



## EVOLUTION OF MONETARY POLICY IN EGYPT: A CRITICAL REVIEW

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### **Abstract:**

Inflation targeting (IT) has emerged in recent years as a leading framework for conducting monetary policy in order to attain price stability. Like many other developing countries, Egypt is now aspiring to introduce inflation targeting as a framework for its monetary policy. This paper reviewed the evolution of monetary policy in Egypt during the last two decades, starting in early 1990s with the launch of series of agreements' with IMF and world bank known as ERSAP, till 2010, the year prior to the rise of what's called the Arab spring. Additionally, we evaluate the IT experience in Egypt in terms of achieved goals and conducted institutional and monetary reforms. This research also drew some conclusions and formulated some policy recommendations for crucial monetary adjustments that Egypt should consider for the purpose of conducting IT.

**Keywords:** Monetary Transmission mechanisms, Egypt, Monetary policy, Inflation targeting.





## 1. INTRODUCTION

Egyptian economy has been subject to radical changes during the past 20 years, these changes affected overall economic performance and applied monetary policies. Abo El Oyoum (2003) divided the Egyptian economic history into three phases. First phase started in 1960 to 1973, was characterized by the government statist rule of controlling market forces and applied policies. Second phase from 1974 to 1991, was the phase of free and open market policies, and the last phase from 1991 to 1996 was the phase of the economic and structural reforms<sup>1</sup>.

In Egypt, during the 1980s, the economy suffered from macro imbalances, reflected in high and volatile rate of inflation, growing deficits in the balance of payments; however this decade was accompanied by rapid economic growth, averaging 8.5% annually from the mid 70s to the mid 80s, due to mainly foreign investment (Noureldin, 2005). During the second half of the 1980s, investment and GDP growth declined, accumulated debt reached 11.4 billion \$ in 1990 and the burden of foreign debt had become unwieldy (Korayem, 1997).

Korayem (1997) stated that there are three possible approaches that could be used to assess an applied monetary or fiscal regime. The first approach is the internal approach which examines the extent of target achievement. Second approach is the before-after approach that compares the economic performance before and after launching the program, and finally the counterfactual approach which compares the program result with what would occur in its absence. Since the conclusion of stabilizing program in 1996, the central bank of Egypt (CBE) was concerned with achieving multiple objectives, which were in several instances conflicting, like high economic growth, low inflation and stable exchange rate (Al Mashat and Billimeier, 2007).

Starting 2002, inflation development in Egypt was subject to unexplained variations in reaction to successive devaluation in exchange rate starting 2000-2001. For instance, the whole sale price index (WPI) started to increase reaching double digits in 2003-2004; also consumer price index (CPI) showed mild increase

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<sup>1</sup> In 1991 the government signed agreements with the IMF and the World Bank aimed rectifying the macro imbalances. These agreements are known as, the Economic Reform and Structural Adjustment Program (ERSAP).

despite growing evidence of strong inflationary pressures after the devaluation (Noureldin,2005). As the Central Bank of Egypt announced in January 2005 the intention to adopt inflation targeting (IT) as a new monetary policy regime. This announcement raises continued controversy about its ability to conduct forward looking monetary policy with the required level of sophistication currently observed in IT central banks. Under this new regime, the nominal exchange rate will be no longer the nominal anchor as it will be replaced by a targeted inflation rate. Several institutional and economic reforms have been taken to ensure fulfilling most of the IT prerequisites. Throughout the last chapter, we will examine the degree of successfulness of CBE to meet the needed preconditions.

The objectives of this research are twofold: The first objective is to give a critical review of all theories and models that tried to explain the inflationary behavior through the history of economic thought. The second objective is to examine the monetary transmission mechanisms in Egypt against the background of the central bank's adoption of a light version of IT as a convergence phase towards the implementation of full fledged inflation targeting (FFIT), once IT prerequisites are met (e.g. Central bank independence, free floating exchange rate, considerable degree of accountability and transparency).

This research consists of three main chapters beside an introduction and conclusion. Chapter two presents the literature review, which introduces the main literature, theories, and contributions of different schools of thought, which represent the evolution of monetary policy through economic history. Chapter three discusses the main monetary transmission mechanisms (MTMs) and the determinants of each channel pass through effects to Macro. variables. Chapter four will illustrate reforms in Egyptian monetary system, covering a period starting from 1991- the date of launching of the ERSAP - passing with the date of CBE announcement of IT adoption in Egypt in 2005, till 2010 prior to the revolution year<sup>2</sup>.

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<sup>2</sup> Egyptian economic system was subject to massive changes that might be cryptic to be articulated. However, one of the mightiest problems that Egypt faces during the mean times is inflation, thus analyzing the last 5 years prior to 2011 "Revolution year", would be a starting block for other scholars to investigate how to the Egyptian revolution affected the behavior of macro. variables (i.e. inflation).





## 2. MONETARY POLICY IN MACROECONOMIC THEORY

My starting point is Blanchard's and Woodford's surveys that were published in 2003. Blanchard, (2000) divided the history of macroeconomics in three phases: pre 1940, a period of exploration, from 1940 to 1980, a period of consolidation and since 1980, a new period of consolidation emerged. Contrary to Blanchard, Woodford, (1999) expressed his view on the idea of revolutions and counter-revolutions. He started with a study of business fluctuations in the early decades of the 20 century, and then continued with the Keynesian Revolution and the neoclassical synthesis. After a section on inflation and the crisis of Keynesian economics, he goes on studying the criticism against Keynesian theory, monetarism, rational, the new classical economics, and, finally, real business cycle theory (Vroey, 2001).

Robert (1980) stated that a review of interaction between macroeconomics ideas and events can be described either by topic or chronological period. He used the chronological classification to compare the behavior of critical aggregate Variables (e.g. Income and wealth) across four sub-periods of the post war era (1947-57, 1957-67, 1967-73, and 1973-79), in order to examine considerable economic events and traces the evolution of monetary policy. Goodfriend and King (1997) compared four episodes of the development of macroeconomics; monetarism, rational expectations, real business cycles and, finally the new neoclassical synthesis<sup>3</sup>. This research will follow Goodfriend and king topic classification not the chronological classification. The reason for adhering to such classification, that, it would ease the comparison of different monetary theories, and group them back to schools not periods.

### 2.1. THE CLASSICAL THEORY

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<sup>3</sup>This new style of macroeconomic research is called so, because it inherits the spirit of the old synthesis, but in addition, it offered policy advice based on the idea that price stickiness implies that aggregate demand is a key determinant of real economic activity in the short run. New Neoclassical Synthesis models imply that monetary policy exerts a powerful influence on real activity. The main idea of this synthesis is that economic fluctuations cannot be interpreted or understood independently of monetary policy, in a way that aggregate demand should be managed by monetary policy in order to deliver efficient macroeconomics outcomes (Goodfriend and King, 1997).

Many of the fundamental basics of the classical school relied on Adam Smith's masterpiece, *An Inquiry into the Nature and Causes of the Wealth of Nations*, published in 1776. Smith strongly advocated free trade and free competition neither hindered nor altered by government. Consequently, monetary policy during the early classical era was not yet introduced as a tool to control prices and constrain inflation.

One of the significant contributions of classical economists to explain inflation was made by David Hume during the 17<sup>th</sup> century, who introduced two fundamental theories. Hume<sup>4</sup> was among the first to develop automatic price-specie flow which works in line with the quantity theory of money introduced by monetarists, an idea that contrasts with the mercantilism system. Hume held that any surplus of exports that might be achieved would be associated with an increase in gold and silver imports, as a result of the increase in the money supply inflation occurs. According to Hume, the only rule of the monetary policy to constrain inflation is to decrease exports until the balance with imports restored<sup>5</sup>. Hume also proposed a theory of beneficial inflation, which introduces a new concept of time lag between the increase in the money supply and the increase in the price level, this time lag allows production to rises and new employment opportunities to be created in the economy that might results in preventing the surge in inflation. This theory was later developed by Keynes.

### 2.2. THE KEYNESIAN MODEL

Classical economists have believed in "Say's law", that when economy operates below potential output, the current supply will generate its own demand. Keynes concluded that aggregate demand for goods might be inadequate during economic slowdowns that might eventually lead to increase unemployment and fiscal deficits. As a result, government intervention is essential, through two policy responses, either by elevating government spending on infrastructure or lowering interest rates, both will lead to stimulate investment and accelerate the rate of income injection in the whole economy. Keynes believed in fiscal policy as a policy that has a substantial influence on aggregate demand while he did not consider monetary policy of a major

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<sup>4</sup>Hume was a Scottish philosopher, economist, historian and an important figure in the history of Western philosophy and the Scottish Enlightenment. Hume is often grouped with John Locke, George Berkeley, and a handful of others as a British Empiricist (Bongie, 1998).





influence because the possibility of liquidity trap occurrence<sup>5</sup>. Liquidity trap is a situation, which the demand of money becomes infinitely elastic, so that further increase in money supply will not lower interest rates. So when an economy reaches this trap the monetary policy become useless to play its stimulating rule, and a greater concern should be directed to fiscal policy as a mean to stimulate the economic activity through taxation and government spending (Blinder, 1986).

According to Keynes, another reason for relying on fiscal policy, not monetary policy, that Keynesian thought were designed for and suited to attack the problem which was dominating at this period, which was mass unemployment. Keynes main concern was to fight this severe problem. He ignored supply side pressure on costs that could be a reason for inflation; instead he considered inflation problem a result of excess demand that could be simply hindered by cutting down wages or levying higher taxes, furthermore, he did not consider inflation as a problem rather than a remedy for unemployment.

Keynes concluded in his book the general theory of employment, interest and money, published in 1935 that any increase in quantity of money will not raise prices by the same proportion; it also may raise some prices more than others, so inflation could be an effective cure for unemployment<sup>6</sup>. So if, we have a case of underemployment, for instance, some wages were above the equilibrium wage, so when money supply increases, wholesale and retail prices rise without a proportional increase in wage rates. Hence any increase in supply of goods will happen without raising the cost of production, and thus increases

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<sup>5</sup> The concept of the liquidity trap came again in Japan, in the 1990s when Japanese economy fell into a period of stagnation and deflation despite zero interest rates and the same case has emerged in the U.S., and Europe in 2008-2010 as a short term policy rates of the various central banks has moved close to zero. For more information see Buiter, (2008).

<sup>6</sup> Theory of beneficial inflation was first introduced by David Hume, and then updated by John Maynard Keynes. This theory was criticized by Henry Hazlitt in his book the failure of new economics, published in 1995, that Keynes miss understood the term velocity of circulation of money, as money doesn't circulate, it is exchanged against goods, a man can spend his monetary income just once, what increase is the number of times this commodity -say stocks or bonds- is purchased from hand to hand. So an increase in velocity of circulation of money is not a cause of an increase in commodity prices, this increase in price is a result of increase in speculative activity.

employment, in addition, the increase in supply of goods will make prices rise even slower that would have been otherwise. So Keynes considers inflation as a dangerous remedy for unemployment, because if wages aggrandized unemployment will resume<sup>7</sup>.

### 2.3. THE AUSTRIAN SCHOOL

This school followed the classical believes of free market forces that equilibrate supply and demand, leaving no chance for booms or bursts to occur. Austrian economists –in line with monetarists- assumed that inflation is a supply side problem; they considered the central bank as the main source of inflation problem because it is the authority responsible for creating new currency units. Likewise, when newly created bank credit was injected into the economy, the credit expanded and thus enhanced inflationary effects. Inflation was a natural process in Austrian business cycle that should occur especially in capital goods market due to the widespread of investments and high wages of this sector worker's (Wuthrich, 2010).

Unlike the Keynesian thoughts, which emphasized the government rule, Rothbard (2009) considered free fluctuated interest rate as the main tool to fight inflation, and to foster economic growth. Austrians' argued that the economy doesn't need more spending but it needs more saving in order to validate the excessive investments of the credit boom, simply to maintain the laissez-faire rule, in other words, apply what's called free banking. Free banking means handling money supply and interest rates through private enterprises. It allows the natural rate of interest to allocate funds among consumption and investment, hence preventing inflation, recessions and financial panics (Briones and Rockoff, 2005).

Hanke (2009) identified the financial crises 2007-2010 as the direct outcome of the Federal Reserve (Fed) interest rate policy, which was predicted by Austrian business cycle theory. It postulated that low interest rate announced by the monetary authority would stimulate borrowing, and thus cause

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<sup>7</sup> Keynes models assume rigid prices or wages because monetary policy -before entering the liquidity trap- affects the level of output and employment only if some prices or wages are rigid. Because of this rigidity, say in nominal wages, changes in spending, investment, consumption causes output to fluctuate by a multiplied effect according to Keynesian multiplier.





expansion in money supply, which might result in monetary boom that reflected in inflation surge.

In 2005, Tyler Cowen said that if he believed in Austrian business cycle theory he would say that U.S. economy is overinvested in housing, and a massive shock will result<sup>8</sup>. After the U.S. housing bubble began its decline in 2006, Peter Schiff, a supporter of the Austrian school, made some predictions regarding a housing crash in the US<sup>9</sup>. Fred Foldvary supported Cowen and Schiff believes by stating in his article that in practice when the economy is going through a recession, there is a political pressure for central banks to stimulate the economy with money expansion. He also pointed to the effect of money supply expansion on land speculators, those who borrowed funds to buy more lands, not for real use of it, but expecting its future value to rise, as a result, the economy gets a real estate bubble like the one happened prior the financial crises of 2007-2010. During the economic boom, demand for land by optimistic speculators pulled up land prices, which resulted in high interest rate and price level that pushed the economy towards a recession<sup>10</sup>.

#### 2.4. THE MONETARISTS

Anna Schwartz and Milton Friedman in their book monetary history of the U.S. 1876-1960, published in 1971, argued that the great depression of 1930s was caused by a massive contraction in money supply not lack of investment as Keynes explained, and the post war inflation happened by an over expansion in money supply. These arguments explained the failure of fiscal policies to restrain inflation and produce growth in 1970s. The following table shows the aggrandized inflation rate during the first 7 years starting from 1973 to 1979, and its gradual fall in the beginning of 1980s, that corresponded with the Fed adoption of the monetarism views (Anderson and Jerry, 1968). Friedman argued that what matters for the monetary authority is the money

supply because money supply influences money demand, and he explained his view, that people hold money for transaction motive, when money supply increases people would shift towards speculative motive, hence aggregate demand rises (Phillip, 1965).

Table 1: Average inflation rate computed using CPI (1973-1986), USA.

Year	Average Inflation rate
1973	6.16%
1974	11.03%
1975	9.2%
1976	5.75%
1978	6.5%
1979	7.6%
1980	11.2%
1981	13.5%
1982	10.3%
1983	6.16%
1984	3.2%
1985	4.3%
1986	1.9%

Source: Bureau of Labor statistics, U.S. city average (10-19-2011), retrieved from ftp://ftp.bls.gov/pub/special.requests/cpi/cpi.txt

Milton stated that central banks might be able control inflation, by managing the rate of money supply growth. In addition, the economists Edmond Phelps and Milton developed a theory called K percent rule. They proposed that money supply should increase by a constant percentage rate every year, without any variation to meet cyclical domestic needs because Milton considered inflation as the direct outcome of money supply fluctuations, thus central bank should expand the money supply at a rate equivalent to the growth rate of real GDP (Friedman, 1960).

The Fed came to a monetarist experiment in October 1979, when Chairman Paul Volcker adopted an operating procedure based on controlling the growth of M1 and M2 and to reduce inflation, which had been running at double-digit rates. As we know, the disinflation effort was successful and resulted in the low-inflation regime. However, it would be fair to say that monetary aggregates have not played a central role in the formulation of U.S. monetary policy since that time, because of the highly unstable relationship between monetary aggregates and other macroeconomic variables (Bernanke, 2006). Even Milton

<sup>8</sup>For extra details about Steve interview, see [www.marginalrevolution.com](http://www.marginalrevolution.com/marginalrevolution/2005/01/if_i_believed_i.html)<Http://www.marginalrevolution.com/marginalrevolution/2005/01/if\_i\_believed\_i.html>

<sup>9</sup>See the following link for the video source [www.youtube.com](http://www.youtube.com/watch?v=yoZV5jt9puc)<Http://www.youtube.com/watch?v=yoZV5jt9puc>

<sup>10</sup>For more information see, Foldvary (2008).





Friedman in an interview in Financial Times on June 7, 2003, he acknowledged that money supply targeting was less successful than he had hoped<sup>11</sup>.

One of the vast contributions of the monetarists in order to explain the inflation phenomenon is introducing the equation of exchange or the quantity theory of money, which is the theory that describes the correlation between the supply of money and the price level. It was first introduced by Mill, (1848) who expanded on the ideas of David Hume that introduced this equation under price specie flow theory. The quantity theory was then developed by Newcomb (1885), Foville (1907), Fisher (1911), and Ludwig (1912), and then in 19th and early 20th The theory was influentially restated by Milton (1956) during the post-Keynesian era<sup>12</sup>.

Zurich (2008) reconstructed the origins of the quantity theory of money and its applications against the background of the history of money, he had shown that the theory was flexible enough to adapt to institutional changes and thus succeeded in maintaining its relevance. After monetary targeting was given up by the European Central Bank (ECB) in 2003, the last prominent central banks finally dismissed the quantity theory as a basis to implement money policy. Additionally, considering money supply as an indicator rather than an intermediate target, is any longer considered as guidance for monetary policy (Collins et Al, 1999)<sup>13</sup>.

Samuelson and Nordhaus (2004) explained the fall of monetarism by the sharp changes in M1 velocity during the period 1980s-1990s. Recall that, monetarists hold that velocity is predictable, and under controllable velocity, changes in money supply would be translated into changes in nominal GDP. The Period followed 1980s characterized by volatile interest rates and

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<sup>11</sup>This why monetary decisions today take into account a wider range of factors, such as short term interest rates, long term interest rates, velocity of money through the economy, exchange rates, credit quality.

<sup>12</sup> For more information about Milton Friedman liquidity preference theory, check the following link  
Www.homepage.newsschool.edu<<http://homepage.newsschool.edu/het/essays/monetarism/monetransmission.html>>

<sup>13</sup> For more information about Frankfort experience with abandoning the monetary targeting, see Zurich (2008).

financial innovations, both lead to extremely unpredictable changes in velocity because of relying heavily on monetary targeting. So by the early 1990s, the Fed had turned primarily to trends in output, inflation, employment and unemployment for its key indicators of the state of the economy.

## 2.5. NEO CLASSICAL-KEYNESIAN SYNTHESIS

Early Keynesians, such as Samuelson, Modigliani, and Tobin had reconciled two visions, one is microeconomic vision of economy founded on Adam Smith's invisible hand and Alfred Marshall's supply and demand curves, the other founded on Keynes's analysis of aggregate economic problems, such as inflation and unemployment; usually referred to as the neoclassical-Keynesian synthesis (Manikw, 2006). This section postulated the main contribution of these combined schools of thought to give a further explanation of inflation phenomenon and its possible remedies.

Many Neo-Keynesians believed that Keynes general theory was a theory of recession that focused mainly on underemployment equilibrium and how to stimulate aggregate demand to push the economy towards full employment, and it avoided explaining inflationary pressures that might be engendered. Abba Lerner (1944, 1947, 1949, and 1951) was the first Keynesian economist to stress the possibility and importance of inflation in the Keynesian model. He also stressed on governmental rule of controlling inflation and deflation and considered this as the primary objective of the government policy. He later incorporated unemployment-inflation tradeoff explained by Phillips curve and the possibility of stag inflation later before Neo-Keynesians. Paul and Robert (1960) were the first to integrate the Phillips Curve into the Neo-Keynesian models.<sup>14</sup>

Neo-Keynesians agreed with neo-Classicals about the neutrality of money supply in the long run, but because of the price stickiness assumption, neo Keynesian believe that money supply fluctuations in the short run affected output and employment<sup>15</sup>. They did not advocate the use of expansive

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<sup>14</sup> For more information about recent applications of Phillips curve in U.S. and Europe. Please refer to Kitov (2009) and Eduardo (2006).

<sup>15</sup> One explanation of price stickiness is that; changing prices is followed by externalities, for example, menu costs that need to be adjusted in response to price changes. As a result, by lowering money supply, a particular firm would reduce its product price, but what it actually did was raising people real income that pushed them to purchase





monetary for short run gains in output and employment because inflationary pressures that will occur will be hardly removed unless the economy was subject to a recession or an external shock (e.g. Fall in consumer confidence), as a result, output and inflation will fall. So they advocated the use of monetary policy for stabilization (Olivier and Jordi, 2007).

Blanchard and Gali, (2007) Studied neo-Keynesians models, mainly nominal interest rate adjustments in response to changes in inflation and output gaps, following Taylor rule<sup>16</sup>. It turned out that stabilizing inflation will stabilize both output and employment, they called this Divine coincidence. However, models with more than one market imperfection (e.g. Frictions in unemployment as well as sticky prices) will eliminate this coincidence, and there would be a tradeoff between stabilizing inflation and stabilizing output.

Lucas (1972, 1973), Sargent (1973) and Sargent and Wallace (1975, 1976) postulated that systematic monetary policy has no effect on output. Only policy shocks can influence output. Contrary to Friedman's "only money matters" to the Neo-Classicals "only surprise money matters". Sargent (1973) and Lucas (1972) introduced a new theory that replaced Friedman's adaptive expectations with what they called theory of rational expectations<sup>17</sup>. This theory argued that not only there was no long-run trade-off between inflation and unemployment but that there was not even a short-run trade-off. The Neo-Classicals objection was that Friedman's adaptive expectations assume that agents are making systematic error. They considered money supply not a good clue for agents to expect next year's inflation to be this year's inflation. The rational expectations hypothesis argued that agents

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more (not necessarily from the same firm). So when the firm does not receive the full benefit of price reduction, this will reduce the firm response to macroeconomic events by adjusting its prices. For more information about menu costs and segmented labor market, see manikw (1985) and Gregory (2006).

<sup>16</sup>Taylor rule is a monetary-policy rule that shows how much the central bank would or should change the nominal interest rate in response to divergences of actual inflation rates from target inflation rates and of actual Gross Domestic Product (GDP) from potential GDP. It was first proposed by the U.S. economist John B. Taylor in 1993. For more information see Taylor (1993).

make full use of their information and not persistently make systematic error.

Neo-Keynesians agreed with neo classicals about the nonexistence of this trade off in the long run but according to neo-Keynesians they assured the presence of this tradeoff in the short run, through relying on their theory adaptive expectation. It stated that current inflation expectations were derived from past inflation experience, however, the ability of the government to reduce unemployment level below what is called natural rate of unemployment is temporary, because of the money illusion that tempted workers to leave leisure and get to work. Because inflation opposed the increase in their nominal wages; thus unemployment got back again to its natural rate forming what's called expectations augmented Phillips curve<sup>17</sup>.

## 2.6. NEW –NEO SYNTHESIS

The New Neoclassical Synthesis (NNS) suggested a set of sweeping conclusions about the role of monetary policy. First, these models suggested that monetary policy actions have a significant impact on real economic activity, persisting over several years, due to gradual adjustment of individual prices and the general price level due to small and long-run trade-off between inflation and real activity at low inflation rate. Second, significant gains from eliminating inflation were also another assumption; like, increasing transactions efficiency and reducing relative price distortions. Finally, emphasizing credibility rule in the conduction of monetary policy and possible outcomes<sup>18</sup>. These three assumptions were consistent with the public statements of central bankers from a wide range of countries and also consistent with the preconditions of IT (Goodfriend and King, 1997). The main theories explained in this chapter could be summarized in the next table,

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<sup>17</sup> For more understanding of Phillips curve different versions, please see Debelle and Laxton (1997), Eduardo (2006).

<sup>18</sup>Sargent (1986) reviewed a series of historical episodes in which countries tried to reduce high inflation rates, he argued that the costs of disinflation on the range of the output gap were smaller if the government's policy was credible than if it was not.





Table 2: Summary of monetary developments in history of macroeconomics

Schools of thought	Government rule	Inflation explained	A Possible remedy
<b>Classicals</b>	None "Free trade-Free market"	Surplus of exports associated with surplus of imports of gold and money "Auto- price species flow or the classical version of the quantity theory of money"	Decrease exports till balance is created
<b>Keynesians</b>	Increase governmental spending or lowering the interest rate to stimulate aggregate demand  "Fiscal policy"	Excess demand "Generally inflation was not a problem, it was considered as a remedy for unemployment"	Cut down wages or levy higher taxes
<b>Austrians</b>	None "Free banking"	Credit expansion "Supply side problem"	Interest rate controlled by market forces
<b>Monetarists</b>	Controlling MS "Monetary policy"	MS expansion "Supply side problem-Quantity theory of money"	Annual constant increase in MS "K percent rule"
<b>Neo classicals</b>	Contractionary fiscal and monetary policy "only surprisingly"	Theory of rational expectations "No tradeoff between unemployment and inflation except for unanticipated demand shock by the governmental and this trade of is temporarily"	Nominal Interest rate
<b>Neo Keynesians</b>	Contractionary fiscal and monetary policy "Only in the short run"	Theory of adaptive expectations "current inflation is extrapolated from past inflation experience"	Income policies that link wage raising with inflation

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### 3. MONETARY TRANSMISSION MECHANISMS (MTMS)

MTMs describe how monetary policy changes impact real economic variables such as employment and aggregate output (Peter, 2004). Channels of monetary transmission affect real economic variables through the effects that monetary policy has on interest rates, exchange rates, equity and real estate prices, bank lending, and firm balance sheets.

#### 3.1. INTEREST RATE CHANNEL

Implementing an effective monetary regime requires abstruse understanding of how this channel works, to be able to presage the magnitude of the effect that interest rate has on inflation. According to a vast literature on industrial, emerging, transitional and developing economics, interest rate channel played a crucial role in transmitting monetary changes to households (HH) and firms through competitive banking system, but the degree of the pass through of this channel varies across countries, according to the efficiency of the banking system (Al Mashat and Billmeier, 2007).

Traditional Keynesian interest rate channel presented in IS-LM model can be classified into two steps. It starts with (1) transmitting the effect from short term nominal interest rate to long term real interest rates and then (2) affect aggregate demand and production (Fabrizo, Balazs and Ronald, 2006). Interest rate channel could be summarized in the following equation of monetary tightening proposed by Mishkin, (1995):

$$MS \downarrow, i \uparrow, I \downarrow, Y \downarrow$$

Where MS is the money supply,  $i$  is short term interest rate,  $I$  is the investment and  $Y$  is the production level. Conducting a tight monetary policy raises nominal interest rate followed by a decline in business investment and residual investments, which lead to abate aggregate output<sup>19</sup>. Changes in

<sup>19</sup>For any monetary channel, we should assume some combination of sticky prices and rational expectations in an economy that works to prevent nominal prices from adjusting immediately. This works in a way

interest rates entailed two conflicting effects, income effect; raise of interest rates increased the income of holders of interest bearing assets that could be offset by the Substitution effect that favored more saving instead of consumption that causes households to cut back their spending. Incomplete pass through of this channel, could happen for several reasons, (1) Low competition between banks and financial intermediaries that might lead to monopolistic market structure. (2) Low competition between bank lending and external finance (bond and equity market)<sup>20</sup>. (3) High switching costs between banks. (4) Nature of bank deposits concerning their degree of liquidity and sensitivity to market rates<sup>21</sup>. (5) Macroeconomic favorable or unfavorable conditions<sup>22</sup>.

#### 3.2. EXCHANGE RATE CHANNEL

This channel relied heavily on interest rate fluctuations because changes in domestic real interest agitated foreign investor preferences' concerning domestic currency deposits that might end up with an appreciation in domestic currency exchange rate. Consequently demand on domestic goods will deaccelerate and this put a downward pressure on net exports account and aggregate output (Mishkin, 1995). Monetary authority intervention in foreign exchange markets may also influences short-run exchange rate movements. Vast literature supported the argument

that real value of monetary base proportional changes and this is the reason why these movements in short nominal interest rates translate into movements in real interest rates as well.

<sup>20</sup> Low competition might varies interest rate pass through along the interest rate cycle, when interest rate rises, banks may adjust their lending rates more quickly than deposit rates, in contract if the interest rate tends to fall, they might decrease their deposit rates more rapidly than lending rates; the wider the spread rate, the larger degree of instability this financial system has.

<sup>21</sup>When bank's largest share of deposits is excess long term deposits such as saving deposits(which are not particularly affected by market rates). This bank tends to change its lending rate more slowly compared with banks who have more short term and liquid deposits, which are more sensitive to market rates.

<sup>22</sup>Under favorable conditions, pass through may be done quickly to both lending and deposit rates, also high inflation may favor for more rapid interest rate pass through as prices adjust and change quickly. A healthier banking system and more foreign participant tend to be associated with higher and faster pass through.





that government intervention in foreign exchange markets may be more effective in emerging market economies than in well-established industrialized countries because (1) central bank interventions are not always fully sterilized, (2) the size of interventions is large relative to market turnover in narrow foreign exchange markets, (3) market organization may be more conducive to interventions, and (5) central banks have a greater informational advantage over market participants<sup>23</sup>.

Exchange rate pass through to inflation depends mainly on the pricing behavior of importing firms. If prices are set in the importer's currency using producer currency pricing (PCP) rule, changes in the exchange rate will be automatically transmitted to the prices of the destination country. Additionally, if the price of imported goods is fixed in the domestic currency using local consumer pricing (LCP) rule, exchange rate movements will not be reflected in domestic prices and the pass-through is zero. As a consequence, the real exchange rate may drift away from the level given by the law of one price and is correlated with the nominal exchange rate<sup>24</sup>.

According to Taylor (2000), degree of the pass through effect of this channel is affected by changes in the macroeconomic prevailing conditions. Ca'zozzi, Hahn and Sanchez (2007) relied on a two-stage approach for a large number of countries to show that high inflation is often associated with complete pass-through. Soto and Selaive (2003), in addition, also find openness and country size were significant factors in determining the pass-through; the higher the openness and the smaller a country are, the higher the pass-through is. Several econometric tests for a sample of Organization of Economic Cooperation and Development countries (OECD) concluded that the pass-through is nearly complete for energy and raw materials and is considerably lower than unity for food and manufactured products. The latter tests

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<sup>23</sup> Disyatat and Galati (2005) could not find any significant impact of daily foreign exchange interventions on the exchange rate of the Czech koruna using daily data from 2001 to 2002. By contrast, they find that interventions tend to aggrandize foreign exchange volatility. However, Hloub (2004) applied an event study approach on monthly data and showed that intervention tends to be effective and on a number of occasions, consistent with inflation targeting.

<sup>24</sup> Importing firms practicing LCP will alter their markup in response to changes in the exchange rate while those engaging in PCP will usually adjust their output and labors in response to changes in local prices, for more information see Jun and Ronald (1999).

explained why the pass-through is higher for developing countries, which import more sensitive goods than for developed countries (Fabrizio, Balázs and Ronald, 2006). Also, it had been proven that the pass-through is also higher for countries where the exchange rate served as a nominal anchor to inflationary expectations.

### 3.3. ASSET PRICE CHANNEL

This channel implied policy effects on relative asset prices and real wealth. Two theories described the working mechanism of this channel, Tobin's q theory of investment and theory of wealth effects on consumption (Mishkin, 1995)<sup>25</sup>. The following equation represents the later

$$MS \downarrow, AD \downarrow, D_e \downarrow, P_e \downarrow, \text{tobin's } q \text{ value } \downarrow, I \downarrow, Y \downarrow$$

Where MS is the money supply, AD is the aggregate demand,  $D_e$  is the demand for equities,  $P_e$  is the price of equities, I is the investment and Y is the level of output. This shows the monetary policy effects on the value of firm's Tobin q and thus put downward pressure on investment and decrease aggregate output. The next equation summarizes the wealth effect on consumption and level of production

$$MS \downarrow, D_e \downarrow, P_e \downarrow, \text{wealth } \downarrow, C \downarrow, Y \downarrow$$

Where MS is the money supply,  $D_e$  is the demand for equities,  $P_e$  is the price of equities, C is consumption, and Y is level of output (Modigliani, 1971). According to Modigliani, consumption spending is determined by the lifetime resources of consumers, which are made up of human capital, real capital and financial wealth. A major component of financial wealth is common stocks. When stock prices fall, the value of financial wealth decreases, thus decreasing the lifetime resources of consumers, and consumption should fall.

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<sup>25</sup> Tobin's q was developed by James Tobin (1969) as the ratio between the market value and replacement value of the same physical asset. One, the numerator, is the market valuation: the going price in the market for exchanging existing assets. The other, the denominator, is the replacement or reproduction cost: the price in the market for the newly produced commodities.





Another alternative view to the wealth effect was the so called liquidity effect. In line with Mishkin (2001), who argued that spending on durable goods and housing was influenced by consumer's Perception of the likelihood of running into financial difficulties that are affected by equity prices. Thus, an increase in equity prices decreases the danger of future problems related to debt and, therefore, encourages households to consume more goods and housing (Fabrizio, Balázs and Ronald, 2006).

### 3.4. CREDIT CHANNEL

This channel was divided into two main sub channels: bank lending and balance sheet channels. The first channel affected small firms that cannot deal with financial markets directly through equity and bonds. Hence they relied on financial intermediaries to complete this missing link, the transmission effect of this channel could be summarized in the following form

$$MS \downarrow, \text{Bank reserves} \downarrow, \text{Bank loans fund} \downarrow, I \downarrow, Y \downarrow$$

Contracting MS negatively affected the bank reserves which limited the share of loans available for individual agents and firms; thus investment decreased and so as level of output (Al Mashat and Billimeier, 2007).

This channel also transmitted the effect of the decrease/increase in a firm's net worth to economic variables. Assuming a case of a decreasing firm's net worth, the first result will be an increase in moral hazard as the owners would have low equity in firms so they might engage in riskier investment decisions that may end up for lenders to lose their money. The second one is that lenders may have less confidence in a firm's investment policy and how it utilizes people money, so they will decrease their lending (partnership or through equity and debt markets) that negatively affect financing investment decisions of the firms (Mishkin, 1995).

This channel also affected consumers; As consumers augured that they were subject to financial distress, they would rather be holding fewer illiquid assets and have more liquid financial assets because they knew that they might be forced to sell their housing and durables to offset their losses. As a result, they will suffer from high losses out of not receiving the real value of the sold asset (Fredric, 1995).

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### 4. OVERVIEW OF THE EGYPTIAN MONETARY REFORMS

This section discusses the major monetary reforms occurred in the last two decades, by dividing this period into three phases, the first one is ERSAP phase, the second one is the Transitional phase, and the last one is towards inflation targeting phase.

#### 4.1 ERSAP -FIRST PHASE- (1990-1996)

Contrary to Nasser (1997) who divided ERSAP programs into three basic groups: The first group aimed at economic stability through reducing the inflation rate and the budget deficit by reducing the public expenditures. The second group aimed at realizing an economic growth through a number of policies that concentrated at transferring the public expenditure





from the service sector to the productive sector and from consumption to investment. The third group included policies which aimed at realizing improvements in the growth rate of GDP such as trade liberalization policies, the improvement of money and capital markets, and the establishment of a free pricing system.

Unlike Korayem (1997) who classified ERSAP into 6 groups, public sector reform, investment policies, external policies, pricing, monetary and fiscal reform and social policies. By 1998, the International Monetary Fund (IMF) concluded that while transformation of the economy is far from complete, the authorities have continued the structural reforms and progress has been realized (Zaki, 2001). The next section will discuss ERSAP policies aimed at reforming monetary policy in order to ensure a wider degree of independence and transparency.

#### 4.1.1 MONETARY REFORMS

The IMF monetary policy recommendations revolved around setting a ceiling on net domestic credit of the CBE not the money supply of the monetary base. This is the best way to protect the balance of payments from excessive money creations. Ceiling is set by estimating a growth rate of the monetary base that is consistent with program expectations regarding the growth rate of output, the rate of inflation, the exchange rate and the behavior of velocity and money multiplier (Mussa and Savastano, 1999). Fund staff justified this approach on the ground that a deficit in developing country balance of payments -as a result of expansionary monetary policy- could happen by a drop in capital inflows or capital flight. Secondly, the financial data should be accurate and available as it has a vital role in performance criteria and allow the fund to determine whether the program conditions are met or not (MMZ, 2007).

Monetary reforms during this phase could be summarized as follows, (1) Terminating most of the policies that distorted the capital markets (such as, interest rate ceiling) to help ensure an efficient allocation of financial resources. (2) Restructuring and strengthening the financial position, as well as increase competition in the banking system to help mobilize more of domestic saving through competitive positive real interest rates <sup>26</sup>.

<sup>26</sup> It is the early bank assistance during the execution of the stabilizing program, that many believe it was the main reason why Egypt escaped from severe financial sector problems that many other developing countries in transition has experienced.

(3) Marginalizing the CBE rule in financing treasury deficits by allowing more independent and active monetary policy. In this regard, a market for government securities was developed; this market for Treasury bills provided an important substitute for treasure borrowing from CBE and it was considered an important monetary tool (Korayem, 1997).

The major difficulties that faced the monetary authority while applying the set of recommendations were, (1) promoting sharp reductions in level of net domestic credit that will push up level of interest rate, consequently raises the cost of capital formation for small and medium projects. In addition, these reductions will lead to appreciation of Exchange rate that will negatively affect a country's export balance thus raises the cost of country internal debt and put an upward pressure on price on long run<sup>27</sup>. Fund's program highly stressed the importance of the monetary authority to control money and credit, however (2) volatility of money demand in most developing countries, as well as, difficulty of controlling money supply with underdeveloped financial system were considered obstacles for successful implementation of program policies <sup>28</sup>. (3) Heavy reliance on siengorage prevented conducting an independent monetary policy (Zaki, 2001).

#### 4.1.2 INFLATION UNDER ERSAP

Korayem (1997) organized the main factors that caused a surge in inflation during this phase, into demand pull and cost push factors. Cost push factors included (1) indirect taxes, like sales tax that was introduced in 1990/1991, the value added tax in 1995 and the increase in excise tax on cigarettes and other items. (2) Adjustment in prices of some goods and services (e.g. prices of cigarettes, flour, telephone subscriptions, electricity, petroleum products, rail passenger prices and rail freight tariffs), also reducing subsidies on fertilizers and pesticides and increasing and elimination of subsidies on tea. (3) Devaluation of Egyptian pound in Feb.1991 had an effect on increasing price of imported goods

<sup>27</sup> It has been argued that Mexico experience with monetary targets has produced similar results, see Ramirez (1997).

<sup>28</sup> Fund staffers also pointed out that the main problem lies in the absence of transparency of policy details during the program execution that mainly depends upon the inflexibility of revision numerical targets as new information become available. However, Egypt experience of monetary reform ended up with greater independence of central bank and end of siengorage, for more information see Mussa and Savastano (1999).





and raised domestic production cost of many other goods and services. (4) Sharp increase in interest rate that increased cost of production and borrowing capital (IMF, 1992, and World bank, 1991b). On the other side, Demand pull factors included (1) significant fall in domestic credit, annual growth rate fell from 25% in 1989/1990 to only 1.5% in 1991/1992, then later increasing to 11.7% in 1993/1994 (CBE, 1994)<sup>29</sup>. Regarding the possible inflationary effects on aggregate demand, real wages in the government sector haven been falling in Egypt since seventies. Wages in the private sector seemed to be linked to public sector. So wages couldn't be considered an inflationary factor in Egypt during the first era (IMF, 1992 and World bank, 1991b)<sup>30</sup>.

ERSAP activated cost push inflation factors and impeded demand pull inflation factors. Cost push factors have an indirect impact on raising prices of other goods and services, since producers have to raise their profit margins, in response to, the increase in production cost. From table 4, it can be concluded that hindering inflation was one of the failures of ERSAP program, as inflation rate hovered during this phase around an average 13 %, in spite of success of fiscal reforms to reduce deficit ratio of GDP from -2% to 3.4% in 1995 and to increase exports (as a percentage of GDP) from -10.562 % in 1988 to 10.562 % in 1995<sup>31</sup>.

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<sup>29</sup> This had a strong reducing effects on growth rates of output and unemployment. GDP growth rates fell from annual average of 2.3% in 1990/1991 to 0.3 and 0.5 in 1991/1992 and 1992/1993 respectively. Also, annual growth rate of employment fell. Monetary policy was relaxed to encourage investment and output growth by lowering interest rate and relaxing credit ceiling, that resulted in a rise in domestic credit in 1993/1994 and 1994/1995.

<sup>30</sup> In private enterprise of 10 workers or more, employees who receive monthly wages of 300 and more in Dec. 1990 represented 26% of total compared to 26.5% of employees in the public sector receiving the same earnings (World bank, 1991 b).

<sup>31</sup> According to Korayem (1997) inflation rate reduction considered to be one of the goals that ERSAP failed to accomplish, despite the official data of CPI announcement, Korayem stated that CPI was biased downwards because of commodity basket chosen and the unrealistically low prices used for calculating the price of some goods and services like house rents, education and health care.





Table 5: Evaluating ERSAP using before and after approach (Selected economic indicators).

	Pre Program		Post Program						
	88	89	90	91	92	93	94	95	96
Real GDP (domestic currency) <sup>a</sup>	<b>219.5</b>	<b>226.1</b>	<b>231.4</b>	236.3	237.0	243.9	254.1	265.5	278.4
Per capita GDP (units, domestic currency)	<b>4,409.2</b>	<b>4,443</b>	<b>4,506.6</b>	4,508.	4,429.8	4,465.9	4,558.5	4,666.3	4,784.7
Inflation (%) <sup>b</sup>	<b>15.1</b>	<b>20.1</b>	<b>21.2</b>	14.7	21.1	11	9	9.3	7
Cash surplus/deficit <sup>c</sup>		-	-	2.5	-1.2	4.2	3	3.4	-1.4
Exports (% GDP)	<b>-10.5</b>	<b>14.154</b>	<b>7.179</b>	12.085	6.856	2.443	3.473	10.562	-10.5
Imports (% GDP)	<b>-42.19</b>	<b>--</b>	<b>10.6</b>	7.1	-9.5	6.9	3.1	10.7	4.4
Total Inv. (% GDP)	<b>34.9</b>	<b>31.7</b>	<b>29.4</b>	23.9	19.7	16.2	20	19.6	18.2

<sup>a</sup> Numbers in billion (Domestic currency), Base year: 2001/02.

<sup>b</sup> Average consumer price index

<sup>c</sup> Cash surplus or deficit is revenue (including grants) minus net expense, minus net acquisition of financial assets.

Source: IMF, World economic outlook.



**4.2. TRANSITIONAL PERIOD -SECOND PHASE- (1996-2005)**

During 1990 through 2005, with the exception of 1996/1997, the CBE has continually focused on achieving two principal objectives, price stability and exchange rate stability (MMZ, 2007). Since the beginning of the 1990s through 2005, frequent changes have occurred in the supervision and management of the monetary policy in Egypt. They involved modifications in the operational and intermediate targets of the CBE as well as in the choice of the monetary instruments used to achieve the operating targets. CBE principal monetary objectives included several other goals such as increasing the level of output, controlling liquidity growth, raising foreign competitiveness, promoting exports and establishing confidence in the national currency (MMZ, 2007).

Al Mashat and Billimeier (2007) considered the various objectives assigned to the CBE -in addition to maintaining low inflation and preserving stable exchange rate- were conflicting. For instance In 1992/1993, the CBE aimed at controlling the monetary expansion through implying a contractionary policy, it also called for a reduction of the interest rate on the Egyptian pound to encourage investment and promote economic growth through implying an expansionary stance (CBE, 1992/1993). Starting the second stage of the economic reform program in the following year 1993/1994, while adjusting the goals of the monetary policy to promote growth in the productive sectors as a mean of stimulating aggregate productivity (CBE, 1993/1994). The objective swayed back to the expansionary monetary control during the 2-year period 1994/1995 to 1995/1996. In 1996/1997, the CBE objective reverted once more to the promotion of economic growth (MMZ, 2007).

During the second phase -save 2004/2005- the two operational target components, management of nominal interest rates and control of banks excess reserves in local currency at the CBE. while M2 (broad money) was chosen to be the intermediate target to express the annual domestic liquidity. The first problem concerning bank excess reserve were very volatile because of dominating of state owned banks and the weak competition in the banking sector. This created rigidities in interest rate structure and the existence of NPLs (non-performing loans) all intensified the disconnecting between price measures and macroeconomic outcomes (Al Mashat, 2008).

After the liquidity problems that surfaced in the market during 2000 and 2001, the CBE supported the launch of a domestic currency interbank market that enhanced the degree of market determination of the short-term interest rate. Before 2001, the short-term policy rate only fluctuated within a very limited range, which proved it was a poor measuring tool of the monetary policy stance. The 3-month Treasury bill (TBs) rate was also considered, a short-term policy rate (El Refaie, 2001).<sup>32</sup>

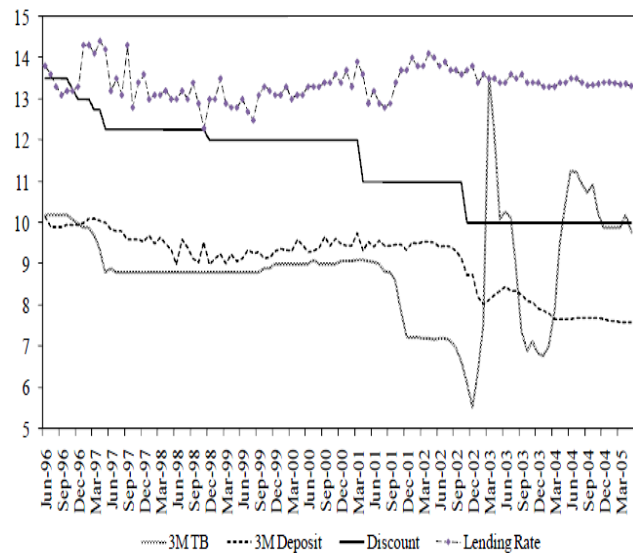


Figure 1: Interest rate developments (1996-2005). “Nominal terms in percent”  
 Source: CBE, annual report (2005)

**4.2.1 MONETARY TOOLS**

CBE relied on a number of tools during the second phase to achieve monetary goal. The first tool is the discount rate; during this period discount rate decreased from 19.8 % in 1992 to 9 % in

<sup>32</sup> During this period, interest rates on TBs provided some indication of market conditions as they served as a foundation for open market operations (OMO), but given their role in fiscal policy, relying on it could be misleading as a monetary policy instrument.





the beginning of 2006 in order to promote investment. For the purpose of abating rigidity of discount rate, it was linked to TB interest rates, resulted in steady decline in TB interest rates from 1992 through 1998 and began to recover again in 2002<sup>33</sup>. The second tool is the interest rate. By January 1991, CBE liberalized interest rate on loans and deposits, with constraining the 3-month interest rate on deposits for not falling below 12% per year this ceiling was cancelled during 1993/1994- however with the continues reduction in discount rates, interest rate on loans after one year or less also declined during 1995 to 1999, before they started to rise again in 2000. However the demand on local currency deposits was not affected significantly, because interest rate on Egyptian pound was slightly higher than other foreign currencies (Al Asrag, 2003).

The third tool is open market operation (OMO), which was considered a highly important instrument to control liquidity level and it also affected short term interest rate. The fourth tool is, repurchasing operations of Treasury Bills (REPOs) that were used in order to provide liquidity and to stimulate economic growth. The value of these operations increased to reach 209 billion LE in 1999/2000, however relying on REPO has declined till it was replaced with CBE notes in Aug. 2005. The fifth tool was Required reserve ratio (RRR) on local and foreign currency was used during this era, the domestic and foreign RR ranged between 14-15% and 10-15% respectively (MMZ, 2007).

The last monetary tool is Exchange rate. At the beginning of 1990s, Egypt officially implemented managed float regime, with exchange rate being the nominal anchor for monetary policy. In Feb. 1991 a dual exchange rate market which included primarily restricted market and a secondary free market were introduced to raise foreign competitiveness and to simplify exchange rate system with the purpose of elimination or limiting black market operations. The two markets were unified in Oct. 1991, resulted in highly stable appreciated exchange rate for the Egyptian pound against US during mid-1990s that led IMF to ask for 20-30% devaluation of exchange rate, but Egyptian government refused to perform any devaluation to avoid the

<sup>33</sup>The discount rate is typically considered a poor operational monetary policy instrument because it is usually subjected to strong administrative control, and also given the role of treasury bills interest rates in fiscal policy, it would be misleading to consider them as a monetary policy instrument. Thus, shocks in the discount rate do not always account for variation in the monetary stance, see Al Mashat and Billimeier (2007).

resurgence of inflation. Since then up to 1998 exchange rate was freely traded in a single exchange market with limited intervention by the authorities to keep exchange rate against the US dollar within acceptable limits.

#### 4.2.2. DIFFICULTIES AND CHALLENGES

The second phase was characterized by tight monetary stance, that tightness based on the observed slowdown in the growth of M2 and the reserve money. By 1997 the Egyptian economy has started to feel this crunch in liquidity owing to external and internal shocks. Internal shocks occurred due to (1) extending of bank lending especially to real estate investments-in the absence of matching demand- and the relative increase in housing supply made it difficult to repay back their loans, also (2) Conducting huge projects (such as, Toshka- salam) in the same time that were financed from bank deposits that intensified and leveraged the fiscal debt, above all (3) Accumulating large government debt to public and private constructing firms.

External shocks were (1) Asian financial crises in the beginning of 1997 that lead to several negative outcomes such as, flight out of foreign currencies resulted in sharp contraction in the stock market rates and transactions, reduction in foreign investments, and reduction in exchange rates of some of Asian currencies hence stimulated importing from these countries. Terrorist attacks during the years 1996/1997 resulted in the (2) Reduction of tourism returns-from 3.6 billion to 2.9 billion. (3) fall in oil prices-from 15.6\$ per barrel to 9.7\$ that negatively affected petroleum exports and (4) the decrease of worker remittances from abroad by the end of 1990s (Hassan, 2003).

Central bank first response was to let commercial banks absorb the increase in foreign exchange demand and let domestic credit accelerates to a higher levels than that were prevailing before shocks (around 25 percent annually through end-1999 on average) (Ugo, 2001). Another consequence of the previous shocks; was an increase in demand on US dollars, lead to shortage of US dollars that in return created losses in reserves by almost one fourth in during 1998/2000 period (from 18 billion to 14 billion US dollars)<sup>34</sup>.

<sup>34</sup> The generated dollar shortage led to a black market of foreign currency and to a general situation of uncertainty that increased the expectations for depreciation and further fueled demand for foreign currency. For further details about other emerging countries experience see Ugo, (2001).





The government adopted an expansionary fiscal policy that led to budget deficit of 4% of GDP (as a result of selling government bonds to central bank). On the other side, domestic credit continued to grow at high and rising while interest rates remained flat. For exchange rate, On January 2001, Egypt replaced the de facto Egyptian pound to US dollar peg with an adjustable (crawling) currency band (a band of  $\pm 1$  percent was established around the central rate but it was eventually widened to  $\pm 3$  percent in August 2001.). Egyptian pound after this lost 48% of its value against US dollar over the period 2003/2004<sup>35</sup>. The adjustable peg was swapped with a floating exchange rate regime on January 2003. Under free float, banks were permitted to determine the buy and sell prices of exchange rate and CBE intervention only occurs to correct major imbalances and sharp swings (Hussein, 2003). However, the lack of credibility in this new system and public expectations of a further depreciation led to the hoarding of foreign exchange receipts and speculative activities in face of an inoperative interbank market. This, in turn, caused shortages of foreign exchange in the official channels which led to the reemergence of the parallel (black) market<sup>36</sup>.

By mid-2004, it was clear that a formal framework for the interbank foreign exchange market was essential to achieve a smoothly functioning foreign exchange market. Hence, in December 2004, the CBE officially launched a new interbank foreign exchange market that accommodated all foreign exchange transactions between banks (Al Mashat and Billimeir, 2007)<sup>37</sup>.

#### 4.2.3. INFLATION DURING THE SECOND PHASE

Between Jan. 2001 to Dec. 2001, Inflation rate based upon CPI and WPI was relatively low around 2.5 percent % and 4 % respectively, with minimal signs of volatility. The low and stable inflation rates during this phase can be traced back to the prevalent exchange rate regime at the time, which in a way insulated domestic prices and in turn inflation from exchange rate shocks that could have been transferred to the WPI through import prices. Consequently, given the clear connection between the WPI and the CPI, these changes would have been transferred to the CPI. The exchange rate regime, however, limited degree of exchange pass-through to domestic prices (Al Mashat, 2007)<sup>38</sup>. The situation changed with the beginning of 2002 and in the aftermath of the first attempt at floating the exchange rate in January 2003. Between January 2002 and April 2004, CPI and WPI inflation followed a steep upward trend to reach a peak of 17.2 % and 21.1 % respectively. The higher inflation reflected the lagged pass-through pressures from a series of step devaluations, amounting to cumulative depreciation of 29 % in the nominal EGP/USD exchange rate that took place between January 2000 and December 2001 and was yet amplified by the shifting to a managed float exchange rate regime in 2003.

Although CPI inflation rate showed a mild increase compared with WPI, Central agency for public mobilization and statics (CAPMAS) acknowledged that CPI underestimated the actual rate of inflation and initiated a revision for the series, after this revision, CPI reached double digit inflation rate, but still lower than WPI rates (Noureldin 2005 and Ugo 2001)<sup>39</sup>.

<sup>35</sup> For a detailed graphing of changes occurred in nominal and real exchange rates, see Ugo, (2001).

<sup>36</sup> Following the floatation, the pound depreciated and lost 50% of its value. As a result, inflation rates rose to 18% in 2004. Despite the liberalization of Egyptian pound, CBE continued to maintain exchange rate stability as one of the key objectives during 2004-2005 (Abd El Ghaffar, 2007).

<sup>37</sup> The US dollar selling rate, announced by the CBE, declined to LE 5.7944 at the end of June 2005, indicating a rise of 7.17% in LE during the year. Likewise, the weighted average of the US\$ exchange rate in the interbank market decreased to LE 5.7842, while the LE rose by 7.46% as from the date of launching the interbank market.

<sup>38</sup> The effect of depreciation in second half of 2000 was followed by a reduction in inflation and led to an exports boom, then in the beginning of 2001, the central bank rate was adjusted by approximately 1%, while black market transactions reported to be almost 10% above the bank rate, the depreciation of August 6 helped to make the official exchange rate in line with market rate. For further analysis of exchange rate regimes, see Al Mashat and Billimeir, (2007).

<sup>39</sup> Galal and El Shenawy, (2004) tried to explain this divergence between WPI and CPI rates, although they both behaved similarly during past shocks (such as, devaluation of exchange rate after implementing ERSAP in 1991). They argued that this divergence depends on the nature of how the two indices were constructed (WPI relies more heavily on tradable goods). Also, the increase of the government subsidies could be a reason for this divergence. Rabanal (2005) find a different reason for this divergence that the WPI reacted significantly to changes in the nominal exchange rate after 6–12 months, whereas the consumer price index (CPI) reacts after 12–24 months, but not significantly. This result was



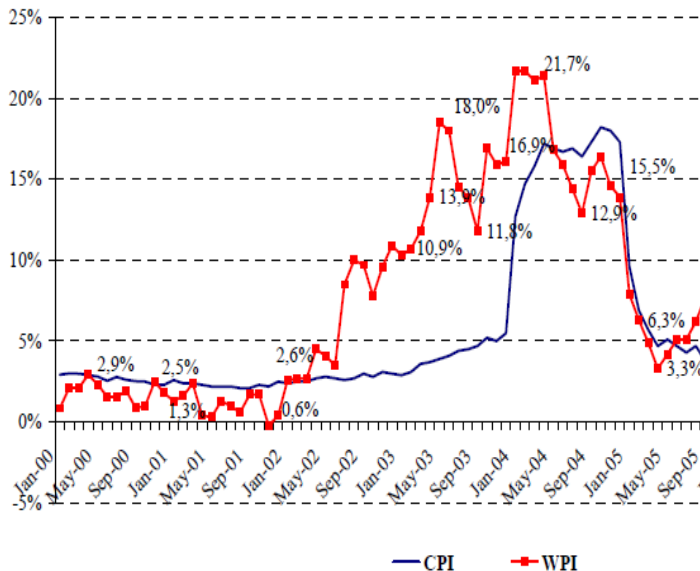


Figure 2: CPI and WPI inflation rates. "Nominal terms,(05-06)  
 Source: MOFT, annual report (2005)

During 2004 and the beginnings of 2005, CBE tightened the monetary policy to slow down inflation rates and it succeeded in reducing inflation rate to single digits. As the effects of the depreciation in early 2003 gradually cleared away, and confidence in the CBE was restored, CPI and WPI inflation rates dropped significantly between mid-2004 and early 2006, averaging 7.5 % 8.1 %, respectively.

In 2005, with the continuing monetary expansion reflected in the average growth rates of 14 and 17 percent in M2 and M2d, respectively, one would have expected inflation to shoot up again as it did before following similar growth rates of the money supply. This was not the case, however, inflation fell from 7.9 percent to 2.7 percent over 2005, and reason behind this was the stabilization of the nominal exchange rate after introducing interbank exchange market.

### 4.3. TOWARDS INFLATION TARGETING-THIRD PHASE-(2005-2010)

interpreted as evidence of specific structural weaknesses of the CPI measure used until 2003.

"To Put in place a formal inflation targeting framework to anchor monetary policy once the fundamental Prerequisites are met" (CBE monetary policy statement, 2005). "To Set the targets of the monetary policy in a way that realizes price stability and banking system soundness, within the context of the general economic policy of the State" (Presidential Decree No. 17, 2005).

#### 4.3.1. INSTITUTIONAL PREREQUISITES FOR IT

Bernanke and others (1997) connoted that IT is a framework for monetary policy characterized by (1) the public announcement of official quantitative targets (or target ranges) for the inflation rate over one or more time horizons, and (2) the explicit acknowledgment that low, stable inflation is monetary policy's primary long-run goal. Among other important features of inflation targeting are (3) efforts to communicate with the public about the plans and objectives of the monetary authorities, and, in many cases (4) managing the money supply that strengthen the central bank's accountability for attaining those objectives. On the other side, Mishkin, (2007) defined IT in the same way but he added that IT is, an information inclusive strategy in which many variables, and not just monetary aggregates or the exchange rate, are used for deciding the setting of policy instruments<sup>40</sup>.

The first prerequisite is the central bank independence. Some economists (see among others, Grilli, Masciandaro and Tabellini, 1991) have divided the concept of independence into political and economic independence, and some other economists have divided it into goal and instrument independence, the latter division is mostly used in the economic literature. Goal independence reflects the central bank's freedom to set, given a specific circumstances and a strategy adopted by the government, the prioritized objectives. Central bank independence requires instrumental independence in the first place; which means that the central bank has the freedom to choose the means by which it seeks to accomplish the goals assigned to it. In particular, the central bank has a free choice to finance or not to finance the budget deficit. In the same manner, the central bank should not be

<sup>40</sup>The above definitions are related to what's called full-fledged IT (FFIT). Some emerging economies have used lighter versions of IT, either as preparation for FFIT or because of concerns about the ability to adopt FFIT. These lighter versions might involve continuing some element of exchange rate targeting in addition to inflation targeting, or being less transparent in their communications strategy than is typical for FFIT (Stone, 2003).



required to apply special low interest rates on public debt or to maintain a particular nominal exchange rate. Additionally, there should not be any legislative pressure on the central bank to target any distinct variable i.e. Higher growth rate, other than targeting inflation (Abd El Ghaffar, 2007).

The second prerequisite is transparency. The Central Bank has to build its credibility as a monetary authority linked to price stability, which requires actions consistent with the IT framework amalgamated with high levels of transparency and communication with the public. A transparent inflation targeting framework involves communicating the central bank's objectives, and policy decisions to the public. This is usually done by publishing a regular monetary policy report, which includes not only information about the current state of the economy, but also the bank's prediction on inflation and other variables and its own analysis that are based on these forecasts. Indeed, there is quite some evidence for a negative relationship between central bank independence and inflation (Eijffinger and Han, 1996).

The third prerequisite is accountability. A central bank, once given the independence to choose the means to fulfill its specified task, it has to become accountable for its actions to the public and to its elected representative, concerning the successes and failures of its policy.

#### 4.3.2. CBE INSTITUTIONAL REFORMS

The Coordinating Council on Monetary Policy headed by the Prime Minister was established in January 2005, to ensure that government policies are consistent with the objectives of monetary policy. In its first meeting, the objectives of monetary policy and the importance of CBE independence were discussed. The CBE adopted inflation-targeting framework to anchor the monetary policy, once the fundamental prerequisites are met. This will further enhance the predictability and transparency of the monetary policy in Egypt. During the transitional period, the CBE will use short term interest rates to meet its inflation target, keeping a close eye on the developments in credit and money supply, as well as other factors that may influence the inflation rate (CBE economic reviews, various issues).

Following the institutional reforms to meet the needed prerequisites, CBE established a Monetary Policy Committee (MPC), which convenes on Thursdays every six weeks to decide on key policy rates. The MPC consists of nine members: the Governor, the two Deputy Governors, and six members of the

CBE's Board of Directors. This unit was established to provide objective monetary policy analysis, assessment, and enhances communication with the market through its research and other functions, and as a result MPC's decisions are communicated to the market through a monetary policy statement, which is released on the CBE's web-site after each meeting.

In spite of, the efforts to meet the needed institutional prerequisites announced clearly in Law No. 88/2003 and its amendment that regulate the activities of the CBE, according to the decree, the bank shall, in agreement with the government and through a coordinating council, "set the targets of the monetary policy in a way that realizes price stability and banking system soundness, within the context of the general economic policy of the State"<sup>41</sup>. Under this "unified banking law" approved by the People's Assembly in April 2003, the Governor of the Bank reports to President rather than to the prime minister, which should strengthen central bank independence. However, the same law states that the monetary policy decisions are taken by the CBE's MPC, which has nine members: the Governor of the CBE, the two Deputy Governors, four representatives of the government, a representative of the Capital Market Authority and for a representative of Misr Bank which is a state-owned bank. The official representation of the government make some doubts on the decision making, the extent of government interference in the Bank's policies (Abd El Ghaffar, 2007).

In addition to composition of the MPC, there are some articles in the CBE law and its amendments that suggested that the bank is only partially independent. Article 39 states that the CBE "shall extend financing to the government, upon its request, to cover the seasonal deficit on the general budget." It also stated "the net profit of the Bank shall be transferred to the Public Treasury of the State, after deducting the workers' profit share as determined by the Board of Directors of the Bank and the reserves it determines to form"<sup>42</sup>. This article is an implicit sign for fiscal dominance. Table 6 shows the Cash surplus/deficit ratio for Egypt relative to other countries, and it can be observed the gradual increase in this ratio from -6.4% in 2005 to -8.2% in 2010, which corresponds with the conclusion that fiscal dominance is still a critical issue in spite of reforms to alleviate it.

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<sup>41</sup>Presidential Decree No. 17, 2005

<sup>42</sup>Presidential Decree No 64, 2004





Table 6: Cash surplus/ deficit ratio (% of GDP), developing countries

	2005	2006	2007	2008	2009	2010
Egypt <sup>a</sup>	-6.4	-7.2	-4.6	-6.4	-6.6	-8.2
Chile	.6	.7	.8	.7	4.5	0.3
Morocco	2.5	.6	.5	.9		1.8
Tunisia	3.1	2.7	2.2	0.7	1.5	2.6
Thailand	.5	.9	.1	.5	3.1	2.7

<sup>a</sup>(Cash surplus or deficit is revenue (including grants) minus expense, minus net acquisition of nonfinancial assets).

Source: world Bank, countries economic indicators.

Regarding the degree of CBE transparency, an effort has been made recently to intensify communication with the public through the regular publication of monthly, quarterly and annual reports that are available on the CBE's website. The country's general economic situation is analyzed in the bank's regular publications, but these reports do not compare the outcomes of the monetary policy against the initial declared objectives, as this does not help in building credibility. In the current state, there is concern about the quality of available data (coverage, periodicity, timeliness, integrity and access by the public). One of the positive steps in this direction was Egypt's subscription to the IMF's Special Data Dissemination Standard (SDDS), which aims at implementing international standards in statistics. However, the absence of a statistical office in Egypt that is fully independent had negative effects on the degree of credibility of the CBE announcements (Abd El Ghaffar, 2007).

#### 4.3.3. MONETARY PREREQUISITES FOR IT

According to Paul, Miguel, and Sunil (1998), Scott (2009), and Masson, Savastano and Sharma (1998), one of the significant prerequisite of adoption of FFIT is the exchange rate flexibility<sup>43</sup>. IT cannot succeed unless a flexible exchange rate

regime is put in place; this requires the absence of any targeted nominal variable other than inflation rate, such as wage, level of employment or nominal exchange rate. So there should be only a sole target within the monetary system. In presence of capital mobility, the exchange target subordinates the monetary policy and lead to deviations from the targeted inflation rate. On the other hand, having more than one target may destroy the credibility of the central bank. However, emerging countries have greater concerns about this prerequisite compared with industrialized countries. According to Fredric (2002 and 2004), the flexibility condition may be limited and some importance might have to be placed on the exchange rate objective<sup>44</sup>.

Deep understanding of MTMs and the degree of pass through of each channel is also a crucial prerequisite. Monetary authority have to be able to model inflation dynamics in the country and to accurately anticipate inflation, they also must have full knowledge of how monetary policy affects nominal and real variables and the time lag involved between a policy and its impact on inflation and output.

#### 4.3.4. CBE MONETARY REFORMS

On June 2, 2005 CBE has developed a new framework for the monetary policy, marked with transparency to achieve monetary targets. This framework leaned on the use of the overnight interest rate on inter-bank transactions as an operational target for the monetary policy, instead of the excess reserve balances of banks. Referring to table 7, The CBE determined the outer bounds of the corridor; this system became effective as of 5 June 2005, when the CBE MPC set the overnight deposit and lending rates at 9.5% and 12.5%, respectively. The MPC cut the overnight lending and deposit rates several times, and narrowed the corridor between the two rates to 2.0% against 3.0% at the outset of this system. Hence, the overnight deposit and lending rates reached 8.0% and 10.0%, consecutively, and the meeting on

<sup>44</sup>This condition may limit the ability of Egypt to adopt a full-fledged IT (FFIT). Some emerging economies have used lighter versions of IT (Like Chile) during the first transitional phase, either as preparation for FFIT or because of concerns about the implications of committing themselves to FFIT. These lighter versions might involve continuing some element of exchange rate targeting in addition to inflation targeting, or being less transparent in their communications strategy than is typical for full-fledged inflation targeters, see Scott and Stone, (2003).



22 January 2006, resulted in reduction of the CBE lending and discount rates by 1% <sup>45</sup>.

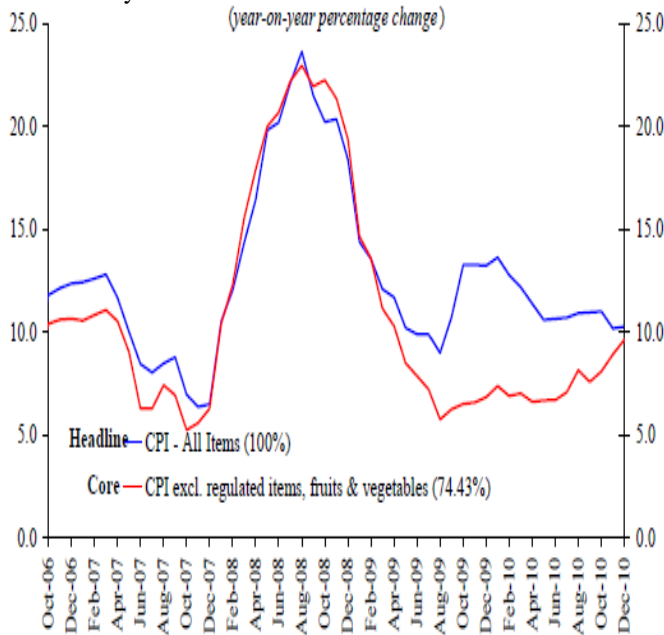


Figure 3: Quarter Core and headline inflation during the last phase  
 Source: CBE inflation note, Dec. 2010

CBE continued during the third phase, to absorb the excess liquidity at banks, using the indirect instruments of the monetary policy through OMO. The CBE introduced new instruments, CBE certificates of deposits (CDs), with maturities of one year and less, and CBE notes with maturities over one-to-two years. CBE announced in a press conference on 25 Oct 2009, the introduction of a published core inflation index that excluded fruits, vegetables and highly volatile components as well as subsidized items, so as to ease separating trends of inflation from transitory movements.

<sup>45</sup>Those decisions affected the overnight interest rates on interbank transactions, as the weighted average in June 2006 posted 8.2%, against 9.7% in June 2005. Such decisions were reflected also on the interest rates on loans of one year-and-less which reached 12.5%, against 13.3% at the end of June 2005 (CBE economic reviews, 2005). To be mentioned that, Since the introduction of the corridor, the domestic currency overnight interbank rate has become less volatile (Al Mashat and Billimier, 2007).

The desired degree of successfulness in meeting the needed monetary prerequisites still not completed till the mean time. Egypt had multiple exchange rate systems. At the beginning of the 1990s, Egypt officially implemented a managed float regime, with the exchange rate acting as a nominal anchor for monetary policy. This resulted in a highly stable exchange rate for the Egyptian pound against the US dollar and a black market for foreign exchange (Hassan, 2003). After two significant devaluations of the Egyptian pound in 2001 and 2002, the CBE announced in January 2003 the floating of the exchange rate and abandoning the managed peg system of the central rate to US dollar. Following this decision, The pound depreciated and lost 50% of its value and inflation rate rose to 18% in 2004. The introduction of interbank currency exchange system in January 2005, stabilized the Egyptian pound against other currencies, but liquid security markets still have to be developed to reduce reliance on CBE for intermediary transactions. The following table summarizes the change in selected economic variables resulted from CBE reforms during the transitional period of IT



Tables 7: Change in monetary indicators during the third phase

Eco/Y	05	06	07	08	09	10	
CPI <sup>a</sup>	27.36	32.71	47.245	64.478	91.195	13.57	
WPI <sup>b</sup>	00	07	18	43	35		
Change in CPI %	.80	.19	0.95	1.70	6.24	1.7	
Change in WPI %	.26		0.28	1.1	5.59		
Domestic liquidity Growth rate %	3.6	3.5	8.3	5.7	.4	0.4	
Meeting dates	June05	Dec.06	Aug.08	Sep08	June09	July 09	Sep 09
deposit rates	.5	.75	1	1.5		.5	.25
lending rates	2.5	0.75	3	3.5	0.5	0	.75

<sup>a</sup> CPI base year 2000

<sup>b</sup> WPI base year 2005

Source: CBE, annual reports and World Bank data records.

Table 7 shows the increase in inflation, is accompanied by an increase in lending and deposit rates to assuage the inflationary pressures. Notice that MPC decided after the last meeting held in Sep.2009, to keep lending & deposit rates unchanged. The Components of domestic liquidity (M2) are money supply (M1) that forms 22% and quasi money that forms 78% of the total domestic liquidity (M2). During the fiscal year 2005/2006 data were based on new weights (99/2000=100), then developments in FY 2008/2009 occurred (considering Jan.2007=100 as the base year).<sup>46</sup>

CPE announced the issuance of PPI index instead of WPI on Sep. 2007 using 2004/2005=100 as the base year. This rise in inflation (CPI) 2007 was attributed to the second round effects of supply shocks. These shocks were related to oil subsidy cuts and the avian flu (that led to a decrease in poultry supply and a surge in its prices) and the spillover effects in the prices of meat and fish, and many other goods. Add to this the inflationary demand pressures associated with higher economic growth, while The noticeable rise in inflation during the FY 2007/2008 was mainly owed to the successive increases in food prices on the back of the continuous surge in international prices and the propagation of the effects of higher food prices to other commodities.

The rise in inflation during the year was also ascribed to raising the prices of some oil products (including benzene 92 and 90) by virtue of May 2008 decrees. This was associated with a pickup in the prices of electricity, gas and fuel by 11.5 %, and transportation by 20.1 %.<sup>47</sup> Most of the (PPI) increase was in the

<sup>46</sup>A new series of CPI was introduced in August 2010. The weights involved in the formation of the Index were taken from the results of the 2008/2009 survey of income, expenditure and consumption using January 2010 as a base period.

<sup>47</sup>The higher inflation was also attributed to the increase in the prices of education services by 37.7 % (against 11.1 %) owing to the abolishment of tax exemptions granted for educational entities. Another contributing factor was the 12.1 % rise in the prices of health services (against 2.9 %) as a result of the increase in the prices of hospital services by 21.2 % and the fees of out-patient services by 25.2 %. Add to this, the inflationary pressures that might be associated with higher economic growth (CBE economic review, 2009).



prices of cereals and legumes; rice; oils & fats; crude oil; stone, sand & clay; iron & steel; cement manufacturing; wood & products; cement and other main commodities.

The moderation of inflation during FY 2008 the reporting year was largely a result of the decrease in the share of the group of food and beverages in headline inflation. This came as a result of the decrease in the prices of most components of this group, driven by the successive declines in the world prices of several food commodities during July/Dec. 2008. Nevertheless, this global trend had not been fully reflected on domestic prices due to the downward price rigidities in the domestic market. Thereafter, as of Jan. June 2009, this downward trend was reversed. During FY 2009, the increase in inflation rate was particularly pronounced in the prices of food and non-alcoholic beverages that added 5.5 % points to headline inflation (compared with 3.1 points in the corresponding quarter a year earlier). Contrary to the downtrend of international prices of food and non-alcoholic beverages during Q1, domestic prices climbed to 11.5 % (from 6.5 %), reflecting their then weak response to international price trends. Core inflation has risen from 5.9 in Aug. 2009 to 6.6% in Nov. 2009, but still remains within CBE comfort zone (6-8%). An increase in the price of fruits and vegetables (which is excluded from the core

Figure 5: Gap between headline and core inflation indexes (The wider the gap, the more is the price of excluded volatile components)

Source: HC brokerage (2009)

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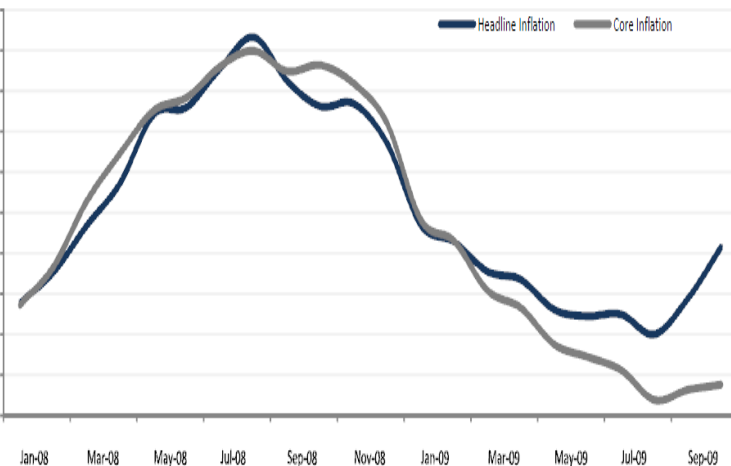
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CPI index) has been the main driver of the hike in inflation and as a result to form a gap between headline and core inflation.





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## 5. CONCLUSION AND POLICY IMPLICATIONS:

Follows Saleem, (2010), Kara, (2006), Abd El Ghaffar, (2007), this research concluded that inflation is monetary, and that the CBE can control inflation through diversifying objectives while prioritizing the inflation rate via the interest rate. It needs to keep an eye on the output-inflation gap, exchange rate fluctuations, and stability in the financial market. IT in itself is not a cure for all problems, so it may be wise not to rush full-fledged inflation targeting, and to consider the current transitional period with a great concern. This intermediate regime should have some of the basic ingredients of inflation targeting. This research concluded that CBE independence should be at the top of the list. Despite of the structural and regulatory changes occurred in the structure of the CBE, it can still be seen as partially independent, with some indicators pointing to an implicit fiscal dominance, which creates an obstacle towards targeting inflation rate. In order for the CBE to ensure a degree of independence, transparency and accountability that allow it to adopt de facto full-fledged IT or even a lighter version of IT. It is recommended that CBE should take into account the following suggestions:

1- The central bank should pursue the concept of flexible inflation forecast targeting. This implies that central bank should ensure the stabilization of both output and inflation rates around their targets.

2- The central bank should be responsible for two missions: the first one is to responsible for the achievement of its goals, this means that every 6 months central board should announce a list of doings in front of the legislature and the public. The second mission is that central bank is required to explain and justify its monetary policy decisions in front of the legislature and the public.

3- A major step to enhance CBE transparency and credibility would to issue an Inflation Report that includes an assessment of current and future economic developments for the public.





4- The existence of well-developed financial markets, through more liberalized banking services, and open door policies for world banks to export services in Egyptian financial market. This is a necessary condition for financial stability and also for the central bank to pursue an independent monetary policy. A well-developed market makes it possible to use indirect instruments; otherwise the effectiveness of the monetary policy would be reduced.

5- Concerning the current political and financial status of the Egyptian economy after the revolution, pointing to an increase in budget deficit, low level of productivity, downward forces on the value the Egyptian pound exchange rate because of the capital flight out, reduction in foreign reserves and limited revenues from Tourism, all these results make it wide harder for the CBE to ensure independency and to avoid fiscal dominance. As a result the intermediate stage of IT might take much longer than was expected, and inflation rate might be subject to upward pressure from exchange rate fluctuations.

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