Hacettepe University Graduate School Of Social Sciences
Department of Economics

CENTRAL BANK INDEPENDENCE AND STABILITY

Sait Can ÖZARSLAN

Master's Thesis

Ankara, 2023

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ACCEPTANCE AND APPROVAL

The jury finds that Sait Can ÖZARSLAN has on the date of 19.06.2023 successfully passed the defense examination and approves his Master's Thesis titled "Central Bank Independence and Stability".

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ABSTRACT

ÖZARSLAN, Sait Can. *Central Bank Independence and Stability,* Master's Thesis, Ankara, 2023.

This study examines the impact of stability and institutional indicators on Central Bank Independence (CBI) using a fixed effects panel data analysis for 51 countries from 2008 to 2017. Stability indicators include Past Inflation, Financial Depth, Trade Openness, Total Government Debt, Current Account Balance, and GDP per Capita, while institutional indicators encompass Control of Corruption, Government Effectiveness, Political Stability, Rule of Law, Voice and Accountability, and Regulatory Quality. The analysis adopts a broader measure of CBI developed by Romelli (2022). This paper aims to enrich the literature by investigating how these indicators shape the independence of central banks in the post-global crisis era, providing valuable insights for policymakers and shedding light on essential elements that affect the autonomy of central banks. It contributes to the existing literature by considering two additional important variables- Current Account Balance and Total Government Debt- which have been largely overlooked in previous studies. Based on the panel data analysis conducted with the Driscoll & Kraay robust estimator, while all models turned out to be statistically significant, only Past Inflation, Trade Openness, Government Debt, and Control of Corruption were statistically significant at the variable level. The remaining variables did not turn out to be significant in any model.

Keywords: central bank independence, stability, financial depth, trade openness, government debt, institutional indicators, panel data analysis

ÖZET

ÖZARSLAN, Sait Can. *Merkez Bankası Bağımsızlığı ve İstikrar,* Yüksek Lisans Tezi, Ankara, 2023.

Bu çalışma, 2008'den 2017'ye kadar 51 ülke için sabit etkiler panel veri analizi kullanarak istikrar ve kurumsal göstergelerin Merkez Bankası Bağımsızlığı (MBB) üzerindeki etkisini inceliyor. İstikrar göstergeleri Geçmiş Enflasyon, Finansal Derinlik, Ticari Açıklık, Toplam Hükümet Borcu, Cari Hesap Dengesi ve Kişi Başına Düşen GSYİH'ı içerirken; kurumsal göstergeler Yolsuzluk Kontrolü, Hükümet Etkinliği, Politik İstikrar, Hukukun Üstünlüğü, Ses ve Hesap Verilebilirlik ve Düzenleyici Kalite'yi kapsamaktadır. Analiz, Romelli (2022) tarafından geliştirilen daha geniş bir MBB ölçüsünü benimsemektedir. Bu makale, küresel kriz sonrası dönemde bu göstergelerin merkez bankalarının bağımsızlığını nasıl şekillendirdiğini araştırarak literatüre zenginlik katmayı, politika yapıcılar için değerli içgörüler sağlamayı ve merkez bankalarının özerkliğini etkileyen önemli unsurlar üzerine ışık tutmayı hedeflemektedir. Bu çalışma, genellikle önceki çalışmalarda büyük ölçüde göz ardı edilen iki ek önemli değişken- Cari Hesap Dengesi ve Toplam Hükümet Borcu- dikkate alarak mevcut literatüre katkıda bulunmaktadır. Driscoll & Kraay dirençli tahminci ile yapılan panel veri analizi sonucunda, tüm modeller istatistiksel olarak anlamlı çıkarken, sadece Geçmiş Enflasyon, Ticari Açıklık, Hükümet Borcu ve Yolsuzluk Kontrolü değişken düzeyinde istatistiksel olarak anlamlı çıkmıştır. Kalan değişkenler hiçbir modelde anlamlı çıkmamıştır.

Anahtar Kelimeler: merkez bankası bağımsızlığı, istikrar, finansal derinlik, ticari açıklık, hükümet borcu, kurumsal göstergeler, panel veri analizi,

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ABBREVIATIONS

BP: Bade and Parkin

BWS: Bretton Woods System

CAB: Current Account Balance

CB: Central Bank

CBI: Central Bank Independence Index

CBIE: Central Bank Independence Index Extended

CBRT: Central Bank of Republic of Turkey

CEO: Chief Executive Officer

CGD: Central Government Debt

CWN: Cukierman, Webb, Neyapti

EU: European Union

FE: Fixed Effects

FED: Federal Reserve System

Fintech: Financial Technology

FOMC: Federal Open Market Committee

GDP: Gross Domestic Product

GMT: Grilli, Masciandaro and Tabellini

GNP: Gross National Product

HDI: Human Development Index

IMF: International Monetary Fund

M2: Money Supply

OECD: Organization for Economic Co-Operation and Development

OLS: Ordinary Least Squares

RE: Random Effects

SME: Small and Medium Enterprise

TOR: Turnover Rate

UNDP: United Nations Development Programme

INTRODUCTION

The central bank is a central institution with the responsibility of managing and supervising a country's monetary policy. These policies are generally directed towards achieving the economic goals of a country, such as controlling inflation, ensuring a stable currency, boosting employment, or supporting sustainable economic growth. The capabilities and responsibilities of central banks vary from country to country, but they generally undertake tasks like managing monetary policy, ensuring the stability of the currency, acting as the lender of last resort, and maintaining financial stability. Central banks are fundamental pillars of modern economic systems and are vitally important for overall economic health and stability.

The first examples of central banks date back to the 17th century. The first central bank established in the world is Sveriges Riksbank in Sweden. Following that, the Bank of England was established in 1694, Banque de France in 1800, Reichsbank in Germany in 1875, and the Federal Reserve System (FED) in the United States in 1913. In those years, the duties of central banks included maintaining the value of the currency and being responsible for the printing of money. Although not their primary duty, many central banks were also used over the years to finance governments' debts.

Nowadays, these duties have undergone significant evolution and change. One of the most basic functions of a central bank today is to print money, but new tasks are added daily as the economy develops. These tasks include controlling the amount of money available in the economy and controlling the volume of credit, being the lender of last resorts and ensuring price stability within the framework of economic policy. Basically, Central Bank is an institution that controls the total money supply, determines interest rates, aims to maintain price stability, manages the general foreign exchange reserves of the country and tries to enrich them, while being an institution that is established by the government but is not a hierarchical agent of governments. Central Banks are the only authority responsible for managing the country's monetary policy and for printing the country's own currency. The independence of an institution that does all this is very important. Since the main goal of Central Banks is to ensure price stability, this is more important than the short-term political gains that governments will make.

The relationship between Central bank independence and stability indicators is very important because the decisions taken by Central Banks affect the stability of the economy and financial structure in the country. Central Banks always had main

objectives. When the Central bank independence's importance was noticed to achieve those main objectives, the Central Banks' independence has increased all over the world. The 2008 Global Financial Crisis was one of the periods in which policymakers realized the importance of stability and witnessed a general increase in central bank independence worldwide. It should be noted that the Central Banks gained their independency too late after their establishment. Central bank independence refers to the ability of a central bank to make monetary policy decisions independently from the government or political forces. An independent central bank typically focuses on key objectives such as keeping inflation under control, ensuring financial stability, and supporting overall economic growth, free from government or political influence

This thesis aims to provide a comprehensive literature review on the relationship between central bank independence and stability indicators. Additionally, a series of econometric models will be employed to examine the impact of stability indicators and institutional indicators on central bank independence. The literature contains numerous articles that explore the effects of central bank independence on stability indicators and institutional indicators. However, the number of studies investigating how stability indicators and institutional indicators influence central bank independence remains limited. This study aims to contribute to a better understanding of the impact of stability indicators and institutional indicators on central bank independence and to expand the limited literature. The main hypothesis of this thesis is that whether improvements in stability and institutional indicators will have a positive effect on Central bank independence. The findings of this study will reveal which stability indicators and institutional indicators significantly affect central bank independence, providing valuable insights for policymakers and economists. Moreover, the empirical findings of this thesis are important as they aim to provide significant implications for policymakers on which indicators can be enhanced to improve central bank independence.

The study covers the period between 2008 and 2017 for 51 countries. There are two main reasons for this. Firstly, the primary reason is to examine the relationship after the increased demand for central bank independence and stability following the Global Financial Crisis. The secondary reason is the motivation to work with a strongly balanced panel dataset where all variables used in the study have complete data even for a single year. So, the data availability is another limitation of this paper like limited literature. 51 countries included in the data set consist of 13 high income countries, 19 upper-middle income countries, 13 lower-middle income countries and 4 low-income countries are

included but the analysis is not made based on the income levels. These 51 countries are Albania, Angola, Azerbaijan, Bolivia, Botswana, Brazil, Bulgaria, Burundi, Cambodia, Cameroon, Chile, China, Colombia, Costa Rica, Croatia, Czech Republic, Dominican Republic, Georgia, Ghana, Guatemala, Hungary, India, Indonesia, Jamaica, Japan, Jordan, Kenya, Kuwait, Mauritius, Mexico, Morocco, Nepal, Niger, Nigeria, Norway, Paraguay, Peru, Philippines, Poland, Romania, Saudi Arabia, Senegal, Singapore, Sweden, Thailand, Turkey, Uganda, Ukraine, United Kingdom, Vietnam, Zambia, respectively. The data was mainly collected from–World Bank Database and IMF Database. Besides, the Central bank independence Index was retrieved from Romelli (2022). Panel data analysis was used in this study. As a result of the tests performed on the model, it was found appropriate to use the fixed effect model. One of the important results in the thesis is that a negative relationship was found between Central bank independence and inflation as expected.

This thesis consists of 5 sections. In the first section, Central bank independence is explained, the historical progress of Central bank independence is presented, and debates on Central bank independence are discussed. The second section explains the relationship between Central bank independence and Financial Stability Indicators. The third section includes a literature review. The fourth section includes the empirical analysis.

CHAPTER 1: CENTRAL BANK INDEPENDENCE

Governments often make decisions that lead to inflation when implementing economic policies, so inflation and price stability are not their top priorities. Any short-term political gain may cause a long-term economic problem as higher inflation (Adrian, 2022). However, as suggested by Rogoff (1985), independent central banks that prioritize price stability as their main objective and are not hierarchically agents of the government within a legal framework, should be responsible for managing monetary policies. Governments create a risk of time inconsistency when they aim to generate sudden economic growth through surprise inflation. However, when monetary policy is managed by an independent central bank, the risk of economic instability created by governments' short-term and unsustainable growth goals is significantly reduced. As Kydland and Prescott (1997) noted, independent central banks reduce the risk of time inconsistency. Central banks aim to achieve long-term price stability and control of inflation, rather than unstable goals such as short-term growth, by using their monopoly power over monetary policy. However, having a monopoly power over monetary policy does not mean that Central Bank is not responsible from accountability and transparency. As Alkinoglu (2000) pointed out, an independent central bank free from political pressure will be able to implement necessary policies to achieve long-term price stability.

Especially in the globally inflationary environment of the 1980s, independent central banks of the developed countries, which were more successful in maintaining the general price level, attracted the attention of the world. This has made central bank independence an important topic in the economic literature ever since. Central bank independence can be mainly separated into two types of independencies which are de jure independence and de facto independence. While de jure independence can be explained as the central bank independence determined and justified by the law, de facto independence is that the central bank’s ability to maintain its duty without government intervention, that is to act independently from the government. De facto independence means being independent from public authorities and institutions, and the central bank is not exposed to any influence from outside regarding monetary decisions. However, it is a fact that should be accepted, not every central bank that has a de jure independence may have de facto independency. There are different types of central bank independence as well.

1.1. TYPES OF CENTRAL BANK INDEPENDENCY

1.1.1. Political Independency

Monetary independence refers to the ability of a central bank to formulate and implement policies without direct political interference (Cukierman, 1992). Political independence entails the absence of government or political leaders' direct influence over the central bank, ensuring that the central bank's president or board is not subject to government pressure (Alesina and Summers, 1993). This type of independence can have a significant impact on the central bank's ability to maintain a stable and consistent monetary policy without facing political pressures

1.1.2. Financial Independency

This represents the central bank's complete control over its financial resources. According to Martinez Resano (2004), a central bank that has financially independent is one that has enough resources to achieve its primary policy goals. It includes the ability of the central bank to determine its budget and to make financial decisions independently, without the influence of the government or any other external force while fulfilling its objectives.

1.1.3. Objective Independency

It refers to Central Bank’s ability to choose its own purpose and target. Since the purpose and the target of the Central Banks are determined by the law, it is not a functional independency for a Central Bank in today’s world.

1.1.4. Instrument Independency

The instrument independence means that it is free to use its control over monetary policy instruments. (Güney, 2006) It refers to the Central Bank’s power to use the instrument it wants in order to accomplish its goals. The instrument independency leads to the implementation of long-term economic policies.

1.2. CENTRAL BANK INDEPENDENCE INDEX

To understand the phenomenon of Central bank independence, it is a must to have a general understanding about how independency of Central Bank is measured.

The Central bank independence Index is an index created based on the features of central banks. The creation of this measurement in the literature is based on two important studies: Grilli et al. (1991) and Cukierman et al. (1992). The majority of central bank independence indices in the literature have been created based on these two studies. There are updated versions of the Central bank independence Index using the measurement method of these two studies, developed by other authors to date. In addition, there are also developed indices based on both of these indices. Examples of these include Dinçer and Eichengreen (2014), Jacome and Vazquez (2008), and Romelli (2022). In this study, Central bank independence Index data, which is used both in explaining the development process of central bank independence and the empirical section, were obtained from the Romelli (2022).

Firstly, it is necessary to examine the dimensions and characteristics used to measure the Independence of Central Banks in the pioneering studies in this topic, Grilli et al. (1991) and Cukierman et al. (1992). Before starting, it should be noted that the index created by Grilli et al. (1991) is abbreviated as GMT, while the index created by Cukierman et al. (1992) is abbreviated as CWN. The former focuses on the Central Bank President and the Board, while both studies share some commonalities and differences. For example, the appointment of the Central Bank President and their term in office is a common dimension between both studies. However, CWN also looks at who has the power to dismiss the Central Bank President and whether the President of the institute has any other duties under the government umbrella, while GMT focuses on who appoints the Central Bank Board members, their term in office, and existence of any government officers on the board. The second dimension is about Monetary Policy and Conflict Resolution. Both CWN and GMT are interested in who manages monetary policy and who has the last word in the monetary policy committee. In addition to this, GMT also looks at who determines the policy interest rates, who regulates the banking sector in the country, and whether the central bank has a duty for government debt. The objectives of the central bank are included in the third dimension. Both CWN and GMT central banks address price stability in this section. The fourth dimension, which is the final dimension for both CWN and GMT, addresses the central bank's lending limits to the government. Criteria set in this section can be exemplified by interest rates, maturity of loans, who can borrow from the central bank, etc.

Romelli (2022) has examined all the common and different criteria reviewed by both GMT and CWN, and added many new criteria and two new dimensions that were not taken

into account in previous studies to create an index. These two dimensions are financial autonomy and reporting and disclosure. Both dimensions were not used in other studies in the creation of the legal independence index. The financial independence dimension includes criteria such as financial autonomy, distribution of net profits, supervision of the central bank, and approval of its own budget by the central bank. In the reporting and disclosure dimension, the reports published by the central bank and its financial statements have been considered. All relevant criteria are shown in detail in Table 1.

All dimensions in Table 1 have their own weights. These weights are different for GMT, CWN, and CBIE (Central Bank Independence Index Extended). In GMT, the weights of all dimensions are determined as 37.5%, 25%, 6.2%, and 31.2%, respectively, while in CWN, the weights of the dimensions are determined as 12.5%, 12.5%, 12.5%, and 62.5%, respectively. However, in Romelli's study (CBIE), all dimensions have the same weight, which is 16.7%. In all studies, all criteria take values between 0 and 1, and the weighted value is calculated by taking the average of the dimensions. After calculating the weighted values of all dimensions, the sum of the resulting values gives the independence index of the relevant central bank for the corresponding year. When the Central bank independence index converge to 0, it means that the independence is becoming lower. 0 means the lowest level of Central bank independence. Vice versa, if the index converge to 1, it means that the independence is becoming higher. 1 means the highest level of Central bank independence index.

Table 1: Central Bank Independence Index Criterias, Romelli (2002)

Criteria	GMT	CWN	CBIE
Governor and Central Bank Board			
Who appoints the governor	*	*	*
Term of office of the governor	*	*	*
Reappointment option for the governor			*
Dismissal of governor		*	*
Governor allowed to hold another office in government		*	*
Qualification requirements for governor			*
Who appoints the board members	*		*
Term of office of board members	*		*
Reappointment option for board members			*
Dismissal of board members			*
Board members allowed to hold another office in government			*
Qualification requirement for board members			*
Government representatives in the board	*		*
Monetary Policy and Conflicts Resolution			
Who formulates monetary policy	*	*	*
Central bank responsible to fix key policy rates	*		*
Banking sector supervision	*		*
Central bank role in government's budget and/or debt	*		*
Final authority in monetary policy	*	*	*
Objectives			
Central bank's statutory goals	*	*	*
Limitations on lending to the government			
Direct credit: not automatic	*	*	*

Direct credit: market for lending		*	*
Who decides financing conditions to government		*	*
Beneficiaries of central bank lending		*	*
Direct credit: type of limit	*	*	*
Direct credit: maturity of loans	*	*	*
Direct credit: interest rates	*	*	*
Prohibition from buying government securities in primary markets	*	*	*
Financial Independence			
Payment of the initial capital of the central bank			*
Authorized capital of the central bank			*
Central bank financial autonomy			*
Arrangements for automatic recapitalization			*
Transfers of money from the treasury			*
Central bank approves its annual budget			*
Central bank adopts its annual balance sheet			*
Auditing agency			*
Allocation of net profits			*
Allocation of profits to a general reserve fund			*
Partial payments of dividends before the end of the fiscal year			*
Unrealized profits included in the calculation of distributable profits			*
Reporting and Disclosure			
Central bank reporting			*
Central bank financial statements			*

1.2.1. Difficulties in Measurement of Central Bank Independence

There are some challenges in measuring the Central Bank Independence Index. These challenges can be examined under two main headings. These are data collection and reliability, and subjective assessment.

1.2.1.1. Data Collection and Reliability

Accessing precise and reliable data regarding the policy-making processes and the level of independence of central banks can pose challenges. Challenges in the collection and reliability of data may arise due to several factors, such as data accessibility, accuracy, international comparability, diversity of data sources, and data timelines.

In some cases, there may be inadequacies in the regulations for sharing data related to the activities of central banks, or restrictions may be imposed on accessing such data, which can make the data collection process challenging. Moreover, ensuring the accuracy and reliability of the collected data concerning the policy-making processes of central banks is essential. Data collection processes may be prone to errors, inaccuracies, or omissions, and there may also be risks of data manipulation. Therefore, a thorough evaluation is necessary to ensure the reliability of the collected data.

Moreover, the Central Bank Independence Index serves as a tool to compare the levels of independence exhibited by central banks in various countries. However, when conducting international comparisons, it is essential to ensure the comparability of data. This is because data collection methods, definitions, or reporting standards may differ across countries. Therefore, standardized methods must be employed in the data collection process to guarantee comparability and facilitate consistent evaluations. Additionally, it is crucial to consider the diversity of data sources used in constructing the Central Bank Independence Index. The utilization of data derived from multiple sources that can be independently verified increases the reliability of the results obtained. In contrast, relying solely on data from a single source or specific organization may raise concerns about the neutrality and reliability of the measurement. Furthermore, the policy-making processes and the degree of independence displayed by central banks may undergo changes over time. Consequently, it is vital for the data to be up-to-date. Access to current data and regular updates in the data collection process are therefore imperative for obtaining accurate and reliable results.

1.2.1.2. Subjective Assessment

The notion of independence is subject to varying interpretations and includes diverse factors, thereby generating impediments in the assessment procedure. The obstacles to the assessment process include measuring political interference, evaluating the level of independence, analyzing policy decisions, and ultimately examining the impact of socio-economic contexts.

Measuring political interference in the policy-making processes of central banks can present challenges with regard to subjective interpretations. The assessment of the degree to which a policy decision is influenced by political pressures or the extent to which a central bank is exposed to political interference can prove to be a difficult task. As such, assessments may vary based on differing perspectives or judgments. Additionally, the evaluation of the level of independence of a central bank can be a subjective process, as independence is a comprehensive concept that encompasses various aspects of the policy-making process. The criteria and weights employed to evaluate the degree of independence may vary based on personal judgments and priorities. Furthermore, the assessment of the objectivity of central bank policy decisions and their alignment with economic objectives can require subjective evaluation. Issues such as whether a policy decision supports economic stability or relies on political or

short-term interests can give rise to different interpretations and debates. Finally, the social and economic contexts of a country can create subjective effects on the evaluations of independence. Depending on the social, political, or economic structure, the perception of the level of independence of a central bank may vary, resulting in differing evaluations and results across different countries.

1.3. HISTORICAL DEVELOPMENT OF CENTRAL BANKS IN TERMS OF INDEPENDENCE FROM PAST TO PRESENT

Central bank independence was first introduced in the literature by David Ricardo. It is a study conducted in 1824 "Plan for the Establishment of a National Bank". In this study, he stated that a different intermediary institution, the central bank, acting independently from the spender government, should provide money supply (CBRT, 2012).

Central banks have been around since the 19th century, but they were not given much importance as countries used a monetary system based on the gold standard. It was not until the early 1900s that Keynes expressed his thoughts on the independency of central banks during a Royal Commission hearing in India. His suggestions were that the ideal central bank needs to be responsible against government. Also, it has to have independence in their day-to-day operations, and that it is important to preserve the authority of the bank's executive officers who take a broad perspective on policy, rather than solely commercial considerations. The link between central banks and governments has always existed, as central banks are established by the act and gain their authority from it. This means that there might not be a absolute separation between Central Bank and governments (Kadyrova, 2009).

As a matter of fact, in the period after World War I, when the gold standard was replaced by exchange controls, the importance of central banks and their independence became felt with the increase in cooperation among central banks. Taking the first steps in this cooperation, Montagu Norman who was the CEO to the Bank of England, published the four principles of central banking in 1921 (CBRT, 2012).

First principle is that central banks ought to be independent from governments. Others related to the establishment of collaboration among central banks, the oversight of the banking system and the segregation of central banks from private banks.

In Europe, the Genoa Conference, which was held between 10 April and 19 May 1922 to discuss the economic restructuring of Central and Eastern Europe due to World War I and to find ways to enhance relationship between Russia and European countries and to plan the solution of the economic crisis, was an important event in the re-establishment of the foundations of the international monetary system. The European Conference on Economic Recovery, attended by 34 member countries, adopted resolutions concerning currency matters, specifically calling for the promotion of sustained collaboration between central banks of the participating nations, and the creation of autonomous central banks that are immune to political influence and manipulation. This development constitutes a crucial stride towards the achievement of central bank independence.

On the other hand, the inadequacy of the laws setting the capital principles, reserves and credit ratios of banks in the 1920s, as well as the deficiency in auditing these laws, and the bankruptcy of many banks due to the effects of the Great Depression, were placed on the agenda. Consequently, a restructuring of the international economic system was felt necessary. Thanks to the implementation of the gold standard system (BWS) in the aftermath of World War II, political powers took over the authority to determine exchange rates. In this period, central banks were transformed into institutions providing advisory services. In order to erase the devastating effects of Second World War, and contribute to the reconstruction of countries, central banks became critical support mechanisms. In this period, the more independent Central Banks were supported by laws in order to avoid price levels' continuous rise, which raised the reputation of central banks to high levels. However, starting from the latter half of the 1990s, especially in developing countries, the independence of central banks in these states has been restricted by the imposition of duties to support economic development in addition to their basic duties (CBRT, 2012).

In 1973, the stagflation crisis took effect with the increase in prices as a result of the oil crisis. Many macroeconomic problems were experienced in the world economies during this period due to reasons such as continuous and high inflation, increasing budget deficits and attempts to cover these deficits through emission, increasing unemployment, domestic and foreign borrowing. The confidence in the Keynesian view based on demand-side policies, which defends those fiscal policies are insufficient in solving the stagflation problem emerging in the EU and the US, and that the state should play a leading role in the economic sphere, has significantly decreased. After these developments, the Keynesian policy under the "Phillips curve analysis" was abandoned

and the monetarist policies developed by Milton Friedman came to the fore to ensure price stability (Parasız, 2003). Monetarist policies, which believe that economic equilibrium can be achieved through monetary instruments, have gained general acceptance. Among the essential assumptions defended by the monetarist approach are that the monetary balance should be regulated by taking into account the needs of the economy and the fact that high increases and decreases in the money volume of the economy may disrupt financial balances. The view that monetary policy should be carried out by an independent authority has been defended both because of the uncertainty caused by the limited term of office of the political power and because of the reflection of the effects of monetary policies on the economy with varying delays. Moreover, since the second half of 1980s, it has been emphasized that the monetary policy should be conducted by an independent institution in order to maintain the success of developed countries in the fight against inflation and to ensure price stability. This institution in question has been the central bank (Dinçer, 2004).

The debate on central bank independence was sparked in period of significant inflation during the 1980s, due to the following outcomes the unsustainability of domestic and foreign borrowing, the rapid increase in budget deficits, and the attempt to meet these budget deficits through monetization, as well as many macroeconomic instabilities such as the populist policies implemented by governments to eliminate these problems. In that time period, the monetary policy is used as a tool to finance public debt. (Eroğlu and Altıntaş, 1997).

Treaty on European Union (the Maastricht Criteria), was signed in Netherlands Maastricht in 1992. It includes the phases of Economic and Monetary Union and the monetary policies which will be followed in the phases. Also, it brings a comprehensive framework to the Central Banks of member countries in terms of independence. The Article 107 in Maastricht Criteria declares that the board and the president of national Central Banks and European Central Bank do not seek and receive any intervention from any institution, member governments, in the decision-making process. Additionally, the institutions and the member governments pledge that there will be no intervention to the decision-making body of European Central Bank and the National Central Banks (Dilekli and Yeşilkaya, 2002).

By the last years of the 20th century, the necessity of price stability was foreseen for reducing unemployment and increasing production, and it was adopted as the key

objective to ensure maintaining the general level of prices at low levels by preventing a continuous increase in the general level of prices. Hence, the independence of central banks in many countries has been enhanced by the legal framework. For instance, central banks of many countries adopted the inflation targeting regime, which was first introduced by the Reserve Bank of New Zealand during this period, and accordingly, central banks of many countries used monetary policy instruments in conformity with inflation targets and implemented new legal and institutional arrangements to this end (CBRT, 2012). Eastern European countries have reconstituted central banks and adopted the most independent laws. The International Monetary Fund (IMF) has mandated a high independence status for central bank reform, that is desired and actively encouraged in developing economies (Harunoğulları, 2017).

Specifically, with the emergence of the mortgage crisis, the importance of the coherence between monetary and fiscal policies has become more evident. Indeed, it has been argued in the literature that the relatively lower inflation rates in countries with high central bank independence are the result of the independence of central banks (Grilli, Masciandaro and Tabellini, 1991; Alesina and Summers, 1993). Since the importance given to the Central bank independence is high, many countries made the necessary legislative changes in the Central Bank laws in order to achieve the goal of price stability. Therefore, today, central bank independence stands out as the most important element in these institutional structures (CBRT, 2012).

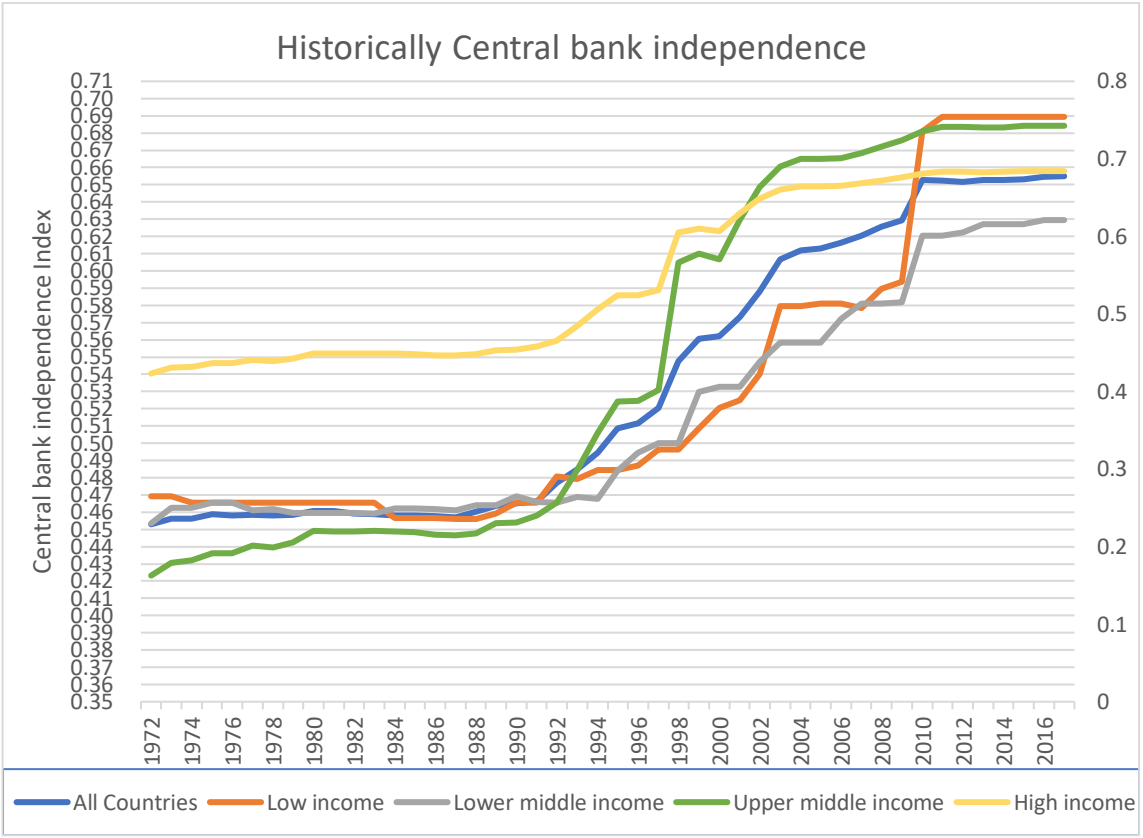

Figure 1: Historically Central Bank Independence

After it was understood how important the harmony between monetary and fiscal policies is following the 2008 Global Crisis, legal independence levels of Central Banks have increased worldwide through legislative changes. However, as seen in the first graph, there has been a continuous fluctuation in the rating of central bank independency over the 35–40-year period before 2008. It is generally accepted that after the oil crisis which started in 1972 and 1973, Monetarists argued that monetary policies should be managed by central banks operating independently from governments. Therefore, it can be observed that central bank independence increased relatively during the 1970s. However, during the period from the early to late 1980s, when globalization increased rapidly, due to rising inflation and populist policies, Central Banks and monetary policy experienced declines and pauses in legal independence levels, as they transformed into a structure that financed governments' fiscal policies.

In the 1990s, as it was believed that macroeconomic problems such as continuous and high unemployment from the past needed to be solved, and for this, inflation needed to be reduced, many countries made legislative arrangements to increase the

independency levels of central banks. Therefore, central bank independency rates started to increase significantly after this period.

1.4. DEBATES ON CENTRAL BANK INDEPENDENCE

It is now generally accepted that a high degree of central bank independence and a set of explicit mandates for the central bank to rein in inflation is an important constitutional tool for securing price stability. Quite a considerable body of empirical work supports central bank independence and indicates its negative impact on inflation. Although the first attempt to assess central bank independence was made by Bade and Parkin (1988), empirical studies on the link between central bank independence and inflation started in the early nineties.

Some of the first empirical researchers to support central bank independence include Alesina and Summers (1993), Grilli, Masciandaro and Tabellini (1991), Cukierman (1992), and Cukierman, Webb and Neyapti (1992). The researchers argue that in the industrialized economies of the early nineties, the values of legal independence and inflation were correlated oppositely. In the developing countries, on contrary, inflation and growth are not corelative to independence. The reason is most probably due to the fact that in this group of countries there was almost no link between legal and real independence before the early nineties.

However, using behavioral independence indicators, the same opposite relationship between inflation and independence was also found in emerging economies. For instance, Cuikerman, Webb and Neyapti (1992), controlling for the effect of the Bretton Woods system over time and the inflation shocks of the seventies, found out that increasing legal central bank independence prevents the depreciation of the real value of money in advanced economies, while the number of central bank governor changes significantly increased the depreciation of money in developing countries.

Cukierman, Miller and Neyapti (2002) also studied the independence of newly established central banks in transition economies in the last decade of 20th century. Considering cumulative liberalization and the abolition of price controls, they found no significant relationship between de jure independency of Central Bank and inflation ~~found~~ in the early years of liberalization. However, the contradictory relationship between inflation and legal independence emerged when the privatization and liberalization of domestic market prices and foreign trade reached sufficient magnitude and persistence.

Perhaps one reason for the strengthening of legal independence is that after transitioning to a market economy, authorities become sufficiently motivated to enforce the law and the law gains significance.

Jacome and Vazquez (2005) conducted a study in Latin America, which found a negative relationship between inflation and central bank independence in the last decade of the 20th century for Latin American countries. Additionally, Gutierrez's (2003) study found that countries where central bank independence is enshrined in law have lower general price level increases compared to countries where such laws are absent.

Notwithstanding the many positive features attributed to central bank independence, the notion of central bank independence has, to date, received critique from many traditional-minded economists. While the underlying stream of thought on which these critiques are based is the Keynesian perspective, the critiques primarily focus on the validity of different types of independence, such as instrument independence, issues related to the legal aspects of central bank independence, the impact of central bank independence on democracy, and the controversial findings regarding the relationship between central bank independence and inflation.

The first critique of central bank independence arose from Karl Polanyi (1944), who argued that granting central bank independence, "In the process of strengthening a self-regulating market economy, iron-clad laws are introduced that undermine basic human values and democracy". He recognized that central bank independence would be accompanied by strict economic policies which, when applied to developing countries, would suppress democratic values and deny the people the right to development. According to this view, delegating powers to a central bank that ultimately focuses only on inflation would, in the end, undermine the social values of the population, such as job creation and development. People within the economy would be deprived of their democratic right to demand expansionary monetary policies, which means that development and job creation would be financed by the state.

Analyzing criticisms of central bank independence from a post-Keynesian perspective is also worthwhile. Recently, a number of economists with a post-Keynesian perspective have argued against the validity of several aspects of central bank independence. The first critique, in this respect, centers on the question of instrument independence. Wray (2014) analyses the independence of the Federal Reserve System (FED) by focusing on instrument independence. He argues that the FED does not possess any "instrument

independence" like any other bank; accordingly, this would grant the FED the authority to reject the use of allocated funds from the Treasury. The reason for this is that, in practice, the FED lacks a basis to prevent the Treasury from spending from the budget. This is because, procedurally, the FED has no basis to prevent the Treasury from spending from the budget. The FED would even be powerless to prevent the treasury from spending more than budgeted. While the current operating procedures, some of which are guided by the Federal Reserve Bank of 1913, are reputed to have been created to prevent a deranged treasury from financing spending by "loading up the mints", in fact there is nothing in the procedures to stop this.

The post-Keynesian economists also suggest that central banks cooperate with the Treasury both in terms of monetary policy independence and financial independence. They argue that the idea that central banks can independently reduce the likelihood of hyperinflationary monetization of debt by forcing the treasury to borrow from the market and thereby maintaining a certain level of market discipline is utter nonsense. According to post-Keynesian economists, the prohibition of the direct sale of treasury debt to the central bank has no effect on the ability of a country's treasury to borrow in its own currency.

This is due to the fact that sovereign states spend by crediting their private bank accounts, resulting in an increase in bank reserves. In this regard, a working method has been adopted to ensure that the central bank and the treasury could coordinate their actions and thus maintain bank reserves at the desired level (Bell, 2000; Fullwiller, 2006-2007; Wray, 1998). Obviously, a central bank's refusal to cooperate with the Treasury would result in the overnight miss of interest rate targets. In other words, day-to-day operations cannot be independent of those of the treasury if the central bank is to be able to meet its interest rate expectations. While the procedures adopted are complex and vary from country to country, they all simultaneously guarantee that the central bank can meet its expected targets and the treasury can spend simultaneously (Bell and Wray, 2002-2003; Lavoie, 2005; Wray, 2004-2006).

On the other hand, the post-Keynesian economists also oppose the political independence of central banks. As they explicitly claim, on the basis of actual actions in the formulation of policies, the central bank is not free from political manipulation. Particularly, Wray (2007) has argued that the notion that central banks are above the fray, free from ideological considerations and objective in their policy making is clearly

absurd given what we know about the actual policy-making process. As a consequence, the members of the Board of Governors of the Federal Reserve Bank of the United States are political appointments who bring their views with them to the meetings of the Federal Open Market Committee (FOMC). This observation is corroborated by the transcripts of the meetings in question, which show that there was almost unlimited space for politics to infiltrate the decision-making process (FOMC, 1993-1994). It is noteworthy that there is a strong bias against workers and supporting entrepreneurs in these interviews (Wray, 2004). This implies that the spectrum of views being represented at the FOMC reflects the view of a mainstream privileged American.

A large literature on central banking has investigated the relationship between central bank independence and inflation rates (Grilli et al., 1991). On the whole, while most of these studies support the view that there is an opposite correlation between the two, there are still conflicting views on the relevance of central bank independence for lowering inflation rates. In general, this conflict is related to the sample group analyzed and, in particular, to the calculation of Central bank independence Indexes over specific time periods (Acemoglu and Robinson, 2012). In this regard, some concerns have been voiced about the relationship between inflation and central bank independence across different countries or different control variables.

Cargill (1995) shows that the relationship between inflation and the CBI is not strong in a group of industrialized countries. Besides, Campillo and Miron (1997) and Oatley (1999) have demonstrated that no effect of central bank independence on inflation has been examined when different control variables such as the degree of transparency, political instability and historical debt and inflation levels are considered.

Evidence from developing countries is also mixed. Lybek (1999), for example, looking at the Baltic States and the countries of the former Soviet Union, found that after an initial period of reform, central banks with a high degree of autonomy not only benefited from lower inflation but also had higher actual growth. Correspondingly, the central banks of twenty-six former Soviet countries were studied under the influence of Cuikerman (2002), and they found that central bank independence was independent of inflation in the early stages of the liberalization of their economies, but that this link became evident as the liberalization increased. According to these studies, the decline in inflation following central bank independence depends on the implementation of other sound economic policies in addition to the legal reforms of the central bank. This proposal was also

confirmed by Jacome and Vazquez (2008) on a group of Caribbean and Latin American countries.

Besides, a set of challenges associated with measures of central bank independence was related to the way in which the legal indexes of central bank independence were constructed. In some instances, it has been argued that de jure measures do not reflect the actual independence of the central bank, especially in developing countries where written rules are circumvented by de facto practices. Providing support for this claim, Siklos (2008) provides evidence on a vector that can explain the low average inflation in the 1990-2004 period, which jointly assesses de jure and de facto factors that together define the degree of central bank independence. Thus, it was concluded that the legal status of central bank independence fails to express the conventional knowledge of the opposite relationship between central bank independence and inflation. Moreover, de jure indices are highly subjective given that Mangano (1998) shows that the two most common central bank independence datasets, under the Grilli effect (1991) and under the Cuikerman effect (1992), capture very different information. For instance, 40 per cent of the data collected in the first study, were not available in the second study.

Central bank independence is now the focus of global attention and has widespread public support. There is increasing public pressure, especially from politicians, for central bank independence in almost all countries. As these pressures increase, the political authority is no longer able to oppose independence or at least to remain indifferent. Therefore, many countries are undertaking reforms to increase the authorities of central banks and to distance them from political pressures.

There are various reasons for countries around the world to increase the independence of their central banks. These reasons can be summarized as follows: First, the collapse of the Bretton Woods system, whose main objective was to maintain price stability. In Europe, as a consequence of the unsuccessful European monetary system, countries are looking for other options. The second reason is that, based on the Maastricht Treaty in the European Union, member states need to have independent central banks in order to be members of the Economic and Monetary Union. The third reason is that after successful stabilization programmes in developing countries such as Latin America, where high and persistent inflation was experienced until recently, policy makers sought institutional arrangements that would reduce the possibility of high and persistent inflation. The fourth reason is that enhanced central bank independence is seen as part

of the institutional change in the transition process of former socialist countries to market economies. The fifth reason is that the Bundesbank, the German central bank, is the best argument for the view that central bank independence is an effective tool for pursuing price stability.

Recently, there has been an increase in views and attempts to increase the independence of central banks. Particularly after the mid-1980s, the idea of establishing a more independent central bank has gained great importance with the increase in research at the legal level (Oktar, 1997). Attempts to strengthen the independence of central banks continue in a wide area ranging from Latin America to Europe to the Far East.

In the economic doctrine, despite the fact that there are many studies defending central bank independence, there are also some studies criticizing it. These criticisms can be listed under the titles of "in terms of political responsibility", "in terms of democracy" and "in terms of compliance with economic policies".

1.4.1. In terms of Democracy

The first critique of central bank independence is that independent central banks are not compatible with democracy. The fact that independent central banks remain outside the control of a parliament reflecting the people's will is considered to be contrary to the structure of the democratic system. In other words, the fact that the central bank exercises sole authority over monetary policy and acts independently of the political power is not in accordance with democratic traditions and principles since it is not based on the will of the electorate.

The democratic responsibility of central bank independence was first discussed in Anglo-Saxon countries. Monetary policy in democratic societies is indirectly under the control of electoral politics since the central bank has to be responsible for the policies it implements.

1.4.2. In terms of Political Responsibility

The other major criticism of central bank independence is the question of the political responsibility of the central bank. Independence of the central bank does not imply complete separation from political authority. Moreover, the central bank alone is not authorised to function as it desires. Within the general economic policies undertaken by

the political power, central banks have to support this policy by taking a certain role. This applies even to the Bundesbank, which has the highest degree of independence in the world. Article 12 of the German Central Bank's founding law states that "it is obliged to support the general economic policy of the government" (Uzunoğlu, 1994).

Generally, in democratic countries, if a general economic policy fails, the political power is made to pay for it. Whereas central banks are expected to promote general economic policy, it cannot be ruled out that this situation may be exploited by the political authority. Indeed, it is a well-known fact that for the last fifty years central banks have generally been open to the directives of governments and have assumed only the functions of issuing agencies (Oktar, 1997). This is why many central banks, although they may appear to be legally independent, are not fully independent in practice.

1.4.3. In terms of Compliance with Economic Policies

Apart from critiques of a lack of democratic and political accountability, central bank independence is also criticized for potentially creating incompatibility between economic policies. The central bank's conduct of monetary policy and the government's conduct of fiscal policy may lead to conflicts in the economy. Politicians prioritize their own preferences in setting the objectives of the economy and the government. These conflicts can be seen especially between monetary and fiscal policies, either actively or passively. While passive conflicts are caused by the uncertainty of the distribution of responsibilities, active conflicts are related to strategic conflicts.

On the other hand, the two policies may not be harmonized in areas such as the financing of fiscal deficits, the management of debt and exchange rate policy, and the determination of policies for the stability of the banking system. As long as the central bank does not have the power over the public administration, central bank independence will make it difficult for appointing who is in charge for monetary adjustment of fiscal deficits. In this respect, central bank independence may play a negative role, actually encouraging the erosion of fiscal discipline.

Ideally, fiscal policy should be under the control of an independent central bank. However, if the independent central bank reduces the political responsibility of the government as a whole or of any body, disagreement is inevitable. According to Mas (1995), since market operations and debt management are different names for the same monetary instrument, one used by the central bank and the other by the treasury, they

cannot be considered and implemented independently of each other. In this respect, the two institutions are complementary rather than rivals in practice.

CHAPTER 2: RELATIONSHIP BETWEEN CENTRAL BANK INDEPENDENCE AND STABILITY INDICATORS

2.1. INFLATION

After World War I, central banks have become the most prominent institution to implement monetary policies and have undergone many changes by facing various institutional and economic problems until they reached their current position. There are various duties and responsibilities of central banks (Alkınoğlu, 2000). Throughout the 1990s, central banks had difficulties in fulfilling their duties and responsibilities. The reason for this situation can be attributed to legal regulations and government interventions in central banks. The main purpose of central banks, including the CBRT, is to ensure price stability. Until the 1990s, central banks had to diverge from this objective. In this respect, under the oppression of political authorities, central banks have become institutions that provide financing for the expenditures of governments.

Since this situation decreases the credibility of the central bank from a social perspective, it also increases inflation expectations. One could say that inflation is the main reason why central banks set price stability as their main objective. High inflation rates have been experienced in many developed and developing countries since the early 1970s. Unemployment and growth results during this period caused discretionary monetary policy to be called into question. The long-term consequences of this policy were not visible, and inflation could not be prevented. For this reason, the idea that price stability should be the primary goal of monetary policy has begun to be accepted around the world (Öztürk and Biner, 2006). In order to ensure price stability, central banks have developed various policies. These policies vary according to the socio-economic situation of countries and the location of central banks. As the central banks strive to achieve price stability over the long-term, in the short-term they have to monitor real variables such as growth, unemployment, interest rates and exchange rates, and they have to be consistent in their policies towards these variables (Karaçor, 2005).

2.1.1. The Inflation Phenomenon

Since 1980, when inflation became persistent and many negative consequences were observed, the idea that an independent central bank would be more successful in the fight against inflation came to the agenda (Alkınoğlu, 2000). Similarly, independent central banks were regarded as an essential arrangement to ensure price stability and

stop inflation during these periods. In line with this idea, many countries have made important changes in terms of their central banks. These changes are based on the expectation that inflation will be reduced in the medium term. Findings from the studies prove these expectations right and show that there is a negative relationship between central bank independence and inflation (Demirgil, 2011).

2.1.2. Price Stability

Since the inflations experienced worldwide in the 1970s have been long-lasting and at high rates, price stability in economies has started to be emphasized. Price stability has started to be considered as the primary objective within this process, and the main task of today's central banks has been determined as maintaining the value of the national currency, thereby ensuring price stability in the long term. For countries where price stability is the objective, the inflation targeting strategy has attracted considerable attention. For example, the Central Bank of Republic of Turkey (CBRT) was re-structured on the priority of achieving price stability. The basis of this restructuring is the Law No. 4651. Under this law; the primary objective of the central bank is regulated as ensuring price stability. It is emphasized that the primary and ultimate objective of the central bank is to ensure price stability and that it can support employment and growth in the policies it pursues within the framework of price stability, provided that they do not contradict price stability (Eroğlu, 2009).

In recent times, there has been a belief that the more independent central banks are, the more successful they will be in ensuring price stability. An independent central bank can give greater priority to maintaining low levels of inflation and focus on price stability. However, in countries where the central bank is less independent, there is a possibility of conflict between the objective of price stability and other concerns such as growth and employment, which the central bank may also have to consider (Akıncı et al., 2015).

2.1.3. Central Bank Independence and Inflation Targeting

To implement inflation targeting policy effectively, certain prerequisites need to be met including the independence of the Central Bank, absence of fiscal dominance, and developed money and capital markets. (Güney and Ceylan, 2014). Besides meeting the necessary prerequisites for inflation targeting, there are some measures that the central bank and the government need to take before the implementation of inflation targeting. Harmonization between the central bank and the government is very crucial in this

process. These measures include transparency, accountability and credibility; the existence of the necessary flexibility for the implementation of the inflation targeting policy, effectively functioning financial markets and a future- oriented approach, as well as ensuring the information availability and comprehensibility of the implementation by the public are among the measures necessary for the successful establishment of this regime (Şiriner and Turgay, 2007).

2.1.4. The Relationship Between Inflation and Central Bank

Central Bank Independence (CBI) typically plays a key role in maintaining economic and political stability. However, the traditional economics literature generally investigates the impact of this independence on inflation and concludes that an independent central bank usually supports lower and more stable inflation levels (Alesina and Summers, 1993; Cukierman, 1992).

However, analyzing the impact of inflation on central bank independence is a complex task and is often overlooked. The impact of inflation rates on central bank independence has been less explored in the economic literature. Theoretically, low inflation rates can enhance the effectiveness and credibility of the central bank, and this can create a driving force among the public and policymakers to further support central bank independence. The potential of low inflation rates to enhance central bank independence is related to increased public and policymaker confidence and bank credibility. This situation can strengthen a central bank's ability to protect its policy effectiveness and independence. Furthermore, low and stable inflation can reduce the need for government control over economic policies, which further supports central bank independence (Masciandaro, Volpicella, 2016). Assuming a negative correlation between low inflation rates and central bank independence suggests that the government generally tends to encourage more central bank independence to control inflation. This situation indicates a trend to increase independence in government economic policymaking and policymakers' credibility and policy-making abilities.

On the other side of the medallion, high inflation rates can often be interpreted as a failure of the Central Bank's policies. This situation can lead to questioning the bank's independence by the general public and political leaders, and sometimes calls for stricter government control. High inflation rates typically come with economic stagnation and high unemployment, which can pressure the government to take more control over economic policies and perhaps limit the independence of the central bank (Farvaque,

Matsueda, and Méon, 2011). In addition, persistent high inflation rates weaken the credibility of the Central Bank. This makes it more difficult for the bank to reach its policy targets because the general public and markets may find the bank's ability to manage inflation targets less reliable (Blinder, 1998).

One reason why this relationship is very important is that the effect of inflation on central bank independence is also important in managing inflation expectations. Managing inflation expectations is a critical part of modern central banking, and the credibility of these expectations is vital for the effectiveness of a central bank (Svensson, 1997). High inflation rates can disrupt these expectations, and this can weaken the independence and effectiveness of the central bank.

In conclusion, high inflation has the potential to threaten central bank independence and make it harder to achieve economic policy goals. However, further research and data analysis are needed to fully understand and confirm this relationship. Because the relationship between inflation rates and central bank independence is of great importance to policymakers and academics. Further research on this topic in the literature will help us better understand this relationship and assist policymakers in more effectively managing inflation and central bank independence issues.

2.2. FINANCIAL DEPTH

Financial depth is a financial system indicator that is thought to have a significant impact on economic growth and stability. In this context, the relationship between financial depth and central bank independence is an important issue in terms of stability. In this part, I will examine the definition, determinants, and importance of financial depth. Additionally, I will discuss the significance of the widely used M2/GDP indicator in economic literature and the applicability of financial depth as a stability indicator. In this section, I also examine the relationship between financial depth and central bank independence and explain the fundamental dynamics of this relationship based on evidence in the literature. Financial depth is a concept that refers to the development and efficiency of a country's financial system (Levine, 2005). Generally, financial depth is measured by factors such as credit volume, diversity of financial instruments, and liquidity of financial markets (King & Levine, 1993).

2.2.1. Determinants of Financial Depth

There are several factors that affect financial depth. (Rajan & Zingales, 2003; Laeven, 2014):

The first determinant is economic growth. Economic growth is a significant determinant of financial depth. Growing economies can increase financial depth by developing the financial sector and increasing credit demand. As economic growth occurs, countries have more opportunities for savings and investment. This leads to more resources in the financial system and increased credit demand (Levine, 2005). During this process, the financial system increases the diversity of financial services and products to effectively distribute resources. Therefore, there is a positive relationship between economic growth and financial depth.

Second determinant is law and regulations: Law and regulations are important factors that affect financial depth. Strong property rights and effective legal regulations contribute to the development of the financial sector and an increase in financial depth. For example, efficient repayment of loans and fair and swift bankruptcy procedures can help increase confidence in the financial system and contribute to the development of financial depth.

Third determinant is quality of financial institutions. The quality and efficiency of financial institutions are important determinants of financial depth. Strong and efficient financial institutions can contribute to the development of financial depth by increasing the liquidity of financial markets. In addition, the transparency and regular supervision of financial institutions also help increase financial depth. For instance, a robust banking system enables the efficient distribution of loans, which supports economic growth and contributes to an increase in financial depth.

The last one is openness. Open economies provide greater access to factors such as external financing and technology transfer, which increase financial depth.

2.2.2. Importance of Financial Depth

Financial depth plays a crucial role in supporting economic growth. This relationship can be explained by financial depth facilitating the process of channeling savings into investments and capital accumulation (Levine, 2005). This process increases the economy's growth potential. Deeper financial systems have more effective tools and

mechanisms to direct savings into productive investments, helping accelerate capital accumulation. Deeper financial systems provide more credit to firms and households, contributing to the realization of productive investments and accelerating economic growth (King & Levine, 1993). This supports economic growth by increasing private sector productive investments. Specifically, financial depth allows Small Medium Enterprises (SME) and entrepreneurs to access financing more easily for growth and innovation projects. Financial depth supports the growth by promoting information and technology transfer (Rajan & Zingales, 2003). The development of financial markets facilitates local and international collaboration, increasing access to new technologies and knowledge. This supports productivity gains, raising economic growth potential. Financial depth supports economic growth by increasing risk management and innovation opportunities (Levine, 2005). Deep financial systems help firms and households manage risks effectively and take advantage of innovation opportunities, leading to higher productivity and growth rates in the economy. Financial depth indirectly supports economic growth by maintaining macroeconomic stability (Allen & Gale, 2000). Stable macroeconomic conditions encourage the private sector to invest confidently and accumulate the capital necessary for economic growth. Financial systems that become more resilient to economic shocks thanks to financial depth are more effective in maintaining economic stability, positively affecting long-term economic growth. In summary, the impact of financial depth on economic growth can be explained through the transformation of savings into investments, the expansion of credit and financing opportunities, information and technology transfer, risk management and innovation, and the maintenance of macroeconomic stability. Financial depth contributes to the increase of economic growth potential and rate through these processes, raising economic and social welfare.

Financial depth supports economic stability by increasing resilience against economic and financial shocks (Allen & Gale, 2000). Deep financial systems provide risk management and insurance mechanisms for households and firms, helping them better adapt to shocks. Additionally, financial depth strengthens the stability of financial markets by dispersing liquidity and credit risks (Demirgüç-Kunt & Detragiache, 1998). In deep financial systems, risk management tools and techniques are more widespread and effective. This allows firms and households to be better protected against risks and exposed to lower levels of financial stress, making it easier to achieve economic and financial stability. For example, during the 2008 global financial crisis, countries with higher financial depth were more resilient to the effects of the crisis and started the

economic recovery process more quickly. Financial depth enables the implementation of more effective policies for maintaining macroeconomic stability (Allen & Gale, 2000). Deep financial systems allow central banks and other regulatory institutions to use policy tools more effectively, supporting the stability of macroeconomic variables like inflation, unemployment, and exchange rates, and helping maintain overall economic stability. Financial depth supports stability by reducing systemic risk (Demirgüç-Kunt & Detragiache, 1998). In deep financial systems, it is possible to distribute risk more widely and effectively and keep systemic risk under control, contributing to the protection of economic and financial stability by reducing the likelihood and impact of financial crises. In summary, the impact of financial depth on stability can be explained through increased resilience against economic and financial shocks, risk management, macroeconomic stability, and the reduction of systemic risk. Financial depth supports the protection of economic and financial stability and the achievement of sustainable development.

Financial depth contributes to improving income distribution because it allows more people to access financial services and benefit from credit opportunities (Beck et al., 2007). In deep financial systems, a broader range of diverse financial services is offered. In particular, financial depth helps increase access to financing for low and middle-income households and SMEs, promoting equal opportunities. This situation contributes to a reduction in poverty and a fairer income distribution. For example, microfinance institutions and financial technology (fintech) companies expand access to financial services, enabling more people to benefit from economic opportunities and increase their income levels. This contributes to more inclusive economic growth and a more equitable income distribution. Financial depth supports economic growth and productivity, increasing income levels (King & Levine, 1993). This, in turn, helps improve income distribution by increasing job opportunities and employment. Higher income levels create positive effects on income distribution by enhancing households' living standards and economic well-being. Financial depth affects income distribution by increasing financial inclusion (Sarma & Pais, 2011). Financial inclusion refers to the spread of financial services across all segments of society and the integration of more people into the financial system. By increasing access to financial services for low and middle-income households and small businesses, financial inclusion improves income distribution. In summary, the impact of financial depth on income distribution can be explained through access to financial services, increased income levels, financial inclusion, and equal opportunities. Through these effects, financial depth contributes to enhancing living

standards and economic well-being for all segments of society, fostering a more equitable and balanced income distribution.

In conclusion, financial depth plays a significant role in terms of economic growth, stability, and income distribution. Deeper financial systems contribute to productive investments, increased resilience to economic and financial shocks, and improved income distribution, promoting economic and social well-being.

2.2.3. The Importance of M2/GDP Indicator

Financial depth is considered an essential indicator measuring the level of development of financial intermediation processes in an economy. The most common and widely accepted indicator used to measure financial depth is the M2/GDP ratio. This indicator calculates financial depth by relating the monetary aggregates (M2) present in the economy to the gross domestic product (GDP) (King & Levine, 1993). The M2/GDP ratio includes the broad money supply (M2) in the economy. M2 covers circulating money (M1), savings and time deposits, money market funds, repurchase agreements, and other similar financial instruments. This shows that the M2/GDP ratio evaluates the financial system from a broad perspective. By combining various elements of the financial system, this ratio provides a more accurate and comprehensive measurement of financial depth. GDP represents a country's total economic output. The M2/GDP ratio indicates the financial system's liquidity-providing capacity and the extent to which financial instruments are integrated into the economy. A higher ratio signals greater financial depth (King & Levine, 1993). The M2/GDP ratio is considered an essential indicator of the development and effectiveness of financial intermediation. High M2/GDP ratios indicate more developed financial intermediation processes and a more effective financial system in the economy. This contributes to increased credit and financing opportunities, supporting economic growth and stability. Additionally, the M2/GDP ratio allows for the comparison of financial depth across different countries and time periods. This indicator provides a standard measurement for assessing and comparing financial systems' development and effectiveness levels. This allows policymakers and researchers to obtain more accurate and consistent results in their analysis and assessments of financial depth using the M2/GDP ratio. M2 and GDP data are generally published and updated regularly by national statistical agencies at the country level. This ensures that the data used to calculate the M2/GDP ratio is easily accessible and reliable.

2.2.4. Financial Depth as a Stability Indicator

Financial depth, reflecting a country's financial system's development and efficiency, can be used as an indicator of stability. However, the relationship between financial depth and stability is complex, and in some cases, excessive financial depth can lead to excessive risk-taking and instability in financial markets (Demirgüç-Kunt & Detragiache, 1998). Therefore, when using financial depth as a stability indicator, it is essential to evaluate it alongside other economic and financial factors.

2.2.5. Central Bank Independence and Financial Depth

Financial depth expresses the development and efficiency of a country's financial system. Financial depth is typically measured by factors such as credit volume, diversity of financial instruments, and liquidity of financial markets (King & Levine, 1993) An independent central bank is less influenced by political pressures in monetary policy implementation (Cukierman, 1992). This situation helps the central bank achieve its inflation targets more reliably and maintain macroeconomic stability (Alesina & Summers, 1993). Financial stability increases financial depth by gaining the trust of savers and investors and promoting the development of financial markets (Mishkin, 2001).

Central bank independence allows policymakers to engage in long-term planning (Cukierman, 1992). This positively effect financial depth by making financial markets more stable and predictable (Beck, Demirgüç-Kunt, & Levine, 2000). Theoretically, it is expected that financial depth would have a positive impact on Central bank independence. Independent central banks can manage and supervise risks within the financial system more effectively (Cukierman, Webb, & Neyapti, 1992). This supports financial depth by ensuring the healthy functioning of financial institutions and markets (Masciandaro & Tabellini, 1988). An independent central bank has more control over monetary policy, enabling it to direct credit supply and interest rates more effectively (Alesina & Summers, 1993). This can positively impact financial depth, as lower and stable interest rates encourage investments and credit growth (Levine, 1997). Empirical literature has generally found a positive relationship between central bank independence and financial depth. For example, Cukierman (1992) and Alesina & Summers (1993) found a positive correlation between central bank independence and financial depth. Similarly, Cecchetti & Krause (2002) and King & Levine (1993) demonstrated that independent central banks increase financial depth and support economic growth.

While literature often explores the influence of central bank independence on financial depth, discussions on the impact of financial depth on central bank independence are less frequent.

On one hand, an increase in financial depth typically provides more liquidity to the economy, which in turn can facilitate the implementation of the central bank's monetary policy. For instance, heightened financial depth can enhance the ability to implement monetary policy using instruments such as interest rates or reserve requirements (Bernanke & Gertler, 1995). This situation could strengthen the capacity of an independent central bank to correct economic imbalances and manage inflationary pressures.

On the other hand, an increase in financial depth can complicate the policy formulation process for the central bank. Specifically, in economies with high financial depth, financial markets tend to be more complex and interdependent, which could introduce greater challenges in predicting the outcomes of central bank policies and adjusting policy responses (Borio & Disyatat, 2011). This circumstance could increase the complexity of central bank independence, as the central bank might need to consider a broader and more complex set of factors.

As financial depth increases, the demand for central bank independence may also increase. Deep and developed financial markets support central banks' effective monetary policy implementation and financial stability (Cecchetti & Krause, 2002). Therefore, in countries with high financial depth, central bank independence is more likely. In conclusion, the influence of financial depth on central bank independence can be examined within the context of both the facilitation ability of the central bank in policy formulation and the complexity of this policy formulation process. This interaction can have significant implications for economic stability and the effectiveness of central bank policies.

Several mechanisms underlie the positive relationship between central bank independence and financial depth. First, an independent central bank can implement more effective and predictable monetary policies, free from political pressures (Cukierman, 1992). This contributes to the development of financial depth by increasing confidence in financial markets. Second, independent central banks can better manage inflation expectations and help maintain a low inflation environment (Alesina & Summers, 1993). This ensures the stability and liquidity of financial markets, thereby helping to

increase financial depth. Independent central banks, by providing more control over monetary policy, increase the likelihood of achieving low and stable interest rates (Mishkin, 2001). This supports financial depth by encouraging investments and credit growth (Levine, 1997). Third, an independent central bank can be more effective in regulating and supervising the financial sector (Mishkin, 1997). This contributes to the development of financial depth by enhancing the reliability of the financial system. Also, an institution like the Central Bank, which is independent but also responsible for regulating and supervising the banking sector, can both help the Central Bank achieve its primary objectives and enhance the financial system's reliability through regulations and inspections, leading to increased financial depth. Lastly, independent central banks can be more transparent and predictable in policy-making (Cukierman, 1992). This contributes to the more efficient functioning of financial markets and the increase in financial depth (Levine, 1997).

Considering the positive impact of central bank independence on financial depth, it is important for policymakers to adopt policies that strengthen this relationship. These policies may include:

- Ensuring the legal independence of the central bank: The central bank's ability to act independently in policy decisions should be protected by legal regulations (Cukierman, 1992).
- Clarifying the policy objectives of the central bank: Clearly defining policy objectives and developing communication strategies help manage inflation expectations and increase confidence in financial markets (Alesina & Summers, 1993).
- Regulation and supervision of the financial sector: It is important for central banks to have the necessary resources and authority to be more effective in regulating and supervising the financial sector (Mishkin, 1997).
- Diversifying the policy tools of the central bank: Central banks need to diversify their monetary policy tools and use appropriate policy instruments to ensure the stability of financial markets (Cecchetti & Krause, 2002).

To summarize, financial depth is an important concept reflecting the sophistication and efficiency of the financial system. Determinants of financial depth include economic growth, law and regulations, quality of financial institutions, and transparency. The M2/GDP indicator is commonly used to measure financial depth, and financial depth is

an important factor affecting economic growth, stability, and income distribution. Financial depth can be used as a stability indicator.

The relationship between central bank independence and financial depth is positive in both theoretical and empirical literature. The underlying mechanisms of this relationship include independent central banks implementing more effective and predictable monetary policies, managing inflation expectations, and being more effective in regulating and supervising the financial sector. Therefore, central bank independence can significantly contribute to the increase in financial depth and the provision of economic growth and stability. The relationship between central bank independence and financial depth is important in terms of economic growth and stability. Consequently, policymakers should adopt policies that support central bank independence and contribute to the increase in financial depth.

2.3. TRADE OPENNESS

Trade openness is an economic concept that measures a country's foreign trade, i.e., exports and imports, as a proportion of Gross Domestic Product (GDP) (World Bank, 2021). This measurement indicates the extent to which an economy is outward-oriented and the impact of international trade on the economic structure. Trade openness is a crucial tool in understanding critical factors such as economic growth, international competitiveness, and overall welfare levels (Bussière, Fidrmuc, & Schnatz, 2008).

The importance of trade openness primarily stems from the benefits of integration into the international economy. These benefits include more efficient utilization of resources, increased diversity in production and consumption, acceleration of technological advancements, and stimulation of competition (Helpman, 1987). Furthermore, trade openness also determines an economy's resilience against external shocks; economies with high trade openness are generally more resistant to external shocks (Rose & Spiegel, 2010).

Trade openness is a significant indicator showing the extent to which an economy is exposed to the effects of foreign trade. The importance of trade openness arises from a range of factors: economic growth, productivity increases, technological development, and economic resilience. These factors determine the impact of trade openness on a country's overall economic performance and development.

2.3.1. Importance of Trade Openness

2.3.1.1. Economic Growth

Trade openness is regarded as an essential economic indicator reflecting a country's inclination towards foreign trade and its impact on the economy. Its effect on economic growth has been featured in numerous academic studies and research.

Firstly, the positive impact of trade openness on economic growth has been documented by many studies. Frankel and Romer (1999) determined that trade has a direct and positive effect on a country's income level. In this study, the impact of trade on income level was determined considering countries' geographical features and participation rates in trade. This is strong evidence that foreign trade contributes to the economic growth of countries.

Additionally, a study conducted by Wacziarg and Welch (2008) demonstrated that trade liberalization positively contributes to economic growth. This study covered 57 countries in the period between 1950 and 1998 and showed a statistically significant relationship between trade liberalization and acceleration of economic growth. This study demonstrated that trade openness promotes economic growth through factors such as increased efficiency and diversity in production processes.

In the same vein, a number of studies have noted that trade openness leads to an increase in productivity, which in turn supports economic growth. For instance, a study conducted by Melitz (2003) concluded that open economies encourage firms to be more efficient, supporting economic growth. Similarly, Coe, Helpman, and Hoffmaister (2009) stated that international trade facilitates firms' access to new technologies and innovations, thereby making production processes more efficient and supporting economic growth.

The general outcome of these studies is that trade openness promotes economic growth through a variety of mechanisms. These mechanisms include benefiting from economies of scale, increased inter-firm competition, expansion of access to new technologies and information, and increased diversity of consumption.

Thus, the importance of trade openness in terms of economic growth is supported by a vast literature. Therefore, it is important to promote and consider trade openness in the

creation of economic growth policies. Enhancing trade openness can maximize a country's economic growth potential and support economic development.

2.3.1.2. Increase in Productivity

Trade openness can have a significant impact on economic efficiency. Open economies stimulate competition and efficiency, which in turn boosts overall economic performance and growth. Firms can reach a broader consumer base due to access to international markets. This expansion allows firms to benefit from economies of scale, reducing costs per unit and increasing their overall productivity. This situation encourages firms to increase productivity, as indicated in Melitz's (2003) study. Moreover, firms in open economies generally face a more intense competitive environment. This necessitates firms to be more efficient and innovative, as otherwise, their market survival becomes challenging. This demonstrates the productivity-enhancing effect of competition and how trade openness supports this process (Melitz, 2003).

In addition, open economies generally experience faster technological progress. International trade facilitates firms' access to new technologies and business methods developed by foreign firms. This allows firms to become more efficient and improve their production processes (Coe, Helpman, & Hoffmaister, 2009). Lastly, open economies typically undergo a faster structural transformation. Foreign trade can accelerate the transition of firms and the workforce to more efficient sectors. This can increase overall efficiency and economic growth (McMillan, Rodrik, & Sepulveda, 2017).

Therefore, we can observe that trade openness has a broad and positive impact on economic efficiency. This effect typically occurs through trade's influence on economies of scale, competition, technological advancement, and structural transformation.

2.3.1.3. Technological Advancement

A substantial body of literature supports the significant impact of international trade and trade openness in general on technological development. Trade openness stimulates technological development through mechanisms such as technology transfer, innovation, and productivity increase.

Firstly, it has been stated that trade openness promotes technological development through technology transfer. A study conducted by Coe, Helpman, and Hoffmaister (2009) noted that trade openness facilitates countries' access to foreign technologies,

which in turn accelerates technological progress. This demonstrates that foreign trade acts as a conduit for technology dispersion.

In addition, there is evidence that trade openness enhances firms' capacity for innovation. Aghion et al. (2005) found that firms in open economies are encouraged to continuously innovate, as a result of international competition. This indicates that trade openness accelerates firms' technological development.

Furthermore, it has been suggested that trade openness can also stimulate technological development through an increase in productivity. A study by Pavcnik (2002) demonstrated that trade liberalization accelerates technological progress by increasing firms' productivity and adopting more effective technologies.

In conclusion, we can see that trade openness has a broad and positive impact on technological development. This effect typically occurs through mechanisms such as technology transfer, innovation, and productivity increase. Therefore, it is important to consider this aspect of trade openness, especially in technology-intensive sectors and areas requiring rapid technological advancement.

2.3.1.4. Economic Resilience

Trade openness also has a significant impact on the resilience of an economy. Trade openness generally provides greater resistance to economic shocks because it allows for risks to be spread over a broader economic base. This is a very important factor in terms of economic resilience.

The more open an economy is, the more resilient it can be to external shocks. This means that international trade often serves as a buffer against economic fluctuations. Specifically, open economies have the ability to spread local economic shocks over a broader market base and thus mitigate their adverse effects. This demonstrates the impact of foreign trade on economic resilience, among many other factors (Levchenko and Zhang, 2016).

In addition, open economies typically have a wider range of products and services. This diversity increases resilience against economic fluctuations because the economy is less affected by negative shocks in certain sectors. This situation demonstrates how foreign trade enhances economic diversity and, consequently, economic resilience (Imbs and Wacziarg, 2003).

Lastly, open economies generally have the ability to facilitate faster economic recovery and growth. Foreign trade can accelerate economic growth and allow for quicker recovery from economic shocks. This illustrates the impact of foreign trade on economic resilience (Levchenko and Zhang, 2016). Therefore, we can observe that trade openness has a broad and positive impact on economic resilience. This effect typically occurs through mechanisms such as providing a buffer against economic shocks, enhancing economic diversity, and accelerating economic growth.

Trade openness is vital for a country's economic performance and overall welfare. The promotion of international trade provides an economy with a broader consumer and supplier base, increases productivity and competition, accelerates technological progress, and generally enhances consumer welfare. Additionally, it has been observed that countries with high trade openness are more resilient to economic shocks.

Therefore, trade openness provides significant advantages both at the micro-level (firms and consumers) and at the macro-level (economic growth and resilience). Consequently, understanding and promoting trade openness is of vital importance for effective economic policymaking.

2.3.2. Trade Openness Indicator

The usage of (Imports+Exports) / GDP as an indicator of trade openness reveals the extent to which an economy is integrated into the international economy. This indicator reflects an economy's foreign trade volume and the impact of foreign trade on its economic structure. Hence, (Imports+Exports) / GDP is important for understanding the impact of foreign trade on a country's economic growth and welfare (Frankel & Romer, 1999).

Trade openness provides a range of benefits to a country's economy. Firstly, trade openness encourages the positive contribution of international trade to economic growth. The free movement of goods and services between countries leads to an increase in efficiency and diversity in production processes. This enhances consumer welfare and supports overall economic growth (Wacziarg & Welch, 2008). Secondly, trade openness stimulates technological progress and innovation. Economies open to the outside are typically faster in adopting new technologies and management practices. This supports productivity increase and thus economic growth (Coe, Helpman, & Hoffmaister, 2009). Thirdly, trade openness promotes competition. Open economies encourage local firms

to be more competitive as these firms have to compete in both local and international markets. This improves overall efficiency and economic performance (Melitz, 2003).

In conclusion, trade openness has a significant effect on a country's economic growth, welfare, and international competitiveness. Therefore, accurately measuring and understanding trade openness is of vital importance for economic policy formulation and implementation. For this reason, trade openness has been considered as a stability indicator in this study.

2.3.3. Relationship Between Trade Openness and Central bank independence

Central banks typically operate independently to maintain inflation control, ensure financial stability, and support overall economic stability. This independence generally means they can make economic decisions free from political influence. However, trade openness can profoundly affect a country's economic structure and operation, leading to significant implications for central bank independence. An economy with high trade openness is typically more sensitive to external economic conditions. This sensitivity can influence the policy decisions and practices of central banks, so central bank independence often has greater importance in economies with high trade openness.

Trade openness refers to the degree of a country's economic connections with the outside world, and these connections can influence the policy options and practices of the central bank. For example, an open economy may be more vulnerable to external economic shocks, which can affect the policy responses of the central bank. The central bank of a country with high trade openness may need to provide faster and more effective policy responses to external shocks (Fraga, Goldfajn, & Minella, 2004).

Furthermore, trade openness can also impact the independence of a central bank. In open economies, central bank independence is usually higher because policymakers may want to provide the central bank with more flexibility to respond effectively to external economic shocks. In open economies, the independence of the central bank may have a greater impact on macroeconomic performance (Cukierman, Webb, & Neyapti, 1992).

Furthermore, an increase in trade openness may require countries to integrate more with foreign markets and harmonize their economic policies accordingly. This situation can

create a stronger demand for central bank independence. Particularly, international investors and credit rating agencies generally prefer independent central banks, which are immune to political pressures and capable of implementing stable monetary policies (Crowe & Meade, 2008).

Thus, the impact of trade openness on central bank independence can be discussed in terms of potential challenges on the policy-making ability and flexibility of the central bank on one hand, and factors that increase the demand for independence on the other. This interaction may have a positive impact on central bank independence.

Looking at this relationship from the opposite perspective, macroeconomic stability generally involves lower inflation, lower interest rates, and economic growth. These factors can affect a country's foreign trade and hence its trade openness. For instance, low inflation and interest rates typically increase foreign investments, which can enhance trade openness. Additionally, the central bank can influence exchange rate policies. An independent central bank is usually able to manage the exchange rate more effectively, which can affect foreign trade and consequently trade openness (Mishkin, 2000). For example, if the central bank succeeds in keeping the exchange rate low, this can boost exports and thus increase trade openness. A prime example of this is China's "Low Value Yuan Policy" in exportation. Even though this policy is criticized by other countries, impacting fair competition in international trade, the People's Bank of China keeps the value of the Yuan low through interventions, making Chinese exporters' products cheaper against other currencies and more competitive in the international market. However, it should not be forgotten that China is a strong country in terms of production capacity and efficiency. Despite the Central Bank of the Republic of Turkey implementing a similar policy, due to its production capacity, efficiency, and the fact that the goods produced are mostly basic products, the low exchange rate policy does not effectively work.

2.3.3.1. Fundamental Mechanisms of the Relationship Between Central Bank Independence and Trade Openness

The relationship between central bank independence (CBI) and trade openness is based on a series of complex mechanisms. CBI can influence a country's ability to set monetary and exchange rate policies, and these policies can in turn affect the country's foreign trade and hence its trade openness.

An independent central bank can usually implement a more effective monetary policy, which plays a significant role in ensuring macroeconomic stability (Alesina & Summers, 1993). Macroeconomic stability encompasses factors such as low inflation and interest rates, and stable economic growth. These factors can encourage foreign investments and foreign trade, which in turn can increase trade openness.

Inflation control is one of the main tasks of an independent central bank. Low and predictable inflation eases economic decision-making for consumers and businesses and generally promotes economic growth (Alesina & Summers, 1993). For instance, low inflation provides consumers and businesses with more assurance about future price increases, thereby stimulating spending and investments. Moreover, low inflation rates can attract foreign investors, which can increase trade openness.

An independent central bank typically has the ability to set interest rates, which can also impact trade openness. Low interest rates usually stimulate investments, which can enhance economic growth and trade openness (Mishkin, 2000). For example, low interest rates can make borrowing cheaper for businesses and consumers, thereby increasing spending and investments.

CBI ensures macroeconomic stability through its ability to control inflation, set interest rates, and promote economic growth. This can affect a country's foreign trade, investments, and hence its trade openness. An independent central bank's capacity to foster a stable economic growth environment through its monetary policy can contribute to the expansion of trade, thereby increasing trade openness. This expansion promotes greater integration with the outside world and deeper integration into the global economy.

Central bank independence also plays a significant role in setting exchange rate policies (Mishkin, 2000). An independent central bank is typically more effective at managing the exchange rate. Exchange rate policies directly affect the costs of exports and imports, which can impact trade openness.

An independent central bank has the ability to influence exchange rate levels and fluctuations. This is achieved by utilizing monetary policy tools. For instance, the central bank can affect exchange rate levels by adjusting interest rates or by directly intervening in the foreign exchange market (through buying or selling foreign exchange) (Obstfeld, Shambaugh & Taylor, 2005). These actions directly impact a country's foreign trade and hence its trade openness. Exchange rate levels determine the cost of exports and

imports, thereby influencing trade openness. For example, if a country's currency appreciates, imports become cheaper while exports become more expensive. This can increase trade openness.

Central bank independence can influence the chosen exchange rate regime. Choices can be made between fixed, floating, or managed floating exchange rate regimes (Shambaugh, 2004). An independent central bank, particularly under fixed exchange rate regimes, may have the ability to control exchange rate fluctuations using monetary policy tools. In floating exchange rate regimes, the central bank typically intervenes less, and the exchange rate is left to market forces. This choice impacts trade openness because exchange rate fluctuations can increase uncertainty in foreign trade, which can affect trade openness.

Central bank independence can influence a country's capital account openness (Aizenman, Chinn & Ito, 2008). Capital account openness refers to the access of foreign investors to a country's financial markets. An independent central bank, due to its ability to control exchange rate fluctuations and ensure overall economic stability, can attract foreign investors. This can encourage more capital flows into a country's financial markets, which can affect exchange rate fluctuations. Also, this situation can affect foreign trade and hence trade openness.

An independent central bank generally enhances policy predictability (Cukierman, 2008). This allows investors and businesses to have more information about future economic conditions, which can influence foreign trade and therefore trade openness.

Central banks usually regulate the economy using policy interest rates and other monetary policy tools. When the use of these tools is predictable, uncertainty for businesses and investors diminishes. This can encourage foreign trade and therefore trade openness. For example, when a country's exchange rate policy is predictable, exchange rate risk decreases for exporters and importers. This can aid the expansion of trade and thus increase trade openness.

Central bank independence can also increase policy consistency (Cukierman, 1992). An independent central bank can be more resistant to the short-term political pressures of the government, which can lead to more consistent policy decisions. Policy consistency reduces economic uncertainty and enhances confidence among businesses and investors. This can aid the expansion of trade and thus increase trade openness.

Central bank independence can enhance overall economic stability (Alesina & Summers, 1993). An independent central bank is generally more successful in keeping inflation under control, which enhances economic stability. Economic stability assists in the expansion of foreign trade as it reduces economic risk for exporters and importers. This can aid the expansion of trade and thus increase trade openness. For example, economic stability can enable a country to establish longer-term and more complex trade agreements with its trade partners.

An independent central bank can usually respond to economic shocks more swiftly and effectively (Fraga, Goldfajn, & Minella, 2004). This is particularly crucial when it comes to external economic shocks. A quick and effective policy response can support foreign trade and trade openness.

An independent central bank can respond quickly and efficiently to economic shocks (Cukierman, 1992). This includes the ability to respond to both exchange rate shocks (such as sudden increases in exchange rates) and demand shocks (such as sudden drops in external demand). This quick response can reduce trade uncertainty, which can encourage trade openness. An independent central bank possesses a broad range of policy tools to respond to economic shocks. These tools include interest rates, reserve requirements, and open market operations. The effective use of these policy tools can enhance the stability of foreign trade, which can encourage trade openness. An independent central bank can enhance the credibility of policy decisions (Dinçer and Eichengreen, 2014). This can boost the confidence of investors and trade partners, which can aid the expansion of trade and thus increase trade openness. Each of these mechanisms illustrates the complex nature of the relationship between central bank independence (CBI) and trade openness. CBI can influence trade openness by affecting macroeconomic policy-making processes and outcomes. In conclusion, the importance of trade openness in terms of central bank independence is often associated with the ability to provide quick and effective policy responses to external economic shocks and to ensure policy flexibility. In economies with high trade openness, central bank independence typically supports economic stability and growth. Therefore, we can see that trade openness has a significant impact on central bank independence and policy-making. This impact is usually realized through mechanisms that affect the speed and effectiveness of policy responses to external economic shocks, and mechanisms that affect central bank independence. Also, central bank independence can influence a

country's trade openness by affecting monetary and exchange rate policies. These policies can shape a country's foreign trade and therefore its trade openness.

2.4. GROSS DOMESTIC PRODUCT (GDP) PER CAPITA

The Gross Domestic Product (GDP) per capita serves as an all-inclusive indicator measuring the overall economic health and living standards of a country. It is calculated by dividing a nation's total GDP by its population. Its significance lies in its typical use as a representation of an individual's average income, which is a measure of economic well-being (World Bank, 2021).

GDP per capita is widely used to compare and assess a country's economic performance. This indicator is frequently employed when making comparisons of economic activity and living standards between different countries (UNDP, 2020). This metric is also utilized to monitor economic growth and development, set policy objectives, and evaluate the impact of economic policies.

Gross Domestic Product (GDP) per capita is one of the fundamental ways of measuring a country's economic performance and is important due to several key factors:

2.4.1. Indicator of Economic Welfare

GDP per capita is considered an indicator of a country's overall economic welfare. This measure gauges the value of all economic activities in a country, divided by the country's population. There are several reasons why this measure is significant as an indicator of economic welfare. The first is the Measurement of Economic Activity. GDP per capita is a measure of all goods and services produced within a country (World Bank, 2021). This allows us to determine the extent of a country's economic activity. The second is Living Standards. GDP per capita is often used as an indicator of living standards within a country. A higher GDP per capita is generally associated with higher living standards (Smeeding, 2005).

However, there are also flaws with using GDP per capita as an indicator of economic welfare. Firstly, it is important to note that GDP per capita does not measure income distribution or income inequality within a country (Atkinson & Marlier, 2010). Secondly, it is recognized that GDP per capita does not measure crucial welfare factors such as environmental sustainability or quality of life (Stiglitz, Sen, & Fitoussi, 2009). Moreover, the relationship between economic growth and welfare may not always be linear. For

example, economic growth can sometimes lead to environmental degradation or overuse of resources, which can have a negative impact on welfare (Arrow et al., 2004).

2.4.2. Growth and Development

Gross Domestic Product (GDP) per capita is one of the primary indicators of a country's economic growth and development. However, to comprehend what GDP per capita signifies and why it's crucial in terms of growth and development, it's important first to understand the precise meanings of these terms.

Economic growth is defined as the increase in a country's total GDP over time (Barro & Sala-i-Martin, 2004). This generally implies an expansion of a country's total production or service sector. Economic growth is often measured with GDP per capita as it provides a general measure of a country's total economic activity. Economic development, on the other hand, is defined as a country's overall progress and improvement in economic, social, and political areas (Todaro & Smith, 2015). This usually involves factors such as an increase in quality of life, improvements in education levels, increased access to health services, and the creation of more economic opportunities. GDP per capita is significant in the context of economic growth and development as it is commonly considered an indicator of a country's economic growth and development. Particularly, a high GDP per capita is generally regarded as a sign of economic growth and development (Sachs, 2015).

In conclusion, the importance of GDP per capita in terms of economic growth and development stems from its general acceptance as an indicator of economic growth and development.

2.4.3. International Comparisons

There are several important reasons for using GDP per capita when making international comparisons. The first is the comparison of economic performance. GDP per capita provides the ability to compare the economic performance of different countries. This allows policymakers and researchers to use international examples to assess the effectiveness of specific policies and strategies (Sala-i-Martin, 2002). The second is the comparison of living standards. GDP per capita also provides the ability to compare living standards in different countries. A high GDP per capita generally indicates higher living standards, but this may not always be true, as other factors such as income distribution,

access to health services, and education also affect living standards (Stiglitz, Sen, & Fitoussi, 2009). Lastly, it is related to the determination of development strategies. International comparisons can assist policymakers and researchers in evaluating the effectiveness of specific development strategies. For instance, countries with a high GDP per capita are generally considered to have successful development strategies, and these strategies can be adopted by other countries (Dollar & Kraay, 2002).

2.4.4. Measurement of Inequality

GDP per capita assumes that all income in an economy is evenly distributed. However, this situation is rarely observed in real life. Income often concentrates in a certain portion of the population, leading to income inequality. Therefore, GDP per capita is often used in conjunction with other indicators used to measure income inequality, such as the Gini coefficient (Atkinson, 1970).

Inequality measurement can be used as a function of GDP per capita. For instance, if GDP per capita is high in a country, but income inequality is also high, it indicates that economic growth benefits only a certain section. This provides policymakers with crucial information on combating inequality and reaching development goals (Piketty, 2014).

2.4.5. Evaluation of Economic Policies

Gross Domestic Product (GDP) per capita plays a vital role in the evaluation and analysis of economic policies. This indicator can assist in understanding the overall effectiveness and impact of an economic policy.

The fundamental purpose of economic policies implemented in a country is typically to promote economic growth and increase welfare. GDP per capita can be used as an indicator of whether these goals are being met. For example, economic growth policies might result in an increase in GDP over a specific period. However, if this growth does not lead to a significant increase in GDP per capita, it may indicate that the growth predominantly benefits a certain portion of the population or the population growth rate surpasses the growth rate (Solow, 1956). Furthermore, changes in GDP per capita over time can be used to evaluate the impact of specific economic policies. For instance, an increase in GDP per capita following the implementation of a certain policy could indicate the policy's success (Mankiw, Romer, & Weil, 1992). Lastly, GDP per capita can be used to compare a country's economic policies at the international level. This can help

policymakers identify successful policies and implement them in their own countries (Barro & Sala-i-Martin, 2004).

2.4.6. GDP Per Capita as a Stability Indicator

The answer to whether GDP per capita can be used as a stability indicator is complex. As it reflects economic growth and overall welfare level, this metric can indicate a certain level of stability. A high GDP per capita generally signifies a stable economy and a healthy standard of living. However, this measure alone does not fully gauge overall economic stability. For instance, GDP per capita does not measure the quality of life or happiness in a country (Stiglitz, Sen & Fitoussi, 2009). Additionally, GDP per capita does not accurately measure all economic activities in a country. For example, it does not take into account domestic work or the informal economy (Deaton, 2005).

A consistent increase in GDP per capita could be an indication of economic growth and stability. Conversely, rapid and sudden drops in GDP per capita are often signs of economic crises or recessions (Romer, 1992).

In conclusion, GDP per capita is a significant indicator for measuring a country's economic welfare and standard of living. However, it has some limitations when used as a full indicator of economic stability and should generally be evaluated along with other economic and socio-economic indicators. Indicators measuring income distribution such as the Gini coefficient or indicators measuring overall quality of life such as the Human Development Index can provide a broader economic picture (United Nations Development Programme, 2020). This demonstrates that economic stability is a multi-dimensional concept and a single indicator will not capture all its facets (Aizenman & Marion, 1993).

2.4.7. Central Bank Independence and Gross Domestic Product Per Capita

The impact of GDP per capita on central bank independence is not a topic extensively explored in the literature. Instead, research tends to focus on the effects of central bank independence on GDP per capita.

The influence of GDP per capita on central bank independence usually occurs indirectly and is typically discussed along two main axes: political effects and economic effects. Politically, high GDP per capita is generally associated with countries that are more

democratic and institutionally developed (Acemoglu, Johnson, Robinson, & Yared, 2008). In such countries, central bank independence is often more prevalent because the political structure fosters a framework in which economic decisions are more independent of political interference (Cukierman, Miller, & Neyapti, 2002). This can bolster the reliability of the central bank's independence and policies.

Economically, the influence of high GDP per capita on central bank independence often accompanies a more complex and developed financial sector and a broader economy. This situation can have a positive effect on the level of independence and policy-making capacity of the central bank. For instance, more developed economies tend to have more effective and advanced monetary policies (Crowe & Meade, 2008). This can strengthen central bank independence, enhancing the effectiveness and credibility of policies. Therefore, the influence of GDP per capita on central bank independence can generally be examined within the context of both political and economic effects. These interactions often have significant implications for economic stability, monetary policy, and economic growth.

There are various economic theories and empirical studies that examine this relationship from the opposite perspective. The significance of this relationship lies in its impact on economic stability, inflation control, and overall economic performance.

Many empirical studies have found a positive relationship between central bank independence and low, stable inflation rates (Cukierman, 1992; Alesina & Summers, 1993). Low and stable inflation typically promotes investment, economic growth, and therefore, an increase in GDP per capita. Thus, there is an indirect relationship between central bank independence and GDP per capita. However, the relationship between central bank independence and GDP per capita can sometimes be complex. For instance, an independent central bank, often focused on controlling inflation, can sometimes slow down economic growth (Rogoff, 1985). Moreover, the impact of central bank independence on economic growth and GDP per capita depends on the specific economic conditions of the country and the policies implemented (Mishkin & Schmidt-Hebbel, 2007). Therefore, the relationship between central bank independence and GDP per capita is generally important in the context of economic growth and inflation control. However, the nature and complexity of this relationship require considering broader economic conditions and policies.

Understanding the core mechanisms of the relationship between central bank independence and Gross Domestic Product (GDP) per capita requires an understanding of the overall impact of the central bank on the economy. This relationship typically operates through the fundamental's mechanisms explained below.

Control of inflation is another key factor affecting economic stability and, therefore, GDP per capita. High and unstable inflation rates generally create uncertainty and negatively impact economic activities (Fischer, Sahay, & Vegh, 2002). On the other hand, low and stable inflation rates typically stimulate economic growth and increase GDP per capita.

The control of inflation plays a crucial role in increasing GDP per capita, particularly in developing countries where high inflation rates negatively affect economic growth. This has been supported by a series of empirical studies that low and stable inflation fosters economic growth by encouraging private sector investment and economic activities, boosting consumer and business confidence, and increasing economic efficiency (Fischer, Sahay, & Vegh, 2002).

In conclusion, inflation control can directly influence the relationship between Central bank independence and GDP per capita. An independent central bank can effectively control inflation, which can stimulate economic growth and GDP per capita. Control of inflation boosts economic stability and investor confidence. This results in more investment and economic activity, which in turn increases GDP per capita.

The independence of the Central Bank promotes policy predictability (Masciandaro, Volpicella & Romelli, 2016). An independent Central Bank can make more consistent and predictable policy decisions as it is less influenced by political cycles or short-term populist pressures. This predictability reduces uncertainty for economic decision-makers and investors, thereby encouraging more investment and supporting economic growth.

Moreover, policy predictability can also positively affect economic growth and thus GDP per capita. In situations where political uncertainty is high, businesses and investors tend to invest less, as policy uncertainty makes it difficult to predict the return on investments (Baker, Bloom & Davis, 2016).

In conclusion, policy predictability can significantly affect the relationship between Central bank independence and GDP per capita. A predictable policy environment can

be encouraged by an independent central bank, which positively affects economic growth and GDP per capita.

The independence of the Central Bank can positively affect a country's macroeconomic stability, and thus its credit ratings (Bodea & Hicks, 2015). An independent central bank is typically able to implement better monetary policies and control inflation. This is usually seen as a positive factor by credit rating agencies because macroeconomic stability enhances the debtor's capacity to repay debts on time.

Additionally, the assessments of credit rating agencies influence a country's financing costs and foreign direct investments, which can have a significant impact on GDP per capita (Alsakka & Gwilym, 2010). For instance, a higher credit rating generally translates to lower borrowing costs, which can increase the investment capacity of both the government and the private sector. Also, higher credit scores typically attract foreign direct investments, which can boost economic growth and, consequently, GDP per capita.

In conclusion, there is a significant interplay between Central bank independence, GDP per capita, and credit rating. The independence of the Central Bank can foster higher credit ratings, which can, in turn, enhance economic growth and thus GDP per capita.

The three mechanisms described above elucidate the dynamics of the relationship between Central bank independence and GDP per capita. However, each of these mechanisms is contingent on specific economic and political conditions and may not always have the same effect.

2.5. BUDGET DEFICITS

In economic literature, a budget deficit refers to the condition where a government's expenditures exceed its revenues (Alesina & Perotti, 1995). Put another way, a budget deficit signifies the need for a government to borrow over a specific period. Expenditures that surpass the government's income generally occur in areas such as public services, infrastructure projects, or social security programs. The significance of budget deficits is often discussed within the context of their macroeconomic impacts and potential effects on public finance. Budget deficits increase the borrowing requirement of the state, generally leading to a rise in interest rates (Gale & Orszag, 2004). This situation can

adversely affect private investments as high-interest rates increase the cost of borrowing for firms and make investing less attractive (Barro, 1974).

Furthermore, budget deficits are commonly associated with inflation. Governments with high budget deficits often resort to printing money to finance this gap, resulting in an increase in the money supply and, consequently, inflationary pressures (Sargent & Wallace, 1981). Also, the financing of budget deficits is frequently seen as a potential threat to fiscal stability since high budget deficits usually augment the debt burden of governments, making them more susceptible to financial crises (Reinhart & Rogoff, 2010). So, budget deficits are a significant matter for both short-term and long-term macroeconomic balance and fiscal stability. High budget deficits can lead to economic imbalances and fiscal instability. Therefore, the careful determination and implementation of budget policies are essential.

2.5.1. Central Bank Independence and Budget Deficit

The impacts of budget deficits on the independence of the Central Bank are generally explored through the lens of government strategies to close these deficits. A government grappling with a budget deficit can employ various methods to address this problem, including increasing taxes, cutting expenditures, or borrowing. However, these choices are frequently unpopular from a political perspective. There are some mechanisms that budget deficit may have an impact on central bank independence.

2.5.1.1. Borrowing and Interest Rates

The influence of budget deficits on the independence of central banks can be explained through various mechanisms. Understanding these effects lays the groundwork for effective policy formulation. The impact of budget deficits on Central Bank independence can be evaluated within the framework of borrowing and interest rates. These dynamics hold a significant place in the political economy literature and are generally considered within the context of interactions between the government and the Central Bank. Governments with budget deficits typically opt to borrow to finance this gap. Borrowing usually takes place through public bonds. During this process, governments generally aim to keep bond interest rates low because this reduces borrowing costs and facilitates financing the budget deficit (Aizenman, Hutchison, & Jinjarak, 2013). In this situation, the independence of the Central Bank plays a crucial role. Interest rates are usually determined by the Central Bank, and this is an indicator of the Central Bank's

independence. However, governments with high budget deficits may request the Central Bank to lower interest rates to reduce borrowing costs (Mishkin, 2000).

2.5.1.2. Seigniorage and Inflation

The Central Bank generally sets interest rates with the aim of controlling inflation. However, under the pressure of the government, the Central Bank may tend to lower interest rates. This situation can lead governments to try to erode budget deficits through seigniorage and inflation. Seigniorage is usually defined as income obtained from the right of governments to print money and results from an increase in the money supply (Eichengreen, Hausmann & Panizza, 2005). A government may prefer to take advantage of seigniorage to cover the budget deficit. In this case, the central bank is demanded by the government to print money and inject it into the economy. However, this approach generally results in inflationary outcomes. When the newly printed money enters the economy, the money supply increases, which usually increases the general level of prices (inflation) (Cukierman, Edwards, & Tabellini, 1992). There is an inverse relationship between the independence of the central bank and inflation. An independent central bank can manage inflation targets more effectively and prevent inflation from spiraling out of control (Alesina & Summers, 1993). However, when the government excessively benefits from seigniorage to finance budget deficits, this can weaken the central bank's ability to control inflation. Therefore, high budget deficits and the resulting high demands for seigniorage can jeopardize the independence and policy effectiveness of the central bank. The independence of the central bank depends on the extent to which the central bank's ability to determine and implement monetary policies is free from political pressure and government intervention. Therefore, the pressure exerted by governments with high budget deficits on the central bank to finance these deficits can reduce the independence and policy-making ability of the central bank.

2.5.1.3. Fiscal Institutions

When the impact of budget deficits on the independence of the Central Bank is examined in terms of strengthening fiscal institutions, the interaction of two crucial elements can be emphasized: fiscal discipline and policy determination. Both in the academic literature (Alesina & Summers, 1993; Grilli, Masciandaro, & Tabellini, 1991) and policy circles, strengthening fiscal institutions forms the basis for sustainable budget policies and the protection of central bank independence. On the one hand, keeping budget deficits under control requires fiscal discipline. This can be achieved by strengthening fiscal institutions,

as these institutions ensure the effective management of expenditures and revenues. Additionally, strengthening fiscal institutions facilitates the control of budget deficits and the attainment of governments' fiscal targets (Alesina & Perotti, 1996). On the other hand, strengthening fiscal institutions can help safeguard the independence of the Central Bank. Central bank independence generally implies restricting the ability of governments to interfere in monetary policy. This prevents governments from resorting to inflationary policies to finance budget deficits and thus preserves the independence of the central bank (Cukierman, 1992). However, as budget deficits increase, pressures on fiscal institutions and the independence of the central bank can also intensify. This situation arises, especially when governments resort to policies such as printing money or borrowing to finance budget deficits. Therefore, strengthening and effectively operating fiscal institutions can alleviate these kinds of pressures and aid in preserving the independence of the central bank (Crowe & Meade, 2007). In conclusion, to understand the impact of budget deficits on the independence of the Central Bank, it is important to consider the role of strengthening fiscal institutions. This interaction affects fiscal discipline and policy determination and may have significant implications for overall economic stability.

Sikken and Haan (1998) analysed the relationship between government budget deficits and central bank independence. Afterwards, they examined the relationship between central bank independence and the financing of budget deficits by monetisation. In conclusion, they reached the conclusion that there is no significant relationship between central bank independence and budget deficits (Arslan, 2003). Link between fiscal and monetary policies is characterised by the stabilisation of interest rates by the monetary authorities without disturbing the political order. Therefore, the political authorities put the monetary authorities in a difficult position. Increasing government debt puts upward pressure on interest rates, forcing the central bank to reduce budget deficits through interest rate stabilisation. A central bank that is independent of political will can take a more resilient stance to interventions in monetary policy (Kadyrova, 2009)

In statistical research on central bank independence, it has been observed that the results in developing countries do not turn out as expected. The reasons attributed to this are the political structure of developing countries, the uncertainty surrounding the status of the central bank, and the central bank's inability to keep pace with rapid changes. Despite the lack of evidence that central bank independence leads to budget balance, it is suggested that it contributes positively to budget balance. Meanwhile, it is

also emphasised that the inflationary impact of budget deficits is particularly evident in the absence of central bank independence and financial development. It has been revealed that developed countries with high central bank independence have less central bank lending to the public and that there is no link between central bank independence and the level of budget deficits (Kadyrova, 2009).

Understanding the impact of budget deficits on the independence of the Central Bank informs the policies governments and Central Banks should prioritize to ensure economic stability. Therefore, understanding the impact of budget deficits on the Central Bank's independence assists governments and Central Banks in making effective policy decisions, playing a significant role in maintaining overall economic stability.

CHAPTER 3: LITERATURE REVIEW

In this section of the study, the approach of the economic literature towards the relationship between Central Bank Independence and indicators of stability, the scope of the data sets used, the findings obtained, and limitations in some studies are presented. The first section focuses on articles that discuss the relationship between central bank independence and inflation, while the second section examines articles that explore the relationship between central bank independence and other indicators of stability.

3.1. THE LITERATURE RELATED CENTRAL BANK INDEPENDENCE AND INFLATION

The independence of the central bank was constructed and estimated by Cukierman, Webb, and Neyapti in 1992. The legal independence of the central bank was first codified in two separate ways. They started by coding specific but accurate legal features. Following that, they only used written information from the Central Bank's charter. The Central Bank's legal provisions were divided into four sections. There were 16 separate variables in each of these four sections. A numeric value between 0 and 1 given to each variable. The number of degrees of central bank independence ranges from 0 to 1, with 1 denoting the maximum degree. Term of office, the person/department appointing CEO, the major goal of the CB are some of the 16 separate variables. The dataset for this study comprises 72 nations and four decades between 1950 and 1989. Thanks to Cukierman et al. (1992), a systematization for prospective articles about central bank independence is given. In their paper's conclusion, the authors observed that price stability in industrialized countries is a significant indicator of central bank independence. In contrast, this is not true in emerging nations. In the end, they concluded that central bank independence and inflation had a negative association, and that it is one of the institutional tools used to ensure price stability.

According to Baumann et al. (2020), it is debatable whether or not having an autonomous central bank lowers inflation in a nation. Due to inadequate statistical analysis of the intricate socioeconomic structure that gives rise to the data, this question has not yet been able to be answered satisfactorily. A causal model that condenses the economic causes of inflation is created by Baumann et al. (2020). They analyzed and determined the presumptions under which the impact of central bank independence on inflation can be detected and calculated based on this causal model and recent data. The premise

that having an independent central bank for a long time invariably decreases inflation was not strongly supported by Baumann et al. (2020)'s longitudinal targeted maximum likelihood estimation.

Hayo (1997) investigated the central bank independence and inflation. However, this paper suggests that central bank independence cannot be seen as the only thing to explain low inflation level. Instead, central bank independence is linked to public attitudes against inflation through historical feedback mechanisms that have generated public consensus on anti-inflation culture and currency stability in countries with low inflation. A survey data from 12 European Community members between the years of 1976 and 1993 is used. These 12 countries are France, Belgium, Netherland, Germany, Italy, Luxemburg, Denmark, Ireland, Great Britain, Greece, Spain and Portugal. This study provides evidence in favor of a stability culture existing in low-inflation nations. People who reside in low-inflation nations appear to be more sensitive to a rise in the actual inflation rate than people who reside in high-inflation countries when assessing the importance of the price stability. According to Hayo (1997), it is not conclusive to say that public opinion is the most crucial factor in explaining various national inflation historical records.

Klomp and De Haan (2010) conducted a meta regression analysis of research looking at the connection between inflation and central bank independence using 59 studies. Regarding the central bank independence measure employed, the sample of countries and time periods covered, the model specification, the estimators utilized, and the publication outlet, the studies under consideration are considerably diverse from one another. Klomp andae De Haan (2010) is the first empirical study to apply meta regression analysis among many different empirical papers investigating effects of Central bank independence on inflation. In their empirical analysis it is found that real impact of central bank independence on inflation is significant in OECD countries. According to Klomp and De Haan (2010), it is generally accepted that nations with a more independent central bank will, on average, have lower inflation rates. Once considerable publication bias are controlled, the meta regression analysis confirms the conventional interpretation by detecting a significant "real effect" of Central bank independence on inflation. The impact is greatest when the focus is OECD countries, 1970–1979 is the study period, the labor market is taken into account, and a bivariate regression is used to evaluate the relationship.

Central bank independence Indexes were the focus of Alesina and Summers' 1993 research. In the previous works, Bade and Parkin (1982) produced a Central bank independence Index (BP) for 12 nations that varied from 1 to 4 in terms of political independence. Grilli, Masciandaro, and Tabellini (1991) published another article on central bank independence indices that examines both political and economic independence in relation to central banks (GMT). In order to establish their index, Alesina and Summers (1993) averaged the GMT and BP indices for the years 1958 through 1988. They examined the connections between five major macroeconomic factors and central bank independence. These major macroeconomic factors consist of real interest rates, Gross National Product per capita, growth of Gross Domestic Product, unemployment, and inflation. In their study, Alesina and Summers (1993) found that expansionary monetary policies may affect real interest rates in the short run, but they could not find evidence to suggest that politically dependent central banks' expansionary monetary policies reduce average real interest rates in the long run. Moreover, the authors found a negative and statistically significant relationship between inflation and central bank independence, and also a negative relationship between central bank independence and real interest rate variability. Additionally, they could not find any relationship between central bank independence and economic growth, GNP per capita, or unemployment.

In their study titled "Price Stability and Central bank independence: Discipline, Credibility, and Democratic Institutions", Bodea and Hicks (2015) examined the relationship between central bank independence, inflation, democratic institutions, and economic stability. Covering 91 countries between the years of 1960-2010, the study aimed to discover empirical connections between dependent and independent variables. The main independent variable in this study was central bank independence, measured by the index proposed by Cukierman, Webb, and Neyapti (1992). Inflation served as the primary dependent variable, sourced from the International Monetary Fund's (IMF) World Economic Outlook database. Democratic institutions were gauged using the democracy index provided by the Polity IV project. Bodea and Hicks (2015) looked into the connection between price stability and central bank independence. They tested two separated hypotheses to do this. The first test deals with discipline. They contend that lower money growth rates result from independent central banks, democratic governments with many veto players, and unrestricted access to written and visual media. The second test deals with credibility. They investigated if inflation is lower in countries with independent central banks, democratic governments with many veto

players, and unrestricted access to written and visual media. In conclusion, Bodea and Hicks (2015) examined whether central bank independence has a stronger impact on price stability or not when a nation has solid institutions that restrict and limit governmental intervention with the central bank. The findings demonstrate that limiting and constraining government influence with the central bank leads in a significantly more rule-based central bank and lower rates of money growth. Additionally, if the people in that nation believe that institutional influence by the government with the central bank is limited and removed, this reduces expectations of inflation. Findings by Bodea and Hicks (2015) revealed a statistically significant correlation between central bank independence and low inflation rates. They also noted that the strength of democratic institutions enhanced the effectiveness of central bank independence in combating inflation. In other words, they reported a positive interaction between democratic institutions and central bank independence. These results confirm the vital role central bank independence plays in maintaining economic stability, with this effectiveness increasing with the strength of democratic institutions. In terms of discipline, credibility, and democratic institutions,

Jacome ve Vazquez (2008) focused on examining the central bank laws of 24 countries in Latin America and the Caribbean from 1990 to 2002 in their study. The authors conducted an empirical study using the Feasible Generalized Least Squares method with panel data analysis. The central bank reforms implemented in Latin American countries and the Caribbean, which had to live with high inflation for a long time, were discussed in this paper. According to the results, while the monetary policies of Latin American countries that implemented central bank reforms in the 1990s are now managed by independent central banks, government interventions and dependent central banks still exist in Caribbean countries. Although independence is greater in Latin American countries, no regional difference was found in terms of performance in combating inflation. Additionally, the increase in central bank independence cannot be solely attributed as the main reason for the decrease in high inflation from the end of the 1990s to the beginning of the 2000s, as no causality relationship was found between central bank independence and inflation.

Berger et al. (2000) tries to distinguish independence of a central bank and conservativeness. Berger et al (2000) suggests that a conservative central banker's preferences are not important if they are not in charge of monetary policy without government intervention. So, it is believed that independent and conservative central bank will be responsible from monetary policy rather than the government, the inflation

level will tend to be lower. However, an optimum level of independence and conservativeness exists. In the figure, (γε*) denotes the optimal level of Central bank independence and conservativeness. Ceteris paribus an increase (a decrease) in the central bank's conservativeness or independence will lead to a more inflation-averse monetary policy as it shown in the Figure 2. (Berger et al., 2000).

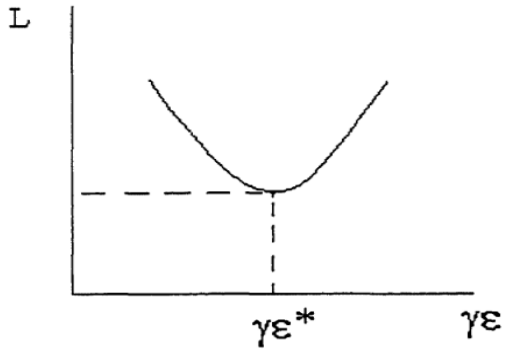

Figure 2: The Optimal Level of Central Bank Independence and Conservativeness. Originally retrieved from Berger et al., (2000)

Grilli et al. (1991) observed the political and monetary institutions of OECD countries that had developed at almost similar levels in order to identify why their public deficits, public debts, and inflation processes did not follow a similar development process. They conducted a comprehensive study for 18 OECD countries between 1950 and 1989, by examining the countries' net public debt, sustainability of public debt, central bank independence, inflation, and seigniorage revenues. OLS panel analysis conducted in the paper. According to Grilli and others' research, it was revealed that the countries that were the most politically and economically dependent on their central banks were also the ones with highly unstable political systems and in an unsustainable public debt process, and they topped the list of countries with the highest seigniorage revenue. Therefore, it was concluded that these countries had the possibility of financing their public debts through monetary policies. As a result, they showed that a more independent central bank would bring low inflation but would not lead to a poor macroeconomic performance. In other words, it was demonstrated that a more independent central bank had no significant positive or negative effect on real output growth or variability.

Crowe and Meade (2008) updated the Cukierman, Webb, and Neyapti (1992) central bank independence (CBI) index by adding 27 new countries for the year 2003. In this study, the authors investigate whether this index is related to the factors discussed in the literature and, if so, what the direction of this relationship is. OLS regression method is used to examine the relationship between central bank independence and inflation. The results of the study suggest a significant and negative effect of central bank independence on inflation. Additionally, they acknowledge and support the idea that if a central bank is not independent, the country is likely to exhibit inflationary tendencies.

3.2. THE LITERATURE RELATED CENTRAL BANK INDEPENDENCE AND TRADE OPENNESS, FINANCIAL DEPTH, OUTPUT GROWTH AND INSTITUTIONS

Since, Dinçer and Eichengreen (2014) made an important contribution by presenting the historical changes in the central bank independence and transparency and the effects of them on the inflation rate, they have a substantial role in the literature of the central bank independence and central bank transparency. The measures created by the Cukierman et al. (1992) are updated by Dinçer and Eichengreen (2014). This paper covers 12 years between 1998 and 2010. Its sample size is more than 100 countries. It is found that there is a stable rise in central bank independence and transparency for developed and developing nations between 1998 and 2010. Also, they found the relationship between inflation variability and central bank independence and transparency is negatively signed which is paralleled with general opinion in this particular subject. In addition, Dinçer and Eichengreen (2014) used main independent variables such as financial depth, trade openness, and GDP per capita to explain the determinants of central bank independence. They also included institutional variables one by one in the model. The institutional variables they included are corruption control, government effectiveness, political stability, rule of law, accountability, quality of legislation, and democracy, respectively. As a result of this study, Dinçer and Eichengreen (2014) found a positive relationship between central bank independence and financial depth and trade openness, while they found a negative relationship with all other variables, including the remaining institutional indicators.

Also, Alesina and Summers (1993) show in this research that there is a negative correlation between inflation variability and central bank independence. Additionally, real interest rates follow the similar pattern. Additionally, they demonstrate that there is no

connection between economic growth and central bank independence. Despite the Swiss National Bank's considerable independence, the country's growth rates are low. However, Germany enjoys higher economic development, and the Bundesbank has lesser independency. Additionally, no meaningful relationship between CBI and GNP per capita has been discovered.

Lippi (1998) explores the relationship between central bank independence and policy target stability. The author argue that an unstable policy target may impede the creation of an independent central bank. Furthermore, the article presents a model that demonstrates a trade-off between the credibility benefits of an independent central bank and the flexibility to pursue shifts in policy targets that are allowed by a policy discretion regime. Lippi (1998), also has an empirical section that examines the association between central bank independence and policy target stability. The empirical analysis is based on a cross-country regression analysis. The authors' findings indicate that there is a positive correlation between central bank independence and policy target stability. The results suggest that an independent central bank is more capable of maintaining policy target stability than a less independent central bank. Nevertheless, the authors acknowledge that the relationship between central bank independence and policy stability is multifaceted and may rely on other factors, such as the political environment and the institutional framework of the country.

Nagac and Rizvanoghlu (2018) aimed to measure the impact of the development of central bank independence over time on macroeconomic variables in Turkey and six Central Asian countries that separated from the Soviet Union: Azerbaijan, Georgia, Kyrgyzstan, Kazakhstan, Tajikistan, and Uzbekistan. Although they intended to work with panel data analysis, they conducted a rank correlation test as they did not have a sufficient dataset covering enough years. In this regard, the variables they wanted to measure the correlation between central bank independence and were real output growth, GDP deflator, and Financial Market Deepening, i.e., Money Supply/GDP. Central bank independence Index of Cukierman (1992) which is CWN is used. As a result of this study, a negative correlation was found between Central bank independence and GDP Deflator. A positive correlation was found between Central bank independence and Financial Depth and GDP growth rate.

Neyaptı (2001) examines the central bank independence status of eight transition economies consisting of Albania, Bulgaria, Czech Republic, Hungary, Poland, Romania,

Slovakia, and Slovenia. This paper explores the relationship between macroeconomic indicators and both central bank independence and financial market development. The variables used in the paper are as follows: central bank independence, inflation, the ratio of budget deficits to GDP, and real output growth rate as macroeconomic indicators. The variables used for financial market development indicators are M2/GDP, the ratio of credit to the private sector to GDP, and the ratio of time deposits to GDP. As in the Nagaç and Rizvanoghlu (2018) study, a correlation test was performed due to data limitations. A positive relationship was found between financial depth measured by M2/GDP and central bank independence, as well as the ratio of time deposits to GDP and central bank independence. Furthermore, a negative correlation was found between central bank independence and inflation. Finally, a positive correlation was found between central bank independence and both the ratio of budget deficits to GDP and the growth rate of real output.

In the aftermath of the global financial crisis, there was a renewed interest in the relationship between the performance of public agencies and their level of independence. Masciandaro and Romelli (2018) sought to add to this discussion by utilizing a comprehensive and extensive dataset. They constructed dynamic indices, developed by Romelli (2018), which incorporated data from 65 countries spanning a period of 41 years (1973-2014). Their goal was to provide a more thorough examination of the theoretical and empirical connections between agency performance and independence. Masciandaro and Romelli (2018) developed an index that evaluated 42 different characteristics of central banks, which were organized into six main categories. These categories were: Governor and Central Bank Board, Monetary Policy and Conflicts Resolution, Objectives, Lending to the Government, Financial Independence, Central Bank Reporting and Accountability. Furthermore, they approached the relationship between central bank independence and inflation differently from previous studies. Instead of utilizing a simple correlation, they used an instrumental variable method. This method involved using a set of politico-economic factors as an indicator of central bank independence, allowing for a more in-depth analysis of the connection between central bank independence and inflation. The researchers employed a number of variables in their analysis, including financial crises, openness to trade, exchange rate regime, OECD member, world inflation. According to Masciandaro and Romelli (2018), one of the most important outcomes of the research is that the degree of central bank autonomy is an endogenous variable, which means that it is affected by the political and economic drivers that shape the government's incentives.

According to Goodhart and Lastra (2018), populism is a prevalent feature in political parties around the world, characterized by the restriction of individuals, capital, goods, and services, as well as states. It examines the economic case for independence and the three Ds (distributional, directional and duration effects), the debate of how the rise in populism affects central bank independence, the legality of central bank mandates, and accountability mechanisms to 'guard the guardians' of monetary and financial stability. They used three distinct variables to examine the impact of populism on the independence of central banks, these are legitimacy, mandate, and central bankers. The research also analyzed the interpretation of legal mandates for central banks and whether or not they are operating within the law while conducting their official duties. Additionally, they highlight that for the proper functioning of central banks, it's important to have a well-defined set of restrictions established by law to protect central banks from populist movements of the government.

The impact of the global financial crisis on the institutional foundation of central bank independence was studied by Dinçer (2019). She discovered that between 1998 and 2015, changes in legislation led to an increase in many countries' legal independence of central banks, while it reduced in only a few countries. During the so-called Great Moderation, which preceded the global financial crisis, central banks were regarded as effective in terms of independence, transparency, and accountability. The goals, responsibilities, and instruments of the central banks have changed as a result of the global financial crisis. It became harder to defend central banks' independence and accountability when they began to prioritize both financial stability and price stability. In conclusion, there is no agreement on the best effective model that resulted from the institutional changes brought about by the global financial crisis in central banks.

De Haan, Bodea, Hicks, and Eijffinger (2017) define central bank independence as the monetary policy being managed by individuals who were not elected by the public or the government and the act limiting the influence of the government on monetary policy. By comparing the degree of central bank independence across different central banks and contrasting the views of academics and central bankers, it was possible to demonstrate why central bank independence is important and how it can affect economic outcomes. They locate themselves among the group that think that the independence of the central bank is crucial. The majority of nations have significantly strengthened their central bank independence since the 1990s began, and this trend persisted up until the global financial crisis. However, there have been growing arguments against the independence

of the central bank since the global financial crisis. With this research, they demonstrated how low CBI was at the time, how it rose over time, and what transpired following the global financial crisis. Additionally, they discovered that three distinct vulnerabilities could endanger the independence of central banks following the global financial crisis. The first concern is that, in order to reduce the debt burden, fiscal authorities may be persuaded to use monetary policy to increase inflation. The second concern is that the financial dimension of independence will be significantly impacted by the unprecedented size of central bank balance sheets. Since the central bank's dependency on government funding and lack of financial independence would seriously damage its credibility. Finally, the set of unconventional monetary measures used during the crisis are likewise linked to the final danger to central bank independence. The premise that monetary policy has little or no redistributive implications is essential for any arguments in support of central bank independence. However, the latest central bank measures, which are much more redistributive than conventional monetary policy, threaten to disprove this claim. The only indication for a potential decrease in CBI is the increase in the turnover rate of central bank governors in advanced countries.

De Haan and Kooi (2000) make a number of contributions to the literature in the subject of central bank independence. Thanks to information provided by the International Monetary Fund, De Haan and Kooi (2000) developed a new indicator for central bank independence based on the turnover rate (TOR) of central bank governors. This indicator spans the 1980 through 1989 for 82 emerging countries. They selected these years because they wanted to compare their results to those of Cukierman et al. (1992). Additionally, they sought to assess the validity of earlier research's conclusions about the connection between central bank independence and macroeconomic indicators (inflation, economic growth etc.). The following factors were utilized. De Haan and Kooi's TOR, ad hoc transfers from the government, openness (total of import and export in relation to GDP), log of per capita income in 1980, exchange rate regime (dummy), and debt-to-GDP ratio. Their econometric calculations indicated a negative correlation between CBI and inflation, but it's crucial to note that they only arrived at this conclusion after included high inflation countries. They next conducted sensitivity studies, and as a result of these analyses, they were unable to find a connection between their measure of central bank independence and economic growth. When they compared the findings of their analysis with those of Cukierman et al. (1992), they discovered that their conclusions were the exact reverse of those made by Cukierman et al (1992).

Table 2: Literature Review Table (Overview of the reviewed studies)

Authors	Variables	Relation with Central Bank Independence	Findings
Cukierman, Webb, and Neyapti (1992)	Inflation	Negative (-)	Legal independence is an important determinant of inflation in industrial countries, while in developing countries, governors' turnover is strongly and positively associated with inflation. An inflation-based index of overall central bank independence contributes significantly to explaining cross-country variations in the rate of inflation
	Real Interest Rates	Negative (-)	
Alesina and Summers (1993)	Inflation	Negative (-)	Central bank independence can help enforce low inflation equilibrium and reduce the level and variability of inflation.
	Real Interest Rates	Negative (-)	
Dinçer, N., & Eichengreen, B. (2014)	Past Inflation	Negative (-)	The indices show that there has been steady movement in the direction of greater transparency and independence over time. The paper shows that outcomes such as the variability of inflation are significantly affected by both central bank transparency and independence. Central bank independence is influenced by a range of institutional factors, and that understanding these factors is important for assessing the effectiveness of monetary policy.
	Trade Openness	Positive (+)	
	Financial Depth	Positive (+)	
	GDP per Capita	Negative (-)	
	Accountability	Negative (-)	
	IMF Lending	Positive (+)	
	Democracy	Negative (-)	
	Rule of Law	Negative (-)	
	Political Stability	Negative (-)	
	Government Effect	Negative (-)	
Masciandaro, Romelli (2018)	Governor and Central Bank Board	Positive (+)	The degree of central bank independence is an endogenous variable and stresses the relevance of economic and political drivers in shaping the incentives of governments to maintain or reform the governance of these public administrations. The paper also confirms the importance of the independence of these public administrations beyond the standard correlation between central bank independence and inflation.
	Monetary Policy and Conflict Resolution	Positive (+)	
	Monetary Policy Objective	Positive (+)	

	Limitations and Lending to the Government	Negative (-)	
	Central Bank Finances	Positive (+)	
	Reporting and Accountability	Positive (+)	
Bodea and Hicks (2015)	Logarithm of the Change in Money Supply	Negative (-)	The empirical results show that CBI in democracies should be directly reflected in lower money supply growth and, besides being more disciplinarian, it also ensures a more robust money demand by reducing inflation expectations and, therefore, inflation. The results support a discipline effect conditioned by political institutions, as well as a credibility effect.
	Logarithm of the Inflation	Negative (-)	
De Haan and Kooi (2008)	Government Surplus	No Relation	The study concludes that this proxy for CBI is related to inflation, only if the high inflation countries are included in the sample The study does not find evidence that CBI is robustly related to economic growth
	Average Growth Rate	No Relation	
	Inflation	Negative (-)	
Baumann et. Al (2020)	Inflation	No Relation	No strong support for the hypothesis that having an independent central bank for a long period of time necessarily lowers inflation is found
Hayo (1997)	Inflation	Negative (-)	Central bank independence alone is insufficient to explain low inflation
Klomp and De Haan (2010)	Inflation	Negative (-)	There is a significant genuine effect of central bank independence (CBI) on inflation. The effect of CBI on inflation is significantly negative.
Jacome and Vazquez (2008)	Inflation	Negative (-)	There is a negative relationship between central bank independence (CBI) and inflation in a sample of 24 Latin American and Caribbean countries during 1985-2002. Evidence of causal relationship running from CBI to inflation is only supported by the results associated with the measure of effective (actual) CBI.
Berger et. Al. (2000)	Inflation	Negative (-)	The negative relationship between CBI and inflation is quite robust.
Grilli et. al. (1991)	Inflation	Negative (-)	More independent central bank would bring low inflation.

	Real Output Growth	No relation	Independent central bank had no significant positive or negative effect on real output growth or variability.
Crowe and Meade (2008)	Inflation	Negative (-)	The results of the study suggest a significant and negative effect of central bank independence on inflation. If a central bank is not independent, the country is likely to exhibit inflationary tendencies.
Nagac and Rizvanoghlu (2018)	Real Output Growth	Positive (+)	A negative correlation is found between Central bank independence and GDP Deflator A positive correlation is found between Central bank independence and Financial Market Deepening A positive correlation is found between Central bank independence and Real Output Growth
	Financial Market Deepening	Positive (+)	
	GDP Deflator	Negative (-)	
Neyaptı (2001)	Inflation	Negative (-)	A positive relationship was found between financial depth measured by M2/GDP and central bank independence, as well as the ratio of time deposits to GDP and central bank independence. A negative relationship was found between central bank independence and inflation. A positive relationship was found between central bank independence and both the ratio of budget deficits to GDP and the growth rate of real output.
	Budget Deficit/GDP	Positive (+)	
	Real Output Growth Rate	Positive (+)	
	Financial Market Deepening	Positive (+)	
	Time Deposits/GDP	Positive (+)	

CHAPTER 4: EMPIRICAL ANALYSIS

4.1. THE MODEL

Based on the studies given in the literature review section, it is understood that the following relationships should be considered to analyze the relationship between central bank independence and stability.

- Relationship between central bank independence and inflation.
- Relationship between central bank independence and financial depth, trade openness, and GDP per capita.
- Relationship between central bank independence and government debts and current account balance.
- Finally, the relationship between central bank independence and institutional indicators.

Low inflation is expected to have a positive effect on the Central bank independence Index. The necessity of an independent Central Bank for ~~its~~ sustainability of lower inflation is a fundamental view. Since an independent Central Bank, which is far from political pressures and uses monetary policies effectively, is required in a country with high financial depth, it is expected that high financial depth will have a positive effect on Central bank independence. Therefore, an increase in financial depth can positively affect Central bank independence. Moreover, in a country where trade openness is high, it can be said that there is an economic situation where interest rates are relatively lower and investments are encouraged. In a country where trade is revitalized through investments, the need for a Central Bank that determines interest rates independently and takes predictable decisions will increase in order for this process to continue in a stable manner. Therefore, an increase in trade openness is expected to positively affect Central bank independence. Furthermore, an increase in GDP per capita is expected to positively affect Central bank independence. In countries where stable monetary policies are used and economic growth is achieved organically, controlling inflation increases stability and confidence. With the increase in economic activity due to increasing stability and trust, economic growth is achieved and the gross domestic product per capita shows an increase. In order for this increase to continue in a stable manner, the need for a Central Bank that keeps inflation under control becomes more evident. For these reasons, it is expected that increasing GDP will increase Central bank independence. The relationship between government debts and Central bank independence has a

complex structure. On one hand, the existence of an autonomous central bank typically contributes to upholding fiscal responsibility. Monetary policy tools are utilized by central banks to regulate inflation, which can generally lead to sustaining the debt-to-GDP ratio. Conversely, a high debt-to-GDP ratio can restrict the policy alternatives of the central bank. For example, a government facing a substantial debt burden may request reduced interest rates from the central bank or compel it to engage in money printing to finance the debts. Such scenarios may pose a threat to the autonomy of the central bank.

$$CBIE_{it} = \alpha + \beta_1 PastInflation_{it} + \beta_2 Depth_{it} + \beta_3 Openness_{it} + \beta_4 lnGDPpc_{it} + \varepsilon_{it} \quad (1)$$

$$CBIE_{it} = \psi + \gamma_1 PastInflation_{it} + \gamma_2 Depth_{it} + \gamma_3 Openness_{it} + \gamma_4 lnGDPpc_{it} + \gamma_5 CabtoGDP_{it} + \varepsilon_{it} \quad (2)$$

$$CBIE_{it} = \chi + \delta_1 PastInflation_{it} + \delta_2 Depth_{it} + \delta_3 Openness_{it} + \delta_4 lnGDPpc_{it} + \delta_5 CabtoGDP_{it} + \delta_6 GovdebttoGDP_{it} + \varepsilon_{it} \quad (3)$$

$$CBIE_{it} = \omega + \theta_1 PastInflation_{it} + \theta_2 Depth_{it} + \theta_3 Openness_{it} + \theta_4 lnGDPpc_{it} + \theta_5 CabtoGDP_{it} + \theta_6 GovdebttoGDP_{it} + \theta_7 Institutional\ Indicators_{it} + \varepsilon_{it} \quad (4)$$

In the models above, $CBIE_{it}$ represents the Central bank independence Index value of country i at time t, $PastInflation_{it}$ -indicates the previous period's inflation value at time t, $Depth_{it}$ is the financial depth, $Openness_{it}$ is the trade openness, $lnGDPpc_{it}$ is the logarithmic form of GDP per capita, $CabtoGDP_{it}$ is the ratio of current account balance to GDP, $GovdebttoGDP_{it}$ is the ratio of central government debt to GDP. The institutional indicators are given respectively. $Corruption_{it}$ is the corruption control, $GovEffect_{it}$ is the effectiveness of the government and administration, $PolStability_{it}$ is the political stability, $RegQuality_{it}$ is the quality of regulations, $RuleofLaw_{it}$ is the rule of law, and $VoiceandAcc_{it}$ represents voice and accountability, and ε_{it} represents the error term.

Model 1 is the fundamental model, containing the primary independent variables that form the basis of this study. In this model, the effects of main independent variables, considered as indicators of stability in the economy, on Central bank independence are intended to be observed. In subsequent Models 2 and 3, the ratio of Current Account Balance to GDP and the ratio of Central Government Debt to GDP are added separately. There are a total of 9 models.

Starting from the 4th model, each institutional indicator is added to the model, and in the next model, it is removed and replaced with another institutional indicator. It is intended to observe whether adding these indicators to the model has a significant effect and how these indicators affect Central bank independence.

4.2. DATA

In this section, a balanced panel dataset covering the years 2008 to 2017 and consisting of 51 countries was utilized to examine the relationship between central bank independence and stability indicators. There are two main reasons for this. Firstly, the primary reason is to examine the relationship after the increased demand for central bank independence and stability following the Global Financial Crisis. The secondary reason is the motivation to work with a strongly balanced panel dataset where all variables used in the study have complete data even for a single year. These 51 countries are Albania, Angola, Azerbaijan, Bolivia, Botswana, Brazil, Bulgaria, Burundi, Cambodia, Cameroon, Chile, China, Colombia, Costa Rica, Croatia, Czech Republic, Dominican Republic, Georgia, Ghana, Guatemala, Hungary, India, Indonesia, Jamaica, Japan, Jordan, Kenya, Kuwait, Mauritius, Mexico, Morocco, Nepal, Niger, Nigeria, Norway, Paraguay, Peru, Philippines, Poland, Romania, Saudi Arabia, Senegal, Singapore, Sweden, Thailand, Turkey, Uganda, Ukraine, United Kingdom, Vietnam, Zambia, respectively. Data on the countries' regions and income levels were obtained from the World Bank Database. The Central Bank Independence Index, an annual dataset, was sourced from Davide Romelli's publication titled 'The Political Economy of Reforms in Central Bank Design: Evidence from a New Dataset' in 2022. The Central bank independence Index is a range between 0 and 1, representing an index value. Romelli's dataset originally covered 172 countries and the years from 1972 to 2017. The data is divided into six main sections: Governor and Central Bank Board, Monetary Policy and Conflicts Resolution, Limitations on Lending to the Government, Financial Independence, and Reporting and Disclosure. All sections carry equal weight, accounting for 16.7% each. Due to data availability limitation in other variables, only 51 of the 172 countries are used in the analysis.

The annual inflation data was obtained from the World Bank Database. It is derived from the annual changes in the consumer price index of countries. The consumer price index, which is a gauge of inflation, demonstrates the yearly percentage alteration in expenses for an average consumer to provide a collection of commodities and amenities that may remain constant or vary at predetermined periods, such as annually. Typically, the Laspeyres method is employed. As this variable increases, it is observed that the average prices of goods and services within a country increase throughout the year.

The Financial Depth data was also obtained from the World Bank Database. The Financial Depth data is presented in an annual format covering the period from 2008 to 2017. The representation of Financial Depth is done using the M2/GDP ratio. M2 encompasses a broad spectrum of monetary aggregates, including M1 (which constitutes the currency in circulation and demand deposits), savings and time deposits, money market funds, repurchase agreements, and other closely related financial vehicles. GDP represents the total economic output within a country. The ratio of M2 to GDP offers insight into the financial system's ability to provide liquidity and the level of integration of financial instruments within the economy. As this ratio increases, the financial depth within the economy increases.

The Trade Openness data was also obtained from the World Bank Database. Trade Openness data is in annual format. The representation of Trade Openness is typically done using the widely accepted ratio of (Imports + Exports) / GDP in the economics literature. The aforementioned indicator serves as a representation of an economy's magnitude of foreign trade, as well as the influence that foreign trade exerts on its overall economic framework.

Another independent variable is Per Capita Gross Domestic Product (GDP) whose data is also obtained from the World Bank Database. Per Capita GDP is calculated by dividing the country's population in a given year by its GDP. The data is presented in an annual format.

The Central Government Debt data is sourced from the World Bank Database and is presented in an annual format. Debt refers to the complete inventory of direct fixed-term contractual obligations of the government to external parties that remain unpaid on a specific date. This encompasses both domestic and foreign obligations, such as currency and monetary deposits, securities other than shares, and loans. The government's gross liabilities are the aggregate amount owed, which is reduced by the government's equity and financial derivatives. As debt is a stock, rather than a flow, its quantification is based on a given date, usually the final day of the fiscal year. An increase in this ratio indicates an increase in government debt.

The Current Account Balance data was also obtained from the World Bank Database. This variable is also in annual format covering the years 2008 to 2017. The current account balance, composed of the total net exports of goods and services, as well as

net primary and secondary income, is a crucial economic indicator. This variable is calculated by dividing the current account balance by GDP.

The data for Control of Corruption, Government Effectiveness, Political Stability and Absence of Violence/Terrorism, Regulatory Quality, Rule of Law, and Voice and Accountability were obtained from the World Bank Database under the World Governance Indicators category. All variables are in annual format. The percentile rank denotes the position of a particular country among all the countries included in the comprehensive indicator, with 0 representing the lowest rank and 100 representing the highest rank. The measurement of Control of Corruption is a means of assessing the degree to which public power is utilized for personal gain, encompassing both minor and major forms of corruption, along with the appropriation of the government by privileged groups and private interests.

The construct of Government Effectiveness pertains to the perceptions of the excellence of public services, the caliber of the civil service and its degree of autonomy from political coercion, the quality of policy formulation and execution, and the believability of the administration's commitment to these policies.

The measurement of Political Stability and Absence of Violence/Terrorism evaluates the perceptions regarding the probability of political instability and/or politically-driven violence, inclusive of terrorism. The construct of Regulatory Quality pertains to the discernment of the government's capacity to devise and carry out effective policies and regulations that facilitate and encourage the growth of the private sector.

The concept of Rule of Law pertains to the perceptions of the degree to which individuals have faith in and comply with societal regulations. This includes the efficacy of contract implementation, property rights, law enforcement, and judicial systems, as well as the probability of criminal activities and violence.

The concept of Voice and Accountability encapsulates the various perceptions regarding the degree to which the populace of a given nation is empowered to partake in the process of electing their respective government. Additionally, this encompasses the freedoms of expression and association, along with the existence of an unrestricted media.

Table 3: Variables of the Thesis

Full Variable Name	Abbreviation	Measurement Unit	Data Source
Dependent Variable			
Central bank independence Index	CBIE	Central bank independence Index (Scale from 0 to 1)	Romelli (2022)
Independent Variables			
Inflation, Consumer Prices (Annual %)	Past Inflation	First lag of percentage change in consumer price index	World Bank Database
Financial Depth	Depth	Ratio of M2 to GDP	World Bank Database
Trade Openness	Openness	Ratio of Import plus Export to GDP	World Bank Database
Logarithm of Gross Domestic Product per Capita	lnGDPpc	Logarithmic form of ratio of GDP to the total population of a country in current US Dollars.	World Bank Database
Current Account Balance to GDP	CABtoGDP	The Ratio of Current Account Balance to GDP	World Bank Database
Central Government Debt to GDP	GovdebttoGDP	The ratio of debt of government to GDP	World Bank Database
Control of Corruption Percentile Rank	Corruption	Percentile Rank (Scale from 0 to 100)	World Bank Database
Government Effectiveness	Goveffect	Percentile Rank (Scale from 0 to 100)	World Bank Database
Political Stability and Absence of Violence/Terrorism: Percentile Rank	Polstability	Percentile Rank (Scale from 0 to 100)	World Bank Database
Regulatory Quality: Percentile Rank	Regquality	Percentile Rank (Scale from 0 to 100)	World Bank Database
Rule of Law: Percentile Rank	Ruleoflaw	Percentile Rank (Scale from 0 to 100)	World Bank Database
Voice and Accountability: Percentile Rank	Voiceandacc	Percentile Rank (Scale from 0 to 100)	World Bank Database

The empirical findings in the literature clearly show a relationship between Central bank independence Index data and the stability indicators of countries. In relevant studies, variables such as inflation, which are commonly used, along with the country's financial depth, trade openness, debt stock, GDP per capita, are included in the analyses. Therefore, a similar construction will be followed while defining the structure of the models to be used in the empirical study for 51 countries. The summary table above in the literature review section provides how the Central bank independence Index is related to which variables. The model will be explained in the following section.

4.3. ANALYSIS METHOD

Regression analysis encompasses a collection of statistical techniques that explore the correlation between multiple independent variables and a dependent variable. Many

techniques for panel data analysis are, in fact, specialized variants of regression analysis. In economics, data with various characteristics and frequencies are presented depending on the intended goal and the situation at hand.

In traditional regression models, the examination of either time series or cross-sectional data is customary. In the context of panel data analysis, however, it is possible to combine both time series and cross-sectional data into a single dimension. As a result, the explanatory power of independent variables on dependent variables is enhanced, while reliability and degrees of freedom are increased simultaneously, thereby reducing uncertainty. In summary, panel data analysis is a promising method that offers superior analytical results.

For instance, a normal regression method could be used to analyze Italy's economic growth from 2011-2022, or a model could be developed concerning factors affecting Italy's economic growth rate in 2011. On the other hand, when an analysis is desired concerning the factors affecting the economic growth rates of Italy, Greece, and Spain between 2011 and 2022, normal regression analysis will not suffice. In this case, panel data analysis is required.

There are two different types of models in linear panel data models. The first model type is the fixed effects model. The second model type is the random effects model. In the fixed effects model, each cross-section has its invariant value. If the changes amongst factors affecting the dependent variable are controlled by a constant, it is possible to speak of a fixed effects model.

If the number of cross-sections is large, the fixed effects model may lose its explanatory power, and in this case, a random effects model is needed. In the random effects model, the coefficient values of independent variables represent the average value of all cross-section constants.

Whether to use a fixed effects model or a random effects model is examined through the Hausman Test, proposed by Jerry Hausman in 1978. It is a test indicating which model will be more effective (Hausman, 1978).

Which model to use is determined according to the result of the Hausman test. The tests to examine the model according to the determined model also vary. In the fixed effects model, the Pesaran and Modified Wald Test can be applied. If the random effects model

comes out to be effective, then the Langrange Multiplier Test can be applied (Pesaran, 2007).

The Pesaran test measures the cross-section dependence at the model base in the model. The null hypothesis means that the residuals are not correlated. The Modified Wald test measures heteroscedasticity, which is the problem of changing variance in the fixed effects model. It is expected that the variances of the error terms are constant in panel models. If there is a problem of changing variance in the error terms, the T and F statistics of the model will be incorrect. The null hypothesis states that the variance of the error terms is equal to zero. In addition, autocorrelation tests are performed in panel models. For this, there is an autocorrelation test proposed by Wooldridge (2002). Autocorrelation refers to a situation where there is a relationship between error terms. If there is a relationship between the error terms, i.e., autocorrelation, the variance of the error terms is calculated incorrectly.

Table 4: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
CBIE	510	0,66	0,17	0,24	0,86
Inflation	510	5,19	5,24	-2,25	48,69
PastInflation	459	5,25	5,23	-2,25	48,70
FinancialDepth	510	64,95	42,37	11,46	244,02
TradeOpenness	510	80,09	50,76	20,72	437,33
LnGDPpc	510	8,57	1,27	5,27	11,54
Cabtogdp	510	- 1,10	8,73	- 21,97	45,45
Govdebttogdp	510	45,01	34,88	1.562	233.528
Corruption	510	47,26	25,82	1,42	99,52
Goveffect	510	52,66	23,30	7,21	100,00
Polstability	510	41,87	25,78	2,84	99,04
Regquality	510	55,68	21,96	8,74	100,00
Ruleoflaw	510	49,19	24,51	7,21	100,00
Voiceandacc	510	48,43	23,88	2,35	100,00

In the dataset, excluding "Past Inflation" which includes the first lag value of inflation, the number of observations for all variables is 510. The dependent variable, the Central bank independence Index, as previously mentioned, takes values between 0 and 1. The closer to 0, the lower the independence of the Central Bank. Similarly, the closer to 1, the higher the independence of the Central Bank. The smallest value for this variable in the dataset is 0.24, and the highest value is 0.86. Past Inflation refers to the inflation of the previous period from the time t of inflation. It is the first lag value of inflation. Since there are 51

countries in total and the first lag value is taken, there are a total of 459 observations. The lowest value is-2.25, and the highest value is 48.70.

Financial Depth represents the ratio of broad money supply to GDP. The smallest value is 11.46 and the highest value is 244.02. Trade Openness means the ratio of the total imports and exports in the economy to GDP. The smallest value is 20.72, and the highest value is 437.33. lnGDPpc represents the logarithmic version of GDP per capita. It has the lowest value of 5.27 and the highest value of 11.54. The variable CABtoGDP represents the ratio of the Current Account Balance to GDP. The lowest value of this variable is -21.97, and the highest value is 45.45. GovdebttoGDP represents the ratio of the total debt of the Central Government to GDP. This variable has the lowest value of 1.562 and the highest value of 233.528 in the dataset.

Corruption, Government Effectiveness, Political Stability, Regulatory Quality, Rule of Law, and Voice and Accountability take values between 0 and 100. In terms of these variables, the closer to 0, the worse the country's institutional indicators, and the closer to 100, the better the institutional indicators. The variable Corruption represents the control of corruption in the country. The lowest value is 1.47, and the highest value is 99.52. GovEffect represents the effectiveness of the government. The lowest value is 7.21, and the highest value is 100. PolStability stands for political stability in the country and has the lowest value of 2.84 and the highest value of 99.04. Regquality means regulatory quality. The lowest value of this variable is 8.74, and the highest value is 100. Ruleoflaw stands for the rule of law, and the lowest value of this variable is 7.21, and the highest value is 100. The variable Voiceandacc represents voice and accountability. The lowest value of this variable is 2.35 and the highest value is 100.

The correlations between all these variables are given in the correlation matrix in Appendix 1. The correlations of the variables with a higher relationship between them are higher. Correlation can be in two ways; positive correlation and negative correlation. If the relationship between the two variables is positive and strong, it is closer to 1. However, if there is a strong and negative relationship, then it will be closer to -1. The correlation between the two variables being close to 0 means that the relationship is not high. According to the correlation matrix, the correlation between the dependent variable Central bank independence and the independent variables is not high. Only a correlation of-0.41 is observed between Financial Depth and Central bank independence. The correlation of the dependent variable with all the remaining independent variables is at a

level lower than 0.41. On the other hand, the correlation of 0.59 between Financial Depth and Trade Openness is striking. In addition, the correlation between logarithmic GDP per capita and the ratio of the Current Account Balance to GDP is noteworthy at 0.50. The correlations between the variables specified as institutional indicators are considerably high. For example, the correlation between Government Effectiveness and Corruption control is 0.91. However, since none of these variables are in the same model, they will not create a multicollinearity problem in the models.

4.4. EMPIRICAL ANALYSIS

At the beginning of the econometric analysis process, the models were examined and the Hausman test was applied to the fixed effects and random effects models to determine which model structure would be more appropriate. According to the results of the Hausman test, it was concluded that the Fixed Effects method would be more effective for all of the nine models. The robust results and Hausman test results of all models are given in Table 5.

In all nine models, the Central bank independence was established as the dependent variable. The first model is referred to as the base model, and its Pesaran test result is 14.79 with a P-value of 0. This suggests the presence of cross-sectional dependency in the model. Subsequently, the result of the Modified Wald test conducted to measure heteroskedasticity is 3.6 with a P-value of 0. Furthermore, the result of the Woolridge autocorrelation test is 3091.07, with a P-value of 0. All these results indicate the presence of cross-sectional dependency, heteroskedasticity, and autocorrelation in the model. To overcome all these issues, the Driscoll & Kraay estimator was used. The Driscoll & Kraay estimator is a robust estimator that solves the problems of fixed effects models that have autocorrelation, heteroskedasticity, and cross-sectional dependency. According to the Driscoll & Kraay robust results, the model's F-test statistic is 8.25, and the model is statistically significant with a significance level of 0.006.

According to the robust results of the first model, as expected, there is a negative relationship between Past Inflation and Central bank independence. Rising inflation rates exert negative pressure on Central bank independence. There is a low but positive correlation between Financial Depth and Central bank independence. Although, a positive relationship was expected between Central bank independence and financial depth, the financial depth is insignificant. Thus, it cannot be said that financial depth has an impact on CBIE. A negative relationship was found between trade openness and

Central Bank Independence Index. In this analysis, which started from the years of the Global Financial Crisis and extended to 2017, trade openness may limit Central bank independence in countries tightly integrated with international financial markets due to external shocks and exchange rate volatility. This explains the negative relationship. Also, the trade openness is statistically significant so, there is an negative impact of trade openness on Central bank independence. A negative correlation was found between GDP per capita and Central bank independence. Since, the variable is not statistically significant, it cannot be mentioned that there is an impact of GDP per capita on CBIE. "Past Inflation shares similar results with studies such as Cukierman, Webb, and Neyapti (1992), Alesina and Summers (1993), Dinçer and Eichengreen (2014), Bodea, & Hicks (2015), De Haan and Kooi (2000), Hayo (1997), and Klomp and De Haan (2010). Financial Depth has similar results with studies like Dinçer and Eichengreen (2014), Nagac and Rizvanoghlu (2018), and Neyaptı (2001). GDP per capita has similar results with Dinçer and Eichengreen (2014), and different results with studies like Nagac and Rizvanoghlu (2018), Neyaptı (2001), and Grilli et al. (1991). Trade openness, contrary to expectation, shows different results from Dinçer and Eichengreen (2014).

In the second model, the ratio of the Current Account Balance to GDP was added to the basic model. In the model, the Pesaran test result was determined as 15.11, the Modified Wald Heteroskedasticity test result as 8.6, and the Woolridge Autocorrelation test result as 2373.64. All these tests have p-values equal to 0. Therefore, the Driscoll & Kraay estimator was used in this model as well. The directions of relationships in the model are the same as in the first model, and the added variable, the Current Account Balance, has a positive relationship with Central bank independence. The robust model's F-statistic is 7.39, and the p-value is 0.0072, making it statistically significant. The Current Account Balance (CAB) serves as an expression of a nation's trade, financial, and industrial activities, which are subject to a variety of dynamics including domestic economic conditions, policy structures, and external economic factors. Within the scope of these factors, the CAB could be interpreted as a determinant of central bank independence. In general, the CAB is viewed as a gauge of a country's savings and investment equilibrium, which is also linked to central bank policies. Specifically, the distribution of savings and investments is affected by the central bank's monetary and exchange rate policies, thereby influencing the current account balance. When the current account balance (CAB) is negative, it is generally indicative of a country's increased reliance on foreign financing. Countries with high current account deficits often face pressure to implement specific policies by their central bank to increase or stabilize foreign exchange reserves.

This situation can negatively impact central bank independence, as policies may be focused more on financing the current account deficit rather than achieving broader macroeconomic goals. Consequently, there is a general expectation of a negative correlation between CAB and central bank independence. On the other hand, in the presence of a current account surplus (when CAB is positive), which contributes to overall economic stability, there is likely to be less pressure on central bank independence. In this scenario, a positive correlation is expected between CAB and central bank independence. Although there is a positive correlation between CAB and CBIE, the variable is not found significant. Thus, it is inappropriate to discuss that CAB has an impact on CBIE.

In the third model, the Central Government Debt to GDP variable was added to the second model. In the model, the Pesaran test result was determined as 20.171, the Modified Wald Heteroskedasticity test result as 4.1, and the Woolridge Autocorrelation test result as 2348.89. All these tests have p-values equal to 0. Therefore, the Driscoll & Kraay estimator was used in this model as well. The direction of relationships in the model remains the same, and the relationship between the added variable Central Government Debt to GDP and Central bank independence is positive. This could be associated with situations where governments increase their debt, necessitating effective use of monetary policy to maintain economic stability and avoid interest rate hikes. The F-statistic of the model is 1037.92 and the significance level of the model is 0. With the addition of Central Government Debt to GDP to the model, the significance level of the model has increased compared to previous models. Government Debt, while having a similar effect to Neyapti (2001), the sign is positive, contrary to expectation.

In the fourth model and all subsequent models, the first six independent variables, Past Inflation, Financial Depth, Trade Openness, GDP per capita, Current Account Balance, and Central Government Debt will remain the same, and the institutional variables to be added to these variables will change in each model. In the fourth model, the variable added to the model as an indicator of institutionalization is Control of Corruption. The model was tested for cross-sectional dependency, autocorrelation, and heteroskedasticity. The Pesaran test result is 14.224, the Modified Wald test result is 5.3, and the Woolridge Autocorrelation test result is 2545.43. All test p-values, indicating the significance level, are 0. This means that this model also has cross-sectional dependency, heteroskedasticity, and autocorrelation problems. Therefore, the Driscoll & Kraay estimator was used. There is a positive relationship between the added Control of

Corruption variable and Central bank independence. This is an indicator that there will be a more independent Central Bank as a result of increasing controls against corruption in countries. Also, this statistically significant Control of Corruption has a positive effect on Central bank independence. The F-test result of the model is 317.48, and the p-value indicating the significance level of the model is 0. The model is statistically significant as a whole.

In the fifth model, Government Effectiveness is included as institutional variables. The Pesaran test result of the model is 20.863, the Modified Wald test result is 5.3, and the Woolridge Autocorrelation test result is 1979.43. All these tests have p-values equal to 0. All these problems exist in the model. Therefore, the Driscoll & Kraay estimator was used in this model as well. A negative relationship was found between Government Effectiveness and Central bank independence. This shows that as government effectiveness increases in a country, pressures on the Central Bank may increase. However, the related variable is not statistically significant. The F-test result of the model is 255.87, and the p-value indicating the significance level of the model is 0. The model is statistically significant as a whole.

In the sixth model, Government Effectiveness was removed from the model and replaced with Political Stability. The Pesaran test result of the model was 20.313, the Modified Wald test result was 5.3, and the Woolridge autocorrelation test result was 2545.88. All tests have a p-value of 0. Therefore, cross-sectional dependency, autocorrelation, and heteroskedasticity problems exist in this model, and the Driscoll & Kraay robust estimator was used. The direction of the relationship between other variables and Central bank independence in the model did not change. However, the Central Government Debt to GDP has become statistically significant at a 90% confidence interval in this model. In addition, Political Stability, which was added to the model, is in a negative relationship with Central bank independence, although it is not statistically significant. The F-test result of the model is 1468.51 and the p-value is 0. The model is statistically significant as a whole.

In the seventh model, the variable Regulatory Quality was included in the model as an institutional variable. The Pesaran test result of the model was 19.53, the Modified Wald test result for Heteroskedasticity was 4.4, and the Woolridge Autocorrelation test result was 2538.87. All p-values indicating the degree of significance of the tests are 0. All problems exist in the model and the Driscoll & Kraay estimator was used. The Regulatory

Quality, which was added to the model, seems to have a positive impact on Central bank independence. The positive impact could be due to the need for higher Central bank independence to maintain stability in the markets as the private sector grows and evolves with government regulations. However, the variable is not significant in the model. The F-test value of the model is 733.52 and the p-value is 0. The model is statistically significant as a whole.

In the eighth model, the variable Rule of Law was added instead of Regulatory Quality. The Cross-Section Dependency Pesaran test result of the model is 18.25, the Modified Wald Heteroskedasticity test result is 2.4, and the Woolridge Autocorrelation test result is 2380.37. All p-values of the tests are equal to 0. All these problems exist in the model. Therefore, the Driscoll & Kraay robust estimator was used. The Rule of Law indicator used in the model is seen to decrease Central bank independence, rather than increase it. A negative correlation may imply that despite the prevalence of a high rule of law in certain countries, the central bank remains susceptible to political pressures. It is possible for political authorities to endeavor to exert influence on the central bank's policies or curtail its independence. This can result in a negative correlation even in countries with robust legal frameworks. However, the variable is not statistically significant. The F-test value of the model is 4142.98. The p-value of the F test, indicating the significance, is 0. The model is statistically significant as a whole.

In the ninth and final model, the variable Voice and Accountability was added to the model instead of Rule of Law. The Pesaran test result of the model is 9.68, the Modified Wald Heteroskedasticity test result is 7.3, and the Woolridge Autocorrelation test result is 2052.9. The p-values of the tests are 0 and all the problems tested exist in this model as well. Therefore, the Driscoll & Kraay robust estimator was used in this model as well. The Voice and Accountability variable added to the model has a positive relationship with Central bank independence. The discovery of a positive correlation between Voice and Accountability and Central bank independence in the present analysis suggests that in nations where democratic principles are more robust and government accountability is elevated, central banks tend to possess greater autonomy. However, the variable is not statistically significant. The F-test value of the model is 421.88, and the p-value is 0. Therefore, the model is statistically significant as a whole.

Table 5: Econometric Results

VARIABLES	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4	(5) Model 5	(6) Model 6	(7) Model 7	(8) Model 8	(9) Model 9
PastInflation	-0.0014*	-0.0015*	-0.0014*	-0.0014*	-0.0015*	-0.0014*	-0.0014*	-0.0015*	-0.0017*
	(0.0007)	(0.0008)	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0008)
FinancialDepth	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
TradeOpenness	-0.0002**	-0.0003**	-0.0002**	-0.0002**	-0.0002**	-0.0002**	-0.0002**	-0.0002**	-0.0003***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
LnGDPpc	-0.0049	-0.0088	-0.0060	-0.0072	-0.0053	-0.0054	-0.0067	-0.0028	-0.0126
	(0.0073)	(0.0089)	(0.0097)	(0.0102)	(0.0085)	(0.0089)	(0.0091)	(0.0082)	(0.0144)
Cabtogdp		0.0005	0.0005	0.0006	0.0005	0.0006	0.0005	0.0005	0.0006
		(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0005)	(0.0004)	(0.0004)	(0.0004)
Govdebttogdp			0.0004	0.0004	0.0004	0.0003*	0.0004	0.0004*	0.0003
			(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Corruption				0.0008**					
				(0.0003)					
Goveffect					-0.0004				
					(0.0005)				
Polstability						-0.0001			
						(0.0001)			
Regquality							0.0002		
							(0.0003)		
Ruleoflaw								-0.0006	
								(0.0003)	
Voiceandacc									0.0021
									(0.0013)
Constant	0.7253***	0.7539***	0.7152***	0.6888***	0.7256***	0.7136***	0.7100***	0.7131***	0.6794***
	(0.0597)	(0.0711)	(0.0731)	(0.0696)	(0.0839)	(0.0703)	(0.0789)	(0.0719)	(0.0582)
Observations	459	459	459	459	459	459	459	459	459
Number of groups	51	51	51	51	51	51	51	51	51
Hausman Test Chi Square	10.45	19.44	24.61	26.12	24.67	24.63	24.66	26.47	22.91
Hausman Test P-values	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R-Squared	0.03	0.03	0.04	0.05	0.04	0.04	0.04	0.04	0.09

CONCLUSION

The concept of central bank independence is a crucial field in economic theory. This idea typically refers to the ability of the central bank to determine and implement monetary policies independently from direct governmental interference.

An independent central bank can usually be more effective in managing inflation and economic stability since their policies are typically based on long-term economic goals rather than political interests or short-term economic objectives. Moreover, independent central banks are generally considered more reliable and stable as their policies are often more predictable and consistent.

David Ricardo first proposed the idea of central bank independence in 1824. However, the concept of central bank independence has usually intensified during periods of macroeconomic instability, particularly during times like the 1973 oil crisis and high inflation in the 1980s. During these periods, it has been observed that independent central banks have the ability to control inflation and maintain economic stability. Especially during the 2008 crisis and the period thereafter, the importance of Central Banks' independence has been seen to increase significantly due to the liquidity and financial stability problems the world was facing.

The primary responsibility of central banks is to protect the value of the national currency and ensure price stability in the long term. Price stability is drawing significant attention within the strategy of inflation targeting. For inflation targeting, it is essential for a central bank to be independent. This requires harmony between the central bank and the government. Transparency, accountability, and reliability are critical factors for successful inflation targeting.

Past research has predominantly focused on the effects of Central Bank Independence on stability indicators. This area of literature is well-studied and has numerous contributions. However, the impact of stability and institutional indicators on Central Bank Independence has been less examined. The literature is not sufficiently enriched in this particular area. This thesis aims to add to the limited number of studies in this field and enrich this segment of the literature. Additionally, through this study, policy-makers can better understand which stability indicators are important in influencing Central Bank Independence. This study adds two important variables, Current Account Balance and Total Government Debt, which were not considered in most past works.

This study uses a newer and more comprehensive dataset compared to other articles that have worked in this field in the past. The Central Bank Independence Index used is created by Romelli (2022), which is a more comprehensive index than the Cukierman, Webb, and Neyapti (1992) index that is frequently used in the literature. Furthermore, this study analyzes 51 countries between the years 2008- 2017. This timeframe is much more recent compared to many articles available in the literature. It is important to observe how stability and institutional indicators have affected Central Bank Independence, particularly after the global crisis.

This study provides a comprehensive examination of the impact of stability indicators on central bank independence in the context of a variety of economic and institutional variables. The results reveal a generally negative correlation of Past Inflation, Trade Openness, GDP Per Capita, Government Effectiveness, Political Stability, and Rule of Law on central bank independence. Additionally, there is a positive correlation of Financial Depth, Current Account Balance/GDP, Central Government Debt/GDP, Corruption Control, Regulatory Quality, and Voice and Accountability on central bank independence. However, except for Corruption Control, no institutional indicators were found to have a statistically significant effect on Central bank independence. This might be because Central bank independence in countries is already sufficiently high.

High past inflation has been seen as a significant determinant of central bank independence. In countries with a high inflation history, policymakers could place more emphasis on central bank independence to prevent future instabilities. Also, it has been observed that the trade openness ratio of countries also affects central bank independence. Countries with more open economies could be more sensitive to external shocks and, therefore, might support central bank independence more.

the existence of variables showing a positive correlation with central bank independence is also noteworthy. Especially, financial depth, current account balance/GDP, central government debt/GDP, regulatory quality, voice and accountability are not significant. So these factors are not statistically affecting central bank independence.

This study puts forth that central bank independence is a multi-dimensional topic and many different factors could impact this independence. Hence, policymakers need to

consider a variety of economic and institutional factors to achieve and maintain central bank independence.

Policy discussions and reforms regarding future central bank independence have to understand and consider this multi-dimensional structure. Specifically, countries desiring more central bank independence should aim not just at creating an independent central bank, but also at constructing robust institutional structures that could support this independence.

In conclusion, this study, which analyses the relationship between central bank independence and stability through various variables, reveals the influence of these variables on independence. However, this field is still not fully understood and requires more research. Future studies examining this topic in more detail and perhaps analysing it with a broader set of variables and more up-to-date Central bank independence data can contribute to a better understanding of central bank independence and stability issues.

This study initiates a meaningful discussion on how government policies and economic conditions influence central bank independence. However, deepening and expanding this discussion is necessary to fully understand central bank independence in different institutional and economic contexts. This study also contributes to efforts to understand the complex interactions and dynamics between factors affecting central bank independence and economic stability.

There are several additions that could be applied in future work. For example, 51 countries were randomly selected in this study and the fixed effects method was used as a result of the Hausman (1978) test. However, the reliability of the Hausman test has been the subject of debate in the economics literature in recent years. In the future studies, the random effects method can be used in one part of the empirical analysis when the countries are randomly selected, even if the Hausman test result suggests using the fixed effect. This may create a chance to discuss the method used in terms of Hausman test result and the nature of the data. In addition, the signs of some variables are not as expected. To eliminate such cases in future studies, it is necessary to identify outliers and construct the model without these outlier cross-sections. By doing so, a step is taken to eliminate the unexpected sign problem.

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APPENDIX 1. CORRELATION MATRIX

	CBIE	Depth	Openness	Cabtogdp	Govdebttogdp	PastInflation	LnGDPpc	Corruption	Goveffect	Polstability	Regquality	Ruleoflaw	Voiceandacc
CBIE	**1,00**												
Depth	-0,41	**1,00**											
Openness	-0,11	0,21	**1,00**										
Cabtogdp	-0,22	0,17	0,34	**1,00**									
Govdebttogdp	-0,36	0,59	0,14	-0,08	**1,00**								
PastInflation	-0,12	- 0,30	-0,12	-0,06	- 0,10	**1,00**							
LnGDPpc	-0,11	0,44	0,34	0,50	0,27	- 0,38	**1,00**						
Corruption	-0,10	0,46	0,33	0,21	0,35	-0,35	0,76	**1,00**					
Goveffect	-0,12	0,53	0,38	0,22	0,41	-0,39	0,80	0,91	**1,00**				
Polstability	-0,02	0,31	0,48	0,27	0,32	-0,27	0,67	0,73	0,68	**1,00**			
Regquality	0,00	0,36	0,37	0,15	0,31	-0,40	0,80	0,88	0,91	0,69	**1,00**		
Ruleoflaw	-0,15	0,45	0,35	0,22	0,34	-0,35	0,76	0,94	0,92	0,75	0,89	**1,00**	
Voiceandacc	0,13	0,12	0,02	- 0,07	0,33	-0,21	0,54	0,70	0,66	0,63	0,73	0,69	**1,00**

APPENDIX 2. ORIGINALITY REPORT

HACETTEPE UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
MASTER'S THESIS ORIGINALITY REPORT

HACETTEPE UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
ECONOMICS DEPARTMENT

Date: 17/07/2023

Thesis Title: CENTRAL BANK INDEPENDENCE AND STABILITY

According to the originality report obtained by myself/my thesis advisor by using the Turnitin plagiarism detection software and by applying the filtering options checked below on 13/07/2023 for the total of 100 pages including the a) Title Page, b) Approval and Declaration c) Introduction, d) Main Chapters, and e) Conclusion sections of my thesis entitled as above, the similarity index of my thesis is 28 %.

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I declare that I have carefully read Hacettepe University Graduate School of Social Sciences Guidelines for Obtaining and Using Thesis Originality Reports; that according to the maximum similarity index values specified in the Guidelines, my thesis does not include any form of plagiarism; that in any future detection of possible infringement of the regulations I accept all legal responsibility; and that all the information I have provided is correct to the best of my knowledge.

I respectfully submit this for approval.

Name Surname: Sait Can ÖZARSLAN
Student No: N20138819
Department: Economics
Program: Economics (English)

ADVISOR APPROVAL

APPROVED.

Prof. Dr. Pelin Öge Güney

APPENDIX 3. ETHICS COMMISSION FORM FOR THE THESIS

HACETTEPE UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
ETHICS COMMISSION FORM FOR THESIS

HACETTEPE UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
ECONOMICS DEPARTMENT

Date:14/07/2023

Thesis Title: CENTRAL BANK INDEPENDENCE AND STABILITY

My thesis work related to the title above:

1. Does not perform experimentation on animals or people.
2. Does not necessitate the use of biological material (blood, urine, biological fluids and samples, etc.).
3. Does not involve any interference of the body's integrity.
4. Is not based on observational and descriptive research (survey, interview, measures/scales, data scanning, system-model development).

I declare, I have carefully read Hacettepe University's Ethics Regulations and the Commission's Guidelines, and in order to proceed with my thesis according to these regulations I do not have to get permission from the Ethics Board/Commission for anything; in any infringement of the regulations I accept all legal responsibility and I declare that all the information I have provided is true.

I respectfully submit this for approval.

Date and Signature

Name Surname:	SAİT CAN ÖZARSLAN
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ADVISER COMMENTS AND APPROVAL

APPROVED

Prof. Dr. Pelin Öge Güney

HACETTEPE ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ
TEZ ÇALIŞMASI ETİK KOMİSYON MUAFİYETİ FORMU

HACETTEPE ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ
İKTİSAT. ANABİLİM DALI BAŞKANLIĞI'NA

Tarih: 14/07/2023

Tez Başlığı: CENTRAL BANK INDEPENDENCE AND STABILITY

Yukarıda başlığı gösterilen tez çalışmam:

1. İnsan ve hayvan üzerinde deney niteliği taşımamaktadır,
2. Biyolojik materyal (kan, idrar vb. biyolojik sıvılar ve numuneler) kullanılmasını gerektirmemektedir.
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Gereğini saygılarımla arz ederim.

Tarih ve İmza

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DANIŞMAN GÖRÜŞÜ VE ONAYI

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