AMERICAN UNIVERSITY OF BEIRUT

CRYSTAL CLEAR ECONOMICS: CENTRAL BANK TRANSPARENCY AND MACROECONOMICS STABILITY

by

JANA ABDUL RAHMAN SALEM

A thesis
submitted in partial fulfillment of the requirements
for the degree of Master of Arts
to the Department of Economics
of the Faculty of Arts and Sciences
at the American University of Beirut

Beirut, Lebanon
April 2024

AMERICAN UNIVERSITY OF BEIRUT

CRYSTAL CLEAR ECONOMICS: CENTRAL BANK TRANSPARENCY AND MACROECONOMICS STABILITY

by
JANA ABDUL RAHMAN SALEM

Approved by:

Dr. Nadine Yamout, Assistant Professor Department of Economics	Advisor
Dr. Simon Neaime, Professor and Chairperson Department of Economics	Member of Committee
Dr. Ali Abboud, Assistant Professor Department of Economics	Member of Committee

Date of thesis defense: April 23, 2024

ACKNOWLEDGEMENTS

First, I want to express my gratitude to Dr. Nadine Yamout, my advisor, for her unwavering support and invaluable guidance during this research work. I would also like to thank my committee members Dr. Ali Abboud and Dr. Simon Neaimi for their support and guidance through all the stages of writing my thesis and master's journey.

Additionally, I want to extend my heartfelt appreciation to my parents for their support and encouragement, which have been a constant source of inspiration and strength throughout my academic endeavors. To my siblings, I am deeply grateful for your encouragement and steadfast belief in me, especially during the toughest moments. Your ongoing support and understanding have empowered me to surmount challenges and pursue my academic aspirations with unwavering determination. I am also grateful to my two brave nephews and gorgeous niece, whose presence fills my life with happiness, optimism, and positivity.

Finally, I would like to dedicate this work to my grandfather, who has been my greatest supporter. His unconditional faith in my abilities and his constant encouragement have been the driving force behind my academic achievements.

ABSTRACT
OF THE THESIS OF

Jana Abdul Rahman Salem for Master of Arts
Major: Economics

Title: Crystal Clear Economics: Central Bank Transparency and Macroeconomics Stability

The issues facing global economic stability are influenced by central banks' transparency, which has become increasingly important during modern monetary policy. Many studies, policy conferences, and discussions about economic governance have focused on the relationship between macroeconomic stability and central bank transparency. The basis of this partnership is the idea that candid communication from central banking institutions may influence expectations, build trust, and significantly improve the stability of the economic environment.

Transparency in central banks has many different goals. First, it aims to make monetary policy choices more predictable so that the public and market players can understand the rationale behind central bank actions. This would reduce uncertainty in the financial markets and the economy. Second, by encouraging transparent communication among stakeholders, transparency helps to strengthen the central bank's reputation. Finally, transparency is thought to be a strategy for enhancing the effectiveness of monetary policy by influencing financial market expectations and behavior.

Moreover, transparency indices that measure the accessibility and clarity of central bank communications are frequently developed as part of the evaluation of central bank transparency. These indices are used by researchers and policymakers to assess and compare the levels of transparency among various central banks, providing important new perspectives on the potential effects of transparency on economic outcomes.

This study illuminates the Central Bank’s role in stabilizing the economy, minimizing economic volatility, reducing exchange rate fluctuations, ensuring financial stability, and managing inflation. Additionally, it underscores the practical importance of a transparency index for central banks, specifically examining whether the level of transparency influences critical indicators of macroeconomic performance.

TABLE OF CONTENTS

ILLUSTRATIONS

Figure

TABLES

Table

ABBREVIATIONS

CBI: Central Bank Independence

CBT: Central Bank Transparency

ECB: European Central Bank

ER: Exchange Rate

ERV: Exchange Rate Volatility

FOMC: Federal Open Market Committee

FSR: Financial Stability Reports

FST: Financial Stability Transparency

GDP: Gross Domestic Product

OECD: Organization for Economic Cooperation and Development

TI: Transparency Index

UNDP: United Nations Development Program

WDI: World Development Indicators

CHAPTER 1

INTRODUCTION

1.1. Overview

1.1.1. Existence of Central Banks

A central bank is the institution responsible for formulating policies that have an impact on a country's money and credit supply. More specifically, a central bank utilizes tools like open market operations, discount window lending, and alterations to reserve requirements. These mechanisms are employed to influence short-term interest rates and the monetary base, which encompasses currency held by the public and bank reserves. The goal is to achieve important policy objectives through these monetary policy measures (Michael D. Bordo, 2007).

A modern monetary policy has three primary objectives. The foremost and crucial goal is ensuring price stability, which translates to sustaining a consistently low inflation rate. The second objective is fostering a stable real economy, commonly defined as achieving high employment levels and maintaining robust, sustainable economic growth. Alternatively, monetary policy is anticipated to mitigate fluctuations in the business cycle and counteract unforeseen economic shocks. Finally, the third objective involves ensuring financial stability, which includes overseeing an effective and seamlessly operating payment system while preventing financial crises (Michael D. Bordo, 2007).

The history of central banking can be traced back to at least the seventeenth century, with the establishment of the Swedish Riksbank in 1668, recognized as the first institution fulfilling the role of a central bank. Initially, it was organized as a joint stock

bank, and its purpose included lending funds to the government and functioning as a clearing house for commercial transactions. Subsequently, in 1694, the renowned Bank of England was founded as another significant central bank, also operating as a joint stock company with the primary objective of acquiring government debt. Across Europe, other central banks emerged in later years, often established for comparable reasons, though some were specifically created to address monetary turmoil. For instance, Napoleon founded the Banque de France in 1800 to stabilize the currency following the hyperinflation of paper money during the French Revolution and to support government finances. In their early phases, central banks issued private notes that served as currency, frequently holding a monopoly over such note issuance (Michael D. Bordo, 2007).

Although these initial central banks played a role in financing government debt, they were also private entities involved in banking operations. By holding the deposits of other banks, they evolved into banks for bankers, enabling the facilitation of transactions among banks and offering various banking services. Due to their substantial reserves and widespread networks of correspondent banks, they became the primary depository for numerous banks within the banking system. This positioning enabled them to assume the role of the lender of last resort during financial crises, meaning they were prepared to supply emergency funds to their correspondents in times of financial turmoil (Michael D. Bordo, 2007).

1.1.2. Central Banks Transparency

1.1.2.1. How it Started?

From the early 1990s onward, there has been a notable transformation in how central banks convey information to the public and financial markets. In the past, central banks were often shrouded in secrecy, refraining from elucidating their goals and strategies. Furthermore, they intentionally maintained an air of mystery, leaving the markets uncertain about the specific configuration of their policy instruments. This secrecy approach to addressing the time inconsistency problem faces several issues. Firstly, maintaining secretive central banks is fundamentally undemocratic. While it is reasonable to protect central banks from short-term pressures that may lead to overly expansionary monetary policies, basic democratic principles demand accountability. This accountability necessitates a public understanding of the central bank's actions. Moreover, democratic principles emphasize the alignment of policymaking preferences with those of the broader society. Additionally, the sustained operation of a central bank in the long run depends on public support. A secretive central bank may arouse suspicions that it is not acting in the public interest, potentially resulting in constraints on its independence over time (Mishkin, 2004).

Following the breakdown of the Bretton-Woods system, monetary policy gained greater flexibility as the need to target exchange rates diminished. In the 1970s, many industrialized nations grappled with relatively high inflation rates. The rational expectations revolution played a pivotal role by shifting the focus from stabilizing output to maintaining price stability. On an institutional level, various central banks were granted increased independence, particularly in terms of instrument independence

and this refers to the ability of central banks to autonomously choose measures without requiring government approval (Weber, 2018).

The abandonment of fixed exchange rate systems, coupled with heightened independence, also altered the importance of monetary policy strategies. In the past, monetary targeting held prominence, but nowadays, a multitude of countries engage in inflation targeting. Another significant development in central banking, alongside the changes, is the increased emphasis on Central Bank Transparency (CBT). Most central banks worldwide have augmented their transparency, primarily for two reasons. Primarily, transparency serves as the counterpart to Central Bank Independence (CBI). In the absence of direct democratic legitimacy for most central bankers, especially when they have instrument independence in monetary policy decisions, there is no straightforward mechanism for public control or influence, so there is a significant imperative to elucidate and justify policy decisions. Another rationale behind the increasing transparency of many central banks in recent years stems from the economic perspective, where a certain level of CBT is considered advantageous. Moreover, numerous studies indicate that transparency contributes to improved welfare and can result in better economic outcomes (Weber, 2018).

(Chairman, 2010) emphasized that while CBI is crucial, it should not be absolute. So, adherence to democratic principles necessitates that, as a government agent, a central bank remains accountable in pursuing its mandated objectives, responsive to the public and elected representatives, and transparent in its policy endeavors. On the other hand, transparency, especially concerning monetary policy, not only enhances the accountability of central banks but also improves policy effectiveness. Whereas, clearly outlining future policy goals and communicating

potential reactions to various economic scenarios reduces uncertainty, which enhances the impact of monetary policy on longer-term interest rates by allowing households and businesses to anticipate central bank actions. The increased clarity and diminished uncertainty empower policymakers to more effectively influence economic growth and inflation.

However, central banks can enhance transparency by expressing their commitment to mitigating output fluctuations, and this can be achieved by outlining procedures detailing how inflation targets' trajectory and timeframe would be adjusted in response to significant shocks. Emphasizing that monetary policy remains equally vigilant in preventing inflation from dropping too low as it is in preventing it from rising too high, and indicating a commitment to implement expansionary measures when output significantly deviates below its potential, allows central banks to demonstrate their concern for output fluctuations. Implementing these transparency measures not only garners support for central bank policies and independence but also avoids a myopic focus on the short run that might impede the central bank's effective performance of its duties (Mishkin, 2004).

1.2.2.2. Central Bank's Reinforcement:

The concept of CBI has changed over the years. In the United States and various other nations, the reconsideration of monetary policies and central bank practices was triggered by the historically high and volatile inflation rates during the 1970s and early 1980s. Subsequently, there has been a convergence of two global trends: the widespread adoption of improved monetary policy practices and the nearly complete eradication of high inflation rates. These enhanced policy practices prominently feature a broad

reinforcement of central bank independence, increased transparency from monetary policy committees, and the affirmation of price stability as a mandated objective for monetary policy (Chairman, 2010).

On the other hand, the practice of Inflation targeting has gained widespread acceptance, and this framework involves the government setting a specific numerical target for inflation and delegating the responsibility of achieving it to the central bank (Chairman Ben S. Bernanke, 2010). As of the early twenty-first century, inflation targeting has emerged as a noteworthy development in both theoretical concepts and practical implementation. At face value, this framework suggests the potential resolution of internal contradictions that previously hindered central banks in their pursuit of widely recognized macroeconomic objectives. It also holds the promise of introducing logic and consistency that was lacking in the deliberations of some central banks in the past (Benjamin M. Friedman, 2002).

1.2.2.3. Importance of Central Bank's Transparency

The transparency of central banks plays a main role in facilitating effective monetary and financial policies, influencing the decisions of economic actors, and fostering stability in market expectations and behaviors. This, in turn, contributes to the overall effectiveness of monetary and financial policies. Furthermore, transparency is imperative for ensuring the public accountability of central banks and upholding their autonomy and independence. The adoption of the CBT framework allows central banks to modify their accountability systems and increase policy effectiveness. In addition, through this process, central banks may clarify decisions impacted by domestic legal frameworks and other factors, promoting productive discussions with several

stakeholders. The central bank's mandate, confidentiality policies, stakeholder interactions, and operations across multiple domains are all successfully made less unclear by these discussions, which address governance, policy, operations, results, and official connections. To put it simply, CBT is essential for clarifying actions, methodologies, and results; it also holds the central bank responsible and feeds the cycle of continual improvement by offering insightful information into policy choices (IMF, 2021).

The legislative framework of a central bank influences the degree of transparency that it maintains. Certain domestic laws and regulations place limitations on some central banks, making it difficult for them to reveal certain information like private data or facts covered by trade or commercial secrecy laws. On the other hand, transparency may be mandated by other domestic laws and regulations, possibly through the use of mechanisms like "freedom of information" laws (IMF, 2021).

Additionally, it also represents a new understanding of central banking, shifting the focus away from primarily publishing operational rules. Its main purpose is to increase policy objectives' accomplishment, which will increase policy effectiveness and reduce macroeconomic risks. Acknowledging the various conditions and stages of economic and financial advancement in which central banks operate the CBT facilitates evaluations that are outcome-focused, modular, risk-based, and proportional, enhancing evaluations of transparency (IMF, 2021).

Moreover, the CBT's scope is restricted to central banks alone. When a central bank works with one or more other authorities, such as a financial regulator, the CBT does not control other agencies' transparency requirements. And when a central bank is a member of a monetary union, certain tasks may be assigned to other union members,

while certain tasks are still the responsibility of the individual national central banks. In these cases, the CBT needs to be used to assess the transparency frameworks at the national central banks as well as the level of the monetary union (IMF, 2021).

1.1.2.4. Transparency of Central Banks in Several Countries

In recent years, there has been a steady increase in the number of central banks enjoying a relatively high level of independence. The experiences of some major central banks underscore the significance of this independence. For instance, the Bank of England, one of the oldest central banks globally, operated essentially as an arm of the British Treasury for a considerable portion of the 20th century. However, on May 6, 1997, when the government announced the Bank of England's transition to an independent central bank, there was a notable decline in U.K. Treasury bond yields across longer maturities. This decrease likely reflected a significant drop in investors' inflation expectations and their perceptions of inflation risk. Additionally, various studies have demonstrated that U.K. inflation expectations demonstrated considerably greater stability in the years following this move toward independence (Chairman, 2010).

Before the establishment of the European Central Bank (ECB) in June 1998, independence was regarded as a fundamental aspect enshrined in the Maastricht Treaty, an international agreement that can only be amended with the unanimous consent of its signatories. The ECB's independence has played a vital role in maintaining stable inflation expectations within the euro area. Moreover, the significance of central bank independence spurred a revision to Japanese law in 1997, granting the Bank of Japan operational autonomy. This amendment notably curtailed the Ministry of Finance's

ability to sway central bank decisions, thereby reinforcing the Bank of Japan's independence in formulating monetary policy (Chairman, 2010).

Whereas, in the United States, despite the Federal Reserve being established as an independent central bank in 1913, its level of independence has progressively increased over time. Initially, the Board included the Secretary of the Treasury and the Comptroller of the Currency; however, they were removed with the introduction of the current structure of the Federal Open Market Committee (FOMC) under the Banking Act of 1935. Additionally, the act extended the terms of Board members from 10 to 14 years. The lengthy and staggered terms of Board members have also acted as a deterrent against political interference (Chairman, 2010).

During World War II, the Federal Reserve agreed to fix Treasury yields at low levels to mitigate the expense of financing wartime deficits. Following the war, the Fed aimed to reclaim its autonomy in monetary policy, concerned about the inflationary risks associated with sustained political influence. However, the Treasury remained committed to managing debt servicing costs. The dispute was resolved in 1951 through negotiations known as the Treasury-Federal Reserve Accord. This agreement reinstated the Federal Reserve's authority to independently set interest rates, albeit with ongoing consultation between the Fed and the Treasury. It wasn't until the amendment of the Federal Reserve Act in 1977 that Congress explicitly outlined the Fed's current objectives of maximizing employment and maintaining price stability. Such a clear mandate is a fundamental cornerstone of central bank independence (Chairman, 2010).

Over time, a consensus emerged among U.S. political leaders regarding the crucial role of the Federal Reserve's independence in shaping monetary policy for the nation's prosperity and economic stability. This principle was formally acknowledged

by Congress in 1978 when it approved a provision exempting monetary policy, discount window operations, and the Fed's interactions with other central banks from Government Accountability Office policy reviews. In 1979, President Carter appointed Paul Volcker as chairman of the Federal Reserve, expecting him to enhance the central bank's credibility in combating inflation, even if such measures incurred short-term economic and political costs. Subsequently, President Reagan's endorsement of Volcker's politically unpopular disinflationary policies and support for Federal Reserve independence proved pivotal in ultimately overcoming inflation, laying the groundwork for sustained growth. Since then, presidents and other U.S. political leaders have consistently affirmed the benefits of an independent Federal Reserve. For example, President Clinton stated in 2000, "One of the hallmarks of our economic strategy has been a respect for the independence and the integrity of the Federal Reserve." President Bush remarked in 2005, "It’s this independence of the Fed that gives people not only here in America but the world, confidence." President Obama reaffirmed in August 2009, "We will continue to maintain a strong and independent Federal Reserve." (Chairman, 2010).

The economies of Middle Eastern countries confront numerous challenges despite their abundant oil resources. With their wealth, issues persist in wealth distribution, global competitiveness, and attracting foreign investment, and these include slow growth, heavy reliance on oil revenue, and excessive government intervention in production. These persistent issues are compounded by strict regulations, ineffective structures, rent-seeking behavior, corruption, and mismanagement. Additionally, experts attribute these problems to the lack of economic freedom, transparency, and competitiveness in these nations. As a result, they face significant

obstacles such as widespread unemployment, corruption, and a reluctance from international investors to engage with Middle Eastern markets. Assessing the appeal of these countries to foreign investors amid these challenges underscores the crucial importance of economic transparency, which it serves as a primary criterion for investors worldwide, and data consistently highlight the Middle East's high corruption levels. This factor significantly undermines investor confidence and detracts from the region's attractiveness for overseas investment (Hossein Amiri et al, 2017).

Given these obstacles, one of the primary criteria for investors considering putting their money into any country is the level of economic transparency. Investors typically seek transparency globally, and empirical data consistently highlight Middle Eastern countries as having high levels of corruption. Consequently, investors perceive these nations as high-risk environments based on investment indicators. Therefore, fostering transparency and combating corruption are crucial priorities both domestically and internationally for Middle Eastern countries, as they directly impact their attractiveness to investors (Hossein Amiri et al, 2017).

1.2. Research Questions

To sum up this introduction, we can say that the primary objectives of most central banks revolve around stabilizing the economy and reducing economic volatility, decreasing exchange rate fluctuations, ensuring financial stability, and controlling inflation. Consequently, the focus of this thesis is to explore how CBT contributes to the execution of monetary policy and the overall economy.

To this end, this thesis will address the following research questions:

1. How does central bank transparency influence inflation, economic volatility, and financial stability?
2. What is the empirical significance of a central bank transparency index, particularly regarding whether the degree of transparency affects key indicators of macroeconomic performance?

1.3. Brief Overview of the Chapters

In the Introduction (chapter 1), we provided an overview of the history of Central Banks, defined CBT, and described its beginnings. This chapter also clarifies the reinforcements taken by the Central Bank, the importance of transparency, and how it started and spread among the various economies and countries.

The Literature Review (chapter 2) studies transparency with an overview mentioning previous studies conducted by various economists and financial organizations. The aspects of central banks' transparency will next be covered. After that, an in-depth discussion of public sector relations and transparency will be presented. Then, how the CBT shortage is affecting the economy will also be clarified. Lastly, we will go over the impact of central banks' transparency on the economic variables—inflation, financial stability, exchange rate volatility, and gross domestic product—that this thesis will examine.

The Data of this study (chapter 3) uses Dincer, Eichengreen, and Greaats (2019) published and updated data on transparency for 109 Central Banks between developed and developing countries, annually from 1998 to 2019. The data covered a variety of dimensions, including political, economic, procedural, policy, and operational. Key macroeconomic indicators are included in the data as well.

Whereas to examine how central banks' transparency affects macroeconomic stability across 109 nations, the thesis uses a panel regression model as a methodology (chapter 4). Panel regression is particularly useful for studying the effects of time-varying and time-invariant factors on a dependent variable, as it allows for the estimation of both within-group and between-group effects.

Results and Analysis (chapter 5), will provide the data analysis and findings. In this chapter, we will look at how the central banks' transparency index affected economic variables. We will transform the data into observable outcomes and offer analyses of the effects that have been noted.

Finally, the thesis will be summarized in the conclusion (chapter 6) which emphasizes the crucial relationship between central bank transparency and macroeconomic stability.

CHAPTER 2

LITERATURE REVIEW

2.1. Overview

Worldwide central banks have greatly improved the transparency of their monetary policies throughout the past two decades by giving comprehensive information on a range of policy-related topics. (Dincer and Eichengreen, 2013) found no clue of central banks being less transparent between 1998 and 2010, based on their analysis of the monetary policy transparency index across 110 nations. Nowadays, though, a lot of central banks have other responsibilities in addition to setting monetary policy, such as maintaining financial stability. Although monetary policy transparency has been the subject of much research, little is known about the variables influencing shifts in financial stability policy transparency and the effects that these shifts have. This gap persists despite the heightened importance of communication regarding financial stability during crises, as highlighted by (Born et al., 2014).

Moreover, Central banks' covert actions were justified by the belief—spoken publicly by a former Fed official—that "secrecy is intended to protect the Fed from political scrutiny." Central bank secrecy fits in with bureaucracies' natural desire to avoid responsibility to increase their status and authority, but there might be a good reason for it according to (Kydland and Prescott, 1977) and (Calvo, 1978) theory of time inconsistency in optimal policies. This is also true, according to the same Fed official who said that "most politicians have a shorter time horizon than is optimal for monetary policy." To mitigate political pressure to adopt highly expansionary monetary policies that take advantage of the temporary trade-off between inflation and

employment, central banks could choose to hide their activities and resolve the time inconsistency problem by giving long-term objectives priority, as suggested by (McCallum B. T., 1995). The appointment of conservative central bankers, as supported by (Rogoff, 1985), is a further strategy to address the temporal inconsistency issue. These individuals prioritize controlling inflation above output in comparison to the broader public and will oppose inflationary initiatives. But for this strategy to succeed, conservative central bankers need to function outside of politics, which is made possible by central bank secrecy.

Economists and professors explained and discussed transparency in different definitions and aspects, where (Lindstedt and Naurin, 2007) elucidated transparency as the availability of information, characterizing a transparent institution as one that permits individuals, both internal and external to the organization, to access the necessary facts for forming opinions about the institution's measures and processes. And (Kaufmann and Bellver, 2005) said that transparency entails information that is reliable and accessible from economic, social, and political standpoints for all relevant stakeholders. Whereas (Vishwanath and Kaufmann, 1999) illustrated clarity is the antithesis of secrecy, where concealment involves knowingly hiding actions. And, financial transparency pertains to financial matters, encompassing the accuracy, completeness, and timeliness of available information.

The perspective of the Organization for Economic Cooperation and Development (OECD, 2012) takes a broader view, defining transparency as the interconnectedness between organizations and various stakeholder groups. According to this viewpoint, increased information exchange within societies leads to more informed decision-making and enhances accountability in both the private and public sectors

regarding resource allocation. This, in turn, reduces the prevalence of corruption. Additionally, from an economic standpoint, transparency entails the provision of accurate and comprehensive information about economic matters and the elucidation of mechanisms governing economic relations, such as wealth production and distribution in society. Transparency and economic corruption are opposed; thus, the United Nations Development Program (UNDP) equates corruption with the expansion of individual power monopolies, which erode accountability, trust, and transparency (Hossein Amiri et al, 2017).

(Jonathan and Lawler, 2011) findings show that transparency consistently lowers welfare independent of model settings, providing additional support for these findings. On the other hand, actual evidence shows a stark difference from theoretical model estimates about the negative effects of CBT. Moreover, (Dincer and Eichengreen, 2009) published an analysis of the monetary policy transparency index for 110 countries between 1998 and 2006 and found very few examples of central banks decreasing their transparency levels.

In more detail about the research, arguments, and interpretations that economists have already written and introduced, we can also mention (Jensen, 2002) who provides evidence that an intermediate degree of transparency could be ideal in a forward-looking model, and according to his New Keynesian model, when the central bank publicly admits control errors, the public's perception of its objectives improves. As a result, inflation expectations and inflation itself start to react in response to the monetary policies of the central bank. For a central bank that lacks credibility, this increased emphasis on inflation is advantageous, but it might not be desired for one that already has credibility. Transparency also raises the inflationary cost of output

stabilization. So the ideal degree of transparency is established by achieving a balance between the flexibility to stabilize production and credibility, together with the corresponding inflation rate.

(Morris and Shin, 2002) offer another justification for restricting the level of CBT, demonstrating that an abundance of public information may be detrimental since it may supplant private information. According to their concept, economic actors want to coordinate their activities with other agents and have an incentive to match the underlying economic fundamentals, about which they might have both private and public information (Cruijsen et al, 2010).

(Gosselin et al, 2007) introduce the concept of intermediate transparency levels in their model, which incorporates uncertainty regarding the accuracy of information. In scenarios with intermediate transparency, the central bank discloses its interest rate to influence market expectations. This allows the central bank to utilize the interest rate strategically to either alleviate or exploit the common knowledge effect, thus impacting social welfare positively or negatively. In contrast, under full transparency, the central bank divulges all its information, rendering the interest rate less effective as a strategic signal.

(Cukierman, 2007) examines the boundaries of CBT, addressing both its practicality and its advisability. He asserts that central bankers face limitations in their ability to achieve full transparency due to their incomplete understanding of economic mechanisms. For instance, difficulties in accurately measuring the output gap make it challenging to achieve transparency in this regard. Even if these feasibility constraints are overcome, (Cukierman, 2007) contends that it is not always beneficial for a central bank to be entirely transparent. For instance, using a modified version of the (Diamond

and Dybvig, 1983) model on bank runs, it is revealed that immediate disclosure of private information concerning threats to financial stability can lead to undesirable outcomes.

(De Haan, Amtenbrink and Eijffinger, 1999) examine the allocation of responsibility for the ultimate goals of monetary policy, establishing a positive correlation between accountability and central bank independence and this finding is consistent with the research (Eijffinger, Hoebrichts and Schaling, 1998). However, contrary to the conclusions drawn by (Briault, Haldane and King, 1996), they discover that more independent central banks tend to exhibit slightly lower levels of transparency and accountability concerning monetary policy outcomes. Yet, their conclusion relies on the assumption that a central bank facing credibility issues (e.g., New Zealand, Canada) must inherently be more transparent than one with a well-established reputation for maintaining low and stable inflation, which is likely a misinterpretation.

(Faust and Svensson, 2001) introduce a model wherein the public endeavors to infer the central bank's type based on information regarding policy outcomes. However, inference is imperfect due to incomplete observation of unanticipated monetary control errors by the public. Enhanced transparency regarding control errors allows agents to infer the central bank’s preferences more accurately, incentivizing the central bank to cultivate a reputation for prioritizing price stability. Consequently, the private sector becomes more responsive to unanticipated policy responses and actions, thereby reducing the central bank's incentive to engage in them. As a result, there is greater sensitivity of inflation expectations to policy actions, diminished benefit to the central bank from inflationary policies, and reduced inflationary bias. Hence, increased transparency regarding control errors enhances social welfare.

Finally, (Michael D. Bordo, A Brief History of Central Banks, 2007), Central banks face the challenge of balancing their three policy goals in the future. The first is to provide price stability, which is currently viewed as low inflation over a long-run period. This requires credibility, as people need to believe the central bank will tighten its policy if inflation threatens. Good communication can enhance this strategy. The second is to maintain stability and growth of the real economy where low inflation is associated with better growth and overall macroeconomic performance. However, big shocks can derail the economy. Additionally, research suggests that the central bank should temporarily depart from its long-run inflation goal and ease monetary policy to offset recessionary forces. Once the recession is avoided, the central bank should raise rates and return to its low inflation goal. The third policy goal is financial stability, which can be improved in an environment of low inflation. In an incipient financial crisis, the central bank should provide liquidity to allay money market fears.

2.2. Aspects of Transparency

In Geraats' work published in 2002 (Geraats P. M., 2002), a taxonomy is presented for assessing the transparency of monetary policy. This taxonomy delineates five specific dimensions of transparency processes that pertain to various stages of policymaking. Since its inception, this framework has served as the standard for evaluating CBT, as acknowledged by scholars.

These aspects are as follows:

- Political transparency encompasses the clarity surrounding policy objectives. This encompasses articulating the formal goals of monetary policy, which includes explicitly prioritizing objectives in instances of potential conflicts, as

well as setting quantitative targets. Institutional mechanisms, such as central bank independence and formal contracts, contribute to bolstering political transparency by safeguarding against undue influence or political pressure to stray from stated objectives.

- Economic information that is used to influence monetary policy choices is referred to as economic transparency. This includes the economic data that the central bank uses, the policy models that it employs to provide economic projections or evaluate the effects of its decisions, and the internal forecasts that it depends on. The internal forecasts are especially important since monetary policy interventions usually take a long time to materialize. Consequently, the central bank's actions are often indicative of anticipated developments.
- Procedural transparency concerns the process through which monetary policy decisions are made. This entails having a clearly defined monetary policy rule or strategy that outlines the framework for monetary policy, as well as providing insight into the actual deliberations and the decision-making process through the publication of minutes and voting records.
- Policy transparency entails promptly announcing policy decisions, providing an explanation for those decisions, and indicating a potential direction for future policy actions. This latter aspect is crucial because monetary policy adjustments often occur incrementally; a central bank might contemplate modifying the policy instrument but opt to delay until additional evidence justifies a full adjustment.
- Operational transparency relates to the execution of the central bank's policy measures. It encompasses addressing any control errors encountered in

achieving the specified operating instrument or target outlined in the policy decision. Additionally, it involves addressing unforeseen macroeconomic disruptions that influence the transmission of monetary policy from instrument to outcome.

In theory, the rationales for and impacts of transparency may vary across the five aspects. Theoretical propositions suggest that political, economic, and operational transparency could bolster the credibility of low-inflation monetary policies, procedural transparency might enhance the decision-making process, and policy transparency could strengthen the efficacy of interest rate adjustments. While certain aspects of transparency may yield similar outcomes, indicating some level of interchangeability, the theoretical literature demonstrates that such substitution is complex. For instance, (Geraats, 2005) observes that economic transparency incentivizes central banks to invest in their reputation, resulting in reduced inflation, whereas heightened transparency regarding preferences produces the opposite effect.

2.3. Transparency and the Public Sector

While the majority of economists advocate for increased transparency in monetary policy, citing its potential to facilitate better-informed and welfare-enhancing decisions by the private sector (Blinder, 1998), not all share this view. Some contend that maintaining a level of incomplete transparency is optimal, as it necessitates balancing the effect on the central bank's reputation and its ability to control inflation against the private sector's desire for stability in output, employment, and prices. Others argue that certain limitations on transparency are necessary for operational purposes,

aiming to bolster the bank's credibility and to differentiate between 'the need to know' and 'the need to understand' (Eijffinger and Hoeberichts, 2002) (Issing, 1999).

Moreover, (Demertzis and Hoeberichts, 2007), using the framework of Morris and Shin, demonstrates that introducing costs reveals that increased transparency is not always advantageous. For realistic parameter values, when it becomes costly for the private sector to process information, greater availability of public information diminishes the incentives for the private sector to seek out their private information.

Furthermore, (Morris and Shin, , 2005), in a model where public information is endogenously determined, highlight the potential adverse effects of excessive public information. Flooding the market with extensive information to shape expectations may prove undesirable as it could reduce the informativeness of financial markets and prices, thereby worsening the quality of public information.

Contrary to this stance (Morris and Shin, 2002), several researchers argue that coordination can be beneficial from an aggregate perspective. However, even under coordination, maximum transparency may not always be optimal. This is illustrated, for instance, by (Walsh, 2007), who demonstrate that reducing price dispersion is desirable. His analysis reveals that enhancing the precision of the central bank's forecasts of cost disturbances or reducing the persistence of these shocks, leads to an increase in the optimal level of economic transparency. Greater transparency facilitates the private sector's ability to differentiate between supply and demand shocks, thereby enabling the mitigation of demand shocks without destabilizing inflation and output. Furthermore, the adverse impact of heightened transparency regarding the central bank's signaling of supply shocks is mitigated when the central bank's forecasts of these shocks are more accurate, resulting in lower volatility of private sector inflation expectations and,

consequently, inflation. Conversely, the optimal level of transparency tends to be higher when the errors in the central bank's forecasts of demand disturbances are larger, or when these disturbances are more persistent, as transparency can help prevent forecast errors from spilling over and affecting inflation.

On the other hand, (Dale et al., 2008) demonstrates that disclosing specific information, such as the central bank's inflation target, is beneficial as it enhances private sector expectations. However, akin to the findings of (Morris and Shin, 2002), the communication of uncertain information, like inflation forecasts, could be detrimental because individuals might assign excessive weight to it. The underlying mechanism driving this outcome differs from that of (Morris and Shin, 2002). When the central bank communicates its inflation forecasts, the private sector incorporates this information along with its forecasts to formulate inflation expectations. Consequently, the private sector must assess the relative reliability of these forecasts to appropriately weigh them. If the central bank's forecasts are highly uncertain, there is an increased risk that errors in weighting the forecasts lead to inferior private sector expectations compared to scenarios where no communication occurs. Conversely, when the central bank communicates certain information, such as its inflation target, the private sector forecasts tend to be relatively accurate compared to situations without central bank communication. This heightens the risk that additional, uncertain information serves as a distraction.

2.4. Consequences of Lacking Transparency

(Hossein Amiri et al, 2017) mentioned in their paper that the absence of transparency, and consequently, economic corruption, exerts detrimental impacts on

investment and growth, resulting in a diversion of focus away from the economic development objectives of countries. And a lack of transparency also eradicates competitive dynamics that are essential for optimal market performance. This correlation has long been a subject of discourse within society. Additionally, from a scholarly perspective, policymakers, academics, and researchers contend that a significant relationship exists between these variables. However, thus far, no quantifiable relationship or universally accepted model has been established. Transparency profoundly influences critical facets of the economic and social spheres and plays a pivotal role in determining the timing of economic growth projections, strategic investment decisions, and the formulation of international policies.

According to United Nations experts, several African nations, including Zaire and Nigeria, have incurred losses exceeding $5 billion due to corruption in recent years. In Pakistan, approximately 30% of business projects involve bribery, while corruption accounts for half of foreign investment in Bangladesh (Stevenson, 2003). However, corruption is not confined to the Third World; while prevalent in less developed countries, Western nations also grapple with corruption (Ebben and Vaal, 2009). Moreover, with the globalization of the international economy and increasing political interconnections between nations, transparency has gained prominence, prompting governmental and non-governmental entities to prioritize it (Kaufmann and Bellver, 2005) (Knack and Keefer, 1995) (Stevenson, 2005). Despite this, a definitive correlation between transparency and economic performance has yet to emerge. Consequently, the question of whether a universal functional relationship exists between transparency and key economic performance aspects across different countries remains unanswered (Hossein Amiri et al, 2017).

Finally, The World Bank identifies lack of transparency and corruption as the foremost barriers to social and economic progress, as they distort legal regulations, impeding development and eroding the institutional foundations essential for sustained economic growth. Without transparency, conditions conducive to a competitive economy are absent or weakened, hindering effective monitoring of financial violations and impairing the execution of monetary, financial, and commercial policies. Additionally, the absence of transparency undermines viable policy planning, impedes the identification of qualified individuals, and compromises the oversight functions of civil institutions (Hossein Amiri et al, 2017).

2.5. Impact of Central Bank Transparency on Economic Indicators

2.5.1. Inflation

Since the early 1990s, central banks have embraced inflation targeting as a means to address the time inconsistency issue, opting for transparency and improved communication with the public and markets as crucial aspects of effective monetary policy. Inflation targeting has led to a significant increase in transparency regarding inflation goals, emphasizing regular communication with the public. Central banks employing this strategy now engage in frequent communication with the government and often make public speeches outlining their monetary policy strategies. This approach is also being adopted by central banks that have not formally adopted inflation targeting, like the Federal Reserve. However, central banks focused on inflation targeting go beyond this, conducting extensive public information campaigns and publishing user-friendly documents similar to Inflation Reports. These reports clarify the goals and limitations of monetary policy, including the rationale behind inflation

targets, how they are determined, strategies for achieving them under current economic conditions, and reasons for any deviations from the targets (Mishkin, 2004).

Moreover, the focus on transparency and communication has yielded numerous advantages for central banks. By openly declaring their inflation objectives, central banks have bolstered their credibility and stabilized inflation expectations (Levin et al., 2004). This has not only facilitated the attainment of low and stable inflation but has also contributed to a potential decrease in output volatility. Enhancing the nominal anchor aids in steering the economy closer to the efficient frontier, balancing the tradeoff between inflation and output gap variability, resulting in improved performance in both inflation and output realms (Mishkin, 2004).

Additionally, transparency and effective communication, particularly when they demonstrate the successful attainment of a clearly defined inflation target, have played a crucial role in garnering public support for CBI and its policies. As evidenced by (Mishkin and Posen, 1997) (Bernanke et al., 1999), the enhanced transparency associated with inflation targeting has bolstered public backing for the policies of institutions like the Bank of Canada, and it was instrumental in granting operational independence to the Bank of England in May 1997. Chancellor of the Exchequer Gordon Brown cited increased transparency in the inflation-targeting regime as a key factor in the decision to grant greater independence to the Bank of England, emphasizing that it enhanced political oversight. Consequently, a significant advantage of transparency within an inflation-targeting framework is its capacity to facilitate public acceptance of an independent central bank focused on long-term objectives while maintaining accountability within a democratic society (Mishkin, 2004). This inflation-targeting mainly serves as a method for central banks to shape expectations about future

inflation among private-sector decision-makers. It focuses on achieving a specific long-term inflation rate while avoiding explicit discussions about short to medium-term objectives related to output, employment, or other real outcomes, as well as the trade-offs involved. By committing to believably maintaining low inflation, inflation targeting aims to establish credibility, despite concealing certain considerations from public discussion (Benjamin M. Friedman, 2002)

The causal association between transparency by central banks and inflation has been analyzed quite a lot. There is a plethora of studies showing that transparency could decrease inflation rates. (Walsh, 1999) shows that inflation rates can be lower in an inflation-targeting system. If individuals increase their inflation expectations if the central bank has not met its target, then it will be expensive for the central bank to create surprise inflation. On the other hand, it is assumed that the public is not aware of supply shocks making these shocks private information for the central bank. The public may thus be misled by central bankers into believing that a supply shock was the cause of an unexpectedly high inflation rate. If the central bank announces its inflation target, the option of fooling the public is less attractive to the central bank which leads to lower inflation rates overall. (Schaling and Nolan, 1998) argue that countries with bad a reputation and low independence can gain from being more precise about their targets. They also contend that CBT may take the place of formal independence or conservative. This comes from the fact that uncertainty about the central bank’s preferences leads to higher inflation expectations. (Eijffinger et al., 2000) discovered that central banks exhibiting low transparency regarding their preferences are perceived as less conservative, resulting in higher inflation due to increased inflation expectations among employees. They also assert that uncertainty surrounding the central bank's preferences

contributes to greater inflation variability. These findings are consistent with those of (Hughes Hallett and Libich, 2006), those who argue that transparent goals are conducive to price stability. (Geraats, 2005) stresses the benefits of economic transparency in stabilizing inflation. When the public has better access to the central bank's economic forecasts, they can draw more meaningful conclusions about actual monetary policy decisions. And (Westelius, 2005) employs a Barro-Gordon model to demonstrate that in a neoclassical economy, imperfect transparency reduces inflation persistence.

On the other hand, (Sørsensen, 1991) suggests that political uncertainty, such as the central bank's stance on output and price stabilization, can lead to lower inflation rates. This occurs because unions may set lower nominal wages if they are uncertain about how the central bank will respond to wage increases. (Grüner, 2002) supports this idea, finding that lower transparency can lower inflation rates. (Siklos, 2003) concludes that transparency results in decreased inflation expectations, based on an analysis of a dataset encompassing five countries without and six countries with an active inflation targeting system. (Levin et al., 2004) utilize an event-study method to assess the impact of inflation targeting, where they compare five countries employing inflation targeting with three non-inflation-targeting countries. Their findings indicate that inflation expectations tend to align more closely with the target level when the inflation target is widely known and the central bank is perceived as credible. (Cournède and Minegishi, 2009) examine eleven countries from 1999 to 2008. Through panel data estimation with fixed effects, they demonstrate that the interaction between transparency and actual inflation significantly reduces inflation expectations.

Furthermore, when considering which explanatory variables to include in the estimation, it's important to first consider the potential causes of inflation. There are four primary reasons for inflation: demand-pull inflation, cost-push inflation, monetary expansion, and inflation driven by expectations. Additionally, political factors may also play a significant role. But why should we be concerned with these factors? The reason is simple: since more transparent central banks could potentially implement more expansionary monetary policies. However, if the coefficient for the CBT index is influenced by other factors, it may not accurately reflect the true impact of transparency. Furthermore, transparency alone cannot fully account for variations in inflation volatility. Effective central banking involves not only rhetoric, such as transparency but also tangible actions, such as actual monetary policy implementation (Christoph S. Weber, 2018).

2.5.2. Financial Stability

Central banks play a crucial role in maintaining financial stability, with a history of developing a lender-of-last-resort function during the gold standard era. However, the financial system became unstable between the world wars, leading to the widespread banking crisis. The response crisis was generally to bail out troubled banks with public funds, which was later adopted by the United States with the Reconstruction Finance Corporation. After the depression, countries established financial safety nets, including deposit insurance and heavy regulation. Moreover, the Great Inflation in the 1970s led to deregulation and increased competition, reemerging banking instability. The Depository Institutions Deregulation and Monetary Control Act of 1980 and the Basel I Accords addressed these issues (Michael D. Bordo, 2007). Moreover, over the

past two decades, there has been a significant increase in monetary policy transparency, a trend that predates the focus on financial stability. Initially, central banks were primarily tasked with safeguarding financial stability starting from the late 1990s or later. However, if a central bank chooses to communicate more openly about its monetary policy, it could generate momentum for greater transparency across other areas of central bank activities, including efforts to promote financial stability (Horváth and Vaško, 2012).

Numerous studies have delved into the factors and impacts of monetary policy transparency, including notable works by (Dincer and Eichengreen, 2009). However, (Oosterloo et al., 2007) and (Cihak et al., 2012) have examined a specific facet of financial stability transparency, focusing on the publication of financial stability reports (FSRs). Furthermore, (Cihak et al., 2012) have also developed a framework for assessing the quality of these reports. Whereas the evidence regarding the effects of quality ratings on financial stability transparency is limited, providing only modest support for its beneficial outcomes.

(Horváth and Vaško, 2012) mentioned in their paper that many central banks worldwide, such as the Bank of England and the Swedish Riksbank, utilize FSRs as their primary means of communicating information about financial stability. For instance, the Bank of England defines its FSR as a tool to identify major risks to the UK financial system, aiding financial firms, authorities, and the broader public in managing and preparing for these risks. Similarly, the Swedish Riksbank emphasizes that its FSRs offer an overall assessment of risks and threats to the financial system, along with an evaluation of its capacity to address them. By sharing this analysis with financial market participants and other stakeholders, these central banks aim to contribute to informed

discussions and reduce market noise. As highlighted by (Born et al., 2012), one significant purpose of publishing FSRs is to effectively guide markets.

Besides, the first countries to publish FSRs were the UK and the Scandinavian countries, specifically Sweden and Norway. Sweden was the first country to provide a separate document regarding its financial stability, having done so in 1997. (Andersson .M, 2008) contends that the main reason countries began to publish their FSRs was related to the financial crisis of the early 1990s.

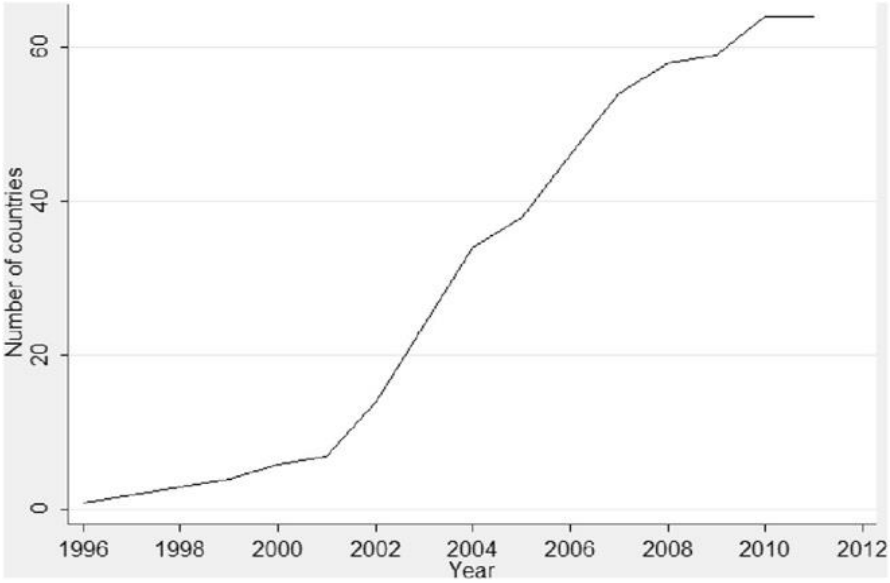

Figure 1. The number of central banks publishing financial stability reports

Moreover, (Cihak, 2006) observes that the majority of assessments within FSRs issued before the recent financial crisis portrayed positivity, with approximately 96% of FSRs characterizing the financial sector as either "in good shape," "solid shape," or "improving." (Born et al., 2012) investigate this optimism trend and note its escalation throughout the 2000s until the onset of the financial crisis. To assess the validity of this optimism, one approach is to conduct stress tests on the financial sector using sufficiently adverse scenarios. (Breuer et al., 2011)and (Franta et al., 2014) propose quantitative methodologies for evaluating the adequacy of these adverse scenarios.

To investigate the determinants of a central bank's transparency on financial stability issues, (Oosterloo et al., 2007) explore the factors influencing the publication of FSR and discover that experience of banking crises, higher income per capita, and EU membership increase the likelihood of FSR publication. (Horváth and Vaško, 2012) delve into the determinants of FSR publication and interpret that the presence of FSRs can be viewed as a basic indicator of financial stability transparency, thereby offering supplementary validation to their primary estimations, where they employ their Financial Stability Transparency (FST) index as the dependent variable. Consequently, their study builds upon the work of (Oosterloo et al., 2007) enhancing the understanding of financial stability and transparency.

In addition, (Horváth and Vaško, 2012) also employs a wider range of variables to investigate the impetus behind enhanced transparency. they hypothesize the significance of central bank culture, specifically examining the influence of monetary policy transparency. They also posit that a clear and transparent communication strategy regarding monetary policy is likely to extend to transparent communication regarding financial stability. The progression of monetary policy transparency preceded that of financial stability transparency, with numerous countries globally significantly enhancing their monetary policy transparency during the 1990s, as evidenced by studies such as those conducted by (Blinder et al., 2009) (Crowe and Meade, 2008).

2.5.3. Volatility and Exchange Rate

As previously noted, one of the primary objectives of most central banks is to stabilize the economy and minimize economic fluctuations. This entails reducing volatility in inflation, output, and exchange rates, which holds significant importance

for various reasons. Firstly, exchange rate volatility (ERV) has the potential to adversely impact trade, as evidenced by numerous studies e.g., (Arize et al., 2000). Secondly, substantial fluctuations in exchange rates (ERs) have been linked to decreased levels of private investment in developing nations (Servén, 2003). Thirdly, heightened ERV may lead to lower labor productivity, albeit with a less pronounced effect observed in financially developed countries (Aghion et al., 2009). Fourthly, according to (Bagella et al., 2006), increased volatility in the Real Effective Exchange Rate (REER) is associated with reduced GDP growth. Lastly, there are concerns that ERV contributes to higher unemployment rates. For example, (Belke and Gros, 2002) demonstrates that EuroDollar exchange rate variability significantly raises unemployment levels in both the United States and the Eurozone. Taken together, these points underscore the economic significance of exchange rate volatility.

In the post-Bretton Woods era, ERV held particular significance for central banks in countries with flexible exchange rates. (Mussa, 1979) asserted that fluctuations in ERs, whether high or low, are primarily attributable to uncertainty surrounding monetary policy. (Bouakez and Normandin, 2010) examines the impact of monetary policy shocks across six countries, revealing that such shocks account for approximately 40% (medium-term) or 30% (long-term) of ER fluctuations. This underscores the influence of monetary policy on ERV. However, contemporary monetary policy extends beyond mere adjustments to key interest rates and encompasses communication strategies as well. The rise in CBT stands out as one of the key developments in central banking in recent decades (Blinder et al., 2008).

Overall, CBT may drive market expectations to converge as forecasts become more synchronized (Bauer et al., 2006), thereby influencing ERs. Given evidence

indicating that monetary policy surprises amplify stock return volatility e.g. (Farka, 2009), increased transparency, which fosters a better understanding of monetary policy, could potentially mitigate such surprises and consequently reduce financial market volatility. However, the impact of CBT on ERV is not straightforward. On one hand, heightened transparency might enhance the precision of expectations, leading to decreased fluctuations in ERs. And reduction in variability regarding anticipated future values would consequently reduce ERV.

Numerous studies show that ERs are directly impacted by policy transparency, which includes communicating about policy decisions. (Jansen and De Haan, 2005) illustrate that ECB communication directly impacts ERV. (Rosa, 2013) concludes that only unexpected shifts in the tone of ECB press conferences, rather than surprises in interest rate decisions, have significance for Euro ERs. The analysis encompasses the Euro's exchange rates against major currencies including the US Dollar, British Pound, Canadian Dollar, Swiss Franc, and Japanese Yen. In contrast, (Rosa, 2011) demonstrates that for the Federal Reserve, both anticipated announcements and unexpected announcements affect the US Dollar's exchange rate against the Euro and the aforementioned four currencies. Consequently, monetary policy surprises transiently elevate the volatility of the US Dollar spot rate.

In addition to communicating monetary policy decisions, general discourse from central banks may also influence foreign exchange markets. (Guthrie and Wright, 2000) illustrate that communications from the Reserve Bank of New Zealand strongly impact the trade-weighted New Zealand Dollar, particularly in the very short term. This effect is similarly observed with the Swiss National Bank (Ranaldo and Rossi, 2010), where communication from the Swiss Central Bank notably affects the Swiss Franc's exchange

rate against the US Dollar. These findings extend to both official monetary policy statements and communications such as interviews and speeches by members of the Swiss National Bank. However, it's important to note that increased information provision does not necessarily result in reduced fluctuations in exchange rates if there is considerable noise trading reacting to news with low information content.

Therefore, the impact of central bank communication or news in general may vary depending on a country's level of development. The role of news could differ based on whether a country possesses a fully established financial or currency market. In markets with few traders and low trading volume, there is a reduced likelihood of news and central bank communication affecting exchange rates compared to markets with high trading activity. (McCauley and Scatigna, 2011) demonstrate a positive correlation between the ratio of foreign exchange turnover to international trade (in goods and services) and GDP per capita. This suggests that in more developed countries, a larger proportion of foreign exchange activity is unrelated to the real economy. Consequently, news or non-fundamental factors could have a greater impact on trading activity in highly developed nations. Thus, the question extends beyond whether CBT affects ERV to also consider whether this effect is contingent upon a country's level of development.

2.5.4. Gross Domestic Product

(Mishkin, 2004) denote that one challenge in measuring potential output arises because monetary policy authorities must estimate it using real-time data available when they set policy instruments. Gross Domestic Product (GDP) data often undergo substantial revisions, leading to mismeasurement of output gaps in real-time.

Furthermore, determining potential GDP and its growth rate is notoriously difficult without hindsight. For instance, policymakers in the United States only realized in the 1980s that potential GDP growth had significantly slowed after 1973. (Orphanides A. , 2001) illustrates that errors in output gap measures have been substantial in the postwar period.

(McCallum and Nelson, 2000) and (McCallum, 2001) argue that the conventional measurement of output gaps, which assesses the gap as deviations from a trend, differs significantly from more theoretically grounded measures based on the output level that would occur in the absence of nominal price stickiness. While there are measurement difficulties with both inflation and output gaps, the conceptual and real-time measurement issues for inflation are considerably less significant.

The significant measurement challenges associated with the output gap could compound with an intensified emphasis on eradicating output gaps, potentially resulting in serious policy errors, as witnessed in the United States during the 1970s (Mishkin, 2004). (Orphanides, 1998) demonstrates that utilizing real-time data on output gaps may lead to such inaccurate estimations that active monetary policies, which strongly react to output gaps, increase economic instability. (Orphanides, 2000) also manifest that the Federal Reserve's subpar performance during the 1970s was not due to indifference toward inflation, but rather stemmed from excessive focus on eliminating output gaps.

Moreover, (Mishkin, 2004) mentioned that given the concerns raised, it's unsurprising that no central bank has disclosed its objective function to the public. Moreover, the discussion suggests that even without announcing its objective function, revealing current and future estimates of potential output and output gaps could potentially worsen the performance of monetary policy. Therefore, the discussion also

argues against the publication of central bank estimates and forecasts of potential output and output gaps, even if the release of inflation and output forecasts is deemed beneficial. Although most central banks that practice inflation targeting release forecasts for both output and inflation, only the central banks of New Zealand, Norway, and Iceland incorporate an output gap measure. Additionally, these banks find that the marginal cost measure exhibits substantially different movements and timing than conventionally measured output gaps.

An advantage of a central bank disclosing its objective function would be to provide clarity on how the bank intends to address output fluctuations. However, since central banks refrain from divulging their objective functions, and given the compelling arguments against doing so, they still face the challenge of discussing output fluctuations. In reality, central bankers, whether operating under an inflation target or not, tend to avoid openly addressing concerns about output fluctuations, despite their actions indicating otherwise. This lack of transparency represents the "dirty little secret of central banking." A notable instance of this occurred in August 1994 at the Federal Reserve Bank of Kansas City's Jackson Hole Conference, when Alan Blinder, then Vice-Chairman of the FOMC, mentioned the existence of a short-run tradeoff between output and inflation, advocating for monetary policy to minimize both output and inflation fluctuations. Blinder faced criticism from many central bankers and the media, with a Newsweek columnist questioning his qualification as a central banker. From an academic economist's perspective, this reaction was surprising since Blinder's remarks were consistent with economic models and the underlying beliefs of central bankers. However, it underscores the discomfort central bankers collectively have with discussing the role of output fluctuations in monetary policy (Mishkin, 2004).

The challenges associated with revealing the objective function, as discussed in the preceding section, elucidate why central bankers struggle to be transparent about their concerns regarding output fluctuations. Central bankers apprehend that explicit acknowledgment of the need to minimize output fluctuations alongside inflation fluctuations may prompt politicians to pressure the central bank into adopting an overly expansionary short-term strategy, resulting in adverse long-term outcomes. Additionally, a disproportionate focus on output gaps could lead to policy errors akin to those witnessed in the United States during the 1970s. In response to these challenges, central bankers often resort to a "don't ask, don't tell" strategy (Mishkin, 2004).

However, the reluctance of central banks to openly address their concerns about reducing output fluctuations gives rise to two significant problems. Firstly, employing a "don't-ask-don't-tell" strategy is inherently dishonest. Engaging in actions while conveying a different message epitomizes a lack of transparency, and central banks failing to acknowledge their concerns about output fluctuations may undermine confidence in other aspects of their transparency, which are undeniably beneficial. Secondly, if central bankers refrain from discussing their apprehensions about output fluctuations, they risk being perceived as "inflation nutters." This perception can lead to diminishing support for a central bank's policies and independence, as this set of preferences is clearly at odds with those of the public (Mishkin, 2004).

CHAPTER 3

DATA

The data section plays a crucial role in this thesis's examination of the connection between the macroeconomic implications of central banks' openness and their actions. The systematic analysis of many datasets that capture the transparency practices of central banks in different economies, together with the accompanying macroeconomic indicators, is at the core of the investigation. This introduction explains the purpose, methodology, and importance of the data compilation, providing the framework around which the other studies are built.

Understanding the mechanisms by which the transparency—or lack thereof—of central banks affects economic outcomes is essential to our study. To do this, the data section has been meticulously created to include a wide range of statistics that have been gathered from reputable institutions and scholarly literature. These datasets capture the complex aspects of central bank transparency and its possible influence on important macroeconomic indicators.

A rigorous framework directs the selection of datasets, taking into factors like the comprehensiveness, reliability, and relevance of the data sources in relation to the goals of the research. Interestingly, statistics covering a wide range of transparency measures are included, from qualitative evaluations to quantitative indices, providing a more nuanced view of central banks' communication strategies and their effectiveness in influencing economic expectations and behaviors.

This introduction also sheds light on the approaches used for data collection, processing, and validation as well as the operationalization of important variables. The

integrity and dependability of the empirical findings are maintained by public reporting and adherence to best practices in data management, which builds trust in the analyses and interpretations that follow.

The data part attempts to clarify the complex link between macroeconomic dynamics and central banks' transparency by grounding the research in a strong empirical foundation. This thesis seeks to further the academic conversation on monetary policy transparency and its effects on Inflation and financial stability, exchange rate, and GDP in the economy by a methodical investigation and careful analysis of the data gathered.

This study uses Dincer, Eichengreen, and Greaats (2019) published and updated data on transparency for 109 Central Banks between developed and developing countries, annually from 1998 to 2019. The data covered a variety of dimensions, including political, economic, procedural, policy, and operational. And its main advantage is that it covers a larger set of countries and periods than earlier measures. In addition, key macroeconomic indicators are included in the data as well as a total of 24 variables that were mainly taken from the World Development Indicators (WDI).

The first indicator, inflation, comprises 10 variables: GDP, GDP per capita, trade openness, political stability, exchange rate, unemployment, real interest rate, broad money growth, government effectiveness, and bank deposits.

Similarly, the second indicator, financial stability, encompasses 8 variables: transparency, GDP, GDP per capita, credit to GDP, market capitalization, trade openness, inflation, and financial stress.

Conversely, the exchange rate indicator consists of 5 variables: GDP per capita, credit to GDP, price of capital, real interest rate, and real exchange rate.

Lastly, the GDP indicator comprises 7 variables: trade openness, interest rate differential, technological change, government spending, consumption, net exports, and investment.

CHAPTER 4

METHODOLOGY

The methodological element of this thesis is the most important part as it guides the empirical investigation using panel regression analysis of the relationship between macroeconomic impacts and central bank transparency. The purpose of this introduction is to present a concise summary of the methodology that has been selected, together with its justification and structure for efficiently addressing the study objectives.

The use of panel regression techniques, which provide a reliable way to analyze the relation between central bank transparency and macroeconomic results across multiple countries and across time, is at the core of the research. Panel regression integrates the cross-sectional and time-series aspects of the data, allowing for an extensive examination of the connection between different macroeconomic indicators and transparency measures.

In addition, the methodology section is structured to provide a structured overview of the steps that involve panel regression analysis, including model composition, data preparation, estimate methods, and result interpretation. Making sure that the methodology is transparent is emphasized to provide readers with a clear knowledge of analytical procedures and underlying assumptions.

Moreover, this chapter further clarifies the reasoning behind the choice of panel regression as the preferred analytical approach, emphasizing its ability to account for potential biases and time-specific effects while capturing country-specific differences. By using panel data, conclusions may be more broadly generalized across a range of national settings and the robustness of the inference is improved.

To examine how central banks' transparency affects macroeconomic stability across 109 nations, the thesis uses a panel regression model. Panel regression is particularly useful for studying the effects of time-varying and time-invariant factors on a dependent variable, as it allows for the estimation of both within-group and between-group effects. In this thesis, the authorized panel regression equation for examining the data collected is:

$$\boldsymbol{Y = \alpha_{it} + \beta X_{it} + u_{it} + e_{it}}$$

For $i = 1...n;\ t = 1....T$

Where:

Y: outcome variable (for entity I at time t).

$\alpha_{i:}$ is the unknown intercept for each entity (n entity-specific intercepts).

β: represents a common effect across entities controlling for individual heterogeneity.

$X_{it:}$ is a vector of predictors (for entity i at time t).

$u_{i:}$ within-entity error term.

$e_{it:}$ overall error term.

CHAPTER 5

RESULTS AND ANALYSIS

In this chapter, we delve into the outcomes of our study regarding the influence of central bank transparency on various economic variables. Throughout the preceding chapters, we meticulously explored the theoretical underpinnings, methodological approach, and empirical findings pertinent to our research question. Now, the time has come to synthesize these elements and unravel the intricate relationships between central bank transparency and key economic indicators.

In this chapter, we begin by presenting the findings of our analysis, which involves a comprehensive examination of multiple economic variables. Through the analysis of data collected over a specific period, we aim to identify any discernible patterns, correlations, or causal relationships between central bank transparency and these economic variables. Following the presentation of results, we conduct a thorough analysis to interpret the implications of our findings.

First, inflation, the steady rise in the general price level of goods and services over time, is a critical economic indicator with far-reaching implications for both consumers and businesses. Central banks closely monitor inflation as they strive to maintain price stability, a cornerstone of effective monetary policy.

The analysis for inflation data that was obtained from the World Development Indicators (WDI) is as follows:

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
VARIABLES	Inflation	Inflation	Inflation	Inflation	Inflation	Inflation	Inflation	Inflation	Inflation	Inflation	Inflation
TI	-1.093***	-1.248***	-1.248***	-1.248***	-1.111***	-0.900***	-0.997***	-1.231***	-0.976***	-0.976***	-0.469***
	(0.180)	(0.149)	(0.149)	(0.149)	(0.126)	(0.0888)	(0.0956)	(0.111)	(0.117)	(0.118)	(0.167)
GDP	-0.125**	-0.121**	0.058	0.058	0.165	0.386	0.361	0.448	0.247	0.247	0.449
	(0.0584)	(0.0481)	(0.203)	(0.203)	(0.156)	(0.245)	(0.283)	(0.306)	(0.305)	(0.306)	(0.414)
Trade Openness		0.0675***	0.0671***	0.0671***	0.0631***	0.012	0.0161*	0.004	0.002	0.002	0.007
		(0.0146)	(0.0146)	(0.0146)	(0.0119)	(0.00874)	(0.00932)	(0.00987)	(0.00968)	(0.00975)	(0.0157)
GDP per capita			(0.182)	(0.182)	-0.259*	-0.595**	-0.632**	-0.780**	-0.666**	-0.666**	(0.649)
			(0.201)	(0.201)	(0.154)	(0.244)	(0.280)	(0.304)	(0.301)	(0.301)	(0.408)
Political Stability					-3.372***	-1.956***	-2.065***	-1.559**	-1.620***	-1.622***	-1.818***
					(0.532)	(0.484)	(0.530)	(0.608)	(0.598)	(0.609)	(0.655)
Exchange Rate						-0.0610***	-0.0738***	-0.0792***	-0.0713***	-0.0714***	-0.0367*
						(0.0106)	(0.0132)	(0.0145)	(0.0144)	(0.0146)	(0.0204)
Unemployment							(0.0254)	0.027	0.0176	0.0176	(0.0135)
							(0.0674)	(0.0801)	(0.0792)	(0.0793)	(0.0954)
Real Interest Rate								-0.215***	-0.221***	-0.221***	-0.224***
								(0.0319)	(0.0316)	(0.0317)	(0.0371)
Broad Money Growth									0.112***	0.112***	0.010
									(0.0208)	(0.0208)	(0.0276)
Government Effectiveness										0.014	(1.386)
										(0.881)	(1.174)

Bank Deposit											(0.145)
											(0.112)
Constant	13.71***	8.447***	8.243***	8.243***	7.330***	16.81***	19.22***	23.73***	20.22***	20.22***	14.48***
	(1.135)	(1.465)	(1.482)	(1.482)	(1.257)	(1.465)	(1.950)	(2.168)	(2.235)	(2.238)	(3.747)
Observations	2236	2033	2033	2033	1818	975	824	664	647	647	353
Number of countries	106	99	99	99	97	51	51	46	46	46	36
R-squared	0.019	0.042	0.042	0.042	0.073	0.168	0.202	0.274	0.301	0.301	0.191

Standard errors in parentheses

**** p<0.01, ** p<0.05, * p<0.1*

Table 1. Effect of Central Bank's Transparency and Economic Variables on Inflation

The significance levels (*** p<0.01, ** p<0.05, * p<0.1) denote the statistical significance of the coefficient estimates. They indicate the probability that the observed relationship between an independent variable and inflation is due to chance. Lower p-values suggest higher significance.

Examining the Transparency Index (TI) in light of these regression findings is essential to understanding its impact on inflation, as depicted by the coefficients presented in the table. The coefficients associated with TI across various models exhibit statistical significance at the 1% level (***), indicating a robust relationship between TI and inflation. Notably, the negative coefficients associated with TI suggest an inverse correlation with inflation, signifying that higher levels of transparency, as measured by the Transparency Index, are linked to lower inflation rates. Additionally, a higher Transparency Index reflects increased transparency in governance, potentially fostering more accountable and efficient economic policies. Transparent fiscal and monetary

policies reduce the scope for concealed or discretionary measures that could contribute to inflationary pressures.

The consistency of negative coefficients across diverse models (which incorporate different control variables) in the Robustness of Findings section implies that the relationship between transparency and inflation remains unchanged even when accounting for factors such as GDP, trade openness, political stability, and exchange rates. However, it is crucial to note that while the analysis indicates a strong association between transparency and inflation, it is imperative to acknowledge that correlation does not imply causation. Other unobserved variables may concurrently influence both transparency and inflation.

The significance levels of coefficients related to GDP vary across different models, with some being significant at the 1% level (*), while others at the 5% level (). This variability underscores a nuanced relationship between GDP and inflation across diverse specifications. Furthermore, the signs of the coefficients associated with GDP also fluctuate among models. Negative coefficients imply an inverse correlation between GDP and inflation, suggesting that higher GDP levels correlate with lower inflation rates. Conversely, positive coefficients indicate a direct relationship, suggesting that higher GDP levels are associated with higher inflation rates.

Similarly, the coefficients associated with Trade Openness consistently exhibit statistical significance at the 1% level (***), highlighting a robust connection between trade openness and inflation. The positive coefficients for Trade Openness indicate a direct relationship with inflation, implying that higher levels of trade openness correspond to higher inflation rates.

Regarding coefficients linked to GDP per capita, their significance levels vary across different models, with some being significant at the 10% level (*), while others are not statistically significant. This diversity suggests a mixed relationship between GDP per capita and inflation across various specifications. Moreover, the signs of the coefficients associated with GDP per capita also vary among models. Negative coefficients imply an inverse relationship between GDP per capita and inflation, indicating that higher GDP per capita levels are associated with lower inflation rates. Conversely, positive coefficients suggest a direct relationship, suggesting that higher GDP per capita levels correspond to higher inflation rates.

The coefficients linked to Political Stability across various models consistently demonstrate statistical significance at the 1% level (***), implying a robust correlation between political stability and inflation. Negative coefficients associated with Political Stability indicate an inverse relationship with inflation, indicating that heightened levels of political stability correspond to lower inflation rates.

Similarly, the coefficients associated with the Exchange Rate across different models consistently exhibit statistical significance at the 1% level (***), highlighting a strong relationship between exchange rates and inflation. Negative coefficients linked to the Exchange Rate suggest an inverse relationship with inflation. This implies that a higher exchange rate (reflecting the appreciation of the domestic currency relative to foreign currencies) is associated with lower inflation rates, whereas a lower exchange rate (reflecting the depreciation of the domestic currency) is associated with higher inflation rates.

On the other hand, the significance levels of coefficients related to Unemployment vary across different models, with some being significant at the 10%

level (*), while others lack statistical significance. This variance suggests a mixed relationship between unemployment and inflation across various specifications. Additionally, the signs of the coefficients associated with Unemployment differ among models. Positive coefficients indicate a positive relationship between unemployment and inflation, signifying that higher levels of unemployment correlate with higher inflation rates. Conversely, negative coefficients imply an inverse relationship, indicating that higher unemployment rates correspond to lower inflation rates.

Furthermore, the coefficients associated with the Real Interest Rate across diverse models consistently exhibit statistical significance at the 1% level (***), indicating a robust connection between real interest rates and inflation. Negative coefficients associated with the Real Interest Rate imply an inverse relationship with inflation. This suggests that higher real interest rates are associated with lower inflation rates, while lower real interest rates are associated with higher inflation rates.

The coefficients of Broad Money Growth consistently exhibit statistical significance at the 1% level (***), indicating a robust correlation between broad money growth and inflation. Positive coefficients associated with Broad Money Growth suggest a direct relationship with inflation, implying that higher rates of broad money growth correlate with higher inflation rates, while lower rates of broad money growth correspond to lower inflation rates.

Moreover, coefficients associated with Government Effectiveness vary in significance levels across different models, with some being significant at the 10% level (*), while others lack statistical significance. This variability suggests a mixed relationship between government effectiveness and inflation across different specifications. The sign of the coefficient for Government Effectiveness reflects the

direction of its relationship with inflation. A negative coefficient would imply that higher government effectiveness is associated with lower inflation rates, whereas a positive coefficient would suggest the opposite.

In the provided regression results, the R-squared values range from 0.019 to 0.301 across different models. This range indicates that the independent variables included in each model explain between 1.9% and 30.1% of the variance in inflation, depending on the model specification.

The second indicator, financial stability, whose relevant data was sourced from the World Development Indicators (WDI), is outlined as follows:

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
VARIABLES	Financial Stability	Financial Stability	Financial Stability	Financial Stability	Financial Stability	Financial Stability	Financial Stability
TI	(1199000000)***	(1218000000)***	(6028000000)***	(469600000)**	(3521000000)*	(3440000000)*	(324000000)
	(254100000)	(257800000)	(1416000000)	(190800000)	(1893000000)	(1912000000)	(203500000)
CPIA transparency	91850000	154100000	186200000	118500000	(2646000000)	(2580000000)	(163200000)
	(835500000)	(848300000)	(7111000000)	(765300000)	(7796000000)	(7856000000)	(849500000)
GDP per capita		(25110000)	(10810000)	(287500000)	(58150000)	(74200000)	(34490000)
		(57310000)	(47800000)	(767800000)	(73890000)	(79330000)	(86650000)
Market Capitalization			64570000	325400000***	378200000***	378300000***	370300000***
			(47960000)	(104600000)	(101700000)	(102500000)	(106700000)
Trade Openness				(273400000)	(201700000)	(138400000)	(154600000)
				(185700000)	(184600000)	(215100000)	(223500000)
Credit to GDP Ratio					(1035000000)***	(1066000000)***	(102300000)**

					(362100000)	(368800000)	(397600000)
Inflation						(219300000)	(255000000)
						(374200000)	(394900000)
GDP							2678000000
							(853800000)
Constant	4019000000	4014000000	2681000000	2463000000	54930000000*	54690000000*	4556000000
	(2652000000)	(2654000000)	(2259000000)	(27780000000)	(2917000000)	(2939000000)	(41590000000)
Observations	508	508	95	63	59	59	59
Number of countries	39	39	12	10	9	9	9
R-squared	0.046	0.046	0.213	0.269	0.389	0.394	0.396

Standard errors in parentheses

**** p<0.01, ** p<0.05, * p<0.1*

Table 2. Effect of Central Bank's Transparency and Economic Variables on Financial Stability.

The coefficients linked to the Transparency Index (TI) represent the estimated impact of changes in transparency and accountability levels on the dependent variable, which in this case appears to be financial stability. The size of these coefficients indicates the strength of the relationship between TI and financial stability. The significance levels, denoted by asterisks, reflect the reliability of these coefficients, with (***) indicating significance at the 1% level, (**) at the 5% level, and (*) at the 10% level. Thus, a positive coefficient suggests that an increase in the Transparency Index (indicating enhanced governance transparency and accountability) is correlated with improved financial stability. Conversely, a negative coefficient would imply the opposite relationship, suggesting that higher levels of transparency and accountability are linked to reduced financial stability. However, all coefficients associated with TI in the provided regression results are positive.

Consequently, a positive coefficient indicates that an increase in CPIA transparency (reflecting improved governance quality) correlates with enhanced financial stability. Conversely, a negative coefficient would suggest the opposite relationship, implying that higher levels of CPIA transparency are associated with decreased financial stability. However, all coefficients associated with CPIA transparency in the provided regression results are positive.

The coefficients pertaining to GDP per capita reflect the estimated impact of changes in GDP per capita on the dependent variable, which in this context appears to be financial stability. The magnitude of these coefficients signifies the strength of the relationship between GDP per capita and financial stability. Thus, a positive coefficient implies that an increase in GDP per capita is correlated with enhanced financial stability, suggesting that higher levels of economic development and prosperity foster financial stability. Conversely, a negative coefficient would suggest the opposite relationship, indicating that higher levels of GDP per capita are associated with reduced financial stability. However, it is more commonly observed for GDP per capita to positively affects financial stability.

Similarly, the coefficients associated with Market Capitalization represent the estimated effect of changes in market capitalization on financial stability. The magnitude of these coefficients indicates the strength of the relationship between Market Capitalization and financial stability, with the significance levels indicating the statistical. A positive coefficient suggests that an increase in market capitalization is linked to enhanced financial stability, indicating that a larger stock market with higher market capitalization may contribute positively to financial stability. The statistical

significance of the coefficient helps ascertain the reliability of this relationship. In the provided regression results, the coefficient for Market Capitalization is statistically significant at the 1% level, indicating a strong association with financial stability.

Moreover, the coefficients linked with Trade Openness depict the estimated impact of alterations in trade openness on financial stability. The magnitude of these coefficients indicates the strength of the relationship between Trade Openness and financial stability, with significance levels denoting statistical significance. A positive coefficient suggests that an increase in trade openness is associated with improved financial stability, indicating that countries with more open economies engaging in greater international trade may experience heightened financial stability. Conversely, while a negative coefficient would imply the opposite relationship, it is more commonly observed for trade openness to positively affect financial stability.

The coefficients regarding the credit-to-GDP ratio represent the estimated effect of changes in this ratio on the dependent variable, which appears to be financial stability in this case. The magnitude of these coefficients illustrates the strength of the relationship between the credit-to-GDP ratio and financial stability. A positive coefficient indicates that an increase in the credit-to-GDP ratio correlates with enhanced financial stability. This suggests that deeper financial intermediation, demonstrated by higher levels of credit relative to GDP, may contribute positively to financial stability. Contrarily, a negative coefficient would suggest the opposite relationship, indicating that higher levels of the credit-to-GDP ratio are associated with decreased financial stability. However, it is more common for a credit-to-GDP ratio to be linked to increased financial stability, reflecting greater access to credit and financial services.

Additionally, the coefficients associated with inflation represent the estimated impact of changes in the inflation rate on financial stability. The magnitude of these coefficients indicates the strength of the relationship between inflation and financial stability. A positive coefficient suggests that an increase in inflation is linked to enhanced financial stability, which contradicts economic theory, as higher inflation rates typically signal decreased financial stability. A negative coefficient, which is more commonly expected, would suggest that higher inflation rates are associated with decreased financial stability, as high inflation can erode purchasing power, disrupt economic activity, and create uncertainty in financial markets.

The coefficients associated with GDP represent the estimated impact of changes in GDP on financial stability. The magnitude of these coefficients indicates the strength of the relationship between GDP and financial stability. A positive coefficient suggests that an increase in GDP correlates with enhanced financial stability, aligning with economic theory, as higher levels of economic output typically indicate a healthier and more stable economy, positively influencing financial stability. Conversely, a negative coefficient would suggest the opposite relationship, indicating that higher levels of GDP are associated with decreased financial stability, contrary to economic intuition and less common in empirical analyses.

Among the presented table, the highest R-squared value is 0.396, indicating that approximately 39.6% of the variability in Financial Stability is explained by the independent variables included in this model. R-squared values of 0.389 and 0.394 also demonstrate relatively high explanatory power. Conversely, the lowest R-squared value is 0.046, suggesting a poorer fit compared to other models.

Next, we examined the exchange rate indicator sourced from the World Development Indicators (WDI), which is outlined as follows:

	(1)	*(2)*	*(3)*	*(4)*
VARIABLES	Exchange Rate	Exchange Rate	Exchange Rate	Exchange Rate
TI	0.138	0.815***	0.758***	0.229
	(0.281)	(0.270)	(0.271)	(0.299)
Price of Capital	0.164	0.420***	0.466***	0.408***
	(0.125)	(0.110)	(0.112)	(0.122)
Real Interest Rate		0.235***	0.228***	0.288***
		(0.077)	(0.077)	(0.090)
GDP per capita			-0.269**	(0.114)
			(0.124)	(0.134)
Credit to GDP Ratio				0.0721***
				(0.0186)
Constant	95.04***	82.17***	82.16***	81.59***
	(3.693)	(3.504)	(3.496)	(3.86)
Observations	1060	855	855	756
Number of countries	51	46	46	45
R-squared	0.002	0.033	0.038	0.056

Standard errors in parentheses

**** p<0.01, ** p<0.05, * p<0.1*

Table 3. Effect of Central Bank's Transparency and Economic Variables on Exchange Rate.

The coefficient for TI stands at 0.138, indicating a positive correlation between transparency and the exchange rate. However, it lacks statistical significance at conventional levels (p>0.1). This implies that, in this particular model, there isn't compelling evidence to assert that alterations in transparency notably impact the exchange rate. When the coefficient for TI increases to 0.815, it becomes statistically

significant at the 1% level (***), suggesting a robust positive relationship between transparency and the exchange rate. A one-unit rise in the Transparency Index corresponds to a 0.815 unit increase in the exchange rate, all else constant. Subsequently, with a coefficient for TI of 0.758, also statistically significant at the 1% level (***), similar to the prior finding, there is an observed positive relationship between transparency and the exchange rate. Here, a one-unit surge in transparency relates to a 0.758 unit increase in the exchange rate, holding other variables constant. However, the last coefficient for TI is 0.229, lacking statistical significance at conventional levels ($p>0.1$). This suggests that, in this model, there isn't compelling evidence to conclude that changes in transparency significantly influence the exchange rate. Overall, the findings concerning the Transparency Index (TI) display a mix of outcomes across the models.

Initially, the coefficient for the Price of Capital stands at 0.164, yet it lacks statistical significance at conventional levels ($p>0.1$). This indicates that, within this model, fluctuations in the price of capital do not exert a notable impact on the exchange rate. Subsequently, the coefficient for the Price of Capital becomes statistically significant at the 1% level (***). This highlights a robust positive association between the price of capital and the exchange rate in these models. Specifically, a one-unit increase in the price of capital corresponds to increases in the exchange rate by 0.420, 0.466, and 0.408 units in the second, third, and fourth columns, respectively, holding other variables constant. The significant positive coefficients observed in these columns (2, 3, and 4) suggest that heightened prices of capital tend to coincide with an increase in the exchange rate. This phenomenon could stem from various factors, such as elevated interest rates linked to higher capital costs, attracting foreign investment and

thus augmenting demand for the domestic currency, or indicating robust economic performance, which can bolster the exchange rate. Conversely, the non-significant coefficient in the first column or initial model suggests that within that specific model, the price of capital fails to exert a significant effect on the exchange rate. This discrepancy could arise from the particular variables encompassed in Model 1, which might obscure the impact of the price of capital or imply that its influence is insignificant in that context.

In Model 1, the Real Interest Rate lacks a provided coefficient, indicating its exclusion from that model. However, in Models 2, 3, and 4, the coefficient for the Real Interest Rate is statistically significant at the 1% level (***), with coefficients of 0.235, 0.228, and 0.288, respectively. These significant positive coefficients suggest a direct relationship between the real interest rate and the exchange rate in Models 2, 3, and 4. This implies that an increase in the real interest rate corresponds to an increase in the exchange rate. The real interest rate, which reflects the nominal interest rate adjusted for inflation, can attract foreign investment, thereby increasing demand for the domestic currency and appreciating its value relative to other currencies. The Real Interest Rate's absence in Model 1 might imply that within that specific model, other variables are deemed more pivotal or that the real interest rate is highly correlated with other included variables.

Similarly, in Model 1, there's no coefficient provided for GDP per capita, indicating its omission from that model. However, in Model 3, the coefficient for GDP per capita stands at -0.269, with statistical significance at the 5% level (**). The negative coefficient in Model 3 implies an inverse relationship between GDP per capita and the exchange rate, suggesting that as GDP per capita increases, the exchange rate

tends to decrease. This finding may initially appear counterintuitive since higher GDP per capita is often linked with economic robustness and stability, factors typically associated with a stronger currency. Nevertheless, several factors could elucidate this outcome: Within the context of Model 3, higher GDP per capita might correlate with greater purchasing power, potentially leading to increased imports and, consequently, heightened demand for foreign currency, exerting downward pressure on the exchange rate. Alternatively, it's plausible that higher GDP per capita is associated with elevated interest rates or inflation, both of which could adversely affect the exchange rate. The absence of GDP per capita in other models hints at its potentially insignificant influence on exchange rates within those particular contexts or suggests that other included variables in those models capture similar effects.

In Models 1, 2, and 3, the absence of a coefficient for the Credit to GDP Ratio indicates its exclusion from those models. However, in Model 4, the coefficient for Credit to GDP Ratio is 0.0721, with statistical significance at the 1% level (***). This positive coefficient in Model 4 suggests a direct relationship between the Credit to GDP Ratio and the exchange rate. Specifically, it implies that as the Credit to GDP Ratio increases, the exchange rate tends to rise as well. A higher Credit to GDP Ratio may signal greater credit availability within an economy relative to its size, potentially fostering increased economic activity and investment, thereby contributing to a strengthened currency.

The significance of the Credit to GDP Ratio in Model 4 indicates its significant role in explaining exchange rate movements within that specific context. However, its absence in other models suggests that its impact on exchange rates might not be as

pronounced in those contexts, or that other variables already included in those models capture similar effects.

The R-squared values in the table illustrate the explanatory power of the included independent variables concerning the observed variability in the exchange rate across different models. Model 1 displays a notably low R-squared value of 0.002, indicating that its independent variables elucidate only 0.2% of the exchange rate's variability. Models 2 and 3 exhibit slightly higher R-squared values of 0.033 and 0.038, respectively, suggesting that around 3.3% to 3.8% of the exchange rate's variability is accounted for by their independent variables. Model 4 stands out with the highest R-squared value of 0.056, indicating that approximately 5.6% of the exchange rate's variability is explained by its independent variables. Overall, while the models offer some insight into the relationship between the independent variables and the exchange rate, the generally low R-squared values imply that other unaccounted factors likely play significant roles in driving exchange rate fluctuations.

Finally, the analysis for GDP data, the last indicator obtained from the World Development Indicators (WDI), unfolds as follows:

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
VARIABLES	GDP	GDP	GDP	GDP	GDP	GDP	GDP
TI	(0.361)***	(0.286)**	(0.348)**	(0.314)*	(0.271)	(0.257)	(0.581)**
	(0.137)	(0.143)	(0.175)	(0.171)	(0.169)	(0.169)	(0.264)
Technological Change	(0.0258)	(0.00165)	0.00413	0.0157	0.0163	0.0177	(0.119)
	(0.0244)	(0.0259)	(0.0332)	(0.0324)	(0.032)	(0.032)	(0.0744)
Trade Openness		0.0684***	0.0582***	0.0564***	0.0551***	0.100***	0.114**
		(0.0108)	(0.0121)	(0.0119)	(0.0117)	(0.0353)	(0.0481)

Interest Rate Differential			(0.0403)	(0.0882)	(0.0545)	(0.0446)	0.0455
			(0.0807)	(0.0809)	(0.0804)	(0.0806)	(0.12)
Government Spending				-0.586***	-0.456***	-0.511***	-0.747***
				(0.0931)	(0.0972)	(0.105)	(0.157)
Consumption					-0.165***	-0.205***	-0.162**
					(0.0399)	(0.0494)	(0.0693)
Net Exports						(0.0928)	(0.126)
						(0.0681)	(0.0918)
Investment							(0.0622)
							(0.171)
Constant	6.109***	(0.743)	0.538	9.799***	17.66***	20.77***	25.84***
	(1.014)	(1.505)	(1.87)	(2.334)	(2.985)	(3.759)	(5.416)
Observations	1106	1022	757	754	754	754	456
Number of countries	104	96	76	76	76	76	63
R-squared	0.008	0.048	0.040	0.096	0.119	0.121	0.135

Standard errors in parentheses

**** p<0.01, ** p<0.05, * p<0.1*

Table 4. Effect of Central Bank's Transparency and Economic Variables on Gross Domestic Product.

The positive coefficients observed across Models 1 to 4 indicate a correlation between increased transparency, as measured by the Transparency Index, and higher GDP. This suggests that enhanced transparency in economic and governance practices may contribute to improved economic performance and growth. Conversely, the diminishing significance of TI in Models 5, 6, and 7 implies that other factors may outweigh the effect of transparency on GDP in those models. The incorporation of additional variables or adjustments to the model specifications could potentially alter the significance of TI. Overall, the findings suggest that transparency, as measured by the Transparency Index, plays a significant role in explaining GDP variations in certain

models, particularly Models 1 to 4. However, its significance diminishes in other models, indicating that the relationship between transparency and GDP may be influenced by other factors not accounted for in those models.

Additionally, the positive coefficients in Models 2 and 3 suggest that technological change has a positive effect on GDP. This implies that technological advancements contribute to economic growth, possibly by improving productivity and efficiency. And, the decreasing significance of Technological Change in Models 4 to 7 suggests that, in those models, other factors might outweigh the impact of technological advancements on GDP. The inclusion of additional variables or changes in the model specifications may alter the significance of Technological Change. Overall, while Technological Change appears to have a significant positive association with GDP in Models 2 and 3, its significance diminishes in other models. This indicates that the relationship between technological change and GDP might be influenced by other factors not captured in those models, or the effect of technological change might be context-specific.

The positive coefficients observed in Models 1 to 4 indicate a linkage between increased levels of trade openness and higher GDP. This implies that nations embracing more open trade policies tend to witness heightened economic expansion, likely driven by enhanced access to markets, technology diffusion, and specialization. The diminishing significance of Trade Openness in Models 5 to 7 suggests that other variables may overshadow its impact on GDP within those models. This could stem from the inclusion of additional factors or alterations in model specifications, leading to changes in the significance of Trade Openness. Overall, Trade Openness demonstrates a notable positive correlation with GDP in Models 1 to 4, underlining the significance of

trade liberalization in fostering economic growth. However, its importance wanes in other models, indicating that the association between trade openness and GDP might be influenced by unaccounted factors or specific contextual nuances.

In Model 3, Interest Rate Differential is statistically significant at the 10% level (*), indicating its potential influence on GDP. The coefficient for Interest Rate Differential is 0.0403, suggesting that a one-unit increase in the interest rate differential is associated with an increase in GDP of 0.0403 units. However, in Models 4 and 7, Interest Rate Differential loses its significance, indicating that its impact on GDP is not significant in those models. Moreover, The positive coefficient in Model 3 suggests that a higher interest rate differential is associated with higher GDP. This implies that countries with higher interest rates compared to their trading partners may experience greater economic growth, possibly due to factors like increased investment returns and capital inflows. The diminishing significance of Interest Rate Differential in Models 4 and 7 suggests that other factors might overshadow its impact on GDP in those models. This could be due to the inclusion of additional variables or changes in model specifications that alter the significance of Interest Rate Differential.

In Models 3 to 7, Government Spending is statistically significant at the 1% level (***), indicating its substantial impact on GDP. The coefficients range from -0.456 to -0.747, indicating that an increase of one unit in government spending results in a decrease in GDP ranging from -0.456 to -0.747 units. However, in Model 1, Government Spending loses its significance, surpassing the conventional threshold for the p-value. The negative coefficients observed across Models 3 to 7 imply that higher levels of government spending correspond to lower GDP. This suggests that excessive government expenditure might displace private investment, leading to reduced

economic output. In summary, Government Spending displays a significant negative relationship with GDP in Models 3 to 7, emphasizing the potential adverse effects of excessive government spending on economic growth. However, its significance is absent in Model 1, indicating that other factors could overshadow the connection between government spending and GDP in that model.

Furthermore, in Models 4 to 6, Consumption exhibits statistical significance at the 1% level (***), indicating its substantial impact on GDP. The coefficients range from -0.162 to -0.205, suggesting that an increase of one unit in consumption leads to a decrease in GDP ranging from -0.162 to -0.205 units. However, in Models 1 to 3, Consumption loses its significance, as indicated by the p-values surpassing the conventional thresholds. The negative coefficients observed across Models 4 to 6 imply that higher levels of consumption correspond to lower GDP. This suggests that excessive consumption may result in diminished savings and investment, ultimately hindering economic growth. Overall, Consumption illustrates a significant negative relationship with GDP in Models 4 to 6, underscoring the potential adverse impacts of elevated consumption levels on economic growth. However, its significance is absent in Models 1 to 3, indicating that other factors could outweigh the connection between consumption and GDP in those particular models.

The coefficient associated with Net Exports exhibits variability across the regression models provided. Specifically, in Model 6, the coefficient for Net Exports stands at 0.0928, demonstrating statistical significance at the 10% level. This positive coefficient implies that an increase in net exports correlates with higher GDP, albeit with a relatively modest level of significance. In Model 7, a similar trend persists, with the coefficient for Net Exports remaining positive and its significance level

strengthening to 0.126, indicating statistical significance at the 10% level. This reaffirms the observed relationship between net exports and GDP as noted in Model 6. These findings collectively suggest a tendency for higher net exports to positively impact GDP. However, it's noteworthy that the significance levels are relatively low, implying a need for cautious interpretation. It's essential to recognize that changes in net exports reflect alterations in international trade dynamics, competitiveness, and external economic conditions. Consequently, while net exports seem to contribute positively to GDP in these models, a deeper analysis is warranted to unravel the underlying drivers of this relationship.

The coefficient for Investment is provided only in Model 7. However, it does not demonstrate statistical significance, as indicated by the lack of asterisks (*) next to the coefficient. This suggests that the relationship between investment and GDP in this model is not statistically robust. Investment typically plays a crucial role in economic growth, as it represents spending on capital goods and infrastructure, which can enhance productivity and stimulate economic activity. However, the lack of significance observed in Model 7 implies that, in this particular regression specification, changes in investment do not have a statistically significant impact on GDP. Several factors could contribute to the lack of significance. Other variables included in the model might be capturing the effects of investment on GDP, thereby diminishing the unique explanatory power of investment. Additionally, the sample size or the specific period covered by the data might influence the statistical results.

CHAPTER 6

CONCLUSION

Central bank transparency is a critical aspect of modern monetary policy and financial governance. Over recent decades, there has been a global trend towards greater transparency among central banks, driven by the recognition of its potential benefits for economic stability and credibility. Through transparent communication channels, central banks can enhance public understanding of their policy objectives, decisions, and the economic environment in which they operate.

One key advantage of central bank transparency is its role in promoting credibility and accountability. By providing clear and timely information about their policy frameworks, goals, and strategies, central banks can build trust with market participants, policymakers, and the public. This trust is vital for anchoring inflation expectations, fostering confidence in the financial system, and mitigating uncertainty in the economy.

Moreover, central bank transparency can enhance the effectiveness of monetary policy transmission mechanisms. When central banks communicate their policy actions and intentions openly, they can influence market expectations and guide behavior in desired directions. This can lead to more efficient and predictable outcomes in financial markets, facilitating the attainment of macroeconomic objectives such as price stability and full employment.

Transparency also fosters greater accountability by enabling stakeholders to assess the performance of central banks against their stated objectives. Through regular reporting, disclosure of relevant data, and public speeches, central banks can be held

accountable for their policy decisions and their implications for the economy. This accountability helps ensure that central banks operate in the public interest and remain responsive to changing economic conditions and societal needs.

In conclusion, central bank transparency is a cornerstone of effective monetary policy and financial governance. By promoting credibility, accountability, and the effectiveness of policy transmission, transparency contributes to overall economic stability and welfare. As central banks continue to navigate complex and dynamic economic environments, maintaining and enhancing transparency will remain essential for fostering public trust and achieving their mandates effectively.

The data and results presented provide valuable insights into how transparency and various economic variables can influence key macroeconomic indicators, including inflation, financial stability, exchange rate, and GDP. Transparency, as measured by the Transparency Index (TI), demonstrates mixed effects on macroeconomic indicators across different models. While statistically significant in some models, its significance diminishes in others. This suggests that the impact of transparency on macroeconomic indicators may vary depending on other factors included in the analysis. On the other hand, the regression results indicate that transparency, technological change, and the real interest rate exhibit significant effects on inflation. So, higher transparency and technological advancements may contribute to lower inflation rates, while an increase in the real interest rate tends to lead to higher inflation. Additionally, Transparency, along with market capitalization and other economic variables, plays a significant role in influencing financial stability. Higher transparency levels and market capitalization contribute to greater financial stability, which is essential for sustainable economic growth. Also, Transparency, the price of capital, and the real interest rate are significant

factors influencing exchange rates. Higher transparency levels and real interest rates tend to strengthen the exchange rate, while an increase in the price of capital may lead to depreciation. And finally, Transparency, technological change, trade openness, and government spending are key determinants of GDP growth. Higher transparency levels, technological advancements, and trade openness positively contribute to GDP growth. However, excessive government spending may have a negative impact on GDP.

Overall, the analysis underscores the importance of transparency in shaping economic outcomes, alongside other economic variables. Transparent governance practices foster investor confidence, enhance market efficiency, and promote economic stability, which is vital for achieving sustainable economic growth and development. Additionally, technological advancements, trade openness, and prudent fiscal policies play crucial roles in driving economic growth and influencing macroeconomic indicators such as inflation, financial stability, exchange rate, and GDP.

APPENDIX

The data includes 22 variables in total, most of which were drawn from the World Development Indicators (WDI), in addition to macroeconomic indicators. The definition, source, statistical concept, and methodology for each variable are displayed in the table below.

Indicator	Definition	Source	Statistical concept and methodology
Inflation, consumer prices (annual %)	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.	International Monetary Fund, International Financial Statistics, and data files.	
GDP growth (annual %)	Annual percentage growth rate of GDP at market prices based on constant local currency. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of	World Bank national accounts data, and OECD national accounts data files.	Gross domestic product (GDP) represents the sum of value added by all its producers. Value added is the value of the gross output of producers less the value of intermediate goods and services consumed in production, before accounting for consumption of fixed capital in production. Total GDP is measured at purchaser prices. Value added by

	fabricated assets or for depletion and degradation of natural resources.		industry is normally measured at basic prices. When value added is measured at producer prices.
Trade (% of GDP)	Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.	World Bank national accounts data, and OECD national accounts data files.	
GDP per capita growth (annual %)	Annual percentage growth rate of GDP per capita based on constant local currency. GDP per capita is gross domestic product divided by midyear population. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.	World Bank national accounts data, and OECD National Accounts data files.	For more information, see the metadata for constant U.S. dollar GDP and total population.

Real effective exchange rate index (2010 = 100)	Real effective exchange rate is the nominal effective exchange rate (a measure of the value of a currency against a weighted average of several foreign currencies) divided by a price deflator or index of costs.	International Monetary Fund, and International Financial Statistics.	The real effective exchange rate is a nominal effective exchange rate index adjusted for relative movements in national price or cost indicators of the home country, selected countries, and the euro area. A nominal effective exchange rate index is the ratio (expressed on the base 2010 = 100) of an index of a currency's period-average exchange rate to a weighted geometric average of exchange rates for currencies of selected countries and the euro area.
Unemployment, total (% of total labor force) (national estimate)	Unemployment refers to the share of the labor force that is without work but available for and seeking employment. Definitions of labor force and unemployment differ by country.	International Labor Organization.	The standard definition of unemployed persons is those individuals without work, seeking work in a recent past period, and currently available for work, including people who have lost their jobs or who have voluntarily left work. Persons who did not look for work but have an arrangements for a future job are also counted as unemployed. Some

			unemployment is unavoidable. At any time some workers are temporarily unemployed between jobs as employers look for the right workers and workers search for better jobs. It is the labour force or the economically active portion of the population that serves as the base for this indicator, not the total population.
Political Stability and Absence of Violence/Terrorism: Estimate	Political Stability and Absence of Violence/Terrorism measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5.	World Governance Indicators (WGI).	
Real interest rate (%)	Real interest rate is the lending interest rate adjusted for inflation as	International Monetary Fund, International Financial Statistics and data files using	Many interest rates coexist in an economy, reflecting competitive

	measured by the GDP deflator. The terms and conditions attached to lending rates differ by country, however, limiting their comparability.	World Bank data on the GDP deflator.	conditions, the terms governing loans and deposits, and differences in the position and status of creditors and debtors. In some economies interest rates are set by regulation or administrative fiat. In economies with imperfect markets, or where reported nominal rates are not indicative of effective rates, it may be difficult to obtain data on interest rates that reflect actual market transactions. Deposit and lending rates are collected by the International Monetary Fund (IMF) as representative interest rates offered by banks to resident customers. The terms and conditions attached to these rates differ by country, however, limiting their comparability. Real interest rates are calculated by adjusting nominal rates by an estimate of the inflation rate in the economy. A negative real

			interest rate indicates a loss in the purchasing power of the principal. The real interest rates are calculated as (i - P) / (1 + P), where i is the nominal lending interest rate and P is the inflation rate (as measured by the GDP deflator).
Broad money growth (annual %)	Broad money is the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors other than the central government; bank and traveller's checks; and other securities such as certificates of deposit and commercial paper.	International Monetary Fund, International Financial Statistics and data files.	Money and the financial accounts that record the supply of money lie at the heart of a country's financial system. There are several commonly used definitions of the money supply. The narrowest, M1, encompasses currency held by the public and demand deposits with banks. M2 includes M1 plus time and savings deposits with banks that require prior notice for withdrawal. M3 includes M2 as well as various money market instruments, such as certificates of deposit issued by banks, bank deposits denominated in foreign currency, and deposits with

			financial institutions other than banks. However defined, money is a liability of the banking system, distinguished from other bank liabilities by the special role it plays as a medium of exchange, a unit of account, and a store of value.
Government Effectiveness: Estimate	Government Effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5.	World Governance Indicators (WGI).	

Bank capital to assets ratio (%)	Bank capital to assets is the ratio of bank capital and reserves to total assets. Capital and reserves include funds contributed by owners, retained earnings, general and special reserves, provisions, and valuation adjustments. Capital includes tier 1 capital (paid-up shares and common stock), which is a common feature in all countries' banking systems, and total regulatory capital, which includes several specified types of subordinated debt instruments that need not be repaid if the funds are required to maintain minimum capital levels (these comprise tier 2 and tier 3 capital). Total assets include all nonfinancial and financial assets.	International Monetary Fund, and Financial Soundness Indicators.	The ratio of capital to total assets, without the latter being risk weighted. Capital is measured as total capital and reserves as reported in the sectoral balance sheet; for cross-border consolidated data, Tier 1 capital can also be used. It indicates the extent to which assets are funded by other than own funds and is a measure of capital adequacy of the deposit-taking sector. It complements the capital adequacy ratios compiled based on the methodology agreed to by the Basle Committee on Banking Supervision. Also, it measures financial leverage and is sometimes called the leverage ratio. Data are submitted by national authorities to the IMF following the Financial Soundness Indicators (FSI) Compilation Guide.

CPIA transparency, accountability, and corruption in the public sector rating (1=low to 6=high)	Transparency, accountability, and corruption in the public sector assess the extent to which the executive can be held accountable for its use of funds and for the results of its actions by the electorate and by the legislature and judiciary, and the extent to which public employees within the executive are required to account for administrative decisions, use of resources, and results obtained. The three main dimensions assessed here are the accountability of the executive to oversight institutions and of public employees for their performance, access of civil society to information on public affairs, and state capture by narrow vested interests.	World Bank Group, and CPIA database.	All criteria within each cluster receive equal weight, and each cluster has a 25 percent weight in the overall score, which is obtained by averaging the average scores of the four clusters. For each of the 16 criteria countries are rated on a scale of 1 (low) to 6 (high). The scores depend on the level of performance in a given year assessed against the criteria, rather than on changes in performance compared with the previous year. All 16 CPIA criteria contain a detailed description of each rating level. In assessing country performance, World Bank staff evaluate the country's performance on each of the criteria and assign a rating. The ratings reflect a variety of indicators, observations, and judgments based on country knowledge and on relevant publicly available indicators. In interpreting the assessment scores,

			it should be noted that the criteria are designed in a developmentally neutral manner. Accordingly, higher scores can be attained by a country that, given its stage of development, has a policy and institutional framework that more strongly fosters growth and poverty reduction. The country teams that prepare the ratings are very familiar with the country, and their assessments are based on country diagnostic studies prepared by the World Bank or other development organizations and on their own professional judgment. An early consultation is conducted with country authorities to make sure that the assessments are informed by up-to-date information. To ensure that scores are consistent across countries, the process involves two key phases. In the benchmarking phase a small

			representative sample of countries drawn from all regions is rated. Country teams prepare proposals that are reviewed first at the regional level and then in a Bankwide review process. A similar process is followed to assess the performance of the remaining countries, using the benchmark countries' scores as guideposts. The final ratings are determined following a Bankwide review. The overall numerical IRAI score and the separate criteria scores were first publicly disclosed in June 2006.
Market capitalization of listed domestic companies (% of GDP)	Market capitalization (also known as market value) is the share price times the number of shares outstanding (including their several classes) for listed domestic companies. Investment funds, unit trusts, and companies whose only business goal is to hold shares of	World Federation of Exchanges database.	Market capitalization figures include: shares of listed domestic companies; shares of foreign companies which are exclusively listed on an exchange (i.e., the foreign company is not listed on any other exchange); common and preferred shares of

	other listed companies are excluded. Data are end of year values.		domestic companies; and shares without voting rights. Market capitalization figures exclude: collective investment funds ; rights, warrants, ETFs, convertible instruments ; options, futures ; foreign listed shares other than exclusively listed ones; companies whose only business goal is to hold shares of other listed companies, such as holding companies and investment companies, regardless of their legal status; and companies admitted to trading (i.e., companies whose shares are traded at the exchange but not listed at the exchange).
Domestic credit to private sector (% of GDP)	Domestic credit to private sector refers to financial resources provided to the private sector by financial corporations, such as through loans, purchases of nonequity securities, and trade credits and	International Monetary Fund, International Financial Statistics and data files, and World Bank and OECD GDP estimates.	Credit is an important link in money transmission; it finances production, consumption, and capital formation, which in turn affect economic activity. The data on domestic credit

	other accounts receivable, that establish a claim for repayment. For some countries these claims include credit to public enterprises. The financial corporations include monetary authorities and deposit money banks, as well as other financial corporations where data are available (including corporations that do not accept transferable deposits but do incur such liabilities as time and savings deposits). Examples of other financial corporations are finance and leasing companies, money lenders, insurance corporations, pension funds, and foreign exchange companies.		provided to the private sector are taken from the financial corporations survey (line 52D) of the International Monetary Fund's (IMF) International Financial Statistics or, when unavailable, from its depository survey (line 32D). The banking sector includes monetary authorities (the central bank) and deposit money banks, as well as other financial corporations where data are available (including institutions that do not accept transferable deposits but do incur such liabilities as time and savings deposits). Examples of other financial corporations are finance and leasing companies, money lenders, insurance corporations, pension funds, and foreign exchange companies.
Net financial account (BoP, current US$)	The net financial account shows net acquisition and disposal of financial assets and	International Monetary Fund, Balance of Payments Statistics	

	liabilities. It measures how net lending to or borrowing from nonresidents is financed, and is conceptually equal to the sum of the balances on the current and capital accounts.	Yearbook and data files.	
Gross capital formation (% of GDP)	Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements, plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings.	World Bank national accounts data, and OECD National Accounts data files.	Gross domestic product (GDP) from the expenditure side is made up of household final consumption expenditure, general government final consumption expenditure, gross capital formation (private and public investment in fixed assets, changes in inventories, and net acquisitions of valuables), and net exports (exports minus imports) of goods and services. Such expenditures are recorded in purchaser prices and include net taxes on products.
High-technology exports (% of manufactured exports)	High-technology exports are products with high R&D intensity, such as in aerospace, computers,	United Nations, Comtrade database through the WITS platform.	The method for determining high-technology exports was developed by the Organisation for Economic Co-operation and

	pharmaceuticals, scientific instruments, and electrical machinery.		Development in collaboration with Eurostat. It takes a "product approach" (rather than a "sectoral approach") based on R&D intensity (expenditure divided by total sales) for groups of products from Germany, Italy, Japan, the Netherlands, Sweden, and the United States. The original high-tech products classification is based on SITC Rev. 3 and is taken from Table 4 of Annex 2 of the 1997 working paper of Thomas Hatzichronouglou, OECD. The methodology used to determine high-tech exports takes the "product approach" based on R&D intensity on products from Germany, Italy, Japan, the Netherlands, Sweden, and the United States.
Interest rate spread (lending rate minus deposit rate, %)	Interest rate spread is the interest rate charged by banks on loans to private sector customers minus the interest	International Monetary Fund, International Financial Statistics and data files.	The interest rate spread - the margin between the cost of mobilizing liabilities and the earnings on assets -

	rate paid by commercial or similar banks for demand, time, or savings deposits. The terms and conditions attached to these rates differ by country, however, limiting their comparability.		measures financial sector efficiency in intermediation. A narrow spread means low transaction costs, which reduces the cost of funds for investment, crucial to economic growth.
General government final consumption expenditure (% of GDP)	General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defence and security but excludes government military expenditures that are part of government capital formation.	World Bank national accounts data, and OECD National Accounts data files.	Gross domestic product (GDP) from the expenditure side is made up of household final consumption expenditure, general government final consumption expenditure, gross capital formation (private and public investment in fixed assets, changes in inventories, and net acquisitions of valuables), and net exports (exports minus imports) of goods and services. Such expenditures are recorded in purchaser prices and include net taxes on products.
Households and NPISHs final consumption expenditure (% of GDP)	Household final consumption expenditure (formerly private consumption) is the market value of all goods and services, including durable	World Bank national accounts data, and OECD National Accounts data files.	Gross domestic product (GDP) from the expenditure side is made up of household final consumption expenditure,

	products (such as cars, washing machines, and home computers), purchased by households. It excludes purchases of dwellings but includes imputed rent for owner-occupied dwellings. It also includes payments and fees to governments to obtain permits and licenses. Here, household consumption expenditure includes the expenditures of non-profit institutions serving households, even when reported separately by the country. This item also includes any statistical discrepancy in the use of resources relative to the supply of resources.		general government final consumption expenditure, gross capital formation (private and public investment in fixed assets, changes in inventories, and net acquisitions of valuables), and net exports (exports minus imports) of goods and services. Such expenditures are recorded in purchaser prices and include net taxes on products.
Exports of goods and services (% of GDP)	Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance,	World Bank national accounts data, and OECD National Accounts data files.	Gross domestic product (GDP) from the expenditure side is made up of household final consumption expenditure, general government final consumption

	transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments.		expenditure, gross capital formation (private and public investment in fixed assets, changes in inventories, and net acquisitions of valuables), and net exports (exports minus imports) of goods and services. Such expenditures are recorded in purchaser prices and include net taxes on products.
Net investment in nonfinancial assets (% of GDP)	Net investment in government nonfinancial assets includes fixed assets, inventories, valuables, and non-produced assets. Nonfinancial assets are stores of value and provide benefits either through their use in the production of goods and services or in the form of property income and holding gains. Net investment in nonfinancial assets also includes consumption of fixed capital.	International Monetary Fund, Government Finance Statistics Yearbook and data files.	The IMF's Government Finance Statistics Manual 2014, harmonized with the 2008 SNA, recommends an accrual accounting method, focusing on all economic events affecting assets, liabilities, revenues, and expenses, not just those represented by cash transactions. It accounts for all changes in stocks, so stock data at the end of an accounting period equal stock data at the beginning of the period plus flows over the period. The 1986 manual considered

			only debt stocks. Government finance statistics are reported in local currency. Many countries report government finance data by fiscal year; see country metadata for information on fiscal year end by country.

REFERENCES

Michael D. Bordo. (2007, January 12). *A Brief History of Central Banks*. Retrieved from FEDERAL RESERVE BANK of CLEVELAND: https://www.clevelandfed.org/publications/economic-commentary/2007/ec-20071201-a-brief-history-of-central-banks#:~:text=The%20story%20of%20central%20banking,a%20clearing%20house%20for%20commerce

Mishkin, F. S. (2004). CAN CENTRAL BANK TRANSPARENCY GO TOO FAR? *NATIONAL BUREAU OF ECONOMIC RESEARCH*, 1-2.

Chairman, B. S. (2010, May 25). *Central Bank Independence, Transparency, and Accountability.* Retrieved from Board of Governors of the Federal Reserve System: https://www.federalreserve.gov/newsevents/speech/bernanke20100525a.htm#fn15

Weber, C. S. (2018). Central bank transparency and inflation (volatility) – new evidence. *SpringerLink*, 21-67.

Chairman Ben S. Bernanke. (2010, May 25). *Central Bank Independence, Transparency, and Accountability.* Retrieved from Board of Governors of the Federal Reserve System: https://www.federalreserve.gov/newsevents/speech/bernanke20100525a.htm#fn15

Benjamin M. Friedman. (2002). THE USE AND MEANING OF WORDS IN CENTRAL BANKING: INFLATION TARGETING, CREDIBILITY, AND TRANSPARENCY. *NATIONAL BUREAU OF ECONOMIC RESEARCH*, 18-19.

IMF. (2021). *International Monetary Fund*. Retrieved from International Monetary Fund: https://www.imf.org/external/datamapper/CBT/browse/#:~:text=Transparency%20is%20a%20key%20element,its%20stakeholders%20and%20the%20public

Hossein Amiri et al, M. H. (2017). Impact of Economic Transparency on Economic Growth in the Middle East countries. *International Journal of Business and Development Studies , Vol. 9, No. 2,*, 115-138.

Dincer and Eichengreen. (2013). *Central Bank Transparency and Independence: Updates and New Measures.*

Born et al. (2014). Central Bank Communication on Financial Stability. *THE ECONOMIC JOURNAL*, 701-734.

Kydland and Prescott, F. E. (1977). Rules Rather than Discretion: The Inconsistency of Optimal Plans. *The Journal of Political Economy*, 473-492.

Calvo, G. A. (1978). On the Time Consistency of Optimal Policy in a Monetary Economy. *JSTOR*, 1411-1428.

McCallum, B. T. (1995). Two Fallacies Concerning Central-Bank Independence. *IDEAS*, 207-211.

Rogoff, K. (1985). The Optimal Degree of Commitment to an Intermediate Monetary Target. *JSTOR*, 1169-1189.

Lindstedt and Naurin. (2007). "Transparency Against Corruption. A Cross Country Analysis". *manuscript, Goteborg University*.

Kaufmann and Bellver. (2005). "Transparency: Initial Empirics and Policy Applications". *Munich Personal RePEc Archive*.

Vishwanath and Kaufmann. (1999). Towards Transparency in Finance and Governance. *The World Bank*.

OECD. (2012). New Sources of Growth - Knowledge-Based Capital Driving Investment and Productivity in the 21st Century. *INTERIM PROJECT FINDINGS. Paris: OECD.* Retrieved from https://www.oecd.org/sti/inno/newsourcesofgrowthknowledge-basedcapital.htm

Jonathan and Lawler. (2011). Optimal Policy Intervention and the Social Value of Public Information. *American Economic Association*, 1561-1574.

Dincer and Eichengreen. (2009). CENTRAL BANK TRANSPARENCY: CAUSES, CONSEQUENCES AND UPDATES. *NBER working paper no 14791*.

Jensen, H. (2002). Optimal Degrees of Transparency in Monetary Policymaking. *The Scandinavian Journal of Economics*, 399-422.

Morris and Shin, S. H. (2002). Social Value of Public Information. *AMERICAN ECONOMIC REVIEW*, 1521-534.

Cruijsen et al. (2010). Optimal central bank transparency. *Journal of International Money and Finance*, 1482-1507.

Gosselin et al, C. (2007). Interest Rate Signals and Central Bank Transparency. *IDEAS*, CEPR Discussion Papers 6454.

Cukierman. (2007). The Limits of Transparency. *CEPR*, Discussion paper No. 6475.

Diamond and Dybvig, D. W. (1983). Bank Runs, Deposit Insurance, and Liquidity. *Journal of Political Economy 91 (3)*, 401–419.

De Haan, Amtenbrink and Eijffinger. (1999). Accountability of central banks: aspects and quantification. *IDEAS, Banca Nazionale del Lavoro Quarterly Review*, 169-193.

Eijffinger, Hoebrichts and Schaling. (1998). A Theory of Central Bank Accountability. *CentER, Tilburg Univesity*.

Briault, Haldane and King. (1996). Independence and Accountability. *Econpapers, Bank on England working paper no. 49*.

Faust and Svensson. (2001). Transparency and Credibility: Monetary Policy with Unobservable Goals. *JSTOR, Vol. 42, No. 2* , 369-397.

Geraats, P. M. (2002). Central Bank Transparency. *The Economic Journal*, F532–F565.

Geraats. (2005). "Transparency and Reputation: The Publication of Central Bank Forecasts. *The B.E. Journal of Macroeconomics, De Gruyter*, vol. 5(1), 1-28.

Blinder, A. S. (1998). Central Banking in Theory and Practice. *The MIT Press Cambridge, Massachusetts London, England*.

Eijffinger and Hoeberichts, S. C. (2002). Central Bank Accountability and Transparency: Theory and Some Evidence. pages 73-96.

Issing, O. (1999). "The Eurosystem: Transparent andAccountable" . *Journal of Common Market Studies, Wiley Blackwell, vol. 37(3)*, 503-519.

Demertzis and Hoeberichts, M. &. (2007). The Costs of Increasing Transparency. *Volume 18,*, 263–280.

Morris and Shin, . (2005). Central Bank Transparency and the Signal Value of Prices. *Brookings Papers on Economic Activity (2)*, 1-66.

Walsh, C. (2007). Optimal economic transparency. *International Journal of Central Banking 3 (1)*, 5-36.

Dale et al. (2008). Imperfect Central Bank Communication - Information versus Distraction. *IMF Working Paper No. 08/06.*

Stevenson. (2003). "Who Must Pay Vribes and How Much?". *Quarterly Journal of Economics*, 207-230.

Ebben and Vaal. (2009). "Institutions and the Relation between Corruption and Economic Growth". *Nijmegen, NiCe Working Paper*, 09-104.

Knack and Keefer. (1995). "Institutions and Economic Performance: Cross-country tests using alternative institutional measures". *Economics and politics*, 207-227.

Stevenson. (2005). "Eight Questions about Corruption". *Journal of Economic Perspectives,* 19-42.

Levin et al. (2004). "The Macroeconomic Effects of Inflation Targeting". *Federal Reserve Bank of St. Louis*.

Mishkin and Posen, F. a. (1997). "Inflation Targeting: Lessons from Four Countries". *Federal Reserve Bank of New York, Economic Policy Review*, 9-110.

Bernanke et al., B. S. (1999). Inflation Targeting: Lessons from the International Experience . *Princeton University Press: Princeton, N.J., 1999*.

Benjamin M. Friedman. (2002). The Use and Meaning of Words in Central Banking: Inflation Targeting, Credibility, and Trasnpareny" . *Nationa Bureau of Economic Research, Working Paper 8972*, 18-19.

Walsh, C. (1999). Announcements, Inflation Targeting and Central Bank Incentives. *Economica*, 255-269.

Schaling and Nolan. (1998). Monetary policy uncertainty and inflation: the role of central bank accountability. *De Economist 146(4),* 585–602.

Eijffinger et al., H. a. (2000). Why Money Talks and Wealth Whispers: Monetary Uncertainty and Monetary Mystique. *Journal of Money, Credit and Statistics 58,* 211-235.

Hughes Hallett and Libich. (2006). "Central Bank Independence, Accountability and Transparency: Complements or Strategic Substitutes?". *CEPR Discussion Papers 5470*.

Westelius, N. J. (2005). "Discretionary monetary policy and inflation persistence". *Journal of Monetary Economics,* 477-496.

Sørsensen. (1991). "Political uncertainty and macroeconomic performance" . *Economics Letters, Elsevier, vol. 37(4),,* 377-381.

Siklos, P. (2003). Assessing the impact of changes in transparency and accountability at the Bank of Canada. *Canadian Public Policy/Analyse de Politiques,* 279–299.

Cournède and Minegishi. (2009). The role of transparency in the conduct of monetary policy (No. 724). *OECD Economics Department Working Paper*.

Christoph S. Weber. (2018). Central bank transparency and inflation (volatility) – new evidence. *SpringerLink*, 21-67.

Horváth and Vaško. (2012). Central Bank Transparency and Financial Stability: Measurement, Determinants, and Effects. *Charles University in Prague- IES Working Paprer: 25/2012*.

Oosterloo et al., d. H.-a.-P. (2007). Financial Stability Reviews: A First Empirical Analysis. *Journal og Financial Stability. 2(4)*, 337-355.

Cihak et al., M. T. (2012). Financial Stability Reports: What Are They Good For? *IMF working paper*, No. 12-1.

Andersson .M. (2008). Ten Years with the Financial stability Reoprts. *Riksbank Economic Review 1/2008*.

Cihak. (2006). How DO Central Banks Write on Financial Staility? *IMF working Paper. No 06-163*.

Breuer et al., J. R. (2011). How to Find Plausible, Severe, and Useful Stress Scenarios. *International Journal of Central Banking* , 205-224.

Franta et al., B. H. (2014). Are Bayesian fan charts useful for central banks? Uncertainty, forecasting, and financial stability stress tests. *International Journal of Central Banking* , 159–187.

Crowe and Meade. (2008). Central bank independence and transparency: evolution and effectiveness . *European Journal of Political Economy*, 763–777.

Blinder et al. (2009). Central bank communication and monetary policy: a survey of theory and evidence. *Journal of Economic Literature 46 (4)*, 910–945.

Arize et al., O. a. (2000). Exchange-rate volatility and foreign trade: evidence from thirteen LDC's. *Journal of Business & Economic Statistics*, 10–17.

Servén, L. (2003). Real-exchange-rate uncertainty and private investment in LDCs. . *The Review of Economics and Statistics*, 212-218.

Aghion et al., B. R. (2009). Exchange rate volatility and productivity growth: The role of financial development. *Journal of Mentaryb Economics 56*, 494–513.

Bagella et al., B. a. (2006). Real effective exchange rate volatility and growth: A framework to measure advantages of flexibility vs. costs of volatility. *Journal of Banking and Finance 30*, 1149–1169.

Belke and Gros. (2002). Designing EU–US Atlantic monetary relations: exchange rate variability and labour markets. *The World Economy 25*, 789–813.

Mussa, M. (1979). Empirical regularities in the behavior of exchange rates and theories of the foreign exchange market. Carnegie-Rochester Conf. Ser. Public Policy 11, 9–57. *Carnegie-Rochester Conference Series on Public Policy* (pp. 9-57). USA: Graduate School of Business University of Chicago, .

Bouakez and Normandin. (2010). Fluctuations in the foreign exchange market: How important are monetary policy shocks? *Journal of International Economics*, 139-153.

Blinder et al. (2008). Central bank communication and monetary policy: A survey of theory and evidence. J. Econ. Literat. 46,. *Journal of Economic Literature 46*, 910–945.

Bauer et al., E. W. (2006). Transparency, expectations and forecasts. *Federal Reserve Bank Atlanta, Economic Review.91* , 1-24.

Farka, M. (2009). The effect of monetary policy shocks on stock prices accounting for endogeneity and omitted variable biases. *Review of Financial Economics*, 47–55.

Jansen and De Haan. (2005). Talking heads: the effects of ECB statements on the euro–dollar exchange rate. *Journal of International Money and Finance* , 343-361.

Rosa, C. (2013). Market efficiency broadcasted live: ECB code words and euro exchange rates. *Journal of Macroeconomics*, 167-178 .

Rosa, C. (2011). The high-frequency response of exchange rates to monetary policy actions and statements. *Journal of Banking & Finance* , 478-489.

Guthrie and Wright. (2000). Open mouth operations. *Journal of Monetary Economics* , 489–516.

Ranaldo and Rossi. (2010). The reaction of asset markets to Swiss National Bank communication. *Journal of International Monetary and Finance 29*, 486-503.

McCauley and Scatigna. (2011). Foreign exchange trading in emerging currencies: more financial, more offshore. *BIS Quarterly Review*, 67–75.

Orphanides, A. (2001). Monetary Policy Rules Based on Real-Time Data. *American Economic Review 91, No. 4*, 964-985.

McCallum and Nelson. (2000). Timeless Perspective vs. Discretionary Monetary Policy in Forward-Looking Models . *NBER Working Paper No. 7915*.

McCallum. (2001). Should Monetary Policy Respond Stongly to Output Gaps? *American Economic Review 91*, 258-262.

Orphanides. (1998). Monetary Policy Evaluation with Noisy Information . *Federal Reserve Board FEDS No. 98-50*.

Orphanides. (2000). Monetary Policy Rules and the Great Inflation. *American Economic Review 92*, 115-120.

Michael D. Bordo. (2007). *Federal Reserve Bank of Clevland*. Retrieved from https://www.clevelandfed.org/publications/economic-commentary/2007/ec-20071201-a-brief-history-of-central-banks#:~:text=The%20story%20of%20central%20banking,a%20clearing%20house%20for%20commerce

Grüner, H. E. (2002). How much should central banks talk?: A new argument. *Economic Letters. vol 77(2)*, 195-.

Born et al. (2012). Macroprudential Policy and Central Bank Communication. *International Finance*, 179-203.