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Measuring the Degree of Central Bank Independence in Egypt

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Abstract

The past few years have witnessed a trend of increased delegation of authority to central banks. Increasing central bank independence is a recommended strategy for governments to establish a credible commitment to price stability as the final objective of the monetary authority, even at the cost of other objectives that may be more appealing to the political authorities. Existing literature on measuring central bank independence focuses on developed countries where quantifying the independence of central banks is easier, since quantifying the legal charter is sufficient to reflect the degree of central bank independence. However, in developing countries this task is thorny as quantifying the legal charter is often insufficient, since laws are often incomplete, ambiguous, or simply not respected. Thus, quantifying other indicators that reflect actual practice is required to capture any divergence between legal and actual practices. This paper attempts to quantify the degree of independence in the central bank of Egypt (CBE), from both a legal and behavioural context, since its establishment in 1961 until 2004. The study uses four indices in line with the work of Jacome (2001), Cukierman, et al. (1992), and Cukierman and Webb (1995), where each index is designed in such a way to capture a somewhat different aspect of independence. This study captures the discrepancies between the degree of independence conferred to the CBE by law and actual practice. The empirical findings of this paper offers insights about the direction of efforts that should be made to enhance central bank independence which is the key to achieving price stability and the stability of the financial system in general.

JEL classification

E42; E52; E58

Keywords

Central bank independence; Central Bank of Egypt; price stability; central bank credibility; indexes of central bank independence; monetary policy

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I. Introduction and Motivation

The concept of central bank independence[1] (CBI) can be viewed as granting the central bank (CB) a mandate as well as an authority to pursue price stability as its primary objective (Cukierman et al., 1992). Still CBI is far from being an unambiguous concept. This ambiguity arises from the fact that there are several kinds of independence: political and economic, de-jure and de-facto, constitutional and statutory, independence within and independence from the government, strategic (to formulate policy) and tactical (day-to-day operations), instrument independence but not goal independence (Debelle and Fisher, 1994), and independence of the executive, judiciary, and legislative (Chandavarkar, 1996). In addition, independence encompasses various degrees, ranging from the Bundesbank with broad goal independence to the Bank of New-Zealand with partial goal independence (Cukierman, 1996).

The question that imposes itself is why do governments willingly (and increasingly) delegate more authority to CBs? Two cases, the theoretical and the empirical cases, help to answer this question. The theoretical case for CBI advocates its independence of political authority primarily as a countervailing power against the alleged "inflationary bias" of the executive and legislative authority (Rogoff, 1985). This bias of governments is explained by three motives: the seigniorage revenue motive, the employment motive, and the balance of payments motive (Cukierman, 1992). On the other hand, the empirical case for CBI is supported by a growing body of empirical evidence showing that, on average, countries with more independent CBs have lower rates of inflation, and either the same or higher rates of growth of per capita output. Based on this evidence the conclusion reached was that, for industrialized economies, CBI offers a "Free Lunch"[2](Grilli et al., 1991), while for developing countries there appears a positive relation between growth and behavioural CBI (Cukierman, 1996).

It follows that behind the recent dramatic acceleration[3] in delegation of legal authority to CBs is an increased quest for price stability that arises due to two main factors: First, following the stagflation of the 1970s and the weak economic performance of some high inflation countries, in Latin America and elsewhere, the conventional wisdom concerning inflation and real growth has changed, where the accepted view became that inflation and its associated uncertainties retard growth. Also, the good economic performance of some countries with highly independent and conservative CBs such as the Bundesbank and the Swiss National Bank set a very good record in achieving price stability which provided added impetus to the previous view. Second, the increasing crucial role of international capital inflows for the economy of developing countries raised the importance of price stability to signal credit worthiness.

There have been only a few studies attempting to quantify CBI especially in developing countries, perhaps because in developed countries the task of quantifying the independence of

[1] In the empirical studies, emphasis on price stability and freedom to pursue this goal are primary determinants of independence. In the theoretical studies independence is equated with non cooperation between the fiscal and monetary authorities in policy implementation.

[2] CBI brings about lower inflation without interfering with the process of growth (Cukierman, 1994).

[3] Between 1990 and 1995 at least thirty countries, spanning five continents, legislated increases in the statutory independence of their central banks (Maxfield, 1997).

CBs is easier as quantifying the legal charter is sufficient to reflect the degree of CBI. However, in developing countries this task is tremendously laborious as quantifying the legal charter often does not reflect the degree of independence of CBs. This is due to the fact that in developing countries the legal charter is often incomplete or ambiguous leaving a lot for subjective interpretation and even in the countries where the legal charter is clear enough, often the actual practice deviates from the law (Cukierman et al., 1992). As a result, quantifying other indicators that reflect actual practice is required to capture any divergences between legal and actual practices.

As a developing country, Egypt has only two studies attempting to quantify its degree of CBI. The first study by Cukierman et al. (1992) is a cross-country analysis, which includes Egypt in the sample. This study evaluates the degree of independence of the CBE from a legal and behavioural context for the period (1950-1989). The more recent study is a country analysis by Ewiss (2003), which focused on measuring the degree of CBI in Egypt before and after the amendment[4] of the CB charter. However, Ewiss's study did not include behavioural indices.

This study extends these two previous studies by quantifying the degree of independence in the central bank of Egypt (CBE), from both a legal and behavioural context, since its establishment in 1961 until 2003 using four indices in line with the work of Jacome (2001), Cukierman, et al. (1992), and Cukierman and Webb (1995). Also, this study captures some aspects of discrepancy between the degree of independence conferred to the CBE by law and actual practice. In addition, the fact that within each index there are several indicators: legal, political, and economic helps to pinpoint which indicator requires more attention to reinforce the CBE independence, and what monetary policy stance can reinforce CBE independence.

The basic research questions of this study can be summarized as follows: What is the independence status of the CBE from a legal point of view and what is the effect of the several amendments in the charter of the CBE on its degree of independence? Does the CBE enjoy independence in practice that is in line with its legal context (law 120, 1975 amended by law 88, 2003), or is it just "nominal independence" lacking the required enforcement? And finally, if the legal and actual practice of CBI in Egypt diverges, what measures can be taken to reinforce the independence of the CBE?

This study section is organized as follows. The second section presents a brief review of the empirical literature. Section three introduces the methodology for assessing the degree of CBI using four indices: the legal index, the rate of turnover of central bank governors index, the questionnaire based independence index, and the political vulnerability of central bank governors index. Section four analyzes the empirical results and presents some recommendations. Finally, section five concludes.

[4]CB charter amended by Law 88 for year 2003.

II. Literature Review

The desire to apply statistical tests to investigate the relation between CBI and inflation, and other macroeconomic variables prompted many studies since the 1980s to develop indices of CBI to capture the degree of independence using a single numerical value. However, due to the difficulty in quantifying the features of the CB (such as actual independence versus formal, and informal arrangements between the CB and the government) most of the studies that attempt to rank independence of the CB are based mostly on legal independence i.e. quantifying the legal charter of the CB and are mostly applied on industrial countries. There is a vast body of literature concerning the CBI and the relation between its independence and other macroeconomic indicators; however, this literature review only concentrates on the studies that attempt to develop indices and measure the degree of CBI.

Bade and Parkin (1982) design the first quantitative index for legal independence of the CB. They construct a 4 scale[5] index of CBI for 12 industrial countries based on the "political independence" which is defined as the ability of the CB to select its policy objectives without influence from the government. There are three indicators that measure political independence. The first indicator reflects the relationship between the CB and the government in formulating and executing the monetary policy. The second indicator is concerned with the role of the government officials on the CB board of directors. Finally, the third indicator captures the ability of the CB to independently appoint some of the members on the board of directors. According to those three indicators there are four patterns of CB political independence (illustrated in Table 1). In their empirical study Bade and Parkin conclude that a CB that does not possess the authority of managing monetary policy cannot independently appoint the members of its board of directors. Also, they find that if a CB possesses authority of executing monetary policy independently from the government, this implicitly indicates that there are no government officials on the board of directors of the CB.

Alesina (1988) has attempted to expand Bade and Parkin's index by adding a fourth indicator to the three indicators above. This fourth indicator was the extent to which the CB is compelled to buy the Treasury bill surplus- a means by which the CB provides credit to the government (Refer to table to for a summary on Alesina's results indirectly).

Grilli, Masciandaro, and Tabellini (1991) introduce a more comprehensive index for CBI including more variables reflecting the extent of CBI. They applied this index on 18 developed countries for the period 1950-1989 to measure the relation between CBI and inflation. They have designed a measure of CBI that included 15 variables reflecting both political independence and economic independence. "Political independence" is defined essentially, as previously mentioned in Bade and Parkin (1982). This measure is based on factors such as: whether or not the governor and the board of the CB are appointed by the government, whether government representatives sit on the board of the bank, whether government approval for monetary policy decisions is required, and whether the price stability objective is explicitly and prominently part of the central bank statute.

[5] Where 1 refers to least independent and 4 indicates most independent.

“Economic independence” is defined as the ability to use instruments of monetary policy without restrictions. The most common constraint imposed on the conduct of monetary policy is the extent to which the CB is required to finance the government deficit. This index of economic independence essentially measures how easy it is for the government to finance its deficit by direct access to credit from the CB.

Eijffinger and Schaling (1992) introduce a new measure for CBI. This index is an extension for the measure of Bade and Parkin (1982), and Grilli et al. (1991) index, where political independence is determined by the same three indicators identified in the previous two studies. Also, the patterns of political independence stated by Eijffinger and Schaling are no different from those stated by Bade and Parkin. Their only contribution is the introduction of a fifth pattern (the third pattern in Table 2) that takes into consideration the "Twin-Authority" case where the authority of formulating the monetary policy is distributed between the CB and the government. Eijffinger and Schaling reached two important conclusions; the first, is that "Twin-Authority" can not coincide in practice with the existence of government officials on the board of directors of the CB. Second, no CB facing "Twin-Authority" in practice can appoint the members of its board of directors independently from the political authority.

The legal independence index developed by Cukierman et al. (1992) reflects the degree of independence that the legislator meant to confer to the CB, where coding legal independence depends only on the information written in the CB charter and only on precise legal characteristics. They observe that with the exception of three developed countries and two developing country, the study indicates that both country groups (developed and less developed) have very similar distributions of aggregate legal independence.

All of the previously mentioned indices are only based on the law as they represent an interpretation of the legal charter of central banks. However, as previously mentioned, the legal status of a CB is one of several elements that determine its actual independence. Cukierman, Webb and Neyapti note that indicators based only on the law have two problems. First, the laws are incomplete in that they cannot specify explicitly the limits of authority between the CB and the political authorities under all contingencies. These voids are filled by tradition at best and by power politics at worst. Second, even when the law is quite explicit, actual practice may deviate from it. As a result of this defect in legal indices, the need for indices that capture actual independence was inevitable.

Cukierman, Webb, and Neyapti (1992) introduce a valuable study on measuring CBI and its relation to inflation. This study goes beyond the previous work in including a wide sample of countries, including up to 72 countries (21 industrial countries and 51 developing countries), and a wide time span from 1950-1989. But more importantly it introduced a methodology that captures not only the law but the spirit of the law by introducing two indices of actual independence (illustrated later), the turnover of central bank governor index and a questionnaire based index. Actual, as opposed to formal, CBI depends not only on the law, but also on many other less structured factors, such as informal arrangements between the CB and other parts of the government, the quality of the CB's research department, and the personality of key individuals in the CB and the government. Because of the difficulty in quantifying such features in an impartial manner, previous studies developed indices of CBI based mostly on legal independence and only for the industrial countries. Hence, this index is superior relative to previous indices as it is not only more comprehensive but it also captures different aspects of independence.

As mentioned above, the study of Cukierman, Webb, and Neyapti (1992) provided two indices that capture actual independence. The first is the Turnover of Central Bank Governor Index. This indicator is based on the presumption that more rapid turnover of CB governor's indicates a lower level of independence. This presumption is based on the idea that if the political authorities frequently take the opportunity to choose a new governor, they will have the opportunity to pick those who will carry their will. For high turnover rate, the period that the CB governor is in office is shorter than that of the executive branch, which does not enable him to engage in any long-term policies. However, they noted that it must be taken into account that a low turnover does not necessarily imply a high level of CBI, because a relatively subservient governor may stay in office for a long period of time. In their study they concluded that first, turnover rates in developing countries extend into a range considerably above the highest rates in the industrial countries; second, there is no distinct variation in the average turnover rates among industrial countries within the sample period.

The second actual indicator that they have designed is the questionnaire based index of CBI. This indicator of CBI is based on responses to a questionnaire that was sent to a sample of monetary policy specialists. The questions involve the same issues underlying legal variables, but they focus on the practice rather than the law. Also, the questionnaire referred to additional issues such as the determination of the bank budget, the strictness of limitations on lending in practice and the degree of actual tenure overlap between the governor and high executive officials in the executive branch. The survey results indicate that central banks in developing countries are less independent than those in industrial countries, where only two industrial countries are below the median of the sample, and only four developing countries are above it. This finding contrasts with the legal independence indicator, where the two country groups do not differ widely, but is similar to the finding of the turnover indicator. Although, the responses to this questionnaire are based on subjective evaluations so this index probably contains more noise than the legal index of CBI, still it is a better reflection of actual CBI.

Cukierman and Webb (1995) introduce the political vulnerability of the CB governors index, which is considered a development to the rate of turnover index. Where the latter index just measures the tenure of the CB governor, however, the former measures the extent to which a change in the CB governor is related to a change in the executive authority. Cukierman and Webb (1995) define political vulnerability of CB governors as the ratio of political change followed within 6 months by a change in the central bank governor. According to this concept, political vulnerability is an indicator of the political influence on the CB. Using a sample of 67 countries (20 developed and 47 developing) between 1950 and 1989, Cukierman and Webb find that the number of times that the CB governor changes during "political periods", defined as a period witnessing a change in the CB governor during six months from a change in executive authority and as a direct consequence of that change. This is more than double the turnover during "non-political periods”. This gives a strong implication that the political influence on the CB has been the rule rather than the exception till the end of the 1980s. However, there are substantial differences among country groups. The within six months vulnerability is three times higher in developing countries than in developed countries. There are also substantial differences in vulnerability according to the regime type within developing countries. Average vulnerability is highest in “mixed regime” countries that alternate between democratic and authoritarian regimes, and lowest in developing countries with always authoritarian regimes. It assumes an intermediate value in developing countries that had a democratic regime throughout the entire sample period. This index has the advantage that it takes into account actual practice of independence rather than the legislated one. Also, its advantage over the turnover index is that it provides a clearer picture about the relation between the executive authorities and the CB. However, it shares with the turnover index the disadvantage of being a noisy index as it is potentially subject to reverse causality from economic variables.

Most of the indices measuring CBI neglected indicators concerning the accountability, the extent of transparency of the CB, and the CB’s role as lender of last resort (LOLR) for the financial sector. The study that follow, represent an attempt to rectify this deficiency.

Briault et al. (1996) survey 14 OECD countries using their accountability index which focuses on monetary policy. The index uses four criteria: (i) external monitoring of the CB by the parliament; (ii) publication of minutes of policy meetings; (iii) publication of reports on inflation and monetary policy in addition to standard CB bulletins; and (iv) explicit or implicit procedures in case the government overrules the CB. They find that there appears to exist some trade-off between a large degree of CB autonomy (goal independence) and their index for accountability.

Lybek (1999) develops an index for CB legal independence and the CB accountability[6]. He applied this index in 15 countries in the Baltic States, Russia, and other countries of the former Soviet Union in the period 1995 -1997, to identify the relation between the CB autonomy, and inflation and output performance. Lybek index was designed to include all aspects of legal independence for the CB determined by the IMF, so this index is also called the IMF-modified index. He designed 21 variables[7] (economic policy objective, financial system and the supervisory role of the CB, monetary policy, foreign exchange policy, policy coordination, conflict resolution, appointment of governor, dismissal of governor, government representation in the board, limits on lending, interest rates, securitization, quasi-fiscal activities, monetary instruments, solvency, publication of statements, audits) to reflect the extent of CB legal independence and accountability. These variables are similar to those introduced by Grilli et al. (1991) and Cukierman et

[6] Accountability depends on the obligation of the CB governor to appear before the congress and the government, and the disclosure of CB publications on a timely basis (Lybek , 1999).
[7] For further detail on these variables refer to Lybek (1999).

al. (1992), but they are more detailed and comprehensive, as they include transparency aspects. Also, Lybek was very precise when converting the legal articles to numerical values[8] (his numerical evaluation consist of whole numbers and fractions) which makes his index very accurate in comparison to the previous indices.

Jacome (2001) designs a CB legal independence and accountability index. He implemented his study on 14 countries in Latin America during the 1990s. Jacome's index is by far the most comprehensive index, where it includes political and economic variables determined by Grilli et al. (1991) and Cukierman et al. (1992) but with some adjustments. This index includes variables of CB financial independence determined by IMF-modified index, and variables concerning the CB as a lender of last resort which is considered the main contribution of Jacome. However, Jacome's index failed to capture the aspect concerning the supervisory role of the CB on other banks.

Ewiss (2003) provides the first study that measures the degree of CBI in Egypt for the period 1950-2003. He investigates the recent amendment in the charter of the CB according to law 88 year 2003 using Cukierman et al. (1992) and Jacome (2001) legal indices. Ewiss also examines some monetary and fiscal indicators over the period 1951-2002 as an indicator of the extent of independence of the monetary policy from executive authorities. He also presents the cases of CB independence in the United States, the United Kingdom, Japan, Germany, and Argentina. He concludes that the amendment of the CB charter lead to only slight increase in CBE independence, still the degree of CBE remains low. Also, the fiscal and monetary indicators show that the CBE has been subservient to the executive authority through out the sample period.

III. Methodology

A-Sample and Methodology

For the quantitative analysis of CBI in Egypt, this study uses 44 years of data[9] from 1961[10] to 2004. The period covered in this study is divided into four decades, where the Egyptian economy passed through four main developments[11], namely, the nationalisation and heavy state intervention of the 1960s; the *infitah* (open door policy) adopted during the 1970s; the first attempt for economic reform during the 1980s; and the initiation of a comprehensive Economic Reform and Structural Adjustment Programme (ERSAP) in the early 1990s. The four sub-periods are divided as follows: 1961-1971, 1972-1982, 1983-1993, and 1994-2004.

[8] For example, the numerical evaluation of term in office variable ranges from ¼ to 1 as follows: if the term exceeds 5 years it is assigned the numerical value of 1; if the term in office is exactly 5 years it is assigned ¾; if the term can exceed 4years it gets a numerical value of 1/2; finally, if the term is 4 years it is assigned ¼.

[9] The data source is (El Tashriat El Mesriah, and the CBE). This study is a quantitative comparison through the years.

[10] In year 1960, law no.250 (amended by law no.277 in the same year) was promulgated providing for the establishment of the CBE (which was established in 1961).

[11] This follows the division introduced by Mohieldin and Kouchouk (2002).

This study applies four measures of CBI where each measure will be studied and applied independently over time. The first measure applied is the legal index drawn from the study by Jacome (2001). Three indicators of actual (behavioural) independence are then introduced: the rate of turnover of CB governors index drawn from the paper by Cukierman, et al. (1992), an index based on a questionnaire answered by monetary specialists in line with the questionnaire introduced in Cukierman, et al. (1992), and the last index is based on the political vulnerability of CB governors index drawn from the paper by Cukierman and Webb (1995). Each indicator is designed in such a way that it captures a somewhat different aspect of independence.

It is worth mentioning that the study by Ewiss (2003) introduced two legal indices for measuring CBI in Egypt, one in line with Cukierman et al. (1992) and the other is drawn from Jacome (2001), where he opted to measure the influence of the amendment of the CB law (Law88/year 2003) on the legal independence of the CBE, by dividing his sample (1951-2003) to two sub-periods, before and after the 2003 amendment. However, his study did not include any behavioural independence index. He sufficed by examining some fiscal and monetary indicators to reflect the degree of actual CBI in Egypt.

This study introduces both legal and behavioural indicators of independence because in a typical developing country such as Egypt, the legal index is not sufficient because even when the law (or charter of the CB) is quite explicit, actual practice frequently deviates from the law. Therefore, for Egypt as well as most developing countries, the three other indicators of actual independence are essential to capture the gap between actual practice and the law. The next few pages present a description of each index and its application to the CBE.

B-The Indices

1. The Legal Index

Legal independence is an essential component of CBI because it reflects the degree of independence that the legislator meant to confer to the CB (Cukierman et al. 1992). The criteria used to evaluate legal independence depend only on the relatively precise legal information written in the CB charter that is of relevance to the issue of CBI. Nevertheless, the task of attempting to quantify the legal aspect of CBI remains difficult and inevitably requires some degree of subjectivity, especially that many provisions in the CB charters are not directly related to the issue of independence. Jacome's index is used in this study to quantify the legal independence of the CBE as explained briefly in the following section.

A. A Brief Description of Jacome's index

Jacome's index represents an extension to traditional indices (Grilli et al., 1991 and Cukierman et al., 1992) as this index incorporates most of the political and economic criteria used in the former indices. In addition, this index incorporates criteria of financial autonomy, accountability, and transparency. Also, Jacome's index incorporates the design LOLR mechanisms which are typically not included in previous indices. This results in Jacome's ten criteria index[12] (illustrated in Table 3). The first criterion refers to the objective legally assigned to the CB; criteria 2 to 4 are related to the political autonomy of the CB; criteria 5 to 7 refer to its economic autonomy; criterion 8 relates to the CB's financial autonomy; whereas criteria 9 and 10 are linked to the accountability and transparency of the CB policies and procedures. The possible values assigned to each of the ten criteria are 0, 0.5, or 1 depending on how the legal provisions related to such criteria are conducive to CBI. Moreover, in comparison to previous indices Jacome's index conforms to the best practice guidelines for CBI and accountability (presented in the next section) which are considered the main components of CB reform.

A differentiated weight (1, 2, and 3) for the individual criteria is another particular characteristic of this index. This implies that some of the criteria included in the index are believed to be more important than others in terms of their contribution to CBI. Thus, the autonomy to design and conduct monetary policy, and the prohibition to finance the fiscal deficit are assigned the highest weight 3, since they are assumed to be the key factors contributing to the independence of monetary policy and to the reduction of inflation. The objective assigned to the CB, the institutional procedures for the appointment, term of office, and the dismissal of members of the CB board of directors, as well as the design of the LOLR provisions are assigned a weight of 2. Finally, the criteria related to financial autonomy, accountability, and the transparency are assigned a weight of 1. The maximum possible score for the CBI according to this index is 19. Since this study is a quantitative comparison through the years, this index is applied to the four, previously mentioned, sub-periods of the sample as illustrated in Table 4.

[12] As in similar studies, the structure, values, and weights of Jacome Index, are discretional and thereby subject to debate.

B. Description of the numerical evaluation of the disaggregated legal variables

As mentioned earlier the numerical evaluation or scoring the CBE provisions (0,0.5,1) is based on the extent to which these provisions contribute to CBI and accountability, and conform to the best practice guidelines for CBI, that represent the basis to the CB reform. The exact CBE legislation that is scored is mentioned in Annex 1, the numerical evaluation of the disaggregated legal variables is found in Table 4, and Table 5 provides the exact calculations and weights of each criterion during the four sub-periods of the study.

The first criterion described by the index used in this study is the ***objective*** legally assigned to the CBE. According to the CBE's provisions almost during the first three sub-periods of the study the CBE was always assigned multiple objectives and sometimes even conflicting. So during the first three decades this criterion is assigned the value 0.5. However, in the last period[13], the Law 2003 amendment established that preserving price stability is the main objective of the CB, which is considered an improvement (and a step in advance in the institutional reform of the CBE), so for the last sub-period this criterion is assigned the value 1.

In terms of political autonomy of the CBE described by criteria 2-4, the second criterion, concerning ***the appointment of the CB board members*** and their term in office, is assigned the value zero in the four sub-periods of the study to penalize the government behaviour which dominates the appointment process. Also, the tenure of CBE governors stated in the CB charter is 4 (renewable) years. As a result, their term in office is even shorter than the election cycle of the main exclusive body (the President) in the appointment process. This is also penalized by assigning the value 0 to this second criterion. The third criterion relates to ***the structure of the CBE board*** is assigned the value 0.5 in the first, second and last sub-periods where the CBE laws allow for direct government representatives on the board, but it did not specify the inclusion of any private sector representatives. However, in the third sub-period, the value assigned to this criterion is decreased to zero to penalize the provision specified by law 1984 which allowed private sector representatives on the board.

The fourth criterion, namely ***the removal of board members***[14], is assigned the value 0 in the first sub-period where the CB charter contained no article on such matter. Nevertheless, this value is increased to 1 in the second and third sub-periods to reflect that Law 1975 concerning the CBE which explicitly stated that the governor cannot be dismissed during his term in office. However, in the last sub-period this value dropped again to 0 where Law 2003 neglected mentioning of any regulations concerning the dismissal of the CB governor or any of the board members which is considered a major drawback of this legislation.

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[13] During each period, if there are two consecutive legal amendments the researchers opt at numerically evaluating (ranking) the more recent amendment, this leads to relatively the same results as taking the weighted average of the numerical value that is obtained from each of the two laws, due to the fact that any changes in the CB legislations is relatively minor and slow.

[14] In this study evaluating this criterion only included the governor's dismissal where the CBE laws do not state any article concerning the dismissal of CB board members.

As to the economic autonomy of the CBE which is represented in this index by criteria 5 to 7; concerning the fifth criterion covering ***the CBE granting credit to the government*** (or in other words the prohibition to finance the fiscal deficit), all the CBE legislations relevant to the four criterion concerned with CBE credit for the government throughout the four decades of the study, stipulate that the CBE provides direct credit to the government *with limits.* Accordingly, this criterion is assigned the value 0.5 throughout the study period. This behaviour is not penalized by assigning the value 0 because the CB does not grant credit to the government in discretion. Still it is not rewarded by the value 1 since the CBE provisions do not stipulate clearly under what circumstances the CB provides credit to the government.

The sixth criterion relates to the ***LOLR provisions*** which did not change throughout the four sub-periods allowing the CBE to grant the government emergency loans legally regulated, *without limits.* This LOLR mechanism is partially penalized by assigning the value 0.5, as although the LOLR is not discretionary, it does not condition the amount to be granted.

Concerning the seventh criterion, namely the ***CB's independence in the use of monetary instruments,*** during the 1960s the CB was not entirely free to set these rates; hence, this criterion is assigned the value 0 in this decade. During the 1970s and 1980s, the CB law[15] has freed the CB from the limits on the use of the monetary policy instruments; still the same law did not state that the CBE is free to set monetary policy objectives and limited the CBE role to *executing* the monetary and credit policy according to state plans. In the final sub-period, Law 2003 altered the articles organizing this issue, but this alteration was controversial, even though it allowed the CBE to freely use instruments of monetary policy that enables it to *set* and *execute* monetary policy, the latter should happen in accordance with the government (through a committee of nine members who are mostly government officials) which undermines the CBI. Accordingly, this criterion is assigned the value 0.5 in the last three periods.

The eighth criterion in this index is concerned with the ***financial autonomy*** of the CBE which is assigned the value 1 throughout the four sub-periods as the CBE legislations always provided for the CB capital integrity.

Finally, the last two criteria , ***accountability and transparency***, each of which is given a value of 0.5 during the 1960s, where the CB had to report only to the government and to publish statements approved by a public sector auditor. However, in the last three sub-periods introduction of Law 1975 and the laws thereafter stipulated provisions for the appearance of the CB governor before the people's assembly, in addition to reporting to the government. Also, to ensure transparency the CB is required to publish its financial statements periodically which are certified by external auditors. These enhancements in the CBE provisions accounted for assigning the highest numerical rank 1 for the last two criteria in the last three sub-periods of the study.

[15] Law120/1975, for exact statement of the article refer to Annex I.

C. Aggregating the Legal variables and evaluating the amendments by Law 2003

Although, the maximum possible score for CBI according to the index used in this study is 19, yet throughout the study period not in one single sub-period has the CBE degree of independence reached this maximum score (see Figure 1 and Table 5) or even reach the average of CBI in Latin American countries amounting to13 (Jacome, 2001). It can be noted that the consecutive CBE legislations did not radically improve the degree of independence of the CB; mainly because the amendments introduced by each legislation were minute. Even the most recent amendment to the CB legislations, Law 88 for year 2003, which was considered as a step towards the institutional reform of CBE and an advocation to adopting the price stability objective as a priority to build up the CBEI, failed to enhance the degree of CBI in Egypt. In what follows, we discuss the index of legal independence in the context of a more general economic framework in each of the three studied periods.

First period (1961-1971): This period corresponds to the decade of heavy state intervention in the Egyptian economy. During this period the CBE acted according to the law provisions as the bank of the state which diminished its independence and needless to mention its accountability. Hence, the CBE scored 6.5 which is the lowest degree of independence scored by CBE during the four periods of the study as illustrated in Figure 1. The CBE legislations during this period needed pro-CBI amendment especially the articles concerning the dismissal of the CB board, the instrument independence of the CB, and the articles regulating the accountability, transparency and disclosure of financial statements.

Second period (1972-1982): In this period the Egyptian economy witnessed the adoption of the open door policy and embarked on a number of institutional reforms. One of those reforms was the introduction of Law 120 year 1975 concerning the CBE and the banking system which is considered as the best written law for the CBE so far as it gave the CBE large autonomy and stipulated greater accountability. This can be perceived by observing the enhancement in the different provisions of the CB law, e.g. the article that protects the CB's governor tenure by stipulating that he can not be dismissed during his term in office or his renewal; the article granting the CB greater instrument independence in the conduct of monetary policy; and the articles providing for greater CB accountability and transparency. Thanks to this law, the CBE scored its highest degree of independence and accountability throughout the four periods of the study amounting to 11.

The third period (1983-1993): Although, during this period Law 50 for year 1984 was introduced, yet it did not introduce many amendments to Law 1975. The only major change in the CB charter introduced by Law 1980 was the article concerning the structure of the CB board including (executive) private sector members. However, this change resulted in diminishing the degree of CBEI to 10 during this period compared to 11 in the previous period.

Fourth period (1994-2004): In the beginning of this period, the presidential decree for year 1993 concerning the CBE and the banking system was in effect. However, a more recent and altering amendment was introduced towards the end of the decade, namely Law 88 for year 2003. This latter law is considered controversial because on one hand it introduced some amendments (discussed later in detail) to the CB charter that enhanced the degree of CBEI; on the other hand, it added (or removed) some others that negatively affected the CBI. This might explain why the degree of CBEI amounted to 10 after the introduction of 2003 amendments. This is the same degree of independence as the preceding period even though the 2003 amendment was introduced.[16]

The amendment to the CBE charter by Law 2003 is considered controversial owing to the following reasons:
First, even though, Law 2003 stipulated that the structure of the CB board does not include any private sector member yet, heavy government existence is still dominating the board, this is evident through the provisions for the appointment and structure of the CB board. In addition, this Law offered no improvement to the term of office of the governor or the CB board members. Second, Law 2003 does not stipulate any article prohibiting the dismissal of the CB board members including the governor during their term in office which is a deterioration in the CB political autonomy in contrast to Law 1975 (see Annex I, B4). Third, this law provided no articles stipulating improvements to the economic autonomy of the CBE, such as articles imposing stricter conditions on the CB's granting credit to the government, or the CB LOLR mechanism. Finally, one controversial issue that Law 2003 introduced is the article providing the CBE more independence by allowing the CB to both set and execute monetary policy and to freely use monetary policy instruments. However, an article in that same Law stipulates that CBE sets the goals of the monetary policy in accordance with the executive authority through a committee (of nine members mainly government officials), which reveals again the government involvement that undermines the CBE's autonomy.

From the above discussion, one can argue that, the *objective* of the CBE stated by Law 2003 can be considered as a major step in the institutional reform of the CBE. However, the CBE legislations still have to undergo major improvements to ensure the *political autonomy* of the CBE and its freedom from heavy government involvement. Also, the CBE enjoys a medium *economic autonomy*, which Law 2003, attempted to enhance by allowing the CB to both set and execute monetary policy and to freely use monetary policy instruments. Nevertheless, the heavy government intervention (stipulated by the law!) embodied in the CB structure, and its decision making process has hindered this attempt for institutional reform. This institutional weakness tends to create uncertainty over the long-term goals of monetary policy and may allow for "inflationary bias" (Jacome, 2001).

Despite the fact that this index offers a simple way of aggregating the complex structure of the CB into one numerical value by introducing simple weights and values for each criterion, still, this index has some drawbacks. First, it does not include the supervisory role of the CB. Second, as in similar studies, it is based on subjective evaluation. Finally, similar to all legal indices Jacome's index reflects only de-jure (legal) CBEI and does not

[16] This result does not differ much from Ewiss (2003) who used Jacome's to estimate the CBE degree of independence. Similarly, he calculated that CBE degree of independence at 9 and 9.5 after the amendment.

convey the CBI in practice which may deviate from that which is conferred by the legislator. Consequently, actual indices will be introduced to try to capture any discrepancy between the degree of CBEI granted by the law and that enjoyed in practice.

2. Turnover of Central Bank Governor Index

As explained in the literature review section, this indicator is based on the presumption that more rapid turnover of CB governor's indicates a lower level of CBI (Cukierman et al., 1992). In most countries, the electoral cycle is at least 4 years; hence, for an average tenure of four to five years, the threshold turnover, above which independence declines seriously is somewhere between 0.25 and 0.2 changes a year according to Cukierman (1992), and Cukierman et al. (1992).

Table 6 and figure 2 depict the trend of the turnover index[17] over the four sub-periods. Looking at the table and figure, one can observe the following:

First period (1961-1971): The turnover of CB governors index is 0.27 during this period, indicating the relative stability of this period. The average turnover of CB governors does not exceed the threshold of 0.2 and 0.25 except during the tenure of Mr. Zendo (1964-1967), where his calculated turnover rate turned to be 0.33. However, it should be noted that the CBE Law 1960 stated that the governor tenure is 3 years; thus Zendo's term in office can not be considered short according to the law.

Second period (1972-1982): This period can be regarded as the most stable period, where the average turnover rate of CB governors is 0.18. This stability in the turnover of CB governors coincides with Law 1975 which is considered by many experts as the best written charter for the CBE confirming the results obtained earlier under the legal index.

Third period (1983-1993): The average turnover rate assigned to this period is 0.27, marking a relatively high turnover in CB governors. This period demonstrates a deviation between actual practice and the law as the first half of this period witnessed a very high turnover for two governors, namely Mr. Shalaby (1982-1985) and Mr. Negm (1985-1986), which is 0.33 and 1 respectively; although the CB charter for this period states that the CB governor tenure is 4 renewable years (which should secure an average turnover rate of at most 0.25).

Final period (1994-2003): The most remarkable feature of this period is that it witnessed two extremes. On one hand, the first governor during this period, Mr. Hassan (1993-2001), has the lowest turnover rate (0.125) throughout the four periods under study. On the other hand, the following governor, Dr. Abou El Eyoun (2001-2003), is assigned one of the highest turnover rates, an average turnover of 0.5, which probably indicates that he was pressured to resign before his term expired. This resulted in increasing the average turnover rate of this decade to reach 0.2. It should be noted that the average turnover rate

[17] Two methods were used to calculate this index. However, both methods have yielded similar resuls as explained in Annex II. The first method assumes that the average turnover rate is equal to the average number of changes in CB governers per year. The second method is a weighted average turnover of each governor.

of the last (and current) governor, Mr. El Oukda, is not calculated as it remains unknown for how long he will stay in office.

Overall, it can be noted that the actual tenure of CBE governors does not deviate significantly from that stipulated by the law throughout the four sub periods. Even in the first and third periods, where the average turnover rate exceeds the threshold rate (determined by Cukierman et. al., 1992) beyond which the level of independence of the CB is said to decline, the magnitude of deviation is very minute and can not be considered significant enough to negatively affect the degree of CBE independence. Nonetheless, the turnover index indicates that three governors, Mr. Shalaby and Mr. Negm, during the third period and Dr. Abou el Eyoun during the final period did not complete their term in office. To further investigate the relation between political influence executed by the government and CB governor's term in office the following index, the political vulnerability index, is introduced.

3. Political Vulnerability of Central Bank Governors Index

This index is an actual degree of independence indicator. It was introduced by Cukierman and Webb (1995), who define political vulnerability of CB governors as the ratio of political change followed within 6 months[18] by a change in the CB governor. Hence, this index measures the basic idea of this index is based on measuring the extent to which a change in the CB governor is related to a change in the executive authority. According to this concept, political vulnerability is an indicator of the political influence on the CB. The higher this ratio the higher is the political influence executed by the government on the CB and vice versa. Political vulnerability index might be considered as a development to the turnover of CB governors index. The difference between the two indices is whereas the turnover index takes into account all the cases of change in the CB governor, the political vulnerability index takes only those cases that directly follow a change in executive authority.

Table 7 represents the result of applying this index on the CBE assuming that a change in the Egyptian Prime Minister represents a change in the executive authority, although according to the Egyptian constitution the President is the head of the executive authority. This can be justified by the fact that the Egyptian presidents tend to stay in office for excessively long periods of time (an average tenure of about 13 years). Thus a change in the Prime Minister is a more dynamic indicator of a change in the executive authority.

The first period (1961-1971) witnessed one case of political vulnerability, where the appointment of the CB governor Mr. Nazmy in February 1967 followed a political change, namely the appointment of Muhamed Sedki Sulayman as Egypt's Prime Minister in September 1966, after nearly 5 months. This political vulnerability can be confirmed by checking the turnover index and noting that Mr.Zendo (1964-1967), the CB governor preceding Mr.Nazmy, stayed in office for 3 years but his term in office was not renewed, unlike the tenure of the governors preceding and following him whose terms in office were renewed for one year. Thus, the political vulnerability ratio assigned to this period is

[18] According to Cukierman and Webb statistical tests reveal that the appropriate cut-off between "political periods" and "non political periods is six months.

1/6 because during this period there were 6 changes in the Egyptian Prime Ministers and only one CB governor changed within 6 months of those ministerial changes.

Again, during the second period (1972-1982) there was only one case of political vulnerability. That is the appointment of the governor Zendo for the second time in February 1971, subsequent to a political change which is the appointment of Prime Minister Mahmoud Fawzy in October 1970. Also, the turnover index verifies this political vulnerability case as the governor preceding Mr. Zendo's second time in office: Mr. Nazmy (Feb 1967-Feb 1971) completed only one year of his 3 renewable years in office. It is worth mentioning that this second period witnessed radical political change as it marked the end of Nasser's era (Egypt's second president) and the start of Sadat's era. Hence, the political vulnerability ratio assigned to this period is also 1/6 because out of 6 changes in the Egyptian Prime Ministers only Mr. Nazmy was changed within 6 months of the change in executive authorities.

The third period of the study (1983-1993) witnessed two cases of political vulnerability. The first case is the appointment of Mr. Shalaby, the CBE governor in February 1982 following the appointment of Prime Minister, Ahmed Fuad Mohieddin in February 1982. However, the turnover index does not confirm this as a case of political vulnerability because the governor prior to Mr. Shalaby, Mr. Ibrahim (1976-1982), completed his term in office with 4 renewable years. The second case is the appointment of Dr. Hamed in November1986 right after the appointment of a new Prime Minister for Egypt, Mr. Atef Sedki in November 1986. This case of political vulnerability is confirmed by observing the short tenure of Mr. Negm (1985-1986), the governor that preceded Dr.Hamed, who barely exceeded one year. Consequently, the political vulnerability ratio in this period is 2/4 because of 4 changes in the Egyptian Prime Ministers only two of these changes were directly followed by a change in the CB governors.

Final period (1994-2004): The political vulnerability ratio assigned to this period is 0 because no change in the CBE governors followed the 4 changes in the Egyptian Prime Ministers within six months, still there exists some evidence that the CBE governor Dr. Abou El Eyoun (2001-2003) was forced by the political authorities to resign. This is confirmed by the turnover index as mentioned earlier, as he did not complete his term in office.

To sum up, one can argue that the third period witnessed the highest political vulnerability ratio which points to the high political influence executed by the government on the CB independence during the period of analysis. Also, it is worth mentioning that both the turnover index and the political vulnerability index should be studied side by side as they complement each other. This is confirmed by the observation during the last period where the political vulnerability index specifies that this period is a non-political period; however the turnover index draws the attention that this might not be the case.

4. Questionnaire Based Independence Index

This last index is based on responses to a questionnaire[19] presented in Annex 3. This questionnaire focuses on the CBI in practice rather than the theoretical independence stipulated by the law. The questionnaire was filled out by a number of economists and monetary specialists (see figure 3 for the distribution of respondents), whose responses were analyzed based on a group of indicators each assigned a code and a weight asshown in table 8 (Cukierman et al. (1992)). The possible numerical values of the codes are 0, 0.5, and 1, where 0 reflects the answer that conveys least the CBI and 1 reflects the highest CBI. If the question has four possible choices then the codes can take the numerical values of 0, 0.33, 0.66 and 1, where 0.33 reflects an answer that conveys moderately low CBI, and 0.66 conveys moderately high CBI. The weight[20] of each question is set according to Cukierman et al. (1992). The questionnaire is applied to the two most recent sub-periods (1983-1993 and 1994-2004). It is designed to reflect the seven issues listed below.

The first issue is the extent to which the term of office of the governor and board of directors is independent from the government. If the turnover of the CB governor coincides with the turnover of the government indicating high political vulnerability, then the CB is likely to be less independent and vice versa. The second issue is related to actual limitations on CB lending to the government. The third issue examines the extent to which the conflict between the CB and the government is resolved in favour of the latter. The fourth issue considers two aspects of financial independence of the CB, whether the CB has the authority to determine its budget, and set the salaries of its officials. The fifth issue is composed of two items concerning the intermediate policy targets. The first item assesses the quantitative monetary targets and the second item deals with interest rate targets. Actual priority of the objective price stability is the sixth issue investigated. Lastly, the final issue considers the extent to which the CB provides subsidized credit to encourage development.

Responses to the questionnaire were analyzed using 2 methods[21] which yielded similar results. Looking at table 9 one can make the following observations:

For the first issue, "responses indicate that that there has been relatively little overlap between the tenure of the governor" and the government. This indicates that the CBE governor is likely to be independent and not subservient to the government. Hence, this first issue scored the highest code of 1 in both periods.

Concerning the second issue, "the limitation on lending in practice", responses indicate that these limits are moderately loose in both the first and second periods under study. Hence, this issue scored 0.33 in both periods. This result is coherent with what the Legal index earlier showed concerning the CBE lending to the government.

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[19] It is worth noting that the questionnaire is based on subjective evaluations so this index probably contains some noise; however, it also contains additional significant information about actual independence.

[20] Using equal weights gave equal ranking in Cukierman et al. (1992) sample so they resorted to this differentiated weight.

[21] The mode and the weighted average based on frequency of responses, but the score according to the mode is reported here as the weighted average score will approximate to the value of the mode.

As to the third issue which tackles “the resolution of conflicts between the CBE and the government”, there was almost consensus among questionnaire respondents that resolution of conflicts is in favour of the government in almost all of the cases. This is translated into a score of 0 in both periods under study. This issue is in agreement with the evidence from the legal index that the government dominates the CBE political authority.

As for the fourth issue, “the financial independence of the CBE”, which is calculated by taking the simple average of the numerical coding of two items: the first is whether the CB has the authority to determine its budget; and the second is setting the salaries of its officials. The first item scored the highest code of 1 in the two periods of the study which shows that the CBE is mostly free to determine its budget. The second item scored 0.5 which conveys that the salaries of the CB officials are determined by a both the CB and the government in the two periods.

The fifth issue dealing with “the existence of an intermediate policy target” is composed of two items: The first item measures the extent of CB adherence to a quantitative target; and the second is involved with the existence of a formal or informal interest rate target. Responses indicate that during the first period under study the CBE adhered moderately to a quantitative monetary target, indicating that the CBE can abandon this target to accommodate for more discretionary targets set by the government. Therefore, this item scored 0.66 in this period. However, the answers indicate that during the second period the CBE had strong adherence to its quantitative monetary target, so this item scored the highest code 1. The responses coincide with the fact that during the adoption ERSAP, the money supply was closely monitored in order to curb inflation. Concerning the CBE’s adoption of an interest rate target, the answers point out that the CBE adhered to an interest rate target during both the first and second periods. Hence, this item scored the lowest code 0 to reflect that a target for the nominal interest rate would typically work to limit the ability of the CB to respond to upsurges of inflation (Cukierman et al., 1992). However, it must be noted that formally under the ERSAP the interest rate was supposedly free and determined by supply and demand. This shows that responses reflect the fact that there has been deviation between what was announced and what was being practices concerning the interest rate policy.

As to the sixth issue, “The actual priority of the CBE”, the responses indicate that maintaining a fixed exchange rate was the first priority of the CBE during the two periods of the study. Therefore, this item scored 0.66 during the first and second period indicating that although the CBE did not adopt multiple conflicting objectives but had a top priority, yet this priority was given to the exchange rate and not to the price stability. However, it must be noted that towards the end of the second period, specifically in 2003, two important developments took place: one is the floating of the exchange rate and two is the issuance of the CBE Law 2003 which stipulates that maintaining price stability is the primary objective of the CBE. Yet, it seems that these developments are too recent that the respondents to the questionnaire neglected these developments, or that the CB did not actually take actual steps towards achieving price stability.

The last issue, "the function of the CB as a development bank", scored 0.66 in the first period to reflect the responses that the CBE granted, to some extent, credit at subsidized rates in the first period. However, in the second period, this issue scored the highest code 1 as the responses indicate that the CBE no longer extends credit at subsidized rates, reflecting that it does not act as a development bank.

In general, this actual index pinpoints three variables that need enhancement to increase the degree of CBEI: (i) lending to the government in practice; (ii) the link between the CB and the political authorities; (iii) and finally the interest rate policy. Summing up the weighted value of the seven issues (variables) in the first and second period indicate a slight increase in CBEI from 0.5 in the first period to 0.6 in the second period, where 0.6 was the median of a group of 23 developed and developing countries calculated by Cukierman et al., 1992 and almost all developing countries fell below that median. This is a good sign that reveals that the CBE actual independence is advancing but rather slowly.

IV. Recommendations

Assessing the different indices and comparing indicators of legal CBI with indicators of actual (behavioral) CBI pinpoints certain aspects that need enhancement to improve the stance of CBEI. In the light of these aspects the study introduces some recommendations for the improvement of the CBE legislations and presents the following monetary policy stance that would contribute to enhancing the CBEI:

Examining the legal index of CBE through the period 1951-2004 reveals that even what is considered by many economists and legislators as the best written charter for the CBE, Law 1975 yielded only a moderate degree of independence. Furthermore, the latest amendment to the CBE charter Law 2003 proved controversial, because although some of its articles contribute positively to the institutional reform of the CBE, especially the one that sets the primary objective of the CB; yet, other articles are not written in a precise way, leaving much room for debate about their contribution to the independence of the CBE, especially the articles concerning the responsibility of the CB in setting and executing the monetary policy. In addition, no serious attempts were made to enhance CB political autonomy such as: introducing a major increase in the term of office of the governor. Also, no much enhancement to the structure of the CB board was stipulated such as to constrict the participation of government officials to participate on the board without a right to vote. Moreover, removing the article about prohibiting the dismissal of the CB governor during his term in office is considered a step back toward CBI. Hence, the CBE latest legislation yielded a relatively moderate degree of independence, in contrast to some developing economies that embarked only recently on reforming their CBs aiming at achieving a higher degree of CBI such as Argentina and Peru.22

[22] The degree of CBI of Argentina and Peru is 18.5 and 17 respectively (out of 19) source: Jacome, 2001 versus Egypt's degree of CBI according to its latest legislation and using the same index 10.

In addition, the study demonstrates that the legislative framework of the CBE needs major amendments to ensure the CB's autonomy and to increase its degree of independence. Comparing indicators of legal CBI with indicators of actual (behavioral) CBI pinpoints certain aspects that need enhancement to increase CBEI by narrowing the gap between the CBI conferred by law and that applied in practice.

The first aspect is the limitations on lending to the government, where the legal index reveals that although the credit to the government is not discretional but within the 10% limit stipulated by law, still it is not confined to emergency cases. This confirms what the actual index revealed that the limitations on lending in practice are moderately loose. One possible recommendation to rectify this situation is to prohibit the CBE from granting direct credit to the government (even within limits), in accordance with the guidelines for best practice of CBI. Yet, this may be rather strict for the transition economies, until the market for government securities is fully developed (Lybek, 1999). Also, one major flaw in the CBE monetary legislation is the absence of limits to the CB mechanism of LOLR, which is a potential source of indirect financing to the government during periods of financial distress or crises.

The second aspect is concerned with the resolution of conflicts that may arise between the CBE and the government. The study reveals that the resolution of conflicts is in favor of the government in most of the cases in practice. This is in agreement with what the legal index revealed about the government political dominance over the CBE which is revealed in the structure of the CBE board of directors. Also, the law does not specify any system for conflict management between the CB and the government. One possible way to deal with this problem is to establish a clear and open process to resolve any policy conflict between the CB and the government.

V. Conclusion

The concept of CBI underlying this study is the independence to pursue the objective of price stability, even at the cost of other objectives that may be more important to the political authorities. Thus, the indicators of CBI in this study include institutional, political, economic, as well as, measures of the relative importance attached to price stability in the central bank law and in practice.

This study quantifies the degree of CBEI since its establishment until 2004. It shows how the degree of independence varies through four periods that roughly match with four main decades in the Egyptian economy, namely the decade of nationalization and heavy state intervention, followed by the decade of open door policy, the decade of reform, and finally the decade embarking the economic reform and structural adjustment.

The study uses four indices. The first is the legal index which shows the degree of independence that the legislator (government) meant to confer to the CBE by law. The other three indicators are behavioural indices, which are very important indices for a developing country where the law can be ambiguous or lacking the required enforcement. The use of both legal and behavioural indices allows for capturing any divergence between the degree of CBE independence conferred by law and applied in practice. In addition, the fact that within two of these indices (legal and questionnaire based index) there are several indicators such as financial, political and economic indicators helps to pinpoint which indicators require amendment to reinforce the CBEI. In the light of these indicators, the study introduces some recommendations for improving the legislations of the CBE to enhance the degree of CBEI.

In general, this study concludes (using both the legal and the actual (questionnaire based) indices) that the CBE enjoys a moderately low degree of independence, in comparison to some Latin American countries who embarked on the institutional reform of their CB much more recently during the 1990s and achieved a much higher degree of CBI. Hence, the study deduces that the amendment of the CBE law is the key to the institutional reform of the CBE. Since the prospects of reforming the CB seem greater with a higher degree of legal autonomy and accountability, which arguably generates a larger degree of behavioural autonomy and accountability, and increases the likelihood for better financial and price stability. Also, the monetary policy should be the sole responsibility of the CB if it was to achieve price stability. The government should assure enough legal and actual autonomy for the CB by reducing the government dominance in the CBE to give the adequate authority to achieve its ultimate target of price stability. . In addition, the CBE mechanism as LOLR and the CB limits on lending to the government should undergo major enhancement; and the CBE should develop a system for the resolution of conflicts that may arise with the political authorities. Finally, the study recommends a system of checks and balances to balance the autonomy granted to the CBE. The CBE already has sound procedures assuring its transparency and accountability, still the study suggests that the legislative authorities monitor the fulfilment of these requirements in practice.

As in similar studies, all the indices used in this study are just attempts to quantify a very complex structure and pack it into one number. This process involves subjective or arbitrary decisions in coding, classifying, and weighing legal information and in the responses to the questionnaire-based index. It must be also noted that CBI is only one of the several institutional devices for ensuring price stability. In practice both the CBI and the political will to pursue sound economic policies are important for maintaining price stability.

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Appendix: Tables and Figures

Table 1. Patterns of political Independence according to Bade and Parkin (1982)

Pattern of Political Independence	CB has the final say in monetary policy management	No government members exist on CB board of directors	Ability of CB to independently appoint some of the members on the board of directors
(1)	No	No	No
(2)	No	Yes	No
(3)	Yes	Yes	No
(4)	Yes	Yes	Yes

Source: Alesina, 1988.

Table 2. Patterns of political Independence according to Eijffinger and Schaling

Pattern of Political Independence	CB has the final say in monetary policy management	No government members exist on CB board of directors	Ability of CB to independently appoint some of the members on the board of directors
(1)	(g)[23]	No	No
(2)	(g)	Yes	No
(3)	(b/g) [24]	Yes	No
(4)	(b) [25]	Yes	No
(5)	(b)	Yes	Yes

Source: Eijffinger, S & de Haan, J, (1996).

[23] g: means that the government solely executes monetary policy
[24] b/g: refers to twin authority(where the authority of formulating the monetary policy is distributed between the CB and the government)
[25] b: means that the central bank independently executes monetary policy

Table 3: Jacome's Index of Central Bank Independence and Accountability (Criteria, value and weights)

Value / Criteria (Weight)	1	0.5	0
1- Central bank objective (2)	Preserving price stability is the single objective. If more than one conflicting objective, price stability has priority.	Multiple conflicting objectives without establishing price stability have priority.	Multiple objectives including growth, an orderly development, or economic development, without priority.
2- Appointment and term of office of the members of the Central Bank Board(2)	Nominated (appointed) by government and appointed (confirmed) by Congress Term in office exceed or overlap government period.	Nominated and appointed in a two-step process for same term in office than government without overlap, or directly for longer term.	Appointed directly by the government for the same or shorter period than the government.
3- Structure of Central Bank Board (2)	No private sector and government representatives, except Min of Finance without vote.	Direct government representatives, including Minister of Finance with vote.	Direct government plus private sector representatives (bankers, entrepreneurs, etc).
4- Removal of Board members (2)	Two-step process, with qualified majority under strictly legal grounds, Final decision by Congress or Judicial Court.	Directly by the Executive branch under strictly legal grounds, or in two-step process under non-legal basis.	Removal by the Executive branch for subjective or political – not legal- grounds, or by the private sector.
5- Central Bank credit to government (3)	No direct credit, except in clearly regulated emergency situation Or through the secondary market, with Limitations.	Direct credit with limits, via secondary market without limits, through overdrafts, or indirectly via public banks.	Direct or indirect credit without limits.
6- Leader-of-last resort (2)	Emergency loans legally regulated, including limits to the amount to be granted.	Emergency loans legally regulated, without limits to the amount to be granted.	Discretionary policy for emergency loans and provisions for bank resolution.
7- Instruments independence in the conduct of monetary policy (3)	Total independence in the use of monetary instruments.	Government involvement in formulation of monetary and exchange rate policy.	Limitations on the use of monetary instruments (reserve requirements, interest rates) .
8- Financial independence (1)	Government assures central bank capital integrity. Central bank transfers profits to the government after proper provisioning.	Government not required to assure integrity of central bank capital, External approval of central bank budget.	Central bank conducts quasi-fiscal operation, no government capitalization required.
9-Accountability (1)	Central bank Governor appears before Congress and reports to government. Report disclosed on a timely basis.	Reports only to the government on a regular basis or when there are monetary disturbances plus a manual report.	Central bank only publishes an annual report.
10Transparency and disclosure of financial statement(1)	Publishes periodically financial statement certified by an external auditor.	Publishes financial statement with the approval of a public sector auditor	Inappropriate accounting procedures. Publishes financial statement with the seal of internal auditor.

Source: Jacome, (2001)

Table 4: Numerical Evaluation of Disaggregated Legal Variables[26]

Period/ Value Legal Variables Criteria (weight)	1961-71	1972-82	1983-93	1994-2004
1- Central bank objective (2)	0.5	0.5	0.5	1
2- Appointment and term of office of the members of the Central Bank Board(2)	0	0	0	0
3- Structure of Central Bank Board (2)	0.5	0.5	0	0.5
4- Removal of Board members (2)	0	1	1	0
5- Central Bank credit to government (3)	0.5	0.5	0.5	0.5
6- Leader-of-last-resort (2)	0.5	0.5	0.5	0.5
7- Instruments independence in the conduct of monetary policy (3)	0	0.5	0.5	0.5
8- Financial independence (1)	1	1	1	1
9- Accountability (1)	0.5	1	1	1
10- Transparency and disclosure of financial statement(1)	0.5	1	1	1
CBI (NumericalValue)	**6.5**	**11**	**10**	**10**

Source: Computed by the researchers

[26] A brief account of the legislations that relate to the numerical evaluations in the table is illustrated in Annex I.

Table 5: Legal Central Bank of Egypt Independence, 1961-2004[27]

Period / Variable	First Period 1961-1971			Second Period 1972-1982			Third Period 1983-1993			Fourth Period 1994-2004		
	Numerical Value	Weight	Weighted Value[28]	Numerical Value	Weight	Weighted Value	Numerical Value	Weight	Weighted Value	Numerical Value	Weight	Weighted Value
1- CB objective	0.5	2	1	0.5	2	1	0.5	2	1	1	2	2
2- Appointment and term of office of the members of the CB Board	0	2	0	0	2	0	0	2	0	0	2	0
3- Structure of Central Bank Board	0.5	2	1	0.5	2	1	0	2	0	0.5	2	1
4- Removal of Board members	0	2	0	1	2	2	1	2	2	0	2	0
5- CB credit to government	0.5	3	1.5	0.5	3	1.5	0.5	3	1.5	0.5	3	1.5
6- Leader-of-last-resort	0.5	2	1	0.5	2	1	0.5	2	1	0.5	2	1
7- Instruments independence	0	3	0	0.5	3	1.5	0.5	3	1.5	0.5	3	1.5
8- Financial independence	1	1	1	1	1	1	1	1	1	1	1	1
9- Accountability	0.5	1	0.5	1	1	1	1	1	1	1	1	1
10- Transparency and disclosure of financial statement	0.5	1	0.5	1	1	1	1	1	1	1	1	1
CBI (=∑ of the weighted values of the 10 criteria)	_	19	**6.5**	_	19	**11**	_	19	**10**	_	19	**10**

[27] Source: Computed by the researchers.
[28] Computed as numerical value*weight.

Table 6: Turnover of the CBE Governors[29].

1961-71			1972-82			1983-93			1994-2004		
Governor	(average) Turnover of CB Governor	average turnover during the period	Governor	(average) Turnover of CB Governor	average turnover during the period	Governor	(average) Turnover of CB Governor	average turnover during the period	Governor	(average) Turnover of CB Governor	average turnover during the period
Dr.Elrafie (1960/61-64)	0.25	0.27	Mr.Zendo (1971/72-76)	0.2	0.18	Mr.Shalaby (1982/83-85)	0.33	0.27	Mr.Hassan (1993/94-2001)	0.125	0.2
Mr.Zendo (1964/65-67)	0.33		Mr.Ibrahim (1976/77-82)	0.16		Mr.Negm (1985-86)	1		Dr.Abou-elEyoun (2001/02-03)	0.5	
Mr.Nazmy (1967/68-71)	0.25					Mr.Hamed (1986/87-93)	0.14		Mr. El Oukda (2003/04-)[30]	-	

Source: Computed by the researchers.

[29] Detailed Explanation of the calculations of the average tenure is presented in Annex 2.
[30] The average turnover of the last (and current) governor, Mr. El Oukda, is not calculated as it remains unknown for how long he will stay in office.

Table 7: Appointment of the CBE Governors and the Egyptian Prime Ministers

Appointment of the CBE Governor[31]		Egyptian Prime Minister[32]	
26 Mar. 1960	Dr. ElRafie	20 Sept. 1960	Kamal Eldin Hssien
25 Mar. 1964	Ahmed Zendo (1st. period)	29 Sept. 1962	Ali Sabry
6 Feb. 1967	Ahmed nazmy A.Elhamid	3 Oct. 1965	Zakaria MohyEldin
1 Feb. 1971	Ahmed Zendo (2nd period)	10 Sept. 1966	Mohamed Sedky Soliman
19 Mar. 1976	Moh. A.ElFataah Ibrahim	19 Jun. 1967	Gamal Abdel Naser
27 Feb. 1982	Moh. Amin Shalaby	21 Oct. 1970	Mahmoud Fawzy
31 Mar. 1985	Ali Negm	17 Jan. 1972	Aziz Sedky
10 Nov. 1986	Dr.Mahmoud Hamed	26 Mar. 1973	Anwar ElSadat (1sttime)
13 Oct. 1993	Ismail Hassan Moh	25 Sept. 1974	Abdel Elaziz Mohamed Hegazy
30 Oct. 2001	Dr.Mahmoud Abo ElAyon	16 Apr. 1975	Mamdouh Mohamed Salem
1 Dec. 2003	Dr. farouk Elokda	2 Oct. 1978	Mostafa khalil
		15 May. 1980	Anwar ElSadat (2nd time)
		7 Oct. 1981	Hosny Moubarak
		2 Jan. 1982	Ahmed Fouad Mohy Eldin
		17 Jul. 1984	Kamal Hassan Ali
		4 Sept. 1985	Ali Mahmoud Lotfy
		10 Nov. 1986	Atef Mohamed Naguib Sedky
		4 Jan. 1996	Kamal Ganzory
		5 Oct. 1999	Atef Ebeid
		14 Jul. 2004	Ahmed Nazef

[31] Source: El Tashreat El Masriah, Presidential Decrees numbers: 541/1960,1302/1964,583/1967,180/1971,276/1976,97/1982,116/1985,467/1986,378/1993,390/2001,313/2003.
[32] Source: www.worldstatesmen.org

Table 8. Questionnaire Variables, Weights, and Numerical Coding.

Variable number	Variable Description	Weight	Numerical coding
1	Tenure of central bank CEO overlap with political Authorities	0.10	
	Little overlap		1.0
	Some overlap		0.5
	Substantial overlap		0.0
2	Limitations on lending in practice	0.20	
	Tight		1.00
	Moderately tight		0.66
	Moderately loose		0.33
	Loose or nonexistent		0.00
3	Resolution of conflict	0.10	
	Some clear cases of resolution in favor of bank		1.0
	Resolution in favor of government in all cases		0.0
	All other cases		0.5
4	Financial independence	0.10	
	a. Determination of the central bank's budget		
	Mostly central bank		1.0
	Mixture of bank and executive or legislative branches		0.5
	Mostly executive or legislative branches		0.0
	b. Determination of the salaries of high bank officials And the allocation of bank profits		
	Mostly by bank or fixed by law		1.0
	Mixture of bank and executive or legislative branches		0.5
	Mostly executive or legislative branches		0.0
5	Intermediate policy targets	0.15	
	a. Quantitative monetary stock target		
	Such targets exist; good adherence		1.00
	Such targets exist; mixed adherence		0.66
	Such targets exist; poor adherence		0.33
	No stock targets		0.00
	b. Formal or informal interest rate targets		
	No		1
	Yes		0
6	Actual priority given to price stability	0.15	
	First priority		1.00
	First priority assigned to a fixed exchange rate		0.66
	Price or exchange rate stability are among the bank's Objectives, but not first priority		0.33
	No mention of price or exchange rate objectives		0.00
7	Function as development bank, granting credit at subsidy rate?	0.20	
	No		1.00
	To some extent		0.66
	Yes		0.33
	The central bank heavily involved in granting subsidized credits		0.00

Source: Cukierman, et al. (1992).

Table 9. CBEI Based on Questionnaire Responses.

Method I. Estimating the questionnaire responses using the mode.

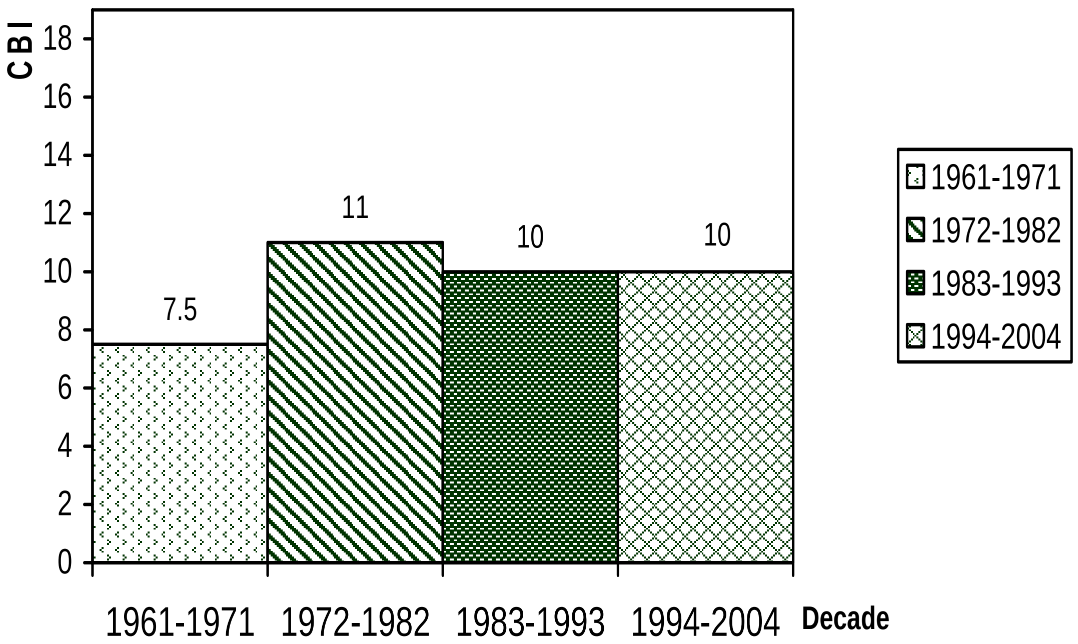
Variable number	Variable	First Period				Second Period			
		Description	Numerical coding	Weight	Weighted value (=numerical code *weight)	Description	Numerical coding	Weight	Weighted valjue (=numerical code *weight)
1	Tenure of central bank governor overlap with political authorities	Little overlap	1.0	0.10	0.10	Little overlap	1.0	0.10	0.10
2	Limitations on lending in practice	Moderately loose	0.33	0.2	0.066	Moderately loose	0.33	0.2	0.066
3	Resolution of conflict	Resolution in favor of government in all cases	0.0	0.10	0	Resolution in favor of government in all cases	0.0	0.10	0
4	Financial independence	Simple average of criteria a and b	-	0.10	-	Simple average of criteria a and b	-	0.10	-
	a. Determination of the central bank's budget	Mostly central bank	1.0	-	-	Mostly central bank	1.0	-	-
	b. Determination of the salaries of high bank officials	Mixture of bank and executive/ legislative branches	0.5	-	-	Mixture of bank and executive/ legislative branches	0.5	-	-
	Simple Average	-	(1+0.5)/2	0.10	0.075	-	(1+0.5)/2	0.10	0.075
5	Intermediate policy targets	Simple average of criteria a and b	-	0.15	-	Simple average of criteria a and b	-	0.15	-
	a. Quantitative monetary stock target	Such targets exist; mixed adherence	0.66	-	-	Such targets exist; good adherence	1.00	-	-
	b. Formal or informal interest rate targets	Yes	0	-	-	Yes	0	-	-
	Simple Average	-	(0.66+0)/2	0.15	0.0495	-	(1+0)/2	0.15	0.075
6	Actual priority given to price stability	First priority assigned to a fixed exchange rate	0.66	0.15	0.099	First priority assigned to a fixed exchange rate	0.15	0.66	0.099
7	Function as development bank, granting credit at subsidy rate?	To some extent	0.66	0.20	0.132	No	0.20	1.00	0.2
CBI according to this index	Summation of the seven weighted values	-	-	1	0.52	Summation of the seven weighted values	-	1	0.61

Method II. Estimating the questionnaire responses using the weighted average (based on frequency of responses).

Variable number	Variable	First Period				Second Period			
		Description	Numerical coding	Weight	Weighted value (=numerical code *weight)	Description	Numerical coding	Weight	Weighted valjue (=numerical code *weight)
1	Tenure of central bank CEO overlap with political Authorities	Relatively little overlap	0.65	0.10	0.065	Relatively little overlap	0.68	0.10	0.068
2	Limitations on lending in practice	Moderately loose	0.4	0.2	0.08	Moderately loose	0.46	0.2	0.092
3	Resolution of conflict	Resolution in favour of government in all cases	0.1	0.10	0.01	Resolution in favour of government in **most** of cases	0.3	0.0	0.03
4	Financial independence	Simple average of criteria a and b	-	0.10	-	Simple average of criteria a and b	-	0.10	-
	a. Determination of the central bank's budget	Mostly central bank	0.63	-	-	Mostly central bank	0.74	-	-
	b. Determination of the salaries of high bank officials	Mixture of bank and executive/ legislative branches	0.53	-	-	Mixture of bank and executive/ legislative branches	0.58	-	-
	Simple Average	-	(0.63+0.53)/2	0.10	0.058	-	(0.74+0.58)/2	0.10	0.066
5	Intermediate policy targets	Simple average of criteria a and b	-	0.15	-	Simple average of criteria a and b	-	0.15	-
	a. Quantitative monetary stock target	Such targets exist; mixed adherence	0.64	-	-	Such targets exist; good adherence	0.85	-	-
	b. Formal or informal interest rate targets	Yes	0.2	-	-	Yes	0.07	-	-
	Simple Average	-	(0.64+0.2)/2	0.15	0.063	-	(0.85+0.07)/2	0.15	0.069
6	Actual priority given to price stability	First priority assigned to a fixed exchange rate	0.56	0.15	0.084	First priority assigned to a fixed exchange rate	0.64	0.15	0.096
7	Function as development bank, granting credit at subsidy rate?	To some extent	0.7	0.20	0.14	No	0.84	0.2	0.168
CBI according to this index	Summation of the seven weighted values	-	-	-	0.5	Summation of the seven weighted values	-	-	0.59

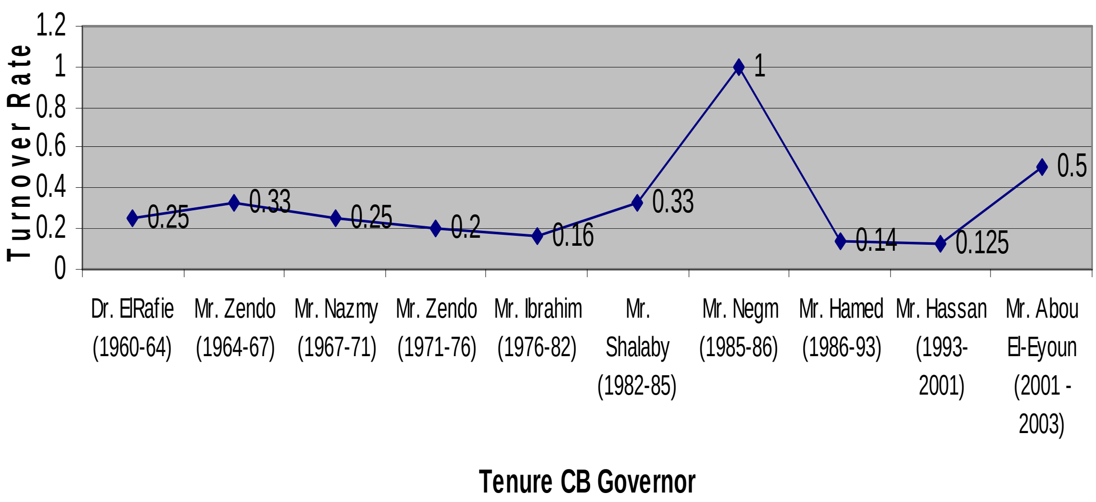
Source: Computed by the researchers based on questionnaire responses.

Figure 1. Legal Central Bank of Egypt Independence



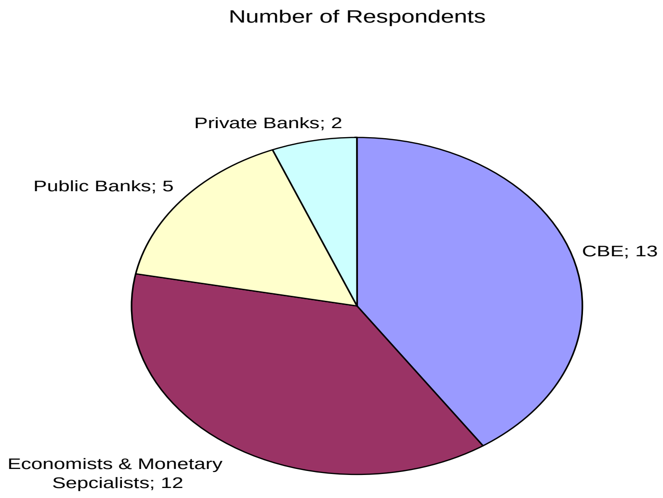
Source: Illustrated by the researchers.

Figure 2. The Rate of Turnover of the CBE Governors:



Source: Illustrated by the researchers.

Figure 3: Categorizing Questionnaire Respondents.



Annexes

Annex 1: A brief account of CBE legislations relevant to the legal variables:

A. Legislations relevant to the first decade:

1. According to article 1 in law 163 year 1957 [Credit and Banks Law] amended by law 250/1960(which was in its turn amended by law 277/same year). The NBE (latter the CBE according to law 250/1960) is responsible for organizing and executing the credit and monetary policy according to the state's plan, and according to what supports the national economy and assures monetary stability.[Multiple conflicting objectives without the establishment that price stability has priority.]

2. According to articles 2 and 3 of law 163/1957 the governor and his deputy are appointed for five renewable years by a presidential decree. Also, two representatives of the ministries of Finance and Economy are appointed by the ministerial decrees. The rest of the board is elected by the General Assembly (dominated by government representatives) for five years. Thus, the governor and CBE board are appointed by the government, but their term in office is not directly related to the term of the government in force (can overlap with other governments). However, law 2336/1960 article 22 amended law 1957 by stating the governor, his deputy, and the rest of the board members are appointed by the President for 3 years.

3. According to articles 2 and 4(b) of law 163/1957 which states that the board of the CB constitutes of a governor and a vice-governor and number of members of the board which does not exceed seven but not less than three (article 4(b) representatives should not have any benefit with any of the banks governed by this law), also, the board should include representatives of the Finance and Economic ministries with equal rights and power as other members of the board. As well as, law 17/1965 amending law 250/1960 that articulates that CB board consists of a governor and a deputy, two representatives of Ministry of Economics and Foreign Trade and a Ministry of Treasury, and CEO's of commercial and specialized banks (all public banks due to nationalization laws), or their representatives, and three financial or monetary specialists appointed by the president upon the nomination of the Minister of Economy and Foreign Trade.

4. Law 163/1957 and article 22 of law 2336 for year 1960 (amending law 163) articulated the conditions for the appointment of CB board; however, it does not stipulate any regulations for the dismissal of the governor or any of the board members.

5. Article 15 in law 163/1957 stipulates CB can extend credit to the government to finance seasonal deficit in the budget, within a limit of 10% of the average revenue of the preceding three fiscal years. Therefore, CB extends direct credit with limits.

6. Article 50 of law 163/1957 stipulates that CBE can extend loans to banks in Case of financial disturbance or emergency, the conditions and terms of which are determined by the board and with collateral stipulated by the board. No limits for

the loan are indicated by the law. [Article 15 of law 2336/1960 stipulates exactly the same stated above].

7. Article 48 of law 163/1957 states that the CBE sets the interest and discount rates according to the nature of transactions. It is understood that these rates should be within the limits set by the civil law.

8. According to article 4 of law 2336/1960 the government assures CB capital integrity by allowing the use of reserves for capitalization up to the levels stipulated by law.

9. According to article 12 of law 250/1960 the CB reports only to the government (Minister of Economics and Central Council of Money and Credit) on a regular basis, besides disclosing an annual report.

10. Article 11 of law 250/1960 stipulates that CB publishes financial statement with approval of a public sector auditor appointed by the Minister of Economics.

B. Legislations relevant to the second decade:

1. Law 120/1975 article 14 states that until there is a presidential decree stating the Basic Order of the CB is issued the Basic order stipulated by law 2336/1960 remains in effect, so the objective of the CB remains unchanged since 1960.
2. According to law 120/1975 article 6 stipulates that the governor and his vice and three specialized members of the board are appointed by the president for four renewable years.
3. Law 120/1975 article 6 states that the CB board of directors is composed of a CB governor, a deputy, the chairmen of different public sector banks, two representatives on behalf of both of the ministry of Treasury and ministry of Trade and Economic Cooperation (each appointed by his minister) and three specialists on financial, legal, and monetary affairs.
4. Article 6 of law 120/1975 states that the governor can not be dismissed during his term in office. As for the board members no article of that law deals with their dismissal. (Thus applying this indicator is relative to the governor only.)
5. No article of that law120/1975 deals with CB credit to the government. Thus law 1957 applies in accordance with article 27 law 1975 which dictates the appliance of law 163/1957 in case of the absence of any regulations.
6. No article of that law120/1975 deals with CB role as lender of last resort. Thus law 1957 applies in accordance with article 27 law 1975 which dictates the appliance of law 163/1957 in case of the absence of any regulations.
7. According to article 1 of law120/1975, the CBE executes (but not sets) and supervises the monetary and credit policy according to the government's plan, however, article 7 of the same law frees CB from the limits on the use of monetary policy instruments (Free to set interest and discount rates), still the government involvement prevails).
8. Article 23 of law 120/1975 states explicitly that the net profits of the CB and public sector banks are transferred to the Treasury after deduction of the necessary reserves
(which assures the CB capital integrity).

9. According to law 120/1975 articles 12 and 13 of the law stipulate that upon three months of the end of the fiscal year the CB discloses the balance of profits and losses, the CB budget signed by the governor and the certified accountants, and discloses other financial and economic reports to the government. Also, CB is obliged to disclose an annual report about the monetary and credit conditions of Egypt to the people's assembly three months after the end of the fiscal year.
10. Law 120/1975 article 11 stipulates that the Central accounting authority appoints and sets the fees of two auditors to review the accounts of the CB on yearly basis.

C. Legislations relevant to the third decade:

1. No amendment to the objectives during the 1980s.
2. No amendment to the appointment and term in office during the 1980s.
3. The structure of the CB board stipulated in law 120/1975 was amended by law 50/1984, the major change was including a representative of the Business Sector and two Chairmen from the banking sector (not necessarily from the public sector).
4. No amendments occurred to the following criterion, so law 120/1975 still applied.
5. No amendments occurred to the following criterion, so law 163/1957 still applied.
6. No amendments occurred to the following criterion, so law 120/1975 still applied.
7. No amendments occurred to the following criterion, so law 120/1975 still applied.
8. Article 23 of law 50/ 1984 states explicitly that the net profits of the CB and public sector banks are transferred to the Treasury after deduction of the necessary reserves (This assures capital integrity).
9. No amendments occurred to the following criterion.
10. No amendments occurred to the following criterion.

D. Legislations relevant to the final decade:

1. Article 5 of law 88/2003 stipulates that CB's objective is achieving price stability and integrity of financial system within the framework of the country's general economic policy.
2. Article 10 of law 88/2003 the people's assembly has no role in the appointment of the CB board or the governor, and the term in office for the governor is four renewable years. None of the board members is nominated by the governor except the two deputies to the governor which are nominated by him and appointed by the President.
3. Although article 3 sub articles 6 of law 37/1992 includes two chairmen from the banking sector and increased the number of representatives of the business sector in the CB board to two, yet law 88/2003 (amending law 1992) excludes the two business sector representatives and the two bank chairmen[33].
4. Articles 10, 11, and 12 of law 88/2003 stipulates the conditions for appointment of CB board, however, it does not stipulate any regulations for the dismissal of the governor or any of the board members.
5. Article 27 law 88/2003 still puts limit on CBE credit to the government.
6. Articles 7 and 8 of law 88/2003 allow CB to extend credit and emergency loans to banks without stipulating limits.

[33] It must be noted that in practice the CB board members include representatives from the private sector (two chairmen of private banks)

7. According to article 5 law 88/2003 CB **sets** the monetary policy objectives with accord with the government and then **executes** the monetary and credit policy. There is no mention in the law that CB is free to set the reserve requirement and interest rate.
8. Article 3 of law 59/1993 raised the CBE's capital adequacy to 100 million LE and article 4 necessitated the establishment of legal reserves equal to 100% of the CB's capital and allows the CB board to make additional reserves out of the annual net profits. Also, article 22 of law 88/2003 stipulates the net profits of the CB would be transferred to the Treasury after deducting the required reserves.
9. Article 21 law 88/2003 stipulates that the financial statements as well as, the auditors report and the annual report are disclosed to the president, the Prime-Minister, the Shura Council, and the People's Assembly.
10. Article 19 of law 88/2003 stipulates that external auditors are appointed by the Central Accounting Authority for auditing the financial statements of the CB.

Annex 2: Calculating the Rate of Turnover of the CBE Governors:

First Method: Average Turnover Rate (= average number of changes in CB governors per year)

First Period (1961-1971):

Governor (Term in office according to fiscal years)	Average turnover (= no. of changes per year)
Dr.Elrafie (1960/61-64)	4 years tenure=0.25
Mr.Zendo (1964/65-67)	3 years tenure=0.33
Mr.Nazmy (1967/68-71)	4 years tenure=0.25
Average Turnover of the first period(=average no. of changes a year)	=no. of changes in CB governors/no. of years in period=3/11=0.27

Second Period (1972-1982):

Governor (Term in office according to fiscal years)	Average turnover (= no. of changes per year)
Mr.Zendo (1971/72-76)	5 years tenure=0.2
Mr.Ibrahim (1976/77-82)	6 years tenure=0.16
Average Turnover of the second period (=average no. of changes a year)	=no.of changes in CB governors/no. of years in period=2/11=0.18

Third Period (1983-1993):

Governor (Term in office according to fiscal years)	Average turnover (= no. of changes per year)
Mr.Shalaby (1982/83-85)	3 years tenure=0.33
Mr.Negm (1985/86-86)	1 year tenure=1
Mr.Hamed (1986/87-93)	7 years tenure=0.14
Average Turnover of the third period (=average no. of changes a year)	=no.of changes in CB governors/no. of years in period=3/11=0.27

Fourth Period (1994-2004):

Governor **(Term in office according to fiscal years)**	**Average turnover (= no. of changes per year)**
Mr.Hassan (1993/94-2001)	8 years tenure=0.125
Dr.Abou-elEyoun (2001/2002-2003)	2 years tenure=0. 5
Mr. El Oukda (2003/2004-)	_
Average Turnover of the fourth period (=average no. of changes a year)	=no.of changes in CB governors/no. of years in period=2/10=0.2

Notes on the calculations:
Periods are calculated as fiscal years, where each governor is assumed to begin his term in office at the beginning or mid of the fiscal year for simplicity in calculation. For example, it is assumed that Mr. Nazmy ended his term in office in 30/6/1971 and Mr. Zendo started his (second) term in office at the beginning of the fiscal year 71/72 in 1/7/1971. This assumption also allows for avoiding double counting the last year in the tenure of one governor and the first year in the tenure of the succeeding governor.
The method used above in calculating the average turnover of the period corresponds with another method which takes the weighted average turnover of each governor. This method explained below assumes each year is divided into two sub periods which corresponds to the idea of calculating the periods of the governors as fiscal years and it yields the same results.

Second Method: Weighted Average Method

1961-71			1972-82			1983-93			1994-2004		
Governor	(average) Turnover of CB Governor	average Turnover during the period	Governor	(average) Turnover of CB Governor	average Turnover during the period	Governor	(average) Turnover of CB Governor	average Turnover during the period	Governor	(average) Turnover of CB Governor	average Turnover during the period
Dr.Elrafie (1960-64)	0.25		Mr.Zendo (1972-76)	0.2		Mr.Shalaby (1983-85)	0.33		Mr.Hassan (1994-2001)	0.125	
Mr.Zendo (1964-67)	0.33	0.27	Mr.Ibrahim (1976-82)	0.16	0.18	Mr.Negm (1985-86)	1	0.26	Dr.Abou-elEyoun (2001-2003)	0.5	0.2
Mr.Nazmy (1967-71)	0.25		Mr.Shalaby (1982-)	0.33		Mr.Hamed (1986-93)	0.14		Mr. El Oukda (2003-)[34]	-	
Mr.Zendo (1971-)	0.2					Mr.Hassan (1993-)					

First Period (1961-1971):

Governor (Term in office according to fiscal years)	Average Turnover (= no. of changes per year)	Term spent in office during first sub-period/entire period(where 11 years=22 periods)	weighted average turnover of each governor
Dr.Elrafie (1960/61-64)	4 years tenure=0.25	* 7/22	=0.079545
Mr.Zendo (1964/65-67)	3 years tenure=0.33	*6/22	=0.09
Mr.Nazmy (1967/68-71)	4 years tenure=0.25	*8/22	=0.0909
Mr.Zendo (1971/72-)	5 years tenure=0.2	*1/22	=0.009
Average Turnover of the first period	=summation of weighted average turnover of each governor	0.079545+0.09 +0.0909+0.009	=0.27

[34] The average tenure of the last (and current) governor, Mr. El Oukda, is not calculated as it remains unknown for how long he will stay in office.

Second Period (1972-1982):

Governor (Term in office according to fiscal years)	Average Turnover (= no. of changes per year)	Term spent in office during second sub-period/ entire period(where 11 years=22 periods)	weighted average turnover of each governor
Mr.Zendo (1972-76)	5 years tenure=0.2	* 9/22	=0.081818
Mr.Ibrahim (1976/78-82)	6 years tenure=0.16	*12/22	=0.0872727
Mr.Shalaby (1982/83-)	3 years tenure=0.33	*1/22	=0.015
Average Turnover of the second period	=summation of weighted average turnover of each governor	0.081818+0.0872727 +0.015	=0.18

Third Period (1983-1993):

Governor (Term in office according to fiscal years)	Average Turnover (= no. of changes per year)	Term spent in office during third sub-period/ entire period(where 11 years=22 periods)	weighted average turnover of each governor
Mr.Shalaby (1983-85)	3 years tenure=0.33	* 5/22	=0.075
Mr.Negm (1985/86-86)	1 year tenure=1	*2/22	=0.0909
Mr.Hamed (1986/87-93)	7 years tenure=0.14	*14/22	=0.08909
Mr.Hassan (1993/94-)	8 years tenure=0.125	* 1/22	=0.005681
Average Turnover of the third period	=summation of weighted average turnover of each governor	0.075+0.0909 +0.08909+0.005681	=0.26

Fourth Period (1994-2004):

Governor (Term in office according to fiscal years)	Average Turnover (= no. of changes per year)	Term spent in office during fourth sub-period/entire period[35]	weighted average turnover of each governor
Mr.Hassan (1994-2001)	8 years tenure=0.125	* 15/19	=0.09868421
Dr.Abou-elEyoun (2001/2002-2003)	2 years tenure=0. 5	*4/19	=0.105263157
Mr. El Oukda (2003/2004-)	_	_	_
Average Turnover of the fourth period	=summation of weighted average turnover of each governor	0.09868421 +0.105263157	=0.2

Annex 3:

The Following Questionnaire aims to help quantify the status of actual Central Bank Independence in Egypt for the two sub periods 1983-1993 and 1994-2004.

Name:
Position:
Telephone:

Indicator	*Period 1983-1993*	*Period 1994-2004*
1.In your opinion the term of office of the central bank governor and that of the political authorities exhibit:	a) Little overlap b) Some overlap c) Substantial overlap	a) Little overlap b) Some overlap c) Substantial overlap
2. According to your judgment the limitations of the Central bank on lending (to the government) in practice is:	a) Tight b) Moderately tight c) Moderately loose d) Loose or non-existent	a) Tight b) Moderately tight c) Moderately loose d) Loose or non-existent
3. Do you think that the resolution of conflicts between the central bank and political authorities (the government) indicate?	a) Some clear cases of resolution in favor of the central bank b) resolution in favor of the government in all cases c) all other possibilities of resolution	a) Some clear cases of resolution in favor of the central bank b) resolution in favor of the government in all cases c) all other possibilities of resolution

[35] In fourth period the entire period is 19 (not 22) where the 9 years (1994-2002)*2 (each year is calculated as 2 sub periods) =18 + 1 sub period of last year (2003).

Indicator	*Period 1983-1993*	*Period 1994-2004*
4a. Do you believe that the determination of the central bank's budget is done:	a) mostly by the central bank b) by mixture of the central bank and executive or legislative authorities c) mostly by executive or legislative branches	a) mostly by the central bank b) by mixture of the central bank and executive or legislative authorities c) mostly by executive or legislative branches
4b. The determination of the salaries of high central bank officials and the allocation of bank profits are done	a) mostly by the central bank b) by mixture of the central bank and executive or legislative authorities c) mostly by executive or legislative branches	a) mostly by the central bank b) by mixture of the central bank and executive or legislative authorities c) mostly by executive or legislative branches
5a. Do you believe that the central bank's adherence to a quantitative monetary target is	a) strong b) moderate c) poor or non-existent	a) strong b) moderate c) poor or non-existent
5b. Do interest rate targets (formal or informal) exist?	a) Yes b) No	a) Yes b) No
6. The actual policy objective of the central bank of Egypt gives	a) First priority to price stability b) First priority to a stable exchange rate. c) Price or exchange rate stability is among the bank's objectives but not first priority. d) Price or exchange rate stability are not among the central bank's objectives	a) First priority to price stability b) First priority to a stable exchange rate. c) Price or exchange rate stability is among the bank's objectives but not first priority. d) Price or exchange rate stability are not among the central bank's objectives
7. Do you agree that the central bank functions as a development bank granting loans at subsidy rates?	a) No b) To some extent c) Yes d) The central bank is heavily involved in granting subsidy credits	a) No b) To some extent c) Yes d) The central bank is heavily involved in granting subsidy credits