disappeared in 2012, and again actual investment spending is on the pure technical efficiency frontier. The average variable returns to scale technical efficiency score was 78.8% (standard deviation 16%) during the considered time period.

What is worth noting is that during the time period 1999-2007, where the production process is subject to increasing return to scale (savings are small relative to their scale of operation), the effect of scale inefficiency on the overall technical inefficiency was just 13% in average; while the effect of technical inefficiency on the overall technical inefficiency was 28% in average. On the other hand, during the time period 2008-2011, where the production process is subject to decreasing return to scale (savings are large relative to their scale of operation), the effect of scale inefficiency on the overall technical inefficiency increased to 20% in average; while the effect of technical inefficiency on the overall technical inefficiency decreased to 16% in average (See appendix (5)). This confirms that the effect of the managerial performance of the economy, in general, and different financial institutions, in particular, to organize and direct savings in the process of capital accumulation is stronger than the effect of the size of savings. That is when there are small amounts of inputs (savings) the effect of the inefficiency of the managerial process was higher than the inefficiency of managing the required amount of resources. In contrast, when savings are abundant the inefficiency in the process of transforming savings into investments is attributed to scale inefficiency rather than the inefficiency of the managerial process.

4.2 The Role of Financial System

A. Financial System and Technical Efficiency of Savings

Financial system is specifically responsible for carrying-out domestic investments, as it is responsible for encouraging savings and transforming these savings into productive investments in the economy. In other word, financial system is the main responsible for the technical efficiency of the process of transforming savings into productive investments in the economy. In this context, the previous analysis of the efficiency of utilizing savings raises a number of questions about the efficiency by which financial system transfers savings into investments.

There is no doubt that the development of financial market is related to the efficiency of its basic function, to transform savings into investment. Accordingly, this part of the study examines the effect of financial market development indicators on the technical efficiency of the process of transforming savings into investments. A regression analysis that studies the effect of financial development indicators (independent variables X_s) on the pure technical efficiency of transforming savings into investment (dependent variables Y) has been developed. Financial market development indicators are divided into stock market development indicators (market capitalization X_1 , stock market liquidity X_2 , and turnover ratio X_3) and banking sector development indicators (banks financial position X_4 , and credit to the private sector X_5). See appendix (4).

The printout of the regression analysis shows that the model is valid ($R-Sq = 92.3\%$, $R-Sq(adj) = 87.5\%$, F test = 19.1 with P value 0.000); however the t statistics of independent variables coefficients are invalid. The stepwise regression analysis revealed just one statistically significant independent variable, credit to the private sector X_5 . Although the relationship between pure technical efficiency of savings and lending to the private sector is

expected to be positive, the regression analysis revealed a negative relationship between the two variables, which suggests that a considerable part of the savings generated in Egypt goes to maintain unproductive assets and/or directed to conspicuous consumption by the formal financial sector. Moreover, these features are the main features of the informal financial sector, as the informal financial sector is characterized by its tendency to finance consumption purposes and lending at high interest rates, both of which can adversely affect the level of investment.

Egypt, like most developing countries, has some constraints regarding the formal financial market, such as:

- Rural areas lack ready access to financial institutions, because they are non-existent or because they are not within the immediate vicinity. In other words, the formal financial system in developing countries is predominantly urban based.
- Institutional barriers that the formal financial system requires for any financial assistance may be stringent and hard to satisfy for a number of people.

These constraints may lead to spread of the informal financial sector in the Egyptian economy which negatively affects the efficiency of utilizing savings.

Whatever the reasons are, the previous findings indicate that Egyptian financial system plays insignificant role in enhancing the efficiency of utilizing savings.

B. Financial System and Economic Development Goals

The role of financial system in achieving the goals of economic development process exceeds just financing investment projects to the type and quality of the carried-out investments, as the carried-out investments should enable the economy to grow sustainably while maintaining the two evils for any economy, unemployment and inflation rates, at stable and reasonable rates.

Figure 7 shows the development of the three rates during the considered time period. As seen in the figure, economic growth rate tends to fluctuate around a downward sloping trend, so the Egyptian economic growth rate can be described as an unsustainable and unstable growth rate with a tendency to decrease. The figure shows that unemployment rate is inversely related to economic growth rate; accordingly the unemployment rate tends to fluctuate around an upward sloping trend. Finally, inflation rates are fluctuating around an upward sloping trend. The trends of the three economic variables indicate that the Egyptian economy is moving toward a stagflation situation.

While the just mentioned economic variables are responsible, to a large extent, for the welfare of the Egyptian people and they are crucial determinants of the success of the economic development process; thus, the remaining part of the research will be directed to study the effect of financial system on these important economic variables.

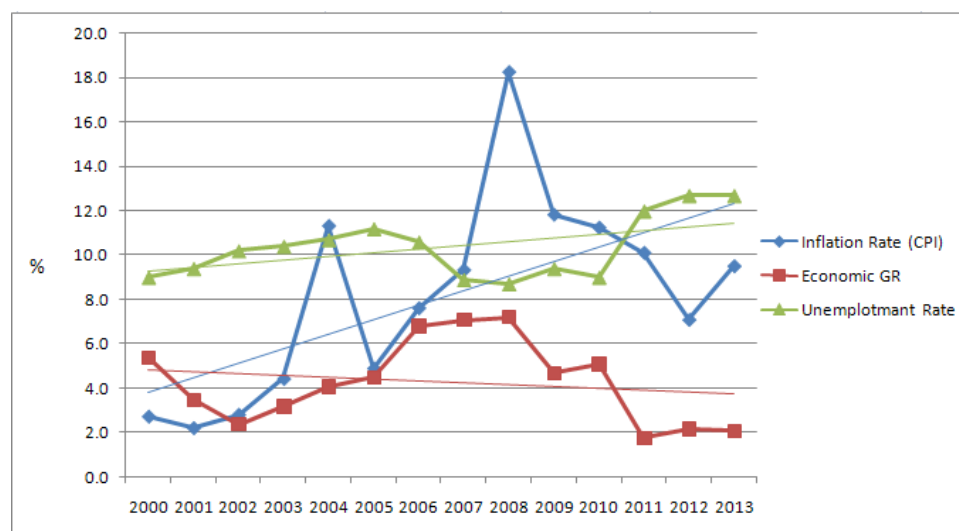


Figure 7. Economic growth, inflation and unemployment rates

Source: The World Bank, World Development Indicators on the internet.

▪ Inflation

The main sources of inflation are demand pull, cost push inflation and devaluation of the local currency. In this context, we will examine the effect of financial system on inflation rate through these sources of inflation.

As just mentioned and according to the general consumer price index (urban), the considered time period has witnessed an increase in the rate of inflation. The share of food and beverage group dominated the increase in the price level, as the share of food and beverage group responsible, in average, for 60% of the increase in the price level. The main provider of food and beverage items in the economy is the agriculture sector. This is made directly, by providing vegetables; fruits; milk and meat products, or indirectly by providing the required inputs for food industries.

In spite the importance of agriculture products, which dominant a large portion of household expenditures and represent an indispensable part of their daily expenditures; agriculture sector was neglected by the financial system in general, and banking sector, in particular. The banking system directs, in average, just 1.75% of its total loans and credit facilities to this important sector. As for the stock market, the last statistics of the Egyptian exchange stated that the number of listed food and beverage companies is 29 companies, which represent 13% of total listed companies. However, food and beverage market indicators indicate modest performance in the Egyptian exchange; market capitalization represents just 6.7% of total market capitalization, value of shares traded represents just 3.2% of total value traded; and volume of traded shares represents just 1.4% of total shares traded.

With this low performance in financing this critical sector, aggregate demand for food and beverage products exceeds its aggregate supply which loads inflationary pressures on the prices of food products. Moreover, the domestic deficit in supplying food products increases the level of imported food products. Figure 8 shows the continuous increase in trade deficit for food products. Deficit of food products accounts, in average, for 20% of total deficit of balance of payments current account. Increased reliance on food imports with continuous deterioration in the value of local currency, may explain, to a great extent, the increase in the prices of food products. In addition, it can be said that the shortage of supplying food products has contributed to the deterioration of the value of local currency, which is one of the main causes of inflation in the Egyptian economy.

Accordingly, it can be said that the Egyptian financial system not only failed to contain inflation, but it also has contributed to its high rates.

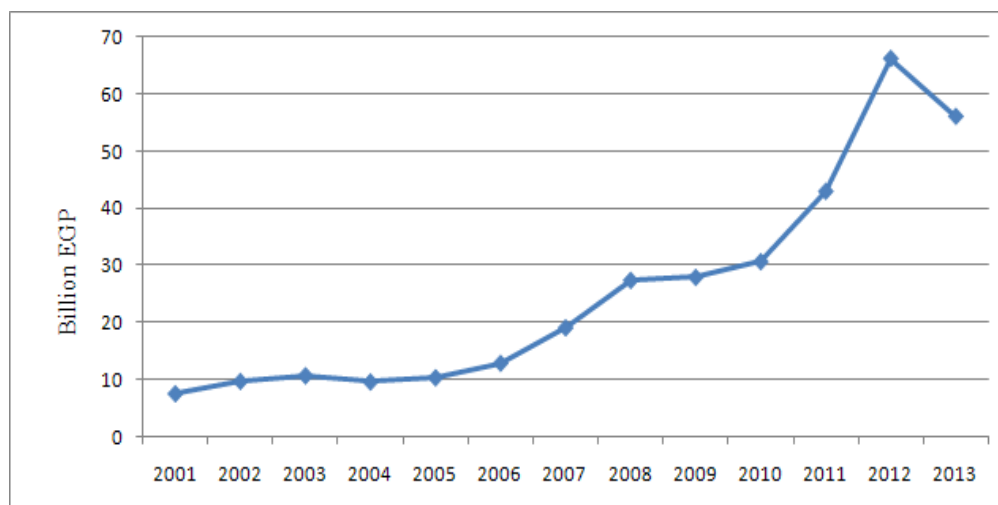


Figure 8. Trade deficit in food products

Source: Author's calculations based on data extracted from Ministry of Finance, The Financial Monthly Report, different editions.

▪ Unemployment

As just mentioned, there is a strong negative relationship between economic growth rate and unemployment rate, so stimulating economic growth rate by increasing the size of investment has the power to decrease the rate of

unemployment. However, the effect of investment on the rate of unemployment differs according to the sector of investment. In Egypt, the majority of labor-force is in the services sector (in average 48% of total labor force), followed by agriculture sector (in average 30% of total labor force) and industrial sector (in average 20% of total labor force).

Figure 9 shows imbalance in financing two sectors, agriculture and industrial sectors, relative to the number of employees they absorb. Agriculture sector absorbs 30% of labor-force; however, the funds transferred from the financial system to agriculture sector are very limited relative to the funds transferred to the other two sectors. At the same time, in spite that the industrial sector absorbs just 20% of the labor-force it received considerable attention of financial institutions. Banking sector direct 36.4% of its total credit to the industrial sector; and industrial sector market capitalization represents 43% of stock market capitalization. This indicates that the type of investment in the industrial sector is capital-intensive investment.

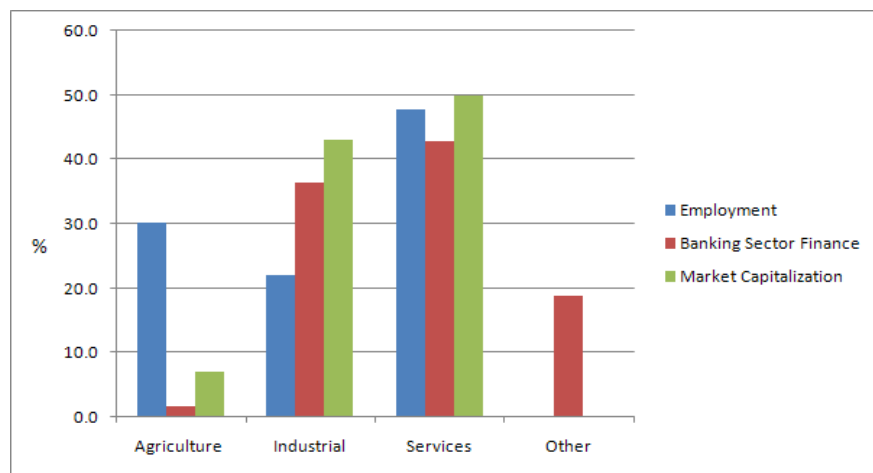


Figure 9. Employment and finance in different economic sectors

Sources: Author's calculations based on data extracted from the World Bank, World Development Indicators on the internet; the Egyptian Exchange data on the internet, and Central Bank of Egypt, Annual Report and Economic Review, different editions.

Figure 9 shows also that about 19% of banking sector total credit goes to "other", which contains credit to household sector. This finance does little for the goal of employment, as household sector usually uses this credit to finance their purchases of durable goods and real states. What is worth mentioning is that, a considerable part of credit directed to the household sector finances imported luxury products such as automobiles and electronic devices, which contributes to the deterioration of the local currency value.

Moreover, while Small and Medium Enterprises (SMEs) have a great positive effect on the level of unemployment for any economy; however, just 3.5%, in average, of total banks' credit goes to finance such projects.

▪ Economic Growth

In section three of the study; it has been proven that domestic savings depend, in the first place, on the level of income. Accordingly, the goal of economic growth remains the most important one for the Egyptian economy, as it not just represents a starting point for the economic development process but it also represents a fuel for economic development locomotive. In this context, the efficiency of financial system to stimulate economic growth is the starting point not just for the economic development process but also for the development of the financial system itself.

The effect of both stock market and banking sector development indicators on economic growth rate (Y) has been examined separately by using two regression models. The first model examines the effect of banking sector development indicators (Banks' financial position to GDP X_1 , total credit to GDP X_2 , and total credit to banks' financial position X_3) on economic growth rate. The outcome of the regression analysis shows modest positive impact of banks' financial position to GDP, which is a measure of banking sector size, and strong positive effect of total credit to banks' financial position, which is a measure of banking sector development, on economic

growth rate. The coefficients of the two variables X_1 and X_3 are 0.83 and 2.09 respectively. In addition, the model shows strong negative relationship between total credit to GDP and economic growth rate (X_2 coefficient is -1.87). This may explain the increase in consumption and unproductive imports financed by banks' credit that associates the increase in the level of income, see appendix (5-a).

The second model examines the effect of stock market development indicators (Market capitalization to GDP X_1 , total value traded to GDP X_2 , and turnover ratio X_3) on economic growth rate. The outcome of the regression analysis shows a weak positive impact of total value traded to GDP, which is a measure of stock market liquidity, on economic growth rate. The coefficient of the stock market liquidity variable X_2 is 0.09, see appendix (5-b).

The Egyptian economy seems to be bank-based economy, as banks' financial position represents, in average, 115% of GDP; while stock market capitalization represents, in average, 48% of GDP, see Table 9. This structure has been reflected on the effect of banks and stock market on economic growth, as regression analyses revealed that banking sector development indicators are statistically significant predictors of economic growth. In addition, the stock market seems to crowd-out banking system in achieving economic growth. This is noted when we combined banking sector and stock market development indicators in one regression model. The only two statistical significant variables in the new model was stock market liquidity (X_2) and total credit to banks' financial position (X_6); while the coefficient of stock market liquidity didn't change after adding banking sector development indicators (it remains 0.09), the coefficient of total credit to banks' financial position decreased from 2.09 to 0.83 after adding stock market development indicators. Moreover, banks' financial position to GDP is no longer statistical significant after adding stock market development indicators, see appendix (5-c).

Table 9. Financial system development indicators

Year	Banking Sector Development Indicators (%)			Stock Market Development Indicators (%)		
	Banks' Financial Position to GDP	Total Credit to GDP	Total Credit to Banks' Financial Position	Market Capitalization to GDP	Total Value Traded to GDP	Turnover Ratio
2000	112	67	59	36	16	44
2001	119	67	56	31	9	29
2002	131	70	54	32	9	28
2003	138	68	49	41	7	16
2004	131	61	47	48	9	18
2005	131	57	44	85	30	35
2006	123	52	43	86	46	54
2007	126	47	38	103	49	47
2008	121	45	37	53	59	112
2009	105	41	39	48	43	90
2010	101	39	38	40	27	66
2011	93	35	37	21	11	50
2012	87	32	37	24	12	49
2013	89	31	35	24	9	38

Sources: Central Bank of Egypt, Annual Report and Economic Review, different editions. Column (6), author's calculations based on data extracted from the Egyptian Exchange Yearbook and Ministry of Economic Planning.

By studying finance performance, on economic sectors level, it appears that the size of economic sector commensurate with the size of funding. Figure 10 shows that size of finance directed to the economic sector play an important role in determining the size of the sector in the economy. While agriculture sector receives the lowest level of finance relative to other economic sectors, its size in the economy is relatively the smallest one compared to industrial and services sectors.

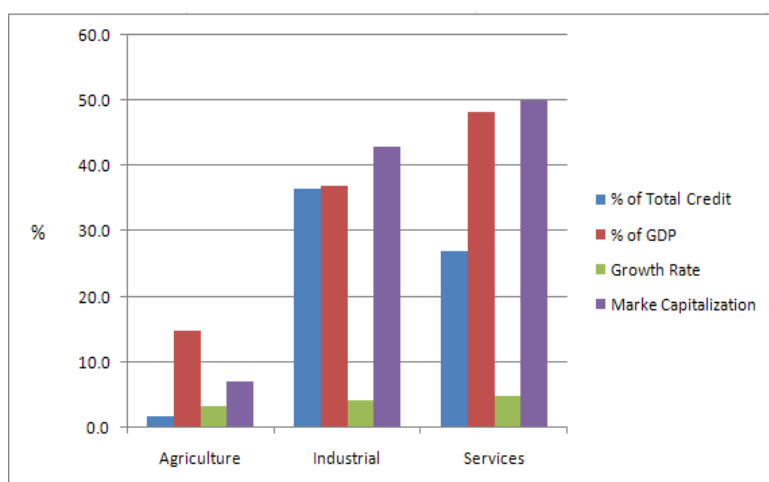


Figure 10. Economic performance and finance of different economic sectors

Sources: Author's calculations based on data extracted from the World Bank, World Development Indicators on the internet; the Egyptian Exchange data on the internet, and Central Bank of Egypt, Annual Report and Economic Review, different editions.

In addition, the productivity of finance substantially differs across economic sectors. With respect to bank finance, while finance productivity for each of industrial and services sector is in average 2, finance productivity for agriculture sector is in average 20. With respect to stock market finance, on the other hand, the same number (2) holds for the productivity of both industrial and services sector; while finance productivity for agriculture sector is in average 5, see Table 10.

Table 10. Finance productivity of different economic sectors

Year	Bank Finance Productivity			Stock Market Finance Productivity		
	Agriculture	Industrial	Services	Agriculture	Industrial	Services
2001	11	1.4	1.5	8	2	3
2002	11	1.4	1.4	7	3	3
2003	14	1.5	1.5	6	2	2
2004	13	1.7	1.6	5	2	2
2005	13	1.7	1.7	3	1	1
2006	15	2.0	1.9	2	1	1
2007	13	2.1	2.1	2	1	1
2008	18	2.3	2.2	4	2	2
2009	19	2.5	2.4	4	2	2
2010	26	2.6	2.6	5	2	2
2011	22	3.0	2.9	10	4	3
2012	38	3.3	3.1	9	4	3
2013	42	3.3	3.2	9	4	3
Average	20	2	2	5	2	2

Sources: Author's calculations based on data extracted from the World Bank, World Development Indicators on the internet; the Egyptian Exchange data on the internet, and Central Bank of Egypt, Annual Report and Economic Review, different editions.

Accordingly, this implies that agriculture production with respect to capital factor is at initial level of the increasing return to scale phase, so directing capital to agriculture sector would be highly productive in addition to its positive effects on employment and inflation as mentioned before. Moreover, banks seem to be more productive in financing agriculture sector rather than stock market is.

5. Concluding Remarks

1). The weak performance of domestic saving in Egypt is attributed to the inability to save rather than the unwillingness to save, as the income of the majority of Egyptian people is still below the level of subsistence

consumption. This proves the validity of the first hypothesis of the study.

2). Portfolio investments flows to Egypt tend to be very volatile over the considered time period; this is attributed to country fundamentals (pull variables) such as inflation rate, ratio of current account balance to GDP and ratio of public budget deficit to GDP, rather than push variables.

3). The inefficient use of domestic savings and/or the low productivity of imports prevent the economy from generating ample foreign exchanges during the first decade of the 21st century. On the other hand, after the 25th of January revolution there was inefficient use of foreign exchanges, or more precisely, foreign exchanges were directed for consumption purposes rather than production purposes. This makes lack of foreign exchange one of the constraints to economic development process.

4). The effect of the managerial performance of the economy, in general, and different financial institutions, in particular, to organize and direct savings in the process of capital accumulation is stronger than the effect of the size of savings, where the Egyptian financial system plays insignificant role in enhancing the efficiency of utilizing savings. This proves the validity of the second hypothesis of the study.

5). There are strong evidences that suggest the presence and spread of informal financial sector in the Egyptian economy, which negatively affects the efficiency of utilizing savings.

6). In achieving economic growth, banking system and stock market are substitute rather than they are complement. This indicates that the third hypothesis of the study is invalid.

7). The formal financial sector plays insignificant role in achieving the goals of the economic development process.

6. Research Recommendations

1). Enhancing main determinants of country fundamentals (market size, macroeconomic satiability, degree of openness, and vulnerability) makes capital flows to the country more stable; complements and supports the role of financial markets in achieving economic development process.

2). There is a need to stop importation of luxury and unnecessary consumption goods, even for a period of time, and to direct the majority of available foreign exchange to obtain production facilities.

3). In order to take advantage of savings generated in rural areas, monetary authority has to work on spreading formal financial institutions in these areas, so that rural areas' savings will participate in achieving economic development goals.

4). Especial incentives have to be offered by the monetary authority to increase the efficiency of financial intermediation process in a way that guarantee best use of savings and enable to achieve economic development goals. These incentives may be especial required reserve ratio and rate on discount loan for investment portfolio that serves the process of economic development.

5). Directing capital to agriculture sector would be highly productive during this phase of economic development. In other word, it can be said that the slope of production function of agriculture sector is relatively steep, so for a given increment in capital the associate increase in output will be relatively large.

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Appendix 1a

Regression Analysis: Y versus X1, X2, X3										
The regression equation is $Y1 = 32.6 + 6.01 X1 + 1.12 X2 - 1.26 X3$										
Predictor	Coef	SE Coef	T	P	Analysis of Variance					
Constant	32.61	54.44	0.60	0.562	Source	DF	SS	MS	F	P
X1	6.009	1.659	3.62	0.005	Regression	3	1840.0	613.3	5.24	0.020
X2	1.121	2.034	0.55	0.594	Residual Error	10	1171.1	117.1		
X3	-1.261	1.283	-0.98	0.349	Total	13	3011.1			
S = 10	R-Sq = 61.1%	R-Sq(adj) = 49.4%	Durbin-Watson statistic = 2.38621							
Stepwise Regression: Y1 versus X1, X2, X3										
Forward selection. Alpha-to-Enter: 0.05										
Response is Y1 on 3 predictors, with N = 14										
Step	1									
Constant	-10.40									
X1	6.2									
T-Value	4.00									
P-Value	0.002									
S	10.4									
R-Sq	57.12									
R-Sq(adj)	53.54									
Mallows Cp	1.0									

Appendix 1b

Regression Analysis: Y1 versus X1, X2, X3, X4, X5, X6										
The regression equation is $Y1 = 387 + 1.48 X1 - 9.64 X2 - 0.100 X3 + 0.48 X4 - 0.0634 X5 + 0.007 X6$										
Predictor	Coef	SECoef	T	P	Analysis of Variance					
Constant	387.0	225.3	1.72	0.130	Source	DF	SS	MS	F	P
X1	1.483	1.913	0.78	0.464	Regression	6	1950.3	325.1	2.14	0.171
X2	-9.645	9.476	-1.02	0.343	Residual Error	7	1060.8	151.5		
X3	-0.1	0.075	-1.34	0.223	Total	13	3011.1			
X4	0.480	1.2	0.40	0.701						
X5	-0.06	0.08	-0.79	0.458						
X6	0.006	0.37	0.02	0.986						
S = 12.3103 R-Sq = 64.8% R-Sq(adj) = 34.6%					Durbin-Watson statistic = 2.23					

Appendix 2a

Regression Analysis: Y versus X1, X2, X3, X4, X5, X6, X7										
The regression equation is $Y = -604 - 0.7 X1 - 101 X2 + 12 X3 + 5.82 X4 - 152 X5 + 79.6 X6 + 53.5 X7$										
Predictor	Coef	SE Coef	T	P	Analysis of Variance					
Constant	-604	2075	-0.29	0.781	Source	DF	SS	MS	F	P
X1	-0.74	64.13	-0.01	0.991	Regression	7	4441458	634494	19.39	0.001
X2	-101.08	18.38	-5.50	0.002	Residual Error	6	196349	32725		
X3	11.8	102.2	0.12	0.912	Total	13	4637808			
X4	5.816	8.099	0.72	0.500						
X5	-151.89	55.16	-2.75	0.033						
X6	79.60	40.91	1.95	0.100						
X7	53.50	65.83	0.81	0.447						
S = 180.900 R-Sq = 95.8% R-Sq(adj) = 90.8%					Durbin-Watson statistic = 2.3					

Stepwise Regression: Y versus X1, X2, X3, X4, X5, X6, X7

Forward selection. Alpha-to-Enter: 0.05			
Response is Y on 7 predictors, with N = 14			
Step	1	2	3
Constant	651.3	503.7	1170.3
X2	-122	-106	-99
T-Value	-3.80	-4.68	-5.64
P-Value	0.003	0.001	0.000
X3	125	122	
T-Value	3.77	4.75	
P-Value	0.003	0.001	
X5-82			
T-Value	-2.89		
P-Value	0.016		
S	419	289	224
R-Sq	54.60	80.21	89.20
R-Sq(adj)	50.82	76.61	85.97
Mallows Cp	4.3	20.0	9.3

Notice that: According to the severe fluctuations in the flows of portfolio investment, Hodrick-Prescott Filter has been used to smooth the data.

Appendix 2b

Regression Analysis: Y versus X1, X2, X3, X4, X5, X6, X7

The regression equation is $Y = -3242 + 16.7 X1 + 2.4 X2 - 1100 X3 + 123 X4 - 34.4 X5 + 33.2 X6 - 24.5 X7$

Predictor	Coef	SE Coef	T	P	Analysis of Variance					
					Source	DF	SS	MS	F	P
Constant	-3242	2835	-1.14	0.296	Regression	7	3561019	508717	2.83	0.113
X1	16.73	32.78	0.51	0.628	Residual Error	6	1076788	179465		
X2	2.35	29.92	0.08	0.940	Total	13	4637808			
X3	-1100.4	794.4	-1.39	0.215						
X4	122.6	288.0	0.43	0.685						
X5	-34.36	58.07	-0.59	0.576						
X6	33.23	21.72	1.53	0.177						
X7	-24.48	63.11	-0.39	0.711						
S = 423.633					R-Sq = 76.8%		R-Sq(adj) = 49.7%		Durbin-Watson statistic = 1.48064	

Appendix 3

Output-orientated DEA

Scale assumption: VRS

Slacks calculated using multi-stage method

EFFICIENCY SUMMARY:

Year	CRSTE	VRSTE	Scale	Return to Scale
1	0.757	1.000	0.757	irs
2	0.712	0.911	0.781	irs
3	0.643	0.794	0.810	irs
4	0.651	0.783	0.831	irs
5	0.574	0.660	0.870	irs
6	0.529	0.573	0.922	irs
7	0.556	0.590	0.943	irs
8	0.532	0.544	0.978	irs
9	0.623	0.626	0.996	irs
10	0.648	0.777	0.834	drs
11	0.743	0.775	0.959	drs
12	0.665	0.912	0.729	drs
13	0.641	0.909	0.705	drs
14	1.000	1.000	1.000	
15	0.925	0.963	0.960	drs
mean	0.680	0.788	0.872	

Note. CRSTE = technical efficiency from CRS DEA

VRSTE = technical efficiency from VRS DEA

Scale = scale efficiency = CRSTE / VRSTE

Year	Overall technical efficiency	Pure technical efficiency	Scale efficiency	Return to scale	Average overall technical efficiency	Average pure technical efficiency	Average scale efficiency
1999	0.757	1	0.757				
2000	0.712	0.911	0.781				
2001	0.643	0.794	0.81				
2002	0.651	0.783	0.831	Increasing			
2003	0.574	0.66	0.87	Return to Scale	0.62	0.72	0.88
2004	0.529	0.573	0.922				
2005	0.556	0.59	0.943				
2006	0.532	0.544	0.978				
2007	0.623	0.626	0.996				
2008	0.648	0.777	0.834	Decreasing			
2009	0.743	0.775	0.959	Return to Scale	0.67	0.84	0.81
2010	0.665	0.912	0.729				
2011	0.641	0.909	0.705				

2012	1	1	1	Constant Return to Scale	1	1	1
2013	0.925	0.963	0.96	Decreasing Return to Scale	0.93	0.96	0.96
Average	0.68	0.79	0.87				
Standard Deviation	0.13	0.16	0.10				

Appendix 4

Regression Analysis: Y versus X1, X2, X3, X4, X5

The regression equation is $Y = 176 + 0.077 X1 - 0.498 X2 + 0.281 X3 + 0.128 X4 - 1.79 X5$

Predictor	Coef	SECoef	T	P	Analysis of Variance					
Constant	175.87	31.49	5.58	0.001	Source	DF	SS	MS	F	P
X1 0.0765	0.3603	0.21	0.837		Regression	5	2818.28	563.66	19.16	0.000
X2-0.4983	0.6564	-0.76	0.470		Residual Error	8	235.29	29.41		
X30.2813	0.3475	0.81	0.442		Total	13	3053.57			
X40.1275	0.2604	0.49	0.637							
X5-1.7891	0.7286	-2.46	0.040							
S = 5.42321	R-Sq = 92.3%	R-Sq(adj) = 87.5%			Durbin-Watson statistic = 2.34					

Stepwise Regression: Y versus X1, X2, X3, X4, X5

Forward selection. Alpha-to-Enter: 0.05

Response is Y on 5 predictors, with N = 14

Step	1
Constant	206.8
X5	-1.93
T-Value	-9.83
P-Value	0.000
S	5.30
R-Sq	88.95
R-Sq(adj)	88.03
Mallows Cp	1.5

Appendix 5a

Regression Analysis: Y versus X1, X2, X3

The regression equation is $Y = -86.8 + 0.828 X1 - 1.87 X2 + 2.09 X3$

Predictor	Coef	SECoef	T	P	Analysis of Variance					
Constant	-86.85	12.00	-7.24	0.000	Source	DF	SS	MS	F	P
X1 0.8277	0.1047	7.91	0.000		Regression	3	40.294	13.431	25.56	0.000
X2-1.8717	0.2544	-7.36	0.000		Residual Error	10	5.255	0.526		
X32.0879	0.2972	7.02	0.000		Total	13	45.549			
S = 0.724940	R-Sq = 88.5%	R-Sq(adj) = 85.0%			Durbin-Watson statistic = 2.3					

Appendix 5b

Regression Analysis: Y versus X1, X2, X3

The regression equation is $Y = 4.02 - 0.0269 X1 + 0.175 X2 - 0.0543 X3$

Predictor	Coef	SECoef	T	P	Analysis of Variance					
Constant	4.025	2.778	1.45	0.178	Source	DF	SS	MS	F	P
X1	-0.02690	0.05797	-0.46	0.653	Regression	3	36.444	12.148	13.34	0.001
X2	0.1751	0.1265	1.38	0.196	Residual Error	10	9.105	0.911		
X3	-0.05432	0.06227	-0.87	0.403	Total	13	45.549			
S = 0.954223	R-Sq = 80.0%	R-Sq(adj) = 74.0%			Durbin-Watson statistic = 1.9					

Stepwise Regression: Y versus X1, X2, X3

Forward selection. Alpha-to-Enter: 0.05

Response is Y on 3 predictors, with N = 14

Step	1
Constant	2.192
X2	0.088
T-Value	5.83
P-Value	0.000
S	0.995
R-Sq	73.93
R-Sq(adj)	71.76
Mallows Cp	3.0

Appendix 5c**Regression Analysis: Y versus X1, X2, X3, X4, X5, X6**

Y= Economic Growth Rate, X1= Market capitalization to GDP, **X2=** total value traded to GDP, **X3=** turnover ratio, **X4=** Banks' financial position to GDP, **X5=** total credit to GDP, **X6=** total credit to banks' financial position.

The regression equation is $Y = -66.2 - 0.0695 X1 + 0.186 X2 - 0.0790 X3 + 0.656 X4 - 1.51 X5 + 1.70 X6$

Predictor	Coef	SECoef	T	P	Analysis of Variance					
Constant	-66.16	23.01	-2.88	0.024	Source	DF	SS	MS	F	P
X1	-0.06952	0.04906	-1.42	0.199	Regression	6	42.8037	7.1339	18.19	0.001
X20.18595	0.09645	1.93	0.095		Residual Error	7	2.7456	0.3922		
X3	-0.07897	0.05296	-1.49	0.180	Total	13	45.5493			
X4	0.6564	0.2329	2.82	0.026						
X5	-1.5074	0.5271	-2.86	0.024						
X6	1.7029	0.5673	3.00	0.020						
S = 0.626285 R-Sq = 94.0% R-Sq(adj) = 88.8%					Durbin-Watson statistic = 2.4					

Stepwise Regression: Y versus X1, X2, X3, X4, X5, X6

Forward selection. Alpha-to-Enter: 0.05

Response is Y on 6 predictors, with N = 14

Step	1	2
Constant	2.192	-1.939
X2	0.088	0.104
T-Value	5.83	7.79
P-Value	0.000	0.000
X	60.085	
T-Value	2.79	
P-Value	0.017	
S	0.995	0.795
R-Sq	73.93	84.75
R-Sq(adj)	71.76	81.97
Mallows Cp	20.3	9.7

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