

Central Bank of Egypt: Independence Status and Way Ahead

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Abstract

This work aims at quantifying the degree of both de jure and de facto independence of the Central Bank of Egypt (CBE) over the period 1993 – 2017. It relies on the two composite indices designed by Fouad, Fayed and Emam (FFE) (2019). To this end, relevant legal independence attributes and practical arrangements are investigated. Lastly, the study captures the potential gap between CBE's de jure and de facto independence. Findings reveal that independence level is advancing in Egypt. Nevertheless, further legal and institutional challenges remain in place concerning CBE financing to government, potential arbitrary dismissal of governor and board members, as well as CBE's involvement in areas beyond the scope of its mandate.

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I. Introduction

The institutional relation between central bank and government has gained momentum during the recent decades, with the tendency of various governments to delegate monetary policy to central banks (Crowe and Meade, 2008). As Central Bank Independence (CBI) is considered the primary solution for inflationary bias of governments⁴. Moreover, it has been empirically argued that countries with higher CBI were able to achieve lower inflation levels and improved economic performance compared to those with lower degree of CBI (De Sousa, 2001; Kamaly and Farrag, 2007; Cargill, 2013; Bezhoska, 2017). Accordingly, a growing part of literature tackled the issue of CBI.

Though CBI is a complex measure that is based on various formal and informal arrangements (Cukierman, 1992), most of the empirical work that endeavored to quantify the degree of CBI focuses on the legal aspects of independence (like, Lybek (1999) and Jácome (2001)). Only a limited number of studies are devoted to measuring actual (de facto) CBI through relying on some proxies for behavioural independence, i.e. the turnover ratio of central bank governors and the political vulnerability of central bank governors. Nevertheless, these indicators focus only on one aspect of independence and hence are criticized for being relatively subjective and imprecise (Banaian, 2008). Therefore, measures of de jure independence dominate the research agenda (Cukierman *et al.*, 1992; Anastasiou, 2009; Hueng, 2012).

Thus, literature on measuring CBI is left with a gap in quantifying the degree of de facto independence of central banks, especially those in developing countries that suffer from apparent deviation between their legal and actual independence. Such deviation could be attributed to unclear and incomplete laws as well as weak law enforcement in these countries. Of a particular note, Egypt is excluded from the scope of the analysis of most of the studies, with very few studies (Ewiss (2003) and Kamaly and Farrag (2007)) providing in depth analysis of the independence of the Central Bank of Egypt (CBE) and its evolution over time. For that reason, there is a

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⁴ Governments naturally do not prefer contractionary monetary policies in order to avoid any potential losses in terms of lower tax revenues or higher interest burden. Thus, it prefers expansionary monetary policies. Yet, central bank's main objective is to achieve price stability and hence avoid unjustified expansionary monetary policy.

need for recent studies that assess the CBE's de jure and de facto independence, especially after the various legal, constitutional and institutional reforms that took place in Egypt post 2011.

In light of that, the present study attempts to expand existing literature in two aspects. First, it aims at quantifying the degree of both de jure and de facto independence of the CBE throughout the period from 1993 to 2017. Furthermore, it measures the gap between the CBE's de jure and de facto independence, to capture the deviation between law and practice. Second, the study relies on composite indices rather than subjective indicators to quantify independence, namely, the two composite indices constructed by Fouad, Fayed and Emam (FFE) (2019) are employed in the analysis.

The present study is organized as follows. The second section reviews the relevant literature. Section three presents the methodology adopted. Sections four and five analyse the evolution of the CBE's de jure and de facto independence during the studied period. Section six sheds light on the deviation between de jure and de facto independence for the CBE. Section seven presents the recommended legal and institutional reforms and finally section eight concludes.

II. Review Of Literature

Measurement literature is divided in two broad categories of CBI measures, depending on the emphasis placed on statutory provisions regulating the central bank (de jure CBI) versus its actual practiced independence (de facto CBI).

2.1 De jure Measures of CBI

The first approach relies on the charters of the central bank and hence reflects its statutory characteristics (Forder, 1996; Smaghi, 2008). It designs an index based on the quantification of the relevant CBI criteria that are embedded in the legal documents (James, 2010). This methodology has been employed by various scholars, pioneered by the work of Bade and Parkin (1982) and probably reached its full fruition by the work of Cukierman (1992) and Cukierman, Webb and Neyapti (CWN) (1992) whose model has been employed in most of the recent empirical studies (Banaian, 2008). In addition, other scholars have provided valuable contributions like Lybek (1999) and Jácome (2001). Lastly, FFE (2019) design two comprehensive measures for assessing both de jure and de facto CBI. On the de jure front, the index incorporates elements related to independence, accountability and transparency of the central bank.

Nevertheless, the majority of these measures are subject to various limitations both theoretically and methodologically. On the theoretical side, laws are always incomplete and do not cover every eventuality. The issue is even more critical when it comes to developing countries that suffer from unclear and incomplete law, as well as weak rule of law (Cukierman, 2006; Mathew, 2006). Concerning the applied methodology, most of the available indices are based on some degree of arbitrariness with indices comprising different legal provisions and even the same arrangements are assigned different codes and weights across the studies (Ewiss, 2003; Berger and de Haan, 1999; Issing, 2006; James, 2010; Parkin, 2013).

2.2 De facto Measures of CBI

In an attempt to overcome some of the shortcomings of the de jure independence measures, another school of literature recommends employing the measures of de facto CBI. Principally, de facto independence relies on various institutional arrangements, like the existence of explicit institutional arrangement other than law that makes price stability the overriding objective of the central bank (De Sousa, 2001; Hayo and Voigt, 2008; Fouad *et al.*, 2019). Though de facto independence is difficult to quantify, various indicators are introduced in literature as proxies for the actual degree of CBI. Cukierman (1992) and CWN (1992) introduced the rate of turnover of central bank governors⁵ as proxy for de facto independence. Cukierman and Webb (1995) refine the rate of turnover indicator and present the political vulnerability of central bank governors⁶. Moreover, Hueng (2012) employs the Taylor monetary policy reaction function as a measure of de facto CBI⁷. In 2019, FFE designs a comprehensive measure for de facto CBI that tackles most aspects of independence rather than a single indicator for de facto CBI as in similar studies.

The main criticism of this group is the lack of a comprehensive measure for actual independence in most of the relevant studies that could be applied to a large set of countries. Additionally, most of the measures

⁵ This indicator relies on the actual average terms of office of governors. It is based on the presumption that a more rapid turnover (i.e. shorter term of office for governors) implies a lower degree of actual independence. It is calculated as 1/the actual term of the governor.

⁶ It indicates the probability that the governor would be removed from office within six months of a change in government. The higher the ratio, the higher the political influence on the central bank and the lower the degree of independence.

⁷ Taylor monetary policy reaction function reflects the behavior of the central bank towards changes in output and inflation.

presented are not comparable as each measure focuses on a different aspect of CBI (Banaian, 2008; Fouad *et al.*, 2019).

2.3 *Empirical Studies on CBE independence*

As a developing country, Egypt has only two studies (Ewiss (2003) and Kamaly and Farrag (2007)) that provide a detailed analysis for the CBE independence and its evolution across time. Ewiss (2003) provides the first study quantifying the degree of CBE's de jure independence for the period 1950 – 2003. It measures independence using the two legal indices of CWN (1992) and Jácome (2001). It concludes that law 88 of 2003 only lead to a slight increase in CBE's de jure independence and that the degree of its independence remains low. Accordingly, the study recommends amending the CBE's charter to reduce government intervention in the CBE's board and monetary policy decisions as well as to prohibit the CBE from participating in the primary market for government securities.

The latter study extends the first by assessing both the CBE's de jure and de facto level of independence from 1961 to 2004 and highlighting the discrepancy between them. On the legal side, the study employs the CBI measure developed by Jácome (2001). Akin to the first study, it concludes that law 88 of 2003 yields a relatively moderate degree of independence and is in need to undergo major improvements mainly related to government intervention embodied in CBE structure and its decision making process. On the de facto side, the study applies three measures of de facto CBI; the turnover rate of central bank governor, the political vulnerability index of central bank governors and the questionnaire based independence index. The study reaches a number of results. Firstly, the CBE preserves a relatively moderate rate of governor's turnover during the period of analysis. Secondly, limits on CBE lending to government are moderately loose. Thirdly, resolution of conflicts is usually in favour of the government rather than the CBE. Fourthly, the CBE is mostly free to determine its budget. Fifthly, the top priority for the CBE is to maintain a fixed exchange rate rather than price stability. The study concludes that actual CBE's independence is advancing at a slow pace and hence needs further advancement. Finally, the study reports some divergence between de jure and de facto independence, especially in aspects related to limitations on CBE financing to government.

The above narrative highlights the need for recent studies assessing the de jure and de facto independence of the CBE and shedding light on the potential gap between them. To this end, the present study aims to fulfil this need.

III. Applied Methodology

3.1 *Sample*

This study uses 25 years of data from 1993 to 2017. The rationale for choosing these dates is to avoid replication with other studies that deeply assess CBE's independence prior the 1990s and to assess the impact of the various reforms that have taken place in Egypt, post 2011, upon the CBE's independence.

The 25 years are further divided into three main periods where various legal, constitutional, economic and political developments have taken place affecting both the de jure and de facto independence of the CBE.

The first period (1993 – 2003) witnesses the issuance of the Presidential decree number 59 of 1993 concerning the Statue of the CBE, as well as the initiation of the Economic Reform and Structural Adjustment Program (ERSAP). **The second period** (2004 – 2010) corresponds to the introduction of the “unified banking law” number 88 of 2003, followed by the Presidential decree number 64 of the year 2004 concerning the statue of the CBE and the Presidential decree number 101 of the year 2004 introducing the executive regulations related to the unified banking law. In addition, several monetary and financial reforms took place during this period that affected the CBE's de facto independence. **The last period** (2011 – 2017) witnesses the issuance of a constitutional declaration in 2011, that was replaced afterwards by the constitution of 2012 and the latter was also replaced by the constitution of 2014. On the institutional side, more stringent accountability and transparency procedures were adopted by the CBE to reinforce its credibility and independence. In addition, Egypt adopted a comprehensive economic reform program, supported by the IMF in 2016 that comprised various pillars to upgrade and safeguard the CBE's independence.

3.2 *Employed Measures*

As a typical developing country like Egypt, de jure measures of CBI do not reflect the true degree of independence granted to its central bank. Thus, this study utilizes both de jure and de facto measures of CBI. It relies on FFE (2019) two composite indices for assessing de jure and de facto CBI. These indices might outweigh traditional measures for CBI as: First, the two indices are relatively more comprehensive in terms of possible institutional arrangements. Second, the two indices allow a fairly higher level of precision as they comprise aspects that could be objectively codified with a minimum level of subjectivity. Third, the new indices cover the same variables to facilitate measuring the deviation between de jure and de facto independence (Fouad *et al.*, 2019).

IV. Quantifying Cbe's De Jure Independence

4.1 Overview on FFE's De jure Index

FFE's de jure index incorporates elements related to independence, accountability and transparency of the central bank. Compared to other indices, this index expands existing measures by including several criteria that are scattered across various empirical studies without being aggregated in a unified index, like conflict resolution mechanism and central bank's indirect credit to government⁸ and foreign exchange policy. In addition, the index incorporates provisions related to both the governor and central bank board, rather than alternating between them, which was typically the case in most of the previous studies (Fouad *et al.*, 2019).

The index is divided into ten main variables; each variable is further divided into several criteria, with a total number of 32 criteria included in the index. Each of the 32 criteria is coded using a uniform scale ranging between 0 and 1, with 0 implying the lowest degree of independence and 1 representing the highest degree of independence. In addition, this index follows a two-step aggregation process. *In the first step*, the 32 criteria are aggregated into ten main variables, each reflecting a certain element of CBI. *Second*, the ten variables are further aggregated to yield a single index measuring the degree of de jure CBI (Fouad *et al.*, 2019).

Concerning the choice of weights, this index applies an equal weighting technique. The independence score for each variable is calculated as the average of the score of its incorporated criteria, as follows:

$$\text{Degree of independence for any variable} = \sum_{i=1}^n \frac{1}{n} * \text{Score for Criterion}_i$$

where n reflects the number of criteria included in the underlying variable and i represents each criterion.

$$\text{Final Value of the De Jure Index} = \sum_{j=1}^{10} \text{Score for Variable}_j$$

where j represents each of the ten variables included in the index.

The maximum score for this index is 10, reflecting the highest degree of legal CBI⁹.

4.2 CBE's De jure Independence

The CBE was established, as an autonomous public entity in 1961 according to law no. 250 of 1960. Throughout its history, its legal framework witnessed various changes, starting by law number 250 of 1960 concerning the CBE and lastly was law 88 of 2003 that remains the CBE's charter till present time. Moreover, Egypt's constitution of 2014¹⁰, for the first time, referred to the CBE in its articles and confirmed its independence status which is a major legal advancement.

To assess the CBE's de jure independence; this study relies on information drawn from the CBE charters as well as national constitutions and relevant laws¹¹ to pinpoint the legislative features related to each of the variables of the de jure index for CBI and its evolution across the three periods of study:

- *CBE's Legal Status*: law 1993 explicitly refers to the CBE as public legal independent entity. However, the word "independent" is removed from the CBE's definition in law 2003. Instead, the same article stipulates that the CBE should directly report to the President. However, such amendment could be perceived as a slight deterioration in terms of independence. On the other hand, the constitution of 2014 grants the CBE the technical, financial and administrative independence to pursue its objectives.

- *Policy Objective(s)*: law 1993 does not recognize price stability as one of the CBE's objective. Instead, it assigns multiple objectives to the CBE. Thus, this variable is assigned a score 0 at the first period. Nevertheless, such limitations are adjusted in law 2003 that declared price stability as an objective for the CBE, in addition to the assurance of the soundness of the banking system. These two objectives are even confirmed

⁸ Direct credit comprises central bank advances to government (non-securitized lending) and securitized lending that is backed by negotiable securities. While indirect credit implies buying government securities in the secondary market through open market operations or accepting these securities as collateral for loans to commercial banks.

⁹ For more details concerning the FFE de jure index, refer to Fouad *et al.*, (2019).

¹⁰ A constitutional declaration was issued in 2011 and was replaced by the constitution of 2012. The latter was also replaced by the constitution of 2014. It is notable that there was almost no difference between the two constitutions concerning the articles related to the CBE.

¹¹ The study analyses the Constitution of 1971, the Presidential decree number 43 of the year 1979 and its amendments in 1981 promulgating the local government law in Egypt, the Presidential decree number 59 of 1993 concerning the CBE and the banking system, the unified banking law (law 88 of 2003) and its amendments, the Presidential decree number 64 of the year 2004 concerning the statue of the CBE, the Presidential decree number 101 of the year 2004 introducing the executive regulations related to the unified banking law, law number 125 of 2011 amending some of the provisions related to the CBE's board of directors in law 88, the constitutional declaration of 2011, the constitution of 2012, the constitution of 2014 and the Presidential decree number 431 of 2015 concerning the composition of the coordinating council.

later by the constitution of 2014. It is remarkable that neither law 2003 nor constitution of 2014 allocates any priority to realizing the price stability objective over the other objective¹². Hence, the score of the variable surged to 0.75 in both the second and third periods compared to 0 in the first period.

○ *Monetary Policy Formulation and Implementation:* law 1993 grants the CBE instrument independence. Yet, the role of the CBE is limited to executing rather than setting the monetary policy. Conversely, law 2003 empowers the CBE with operational independence, as it allocates the authority of setting and executing the monetary policy and to freely use monetary policy instruments to the CBE. Nonetheless, the same legislation stipulates that the CBE should set the targets of monetary policy in accordance with the government, through a coordinating council, that is mostly composed of government officials. Such step might subject the CBE to undesirable government intervention. It is notable that all the CBE's legislations neither incorporate mechanism for resolution of potential conflicts between the CBE and executive authority nor any clause prohibiting potential government override. Accordingly, a relatively low score has been assigned for this variable, ranging from 0.28 in the first period to 0.53 in the second and third periods.

○ *Central Bank Governor:* Both law 1993 and law 2003 suffer from some lacunae related to the governor's autonomy. As the tenure is four years (i.e. less than the president tenure of six years, as per the constitution of 1971) with unlimited reappointment possibilities. Also, appointment is carried out by one party, namely, the president. Thus, this variable is assigned a relatively low score (0.27) during both the first and the second periods. Nevertheless, it was the constitution of 2014 that introduces various amendments that pave the way for higher governor's autonomy. Governor's reappointment is limited to one term, additional to the original term. Also, parliamentary approval is set as a prerequisite for governor's appointment. Moreover, the tenure of the president is reduced to four years with one possible renewable term, same as the governor. Consequently, the score for this variable is almost doubled during the third period (0.53). Regarding the potential dismissal of governor, even though law 1993 protects governor against potential dismissal; law 2003 ignores this provision. Such modification might subject the governor to potential arbitrary dismissal.

○ *Central Bank's Board:* The tenure of the CBE's board is four renewable years, with no limit for the reappointment possibilities, as per all the CBE's legislation. It is remarkable that law 2003 and its amendment in 2011¹³ assert the autonomy of the CBE's board. Its appointment is carried out directly by the President rather than the Prime Minister, as in the previous legislation. Board members are explicitly banned from holding any positions that might contradict with their duties at CBE. The law alters the composition of board to exclude private sector representatives and limit government representatives to one member (i.e. representative of the Ministry of Finance (MoF)) rather than three members, which was typically the case in the previous legislation. Still, the legislation is short of any provision that safeguards the board against potential dismissal. Thus, the score of this variable inch up from 0.04 in the first period to 0.33 and 0.42 in the second and third periods respectively.

○ *Limitations on Credit to Government:* Despite the fact that curtailing central bank's credit to government is crucial for CBI and for avoiding deficit monetization, the CBE legislations regulating credit to government are challenged on various grounds. First, they allow the CBE to provide direct credit to government to cover the seasonal deficit in the budget with limits on the amount specified (i.e. 10% from average government revenues during the preceding three years) and the maturity. Yet, interest rates are determined upon agreement between the MoF and the CBE. Also, the law does not explicitly identify the potential borrowers from CBE; instead it uses the word government without mentioning whether it refers to central or local government¹⁴. Second, these legislations neither impose restrictions on CBE's indirect credit to government nor its participation in the primary market for government securities. Accordingly, the score of this variable is relatively low, alternating between 0.32 in the first period and 0.37 in both the second and third periods.

○ *Lender of Last Resort Function:* All CBE legislations permit the CBE to provide lender of last resort facilities to avoid any potential banking crisis. Nevertheless, terms and conditions are to be determined by the CBE's board. This might open the door for potential conflict of interest. Thus, the score of the variable remains constant at 0.5 throughout the three periods.

○ *Financial Independence:* The CBE legislations preserve an adequate degree of capital integrity. The CBE's board is the entity responsible for approving and accrediting the internal budget as well as issuing all internal bylaws related to personnel regulations. Also, the CBE's board is granted the right to decide alone the prudent percentage of net profit to be appropriated before transferring the residual to the treasury. Yet, law 2003

¹²The CBE's official website refers to the price stability as the main and overriding objective of monetary policy. Yet, the aforementioned law does not assign any priority for price stability over other objective. This implies a clear discrepancy between the de jure and de facto objective.

¹³ Law number 125 of 2011 amending some of the provisions related to the CBE's board in law 88.

¹⁴ According to the Presidential decree number 43 of the year 1979 and its amendments in 1981 promulgating the local government law in Egypt, local governments in Egypt have the legal right to borrow. Thus, in quantifying CBE's de jure independence, the study assumes that potential borrowers from the CBE include both central and local governments.

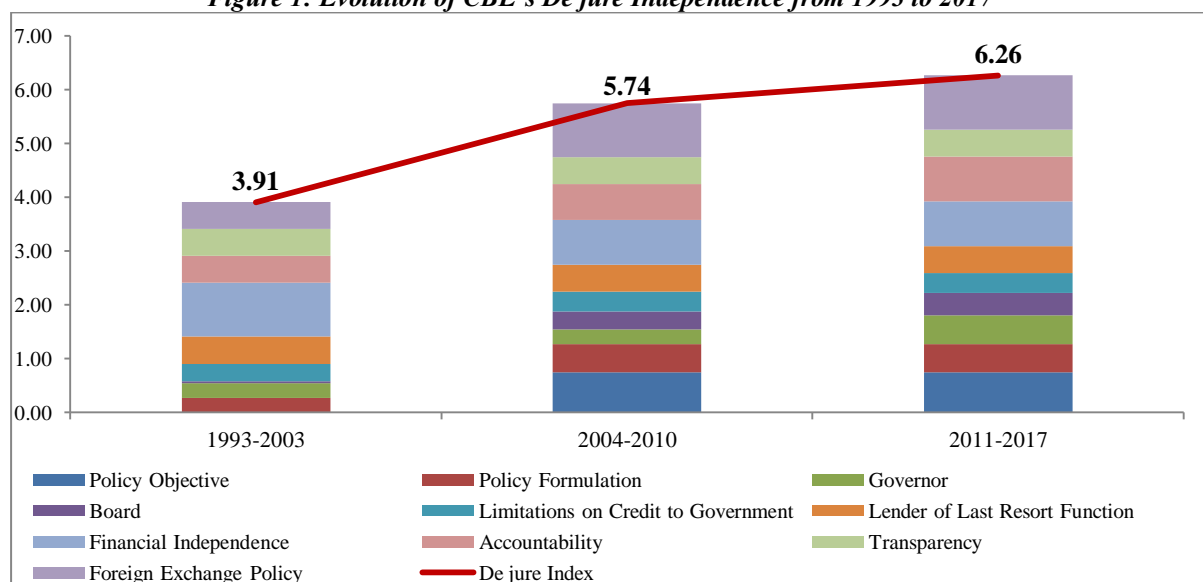
permits the government to intervene in the annual profit appropriation decisions, which was previously the responsibility of the CBE’s board alone. So, a score 1 is assigned during the first period, yet, the score plunges to 0.83 in the second and third periods to penalize for government intervention in CBE’s profit appropriation.

○ *Accountability:* Various CBE legislations, especially law 2003 provide a relatively prudent means of accountability, through CBE reporting to the president, the disclosure of the CBE’s weekly financial position and subjecting the CBE’s accounts to external auditing. It is remarkable that the constitution of 2014 permits the parliament to act as an external monitoring agency to the CBE, besides the president, which would further enhance accountability. On the contrary, there is no legal requirement for the disclosure of the CBE’s annual audited financial statements. Thus, a score 0.5 is assigned to the first period that rises to 0.67 in the second period and 0.83 in the third period.

○ *Transparency:* The CBE is legally requested to disclose its monetary policy procedures, as well as, the annual reports submitted to the parliament. Nonetheless, there is no formal obligation for the CBE to publish explanation for policy decisions or its periodicals on monetary variables and inflation reports. Thus, de jure transparency variable is assigned a low score 0.5 across the three periods.

○ *Foreign Exchange Policy:* Law 2003, unlike law 1993, stipulates that the CBE should regulate and manage the foreign exchange market. Accordingly, the score of this variable surges from 0.5 in the first period to 1 in the second and third periods. Nevertheless, the law added a controversial provision stipulating that foreign exchange regulations should be issued through Prime Minister Decrees. This statement is a bit controversial and might open the door for government intervention in the foreign exchange market.

Figure 1: Evolution of CBE’s De jure Independence from 1993 to 2017¹⁵



Note: The policy objective variable is assigned score 0 during the first period.

Source: The researcher based on the quantification of the CBE’s de jure independence.

On the whole, the CBE’s de jure independence witnessed considerable progress over the studied periods. The highest degree of CBE independence is recorded in the last period (2011-2017) owing to the constitutional and legal amendments that promotes the autonomy of both the CBE governor and its board. Nonetheless, the record of some aspects of independence is still fairly poor, especially provisions related to limitations on CBE financing of fiscal deficit. Other lacunae include limited transparency and disclosure of financial statements and the leeway that central bank governors and members of the board of directors are not protected against arbitrary dismissal.

V. Quantifying Cbe’s De Facto Independence

5.1 Overview on FFE’s De facto Index

FFE’s de facto index analyses the behavior of the central bank besides the practical arrangements related to its independence. Compared to previous indicators for measuring de facto CBI, this index is relatively more comprehensive as it incorporates almost all the previous indicators for measuring de facto CBI like, monetary policy reaction function, the turnover ratio and the political vulnerability indicator, in addition to

¹⁵ Table I in the appendix provides in details the quantitative assessment for the CBE’s de jure independence.

coding new dimensions that were not included in traditional measures for de facto CBI, like independence of central bank board, central bank's indirect credit to government, lender of last resort function, financial independence, accountability and transparency. Over and above, the index assesses de facto CBI in a fairly more objective and precise manner. Finally, the de facto index mimics the de jure one to a large extent which facilitates comparison (Fouad *et al.*, 2019).

The index is composed of ten main variables, same as the de jure one. Each of the ten variables is further divided into several criteria. The index incorporates a total of 37 criteria that are expected to reveal the actual degree of CBI. It is notable that the index applies almost the same codification system, aggregating and weighting techniques as in the de jure one. The main difference between the two indices is the methodology applied to measure the degree of independence within each variable. The maximum for the de facto index is 10¹⁶ (Fouad *et al.*, 2019).

5.2 CBE's De facto Independence

To assess CBE's de facto independence across the three periods, this study relies on information drawn from the CBE's official publications and website, as well as meetings carried out with monetary experts and CBE staff at relevant departments:

○ *Policy Objective(s)*: Starting 2003, the CBE started to pursue price stability as its policy objective. Nevertheless, in attempt to mitigate some of the negative repercussions of the witnessed political instability in 2011, the CBE pursued multiple objectives besides price stability, like supporting growth and domestic currency. However, the adoption of a more flexible exchange rate system in November 2016 embarked the move to a modernized monetary policy framework with price stability as the policy objective (Serrao, 2017). By estimating the monetary policy reaction function during the three periods¹⁷, the study concludes that inflation is a significant variable affecting interest rate settings only in the second period (Emam, 2018). Thus, this variable is assigned a score 0.5 in the second period against score 0 in the first period. On the other hand, the CBE issued for the first time its numerical target for inflation in 2017; hence the score assigned in the third period is 0.5.

○ *Monetary Policy Formulation and Implementation*: It could be argued that during the first period, monetary policy formulation and implementation was carried out by both the CBE and the government. As monetary policy decisions were taken by the CBE board that was composed of various government representatives¹⁸. Moreover, Kamaly and Farrag (2007) concludes that resolution in conflicts were usually in favour of government rather than the CBE, prior 2004. On the contrary, starting 2004, monetary policy decisions were taken by the Monetary Policy Committee (MPC) that does not include government representatives (Al-Mashat, 2008; Kandil, 2011; Maher, 2012). Thus, the score for this variable surges from 0.25 in the first period to 1 in both the second and third periods. Concerning the coordinating council, it was established in 2005 and was reshuffled in 2015 (Central Bank of Egypt - CBE, 2014/2015). Nevertheless, there was no official release concerning its policy outcomes, which might endanger the CBE credibility.

○ *Central Bank's Governor*: Throughout the three periods, six CBE governors were appointed, namely, Mr. Ismaeel Hassan, Dr. Mahmoud Abou El Ayoun, Dr. Farouk El Oukda, Mr. Hisham Ramez and Mr. Tarek Amer. Most of them terminated their terms in office and Mr. Ismaeel Hassan and Dr. Farouk El Oukda¹⁹ were reappointed after the termination of their original term. So, there was generally a moderate governor's turnover rate²⁰ during the three periods. Nevertheless, there was only one case of potential governor dismissal²¹ during the first period. Dr. Abou El Ayoun and his board resigned in 2003 before their term expired, Kamaly and Farrag (2007) claim that the governor was pressured to resign; however, there was no explicit statement from the CBE side concerning the governor's resignation. To penalize for this potential dismissal, a low score of 0.34 is assigned in the first period. Nevertheless, the score increases significantly to reach 0.64 in the second period and 0.83 in the third period.

○ *Central Bank's Board*: The structure of the CBE's board comprised both government and private sector representatives during the first and second periods²². While on the third period, it incorporated only one

¹⁶ For more details concerning the FFE de facto index, refer to Fouad *et al.*, (2019).

¹⁷ Box I in the Appendix provides more details on the estimated monetary policy reaction function. Also, refer to Emam (2018) for further details in this regard.

¹⁸ It is noteworthy that the CBE issued a report in 2012 claiming that prior 2003, monetary policy in Egypt was subject to government intervention.

¹⁹ Dr. Farouk El Oukda was appointed in late 2003 and terminated his second term in office in 2011, also, he was appointed for a third term in 2012. However, the constitution of 2012 permitted the CBE governor to have only one renewal term, additional to the original term, thus, Dr Farouk resigned in January 2013 and Mr. Hisham Ramez replaced him.

²⁰ Table III in the Appendix provides details on the calculations on the governor's turnover rate.

²¹ Table IV in the Appendix provides details on the calculations on the political vulnerability indicator for the governor.

²² Though law 88 of 2003 excludes private sector representatives from board membership, private sector representatives joined the CBE's board during the second period as financial experts.

government representative and no private sector representatives. Throughout the three periods, almost all boards terminated their term in office except in the first period. Thus, a score 0.35 is assigned in the first period that rises to 0.64 and 0.79 in the second and third periods respectively.

○ *Limitations on Credit to Government:* Notwithstanding the existence of legal limitations on CBE's credit to government, the actual amount of CBE's direct credit to government breached these limits while indirect credit exceeded, on average, 90% of average government revenues throughout the three periods under study. It is notable that CBE's direct credit to government was non-interest bearing during the first period (Emam, 2018). Thus, a score of 0.4 is assigned to the first period. Nonetheless, with the launch of the treasury single account in the second period, the discount rate (i.e. market based rate) is charged on CBE's direct financing to government. Furthermore, the CBE neither provided securitized lending to government nor participated in the primary market for government securities, during the three periods. Thus, this variable preserved a relatively low score across the three periods with slight increase in the second and third periods to reach 0.55. Going forward, the CBE agreed with the MoF to contain direct CBE credit to the legal limits and minimize new issuance of indirect credit²³ (International Monetary Fund - IMF, 2017; IMF, 2018).

○ *Lender of Last Resort Function:* Throughout the three periods, the CBE did not resort to its lender of last resort facility. Nevertheless, it did not issue any framework regulating the facility. Thus, this variable is assigned a score 0 throughout the three periods. It is notable that the CBE provided subsidized lending in support of the SMEs and social housing program during the second and third periods. Going forward, CBE's subsidized lending is expected to be capped (IMF, 2018).

○ *Financial Independence:* The CBE attained a considerable degree of de facto financial independence throughout the three periods, as the board was the entity responsible for approving internal budget and setting personnel regulations. Thus, the score for this variable preserved the maximum value 1 during the three periods.

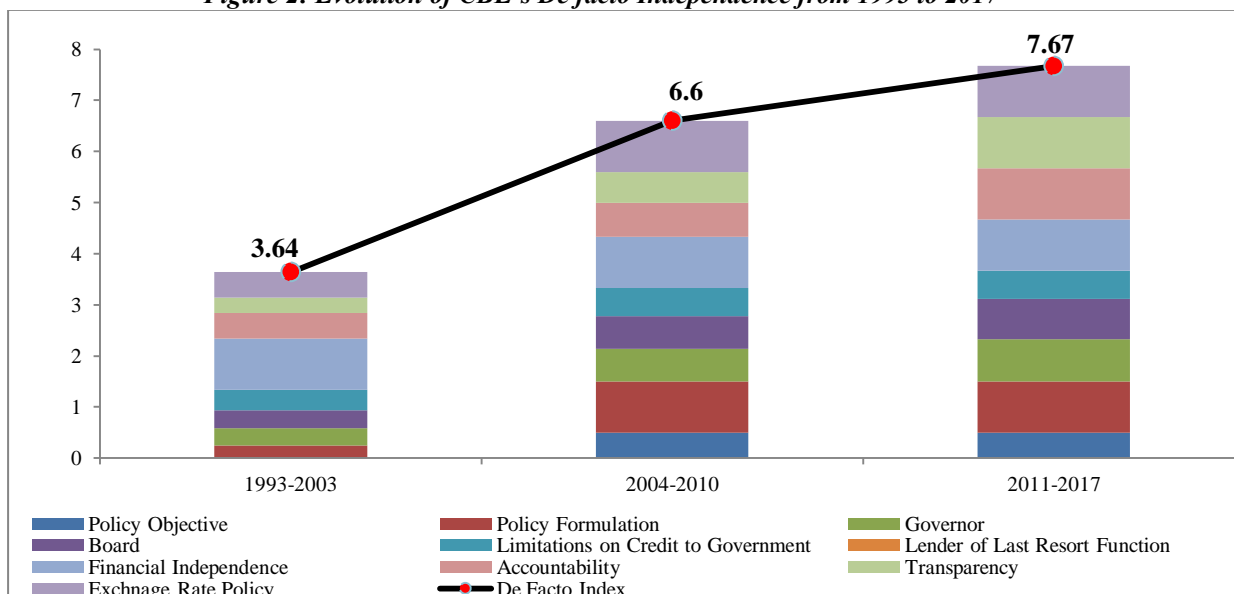
○ *Accountability:* Counter to the first two periods, the third period witnessed the adoption of relatively more stringent accountability procedures. This was evident by the release of the CBE's annual financial statements, for the first time, through its website starting 2013. Moreover, the CBE appeared before the parliament, in addition to its regular reporting to the president. Thus, the assigned score surged dramatically from 0.5 and 0.67 in the first and second periods respectively to 1 in the third period.

○ *Transparency:* The CBE practiced a relatively low degree of de facto transparency during the first period. Neither inflation reports nor any forward looking analysis was released to the public. Even released policy changes did not include explanations. Accordingly, a score 0.3 is assigned to the first period. On the other hand, the CBE carried out essential strides in improving its transparency and policy communication with the public during the second and third periods, such as: a) Launching its website and updating it in 2016 (CBE, 2015/2016). b) Releasing MPC decisions, along with the rationale for these decisions immediately after the MPC meeting (Al-Mashat, 2008). c) Compiling the core inflation index and releasing it to the public in 2009 (CBE, 2009/2010). d) The establishment of a communication department to enhance policy communication. Furthermore, CBE's officials maintained continuous contact with market participants (Serrao, 2017). e) The release of quarterly monetary policy report since March 2017, assessing the current macroeconomic conditions and providing outlook for inflation. f) The announcement of MPC targeted disinflation path, for the first time, on May 2017 (CBE, 2017). To this end, the score of this variable skyrocketed to 1 in the third period. Despite all these advancements, the CBE does not release enough information on the model it relies upon to forecast inflation, which might undermine its credibility.

○ *Foreign Exchange Policy:* In conformity with law 1993, the first period witnessed government intervention in the formulation of the exchange rate policy. For instance, the decision to float the exchange rate in 2003 was announced by the Prime Minister in a conference and was not communicated to the public via the CBE (Galal, 2003). Nevertheless, the CBE was empowered to set foreign exchange policy in Egypt during the second and third periods. During these times, it was the CBE that ensured the proper functioning of the foreign exchange market (CBE, 2015/2016; IMF, 2018). It is remarkable that the decision to adopt a more flexible exchange rate system in 2016 was released to the public via the CBE's official statements. Thus, the assigned score rises from 0.5 in the first period to 1 in the second and third periods.

²³ Since the launch of the economic reform program in 2016, CBE's direct credit to government declined considerably in 2017 and for the first time it remained within its legal limit in early 2018. However, the present study stopped the analysis till year 2017 and hence any developments outside the boundaries of the study could not be included in the analysis.

Figure 2: Evolution of CBE's De facto Independence from 1993 to 2017²⁴



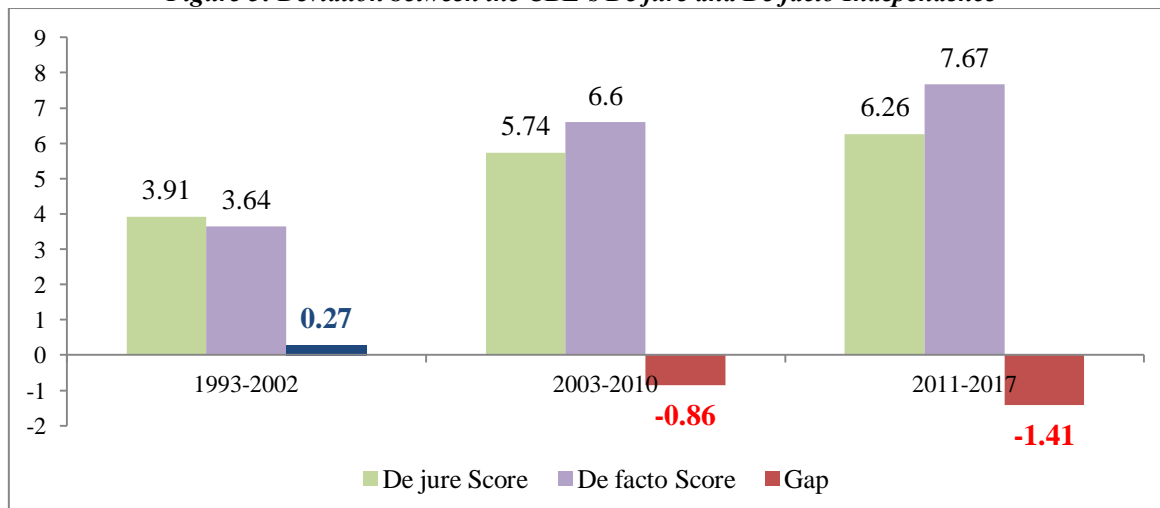
Note: The policy objectives variable is assigned score 0 during the first period and the lender of last resort variable is assigned score 0 during the three periods.

Source: The researcher based on the quantification of the CBE's de facto independence.

In conclusion, the CBE was practically empowered to act as an independent entity starting 2003; such trend was maintained and even improved post 2011. Still, some aspects of independence, like, CBE financing to government and lender of last resort function, need to be addressed.

VI. Deviation Between Cbe's De Jure And De Facto Independence

Figure 3: Deviation between the CBE's De jure and De facto Independence²⁵



Source: The researcher based on the quantification of the CBE's de jure and de facto independence.

Assessing the divergence between de jure and de facto independence reveals that the first period witnessed the lowest deviation. However, de jure independence was higher than de facto independence,

²⁴ Table II in the appendix provides in details the quantitative assessment for the CBE's de jure independence.

²⁵ Gap = de jure score – de facto score for any variable. Thus, a positive value implies that the actual degree of independence is lower than the legal one. On the other hand, a negative value implies that the CBE practiced a higher degree of independence than the legally stipulated one.

implying that legal autonomy conferred to the CBE was not totally practiced. This could be attributed to the elevated budget deficit, the adoption of a fairly fixed exchange rate regime and government involvement in monetary policy formulation and implementation.

This gap between de jure and de facto independence surged considerably during the second and third periods. In contrast to the first period, the CBE was able to attain a higher degree of de facto independence than the legally stipulated one. Such finding would mainly highlight the shortcomings of law 2003. Yet, the CBE management was able to account for these arrangements in practice. For instance, law 2003 does not oblige the CBE to disclose its audited annual financial statements; yet, the CBE released its financial statements to the public during the third period. This might pinpoint the need to review the CBE charter.

VII. Recommended Reforms

Various positive developments have been taking place to reinforce independence. Yet, existing discrepancy between de jure and de facto independence revealed challenges to further enhance the CBE independence.

7.1 Recommended Legal Amendments

- The apparent contradiction between the CBE's legal framework and its official publications concerning the priority assigned to the price stability objective should be addressed.
- There is a need to safeguard the CBE's governor and board members against potential arbitrary dismissal.
- It is recommended to restrict the reappointment possibilities of CBE's board to one renewal term, additional to the original term, akin to the governor.
- Further restrictions on CBE financing to government are needed. The legislation should explicitly specify limitations on both direct and indirect credit. Additionally, a new provision should be added curtailing the CBE's participation in the primary market for government securities.
- Setting a detailed and well-articulated framework regulating the lender of last resort facility.
- Rules pertaining to distribution of CBE's profit and its capital increase should be exclusively determined by the CBE.
- It is desirable to add a legal provision that necessitates the disclosure of the CBE's annual audited financial statements.
- The provision stipulating the need to issue foreign exchange regulations through Prime Minister Decree in the CBE's charter should be removed.

Currently, the CBE is undertaking a comprehensive review for its legal framework to bring it in line with global best practices. Among the key objectives of the revisions are strengthening the CBE's operational autonomy, limiting CBE financing of the deficit, ensuring that the CBE law prevails against any other contradictory provisions in other laws, clarifying the CBE's role in providing emergency liquidity assistance to banks and requiring the CBE to publish its audited financial statements (IMF, 2018).

7.2 Recommended Institutional Reforms

- To reinforce its credibility as a monetary authority that is committed to achieving low inflation, monetary policy decisions should be consistent with the price stability objective and combined with high degree of transparency.
- A sound fiscal position with no fiscal dominance is important to promote the potency of monetary policy. Thus, the CBE should refrain from providing any direct financing to the government above the legal ceiling. Only in exceptional cases, legal limits could be breached after the approval of the parliament with funding provided at a penal rate. This is in addition to marginalizing CBE's indirect credit to government.
- The CBE should work on developing a more liquid foreign exchange market to ensure that moderate market fluctuations are handled without central bank intervention.

Recently, the CBE has announced its intention to adopt the inflation targeting regime in the near term. Such step is expected to further safeguard the independence of the CBE.

The aforementioned legal and institutional reforms are expected to reduce the degree of deviation between the CBE's de jure and de facto independence and strengthen its overall level of independence. Yet, due to the political sensitivity of some of the suggested measures, broad public consensus and adequate political support are needed to guarantee the successful implementation of these measures.

VIII. Conclusion

To assess CBE independence over the period from 1993 to 2017, this study relies on the two composite indices for de jure and de facto independence designed by FFE (2019) due to their potential advantages over existing measures of CBI. The two measures are used to quantify the degree of legal and behavioral independence granted to the CBE from 1993 to 2017 and measure the potential deviation between them.

The study concludes that the CBE was both legally and practically empowered starting 2003 and its independence level was further promoted post 2011. On the legal front, the declaration of price stability as one of the objectives of the CBE, granting more autonomy to the governor and board members against the government, applying more stringent means of accountability, as well as authorizing the CBE to regulate the foreign exchange market, were among the most notable steps. Still, the legal framework suffer from other challenges that need to be addressed, namely, lack of strict limitations on CBE financing to government, the absence of adequate procedures for dismissal of the governor or board members, limited transparency, the lack of provisions requesting the disclosure of the annual financial statements and the government involvement in the formulation of monetary policy through the coordinating council.

On the institutional front, the witnessed progress could be attributed to the adoption of more rigorous measures for accountability, the intensification of transparency and communication with the public and the reinforcement of CBE's autonomy in the formulation and implementation of both monetary and exchange rate policies. Nevertheless, limitations on CBE financing to government, rules pertaining to lender of last resort facility and CBE's involvement in other areas beyond the scope of its mandate of price stability need to be modified in order to foster the CBE's actual independence.

Moreover, the study attempts to measure the degree of deviation between de jure and de facto independence of the CBE. It concludes that the degree of deviation has increased sharply post 2011. This was mainly backed by the significant surge in de facto independence that was accompanied by a slight enhancement in de jure independence. This might pinpoint the need to review the legal framework governing the CBE.

It is remarkable that the findings of the study concerning CBE's de jure and de facto independence are in line with the previous relevant studies. Previous studies, like, Ewiss (2003) and Kamaly and Farrag (2007) concludes that the CBE was granted a relatively moderate degree of de jure independence and that de facto independence was advancing but at a slow pace. Hence further advancements are needed over both the legal and institutional side on various aspects. Specifically, government intervention embodied in the CBE's board structure, limitations of CBE financing to government, resolution of potential conflicts between CBE and fiscal authority and lender of last resort facilities are among the variables that need to be addressed.

In fact, the CBE has already taken promising steps to overcome some of the aforementioned challenges. On one side, the CBE is currently undertaking a comprehensive review for its legal framework so as to bring it in line with global best practices and to promote its independence. Additionally, the CBE has announced its intention to adopt the inflation targeting regime in the near term. Such move is expected to assist in achieving low and stable inflation and to safeguard the CBE independence against any undesirable external intervention. Yet, more efforts are required to ensure the continuation of these reforms and to further promote the CBE independence.

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Appendix

Table I: Quantitative Evaluation of the CBE’s De jure Independence Index

| Variable | Criteria | 1993 – 2003 | | 2004-2010 | | 2011 - 2017 | |
|--|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | | Score of Criteria | Score of Variable | Score of Criteria | Score of Variable | Score of Criteria | Score of Variable |
| 1) Objective(s) | Price stability objective | 0 | 0 | 0.75 | 0.75 | 0.75 | 0.75 |
| 2) Policy formulation | Who formulates monetary policy? | 0.5 | 0.28 | 0.75 | 0.53 | 0.75 | 0.53 |
| | Who has the final authority in conflict resolution | 0.33 | | 0.83 | | 0.83 | |
| | The existence of override clause in the charter | 0 | | 0 | | 0 | |
| 3) Governor | Terms of office | 0 | 0.27 | 0 | 0.27 | 0.5 | 0.53 |
| | Reappointment possibilities | 0 | | 0 | | 0.67 | |
| | Who appoints the governor | 0.33 | | 0.33 | | 0.5 | |
| | Dismissal | 1 | | 0 | | 0 | |
| | Incompatibility clause | 0 | | 1 | | 1 | |
| 4) Central Bank Board | Terms of office | 0 | 0.04 | 0 | 0.33 | 0.5 | 0.42 |
| | Reappointment possibilities | 0 | | 0 | | 0 | |
| | Who appoints the central bank board | 0.25 | | 0.5 | | 0.5 | |
| | Dismissal of any board member | 0 | | 0 | | 0 | |
| | Incompatibility clause | 0 | | 1 | | 1 | |
| | Composition of central bank board | 0 | | 0.5 | | 0.5 | |
| 5) Limitations on Credit to Government | Limitations on Advances (non-securitized lending) | 0.67 | 0.32 | 0.67 | 0.37 | 0.67 | 0.37 |
| | Limitations on securitized lending | 0 | | 0.33 | | 0.33 | |
| | Limitations on Indirect Credit | 0 | | 0 | | 0 | |
| | Potential borrowers from the central bank | 0.67 | | 0.67 | | 0.67 | |
| | Limits on central bank credit defined in | 0.33 | | 0.33 | | 0.33 | |
| | Maturity of loans | 0.67 | | 0.67 | | 0.67 | |
| | Interest rates on loans | 0.25 | | 0.25 | | 0.25 | |

| Variable | Criteria | 1993 – 2003 | | 2004-2010 | | 2011 - 2017 | |
|--------------------------------------|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | | Score of Criteria | Score of Variable | Score of Criteria | Score of Variable | Score of Criteria | Score of Variable |
| | Central bank's participation in the primary market for government securities | 0 | | 0 | | 0 | |
| 6) Lender of Last Resort Function | Lender of last resort function | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 7) Financial Independence | Ownership of central bank equity capital | 1 | 1 | 1 | 0.83 | 1 | 0.83 |
| | Who determines the central bank's internal budget | 1 | | 1 | | 1 | |
| | Potential central bank's loss coverage | 1 | | 0.5 | | 0.5 | |
| 8) Accountability | External Monitoring | 0 | 0.5 | 0.5 | 0.67 | 1 | 0.83 |
| | Audit of financial statements | 1 | | 1 | | 1 | |
| | Disclosure of the central bank's financial statements | 0.5 | | 0.5 | | 0.5 | |
| 9) Transparency | Publishing of reports on monetary policy and inflation reports | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 10) Foreign Exchange Policy | Who formulates and implements exchange rate policy | 0.5 | 0.5 | 1 | 1 | 1 | 1 |
| Total Value for De jure Index | | 3.91 | | 5.74 | | 6.26 | |

Source: The researcher based on the quantification of CBE's de jure independence.

Table II: Quantitative Evaluation of the CBE's De facto Independence Index

| Variable | Criteria | 1993 – 2003 | | 2004-2010 | | 2011 - 2017 | |
|-----------------------|---|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | | Score of Criteria | Score of Variable | Score of Criteria | Score of Variable | Score of Criteria | Score of Variable |
| 1) Objective(s) | Price stability objective | 0 | 0 | 1 | 0.5 | 0 | 0.5 |
| | Existence of an explicit target for inflation or prices | 0 | | 0 | | 1 | |
| 2) Policy formulation | Who formulates monetary policy? | 0.5 | 0.25 | 1 | 1 | 1 | 1 |
| | Who has the final authority in conflicts over monetary policy | 0 | | 1 | | 1 | |
| 3) Governor | Terms of office | 0 | 0.34 | 0 | 0.64 | 0.5 | 0.83 |
| | Reappointment possibilities | 0.5 | | 0.5 | | 1 | |
| | Who appoints the governor | 0.33 | | 0.33 | | 0.5 | |
| | Who can dismiss the governor | 0.2 | | 1 | | 1 | |
| | Politically Inspired Dismissal | 0 | | 1 | | 1 | |
| | Incompatibility clause | 1 | | 1 | | 1 | |

| Variable | Criteria | 1993 – 2003 | | 2004-2010 | | 2011 - 2017 | |
|--|---|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | | Score of Criteria | Score of Variable | Score of Criteria | Score of Variable | Score of Criteria | Score of Variable |
| 4) Central Bank Board | Terms of office | 0 | 0.35 | 0 | 0.64 | 0.5 | 0.79 |
| | Reappointment possibilities of board | 1 | | 1 | | | |
| | Who appoints the central bank board | 0.25 | | 0.5 | | | |
| | Who can dismiss any board member | 0.20 | | 1 | | | |
| | Politically Inspired Dismissal | 0 | | 1 | | | |
| | Incompatibility clause | 1 | | 1 | | | |
| | Composition of central bank board | 0 | | 0 | | 0.5 | |
| 5) Limitations on Credit to Government | Advances (limitations on non-securitized lending) | 0 | 0.40 | 0 | 0.55 | 0 | 0.55 |
| | Limitations on securitized lending | 1 | | 1 | | | |
| | Limitations on Indirect Credit | 0 | | 0 | | | |
| | Potential borrowers from the central bank | 0.33 | | 0.33 | | | |
| | Maturity of loans | 0.5 | | 0.5 | | | |
| | Interest rates on loans | 0 | | 1 | | | |
| | Central bank's participation in the primary market for government securities | 1 | | 1 | | 1 | |
| 6) Lender of Last Resort Function | Lender of last resort function | 0 | 0 | 0 | 0 | 0 | 0 |
| 7) Financial Independence | Ownership of central bank equity capital | 1 | 1 | 1 | 1 | 1 | 1 |
| | Who determines the central bank's internal budget | 1 | | 1 | | | |
| | Potential central bank's loss coverage | 1 | | 1 | | 1 | |
| 8) Accountability | External Monitoring | 0 | 0.5 | 0.5 | 0.67 | 1 | 1 |
| | Audit of financial statements | 1 | | 1 | | | |
| | Disclosure of the central bank's financial statements | 0.5 | | 0.5 | | 1 | |
| 9) Transparency | Publishing of reports on monetary variables | 1 | 0.30 | 1 | 0.60 | 1 | 1 |
| | Release of inflation reports | 0 | | 0 | | | |
| | Release of forward looking analysis or forecast on inflation and monetary variables | 0 | | 0 | | 1 | |

| Variable | Criteria | 1993 – 2003 | | 2004-2010 | | 2011 - 2017 | |
|---------------------------------------|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | | Score of Criteria | Score of Variable | Score of Criteria | Score of Variable | Score of Criteria | Score of Variable |
| | Publishing policy changes | 0.5 | | 1 | | 1 | |
| | Disclosing minutes of the MPC meetings | 0 | | 1 | | 1 | |
| 10) Foreign Exchange Policy | Who formulates and implements exchange rate policy | 0.50 | 0.50 | 1 | 1 | 1 | 1 |
| Total Value for De facto Index | | 3.64 | | 6.6 | | 7.67 | |

Source: The researcher based on the quantification of CBE's de facto independence.

Table III: Turnover Rate of the CBE's Governors during the Three Studied Periods

| Period | Governor | Tenure | Turnover Rate ²⁶ |
|---------------|---------------------------|---------------------------------------|-----------------------------|
| First Period | Mr. Ismail Hassan | 8 years (October 1993–October 2001) | 0.125 |
| | Dr. Mahmoud Abou El Ayoun | 2 years (October 2001–November 2003) | 0.5 |
| Second Period | Dr. Farouk El Oukda | 9 years (December 2003–January 2013) | 0.111 |
| Third Period | Mr. Hisham Ramez | 3 years (February 2013–November 2015) | 0.333 |
| | Mr. Tarek Amer | 4 years (November 2015–November 2019) | 0.25 |

Source: The researcher based on data from the CBE website.

Table IV: Political Vulnerability of the CBE's Governors during the Three Studied Periods

| Period | Appointment of CBE Governor | | Change in the Executive Authority ²⁷ | | Political Vulnerability ²⁸ |
|---------------|-----------------------------|---------------------------|---|---|---------------------------------------|
| First Period | 13/10/1993 | Mr. Ismail Hassan | 10/11/1986 4/1/1996 | Mr. Atef Sedky Mr. Kamal El Ganzoury | 0 |
| | 30/10/2001 | Dr. Mahmoud Abou El Ayoun | 5/10/1999 | Mr. Atef Ebid | 0 |
| Second Period | 1/2/2003 | Dr. Farouk El Oukda | 14/7/2004 | Mr. Ahmed Nazif | 0 |
| Third Period | 3/2/2013 | Mr. Hisham Ramez | 11/2/2001 30/6/2012 4/7/2013 | Mr. Mohamed Tantawy Mr. Mohamed Moursi Mr. Adly Mansour | 0 |
| | 27/11/2015 | Mr. Tarek Amer | 8/6/2014 | Mr. Abd El Fatah El Sisi | 0 |

Source: The researcher based on data from the CBE website and www.worldstatesmen.org/Egypt.

²⁶ Turnover rate = $1 \div$ actual tenure of the CBE governor.

²⁷ For the first two periods change in prime minister was used as a proxy for change in the executive authority as presidents tended to stay in office for considerably long time, during these two periods. On the contrary, the third period witnessed a fairly shorter terms for president and hence change in president, rather than prime minister, reflected change in the executive authority in the third period.

²⁸ Political vulnerability indicator = number of changes in the CBE governors in six months following change in the executive authority \div number of changes in the executive authority.

Box I: Estimation of Monetary Policy Reaction Function in Egypt during the Three Studied Periods²⁹

In order to assess whether CBE has practically pursued price stability as an objective or not, the monetary policy reaction function is estimated for Egypt throughout the three periods of analysis. Monthly data for the CBE policy rate, lagged inflation rate, lagged output gap, and annualized monthly change in Real Exchange Rate are employed. After testing for stationarity, the OLS technique is used to estimate monetary policy reaction function in both the first period and the second period. While ARDL approach is used for estimation in the third period. The results reveal that inflation coefficient has a positive sign, as theoretically expected. However, the coefficient is statistically significant only in the second period (2004-2010). Thus, it could be argued that it is only in the second period that monetary policy decisions are in line with the price stability objective, in contrast to the other two periods. This might be justified by the fact that in the first period the CBE was pursuing multiple policy objectives and the lack of policy rate. While in the third period the CBE aimed at attaining various objectives, besides price stability, so as to mitigate some of the negative repercussions of the political instability.

Source: The researcher based on the findings of Emam (2018).

²⁹ It is notable that for the third period the analysis excluded data from November 2016 to June 2017 as this period had witnessed a sharp reduction in the exchange rate due to the move to a more flexible exchange rate system in November 2016. Including these observations had negatively affected the stationarity of the exchange rate variable which distorted the estimation and its reliability. For further details on the estimated function, refer to Emam (2018).