

Does Central Bank Financial Strength Matter for Inflation in Sri Lanka?

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Abstract

The importance of financial soundness in the central banking system is an area which was debated over the time. Due to the inherent monetary authority of central banks, it was argued that central banks do not necessarily require an adequate financial position compared to commercial banks. Also, its' costless ability to create domestic fiat money trivializes the need of maintaining a sound financial position. But, recent empirical studies claimed conflicting findings which drew the attention to the importance of financial strength in the context of central banks.

The central bank financial strength was a key factor which determines the effective conduct of monetary policy in terms of achieving policy objectives. Accordingly, linking central bank financial strength with price stability: maintaining a low level of inflation which is a primary objective of the majority of central banks came to the discussion which has been disregarded for a longer period of time.

This study was conducted with the aim of investigating the relationship between central bank financial strength and inflation in Sri Lanka considering the individual country characteristics for the time period ranging from 1980 to 2015. Time series regression was conducted with the basic model where the independent variable is central bank financial strength and the dependent variable is inflation; proxy to price stability.

Empirical result of this study provides a significant negative relationship between central bank financial strength and inflation suggesting a probable impact from central bank financial strength on inflation in Sri Lankan context which is claimed to be true in many empirical studies. Hence, it was concluded that maintaining adequate financial position is crucial even for central banks irrespective of the inherent monetary authority they consume.

KeyWords: central bank financial strength, inflation, sri lanka

Introduction

This empirical study aimed to identify whether there is a relationship between Central Bank Financial Strength and Inflation in Sri Lanka. Empirical studies which have been investigated on this topic remaining scant while findings of those studies offered inconsistent conclusions with contradictory views. A major reason for these contradictory findings is the heterogeneity among central banking systems around the world. Disparities prevailing in the economic systems of different countries also comes as a reason for these contradictory findings on the topic. This study attempts to investigate the relationship between Central Bank Financial Strength and Inflation in Sri Lankan context which will contribute to the remaining limited studies on the field.

The concept of central bank financial strength is disregarded for a longer period of time due to several reasons. It is believed that monetary autonomy in the economy inherent only to the central bank provides no more requirement of a financial strength (Stella 2005). Stella claims that unlimited costless ability of central bank in creating domestic fiat money trivializes the need of a financial strength for a central bank as they can print any quantity of money to repay their obligations as well as to absorb the losses. But it is argued that there can be an adverse economic impact from printing money which could results conflicts in policy objectives especially in terms of price stability. Therefore, it is provided that central banks cannot produce an unlimited quantity of money without affecting their nominal policy objectives (Stella 2005). Hence, the argument of even central banks requires an adequate level of financial strength to pursue their policy objectives freely, comes to the debate.

Several supportive quotes by policymakers can be found, stressing the importance of this concept. Such statement by Francisco de Paula Gutierrez, former President of the Central Bank of Costa Rica is that “We, the central bank, have a negative net worth...and this remains our greatest challenge”(cited in Stella and Lonnberg 2008, p.4).

Another statement by Fukui (2003), the former Governor of the Bank of Japan (BoJ) supported this view on the financial strength of central banks (cited in Benecka et al. 2012, p.3).

The actual behavior of some central banks indicates that central banks' concern with the soundness of their capital base might not be grounded purely in economic theory but may be motivated rather by the political-economic instincts of central bankers

In nature, central banks hardly become illiquid (Benecka et al. 2012). Being the monopoly issuer, the central bank can continue its service even with a

negative equity which is one of the reasons for the negligence of this concept. Further, the formal procedures of standard bankruptcy are not subjected to central banks providing any legal binding constraint even with the zero level of equity (Benecka et al. 2012). Also, the right to collect seigniorage which is the monetary income of central banks make them able to go well beyond the accounting equity. It is mentioned that central bank losses may have long-term fiscal implications and they would try to control losses with improvements of finances by allowing higher inflation. Hence, it can be observed a conflicting situation between their primary goal of price stability and weak financial strength arising through inflationary means of solving financial weaknesses of the central banks.

It is reviewed that even though central banks can always create money to pay its bills and cannot be declared bankrupt by a court, their financial results can be an impact in terms of achieving the policy objectives. Therefore, losses or negative capital may raise doubts in its ability to deliver on policy targets and expose it to political pressure (Archer and Boehm 2013).

It has been pointed out some reasons for the increased attention to central bank financial strength. Accordingly, international financial integration in emergent economies, trends towards increased price stability and financial burden of central banks due to revaluation losses and carrying cost implied by large-scale reserve accumulation are some of the reasons which call upon the requirement of financial strength for central banks. Moreover, it is argued that even mature market central banks can be subjected to potential serious stress tests related to financial crises which would change the risk profile of a central bank's asset-liability mix. Also, adoption of more transparent accounting standards has caused more volatility in equity of central banks which is also an influencing aspect to reconsider this topic (Klüh & Stella 2008).

It is stated that the performance of monetary policy conduct is reflected in macroeconomic outcomes especially in terms of monetary and price stability. It is further explained that the behavior of the central bank cannot be measured explicitly in such outcomes. But central bank preferences, inflation targeting, central bank independence, and transparency are several attributes which can be used in measuring the behavior of the central bank. Hence, central bank ability to achieve its policy objectives can be used to model macroeconomic outcomes with the central bank financial strength particularly in the context of price stability and the financial strength (Perera et al. 2011).

The relationship between central bank financial strength and macroeconomic outcomes including inflation which is a proxy measurement for price stability is subjected to the controversy which requires further investigation. Even though the importance of central bank

financial strength is discussed recently, its relationship with macroeconomic outcomes has not been empirically analyzed to date which remains the lacuna of research on this matter (Klüh and Stella 2008).

Therefore this study is mainly motivated by the prevailing research gap in this area by providing a comprehensive investigation in between central bank financial strength and inflation in Sri Lanka.

Problem Statement

Generally, it is accepted that commercial banks require a substantial financial strength to survive and to conduct their primary responsibilities. But in the context of central banks, the need for financial strength is a controversial area which requires further investigation. Both supportive and against views and findings can be observed giving an insight of prevailing debate on this topic.

Some scholars argue that being the autonomy in the monetary system, the central bank does not necessarily require a financial strength due to its costless ability of printing money (Stella 2008). But recent literature provides some contradictory views claiming that there can be an adverse impact on the macroeconomy from a weak financial position of a central bank. It has been pointed out that printing an endless quantity of money would result in excessive liquidity in the economy which would lead to macroeconomic ailments and it would constrain nominal policy objectives especially in terms of price stability (Sweidan 2011 cited in Perera et al. 2011).

Prevailing limited studies in this field have been focused on the analysis of central bank financial strength and inflation mostly in the context of western countries or as a whole for the world. Investigation on this subject considering individual country setting would give a different insight to the prevailing debate on the topic especially when it has been considered Sri Lanka as a country with lower central bank independence. Hence, investigating whether there could be an impact from the financial strength of central bank on inflation comes as a researchable area which has been disregarded for a longer period of time especially in the South Asian context given the focus to Sri Lanka.

Accordingly, this can be specified into a specific research question as,

Does central bank financial strength impact on inflation in Sri Lanka during the time period ranging from 1980 to 2015?

Rationalization of the research

Price stability of the economy is accepted as an important macroeconomic outcome which is desired to achieve by the policymaking authority, particularly by central banks. Several empirical studies attempt to model central bank financial strength with inflation claiming that strong financial strength of central banks may widen the ability of central banks to achieve their policy objectives; price stability; low level of inflation.

According to previous studies it can be observed that most of the studies have been carried out on pooled samples of countries in the context of regional or emergent economies. But the evidence is scant in the context of time series analysis on the individual country profile. Therefore, this study will contribute to the prevailing findings by taking consideration of heterogeneous characteristics in individual country settings. In addition, the findings of the study will draw the attention on the importance of the central bank financial strength in maintaining macroeconomic stability in the terms of maintaining a low level of inflation and will provide a different insight to policymakers with the involvement of the independence of central banks.

The objective of the research

- To identify the impact of Central bank financial strength on Inflation in Sri Lanka.

Literature Review

The concept of central bank finance

It can be observed different terms which have been used in the related literature to refer central bank finances. For instance, Stella and Lonnberg in 2008 refer to the term 'central bank finance' while Ize in 2005 used the term 'central bank financial position' based on the net worth approach.

Some studies adopt the term 'financial strength' (Stella 2005; Cargill 2005; Klüh & Stella 2008). In addition, Perera et al. (2011) point out various terms which refer the same concept such as central bank financial soundness, financial health, central bank ability/inability based on many studies. It is stated that in early literature central bank finance has been discussed in the context of central bank independence (Perera et al. 2011). This study uses the term 'central bank financial strength' (CBFS) following Klüh and Stella (2008) and Perera et al. (2011).

This is a concept which has been neglected previously. According to Stella (2005), there are both historical and theoretical reasons for the negligence

of CBFS. Focusing on historical reasons first, it can be observed that many fiat money central banks including Group of Seven (G-7) countries had been highly profitable over a long period of time. Therefore 'financial difficulties' is much more a remote concept to them. It is stated that the U.S. Federal Reserve System has been making profits since 1915 (Stella 2005). Hence, being profitable ever in the history made the CBFS is rather a remote concept. Then the theoretical reasons provide that due to the unlimited costless ability in creating money, central banks do not require financial strength as commercial banks.

Stella (2008) argues that it cannot be used conventional measures of assessing the financial strength of private enterprise in the context of the central bank since profitability and capital are not the primary consideration of central bank but those are the primary consideration of private enterprise. Further, he suggests that the performance of central banks can be assessed through their policy performance. Accordingly, Stella (2008) demonstrates two specific benchmarks to assess central bank performance; firstly, how well it creates conducive conditions to ensure favorable macroeconomic outcomes such as output growth, price stability, etc. and secondly, how efficiently the central bank achieves such outcomes refers to internal efficiency which minimizes the costs of attaining objectives.

Another mostly discussed concept regarding the central bank financial strength is central bank independence. This is the initial term used by many studies and later it developed to other aspects like financial strength. An index; Central bank independence and governance (CBIG) has been constructed addressing some of the aspects of central bank independence. Accordingly, several sub-indices in separate fields such as legal, political, price stability objective, exchange rate policy, monetary policy, and deficit financing and accountability have been considered with the inclusion of different twenty-six variables in forming the CBIG index which reflects comparative central bank independence in different country context (Ahsan & Skully 2009).

Accordingly, with special reference to South Asia, it has been recorded Sri Lanka, India, and Pakistan as countries maintaining a standard level of CBIG index while Nepal and Pakistan indicate remarkable improvement. Bhutan and Maldives have been classified as low CBIG countries within the region (Ahsan & Skully 2009).

Even though central bank profit and losses are considered as less important measurements of CBFS, it can erode the central bank net worth negatively (Dalton & Dziobek 2005 cited in Perera et al. 2011). Cargill (2006) suggests that if the central bank is able to conduct its operations without incurring operational losses, it can be said that it is a financially strong central bank (Cited in Perera et al. 2011). Therefore, the profit and losses of central banks also come to the consideration as they determine the central

bank net worth level. Hence, profit and losses of central banks help to conceptualize the CBFS.

Measuring central bank financial strength

Literature provides some useful measurements for assessing CBFS. Accordingly, Benecka et al. (2012) provide some measurements of CBFS following Kluh and Stella (2008) in terms of ratios. There they have presented ratios with respect to balance sheets such as Equity to total assets, broadly defined capital to total assets and Net non-interest-bearing liabilities (NNIBL). In the terms of profitability measures, return on average assets (ROAA) and Return on average equity (ROAE) have been used. Especially NNIBL has shown a significant negative coefficient with inflation providing that there is an impact of CBFS on inflation while other measures turned out to be insignificant.

Following Stella (2008), Perera et al. (2011) suggest that 'other item net' (OIN) account comparatively reflect more of central bank balance sheet. According to him, OIN includes the revaluation account, net worth, original capital, reserves, and physical assets. Further, he states that it contains accumulated losses or hidden reserves providing that it is an important figure in assessing the financial strength.

Based on the literature several studies reflect that as the best representative measurement of CBFS is the capital plus OIN as a percentage of total assets. According to Stella (2008), it adopts the stock concept to measure CBFS. Benecka et al. (2012) also suggest that this measurement as a more reliable indicator which is calculated based on the data provided by the International Financial Statistics (IFS). Further, Perera et al. (2011) provide that only this measurement indicates a relationship between economic outcomes after a comprehensive analysis by employing several measurements. Accordingly, this measurement can be depicted as follows.

$$\frac{+h}{\dots}$$

Consequences of central bank financial strength

Stella (2008) shows that weak CBFS can hamper policy capacity and its outcomes. Further, it is stated that weak CBFS can constrain the smooth conduct of monetary policy thereby resulting in a dependency on the support from treasuries. Then it would affect the primary concern on price stability and 'to compromise its operational independence and also to impose inefficient restrictions on the financial system to suppress inflation' (Stella 1997 cited in Perera et al. 2011, p. 16).

Sweidan (2011) argues that central bank losses may influence the central bank to change the operations of central banking to guarantee survival (cited in Perera et al. 2011). Therefore it is appeared to be that CBFS is positively associated with good policy performance which implies that financially weak central banks would undermine the macroeconomic stability (Stella 2008).

According to Sweidan (2011) 'weak central bank finances may have negative implications for economic outcomes' (Perera et al. 2011, p. 16). Stella (2005) states that financial weakness of central bank would lead to financial losses which have to be settled through financial repression, reserve money creation or debt issuance expecting a future money growth. If central bank fails to withstand to potential shocks in their balance sheets due to the weak financial position, it would be difficult to fulfill its policy obligations which would weaken the credibility of central banks.

Another idea developed regarding the CBFS is that it is required to maintain an adequate level of financial strength to absorb losses and to credibly achieve policy objectives. It is argued that treasury support for the central bank is not an appropriate and reliable option and also it cannot be expected such support on a timely basis considering historical occasions. Moreover, it is emphasized that central bank distress and fiscal distress are associated (Stella 2008). Also stabilizing the financial strength with treasury support requires transferring real resources to the central bank. Such options could cause monetary expansion which would erode central bank capital thereby generating higher inflation rates (Stella 1997 cited in Perera et al. 2011). All these findings conclude that to achieve policy objectives as well as to maintain efficiency central bank it is a necessity to have an adequate level of financial strength for central banks. Stella and Lonnberg (2008) show that it would be unable to meet the basic functions of central banks causing financial distress in the economy due to inadequate CBFS.

Another key aspect of CBFS is that it provides central banks to act more credibly. Having an adequate level of financial strength provides central banks to survive in adverse situations without hampering policy objectives. It is stated that if central banks are financially weak one of options available to central banks is relieving some of the policy goals such as price stability or maintaining a fixed exchange rate which constrains macroeconomic stability (Stella 2005).

Finally, it can be concluded that determining the financial strength of a central bank requires a careful analysis both in the balance sheet and economic environment to ensure that the central bank will be able to meet its policy objectives successfully without hampering macroeconomic stability (Stella 2005).

Referring to the findings of similar studies it is evidenced that central banks could experience financial difficulties and weak financial conditions which could have implications for the entire economy. Hence the central bank has to be more responsible when achieving its policy objectives. In other words, the central bank may need to concern on the conducive environment for better economic outcomes such as price stability, interest rate stability, and exchange rate stability (Perera et al. 2011).

Linking central bank financial strength and macroeconomic outcomes

This is an area which is subject to debate. According to the discussion of Klüh and Stella (2008), many scholars argue that the linkage between CBFS and macroeconomic outcomes are unlikely to exist providing that this is an irrelevant idea to investigate. But Klüh and Stella (2008) present two approaches such as pragmatic approach and theoretical consideration to link these two concepts. According to a pragmatic approach, the discussion on CBFS and inflation are carried out. It is stated that the financial difficulties of the central bank would weaken the achievements of anti-inflationary policies resulting transfer of excess liquidity to the financial system. Perera et al. (2011) state that ‘motives such as the self-interested behavior of central bank representatives in terms of reputation, personal prestigious and future employment opportunities and also, intentions to generate stable flow of seignorage revenues can lead to a tendency to factor CBFS in monetary policy decisions’ (p. 13).

In theoretical considerations, it is provided that in circumstances where treasury support is not available for a loss-making central bank, it would tend to lower the cost of monetary operations as the first option adjusting minimum reserve requirements. Klüh and Stella (2008), discuss that such procedures would involve some economic costs such as financial repression affecting the financial development.

Moreover, Perera et al. (2011) argue that if the central bank goes for a reprinting of money based on interest-free liabilities to repay its obligation as the second option, excess liquidity would flow to the economy. If the sterilization process is not conducted to absorb the excess liquidity back, then there could be a possibility of inflationary pressures. On the other hand, if the central bank sterilizes the excess liquidity by issuing debt securities, it would have to be incurred an additional interest cost (Klüh & Stella 2008).

In sum, all these arguments support the view of the existing relationship between CBFS and price stability. Accordingly, this study will attempt to model the relationship in between CBFS and price stability in the South Asian context to fill the prevailing research gap.

Methodology

Research Design and Data

The study focuses on Sri Lankan context which is an emergent economy in the South Asian region. Selection of the country was mainly motivated by the convenience of data accessibility.

Accordingly, this study consists of an empirical analysis of macroeconomic data in Sri Lanka over the period of 1980 to 2015 depending on secondary data. The required data have been retrieved from various sources such as International Financial Statistics (IFS) of International Monetary Fund (IMF), Central bank of Sri Lanka (CBSL) and World Development Indicators of World Bank.

Conceptual Framework

The conceptual framework of the research outlines the independent variable and the dependent variable and their measurements providing the overall picture for the study.

Basic Model:

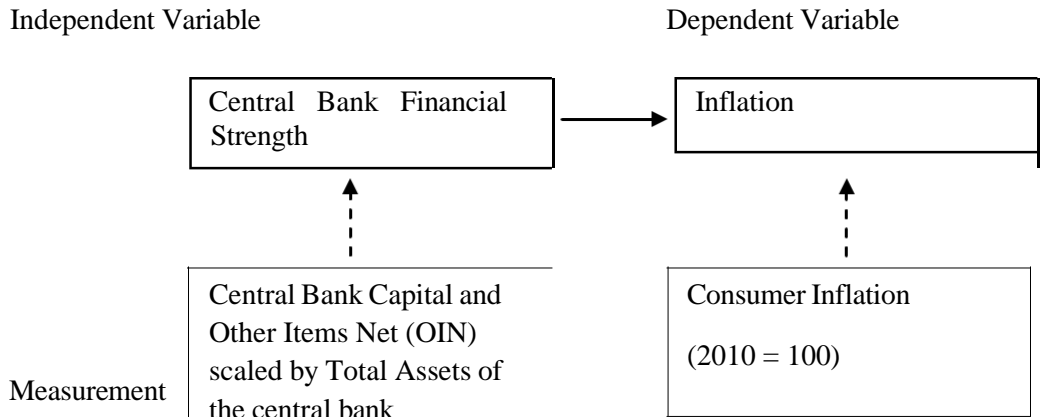


Figure 1: Basic model

Model Specification for the study

Since there is no particular theoretical model to adopt in this study, the model was specified to best fit to the data set where the researcher was given the freedom to alter the model where needed. Accordingly, the model was constructed following the empirical model by Perera et al. (2011, 2013).

Basic Model:

Where, $\pi_t = \frac{CPI_t - CPI_{t-1}}{CPI_{t-1}}$

= Year on year change of consumer price index

= Central Bank Financial Strength

Accordingly, the basic model can be specified as follows.

Data Analyzing Procedure

This research is conducted in order to estimate the impact of Central bank financial strength on inflation. In order to meet the aforesaid objective, data were analyzed in the following manner.

Time series unit root test has been conducted first to detect whether the data series indicate any non-stationary characteristics. Accordingly, after correcting for the unit root problem the model was specified. Finally, the validity of the specified model was assessed through conducting different statistical tests addressing the main econometrics problems.

Results and discussion

Time series unit roots results

Following table represents the unit root statistics for the variables following Augmented Dickey Fuller (ADF) test and the decision criteria.

H₀: Series has a unit root problem

H₁: Series has not a unit root problem

Decision Rule: Reject H₀ if the absolute value of test statistic > Absolute value of critical value

Table 1: Unit root test statistics

Variable	Test Statistic	Interpolated Dickey Fuller at 5% Critical Value	Decision	Conclusion
INFLATION	4.012	-2.972	Reject H ₀	No unit root problem
CBFS	-4.767	-2.972	Reject H ₀	No unit root problem

The ADF test concludes that data series is free from the unit root problem where all the variables are stationary. Accordingly, data set has been used in the original form for the model specification.

Estimation Results

Basic Model;

$$= \alpha + \dots +$$

Table 2: Regression of basic model

	Constant	Slope	R ²	The probability of F statistics
Equation	52.646	-35.41579	0.1342	0.0280
t statistic	7.41	-2.30		
P value	0.0000	0.028		

According to the test results, the basic model can be constructed as follows.

To assess the significance of the relationship between the two variables following decision criteria was used.

Significance of Parameter

H₀: There is no significant relationship between the two variables

H₁: There is a significant relationship between the two variables

Decision Rule: Reject H₀ if P-value < 0.05

Table 3: Significance of parameters of the basic model

Variable	P value	Level of Significance	Conclusion
CBFS	0.028	0.05	There is a significant relationship

Following the regression estimates, the sign of the slope coefficient is negative and complies with the empirical relationship. This means that central bank financial strength and inflation are negatively related in Sri Lanka under the period of investigation. Moreover, the probability of the parameter is less than the five percent of the significance level. This implies that a positive change of 1 percent in central bank financial strength, ceteris paribus, will result in a 35 percent decrease of inflation level in the country.

The probability of F statistic is also significant at five percent level of significance providing that the model is significant as a whole. But the R^2 value of the model represents a lower level of explanatory power in the model indicating the existence of omitted explanatory variables of the model which is a limitation of this study. Since the primary objective of the study is to investigate the impact of central bank financial strength on inflation, other explanatory variables have not been included in the model.

Testing the Validity of the Model

Autocorrelation

The existence of the correlation between the elements in the same series; Autocorrelation was checked by the Breusch- Godfrey serial correlation LM test.

Breusch- Godfrey serial correlation LM test was conducted based on following decision criteria.

H_0 : There is no serial correlation in the residuals

H_1 : There is a serial correlation in the residuals

Decision Rule: Reject H_0 if p-value < 0.05

Table 4: Breusch- Godfrey serial correlation test statistic for the basic model

Chi 2	P value	Level of significance	Conclusion
1.1461	0.5638	0.05	There is no correlation in the residuals

Heteroskedasticity

Heteroskedasticity reflects the systematic pattern in residuals which creates estimators of the model inefficient and incorrect standard errors. Therefore, Heteroskedasticity of the model was checked through the Breusch – Pagan / Cook-Weisberg test based on the following decision criteria.

H₀: Homoscedasticity in residuals

H₁: Heteroskedasticity in residuals

Decision Rule: Reject H₀ if p-value < 0.05

Table 5: Breusch – Pagan / Cook-Weisberg test statistic for the basic model

Chi 2	P value	Level of significance	Conclusion
0.14	0.7098	0.05	Homoscedasticity in residuals

Conclusion and recommendation

The most accepted view is that central banks do not require a financial strength compared to commercial enterprises as they are the monetary autonomy of the economy consuming the unlimited costless ability to issue money. But empirical literature argues that even for a central bank it is needed an adequate level of financial strength to perform the monetary policy conduct effectively. The remaining few empirical studies on the field try to model central bank financial strength with macroeconomic outcomes like price stability stating that financially weak central banks may hamper the attainment of policy objectives due to the financial constraints which will lead ailments of macroeconomic stability focusing more on price stability which is the most prominent policy goal of most of the central banks.

To that end, this study attempts to provide evidence of a probable relationship between central bank financial strength and inflation in Sri Lanka. It is observed that price stability, measured by inflation is broadly related to central bank financial strength. Therefore, it is concluded that in lowering inflation in the economy, central bank financial strength influences favourably where higher financial strength will lower the inflation providing stability in the prices of an economy.

These empirical observations offer several policy implications stressing the need of the financial soundness regardless of the monetary autonomy inherent to central banks. Accordingly, central banks should attempt to avoid losses by implementing appropriate policies in order to maintain

favorable balance sheet position with adequate financial health as there is a significant impact from the financial strength of central banks on inflation which generates a downward bias in inflation.

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