Master's thesis

Between Stability and Sovereignty: The Implications of the CFA Franc Adoption for Peripheral Economies in the Currency Hierarchy

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Economic Policies in the age of Globalization
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The opinions, views and thoughts expressed in this work are those of the author(s). They are not necessarily those of the program or involved universities.

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BCEAO	Banque Centrale des États de l'Afrique
CEMAC	Communauté Économique et Monétaire de l'Afrique Centrale
CFA	Communauté Financière en Afrique
ECB	European Central Bank
ECOWAS	Economic Community of West African States
FF	French franc
FX	Foreign exchange
GDP	Gross Domestic Product
IMS	International Monetary System

1. Introduction

1.1 Context of Study and Relevance

The current composition of the International Monetary System (IMS), following the dissolution of the Bretton Woods system, has changed significantly. In the past, the system was characterized by fixed exchange rates, strict capital controls, and general economic stability. However, recent decades have been characterized by financial deregulation and liberalization, with the gradual removal of capital controls and the widespread adoption of flexible exchange rates. As part of this reconfiguration of the IMS, the dichotomy between center and periphery has intensified: Developed countries have secured a dominant position within the global capital system thanks to their highly liquid reserve currencies, giving them the leeway to tailor economic policies to their domestic needs. Conversely, developing countries have become more vulnerable to external shocks and are subject to the volatility of exchange and interest rates in this asymmetric system (see, e.g., de Paula et al., 2017; Fritz et al., 2018; Palludeto & Abouchedid, 2016). These inequalities have been highlighted in the theory of currency hierarchies, a post-Keynesian framework. This theory posits that the IMS is determined by the exchange rate regime, the degree of capital mobility, and the currency hierarchy. The latter is based on the premise that not all currencies can efficiently perform the traditional functions of money – a unit of account, means of payment, and store of value – at the international level. The consequence is a liquidity hierarchy, with developing countries at the bottom of this pyramid (de Paula et al., 2017; Palludeto & Abouchedid, 2016).

As a recurring problem highlighted in the literature is exchange rate volatility, a consensus is emerging that the stability of a country's exchange rate plays a critical role in its ability to navigate the constraints associated with its subordinate position in the currency hierarchy (Calvo & Reinhart, 2002). Thus, turning to capital control measures and reducing exchange rate volatility is a potential solution to alleviating challenges posed by the center-periphery dichotomy (Andrade & Prates, 2013; Fritz et al., 2018).

Indeed, the recommendations for capital controls and reduction of exchange rate volatility as strategies to mitigate center-periphery constraints draw attention to the CFA franc as a

particularly worthwhile case study. Although the CFA franc zone has been somewhat neglected in the debate on currency hierarchies, its unique configuration makes it an interesting counterpoint (Koddenbrock & Sylla, 2019). Nowhere else in the world is there a similar system – developing countries with lower exchange rate volatility and tighter capital outflow controls, all within a monetary union. The CFA franc is the currency of the West African Economic and Monetary Union (WAEMU), which includes Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Senegal, and Togo and is the result of a post-independence pact between France and its former colonies. The currency is firmly pegged to the French franc, and now the euro and its value are guaranteed by the French Treasury (Lampe, 2022).

Recent debates about the CFA franc have focused on the perceived lack of monetary sovereignty in the context of fixed exchange rates and free capital movements, where some critics have condemned the CFA franc as a relic of colonialism that perpetuates neocolonial structures through control exercised by the French government. These critics argue that this dependence fosters impoverishment, hinders economic growth and diversification, and reinforces the need for independent monetary policies (Amato & Nubukpo, 2020; Combes et al., 2000; Combey & Nubukpo, 2010; Martin, 1986; K. Nubukpo et al., 2016; K. K. Nubukpo, 2010; Pigeaud & Sylla, 2018; Taylor, 2019). Moreover, some studies have shown that the ridgid monetary regime has exacerbated the economic crisis in these countries (Devarajan & Rodrik, 1991). For example, a study by Gnansounou and Chouchane (2013) confirmed an overvaluation of the CFA franc between 2001 and 2011. Further, the term "monetary repression," coined by Pouemi and Diawara (2004), underlines this criticism by suggesting that Africa remains in a state of servitude due to its restrictive monetary policies dating back to the colonial era. Therefore, many have advocated for a more flexible exchange rate regime (Nubukpo et al., 2016).

However, the literature on the CFA franc is not unambiguous in its assessment and offers a spectrum of perspectives that examine the currency from different angles. Some studies have attributed these countries' higher relative growth performance compared to other developing African countries in the 1960s and 1980s to the exchange rate arrangement (Guillaumont & Guillaumont, 1989). Others argue that the WAEMU has features distinct from a currency board and claims greater autonomy due to capital controls and convertibility granted by the French Treasury (Veyrune, 2007). This result is consistent with that of Shortland and

Stasavage (2004), who confirms that the Central Bank of West African States (BCEAO) follows the European Central Bank (ECB) interest rates in the short run but remains autonomous in the long run concerning key variables such as inflation and government debt. Other studies, however, find ambiguous results, suggesting a higher degree of autonomy for policymakers until 1994, while monetary policy autonomy seems to have declined from 1994 onward (Dufrénot, 2011).

1.2 Research Question and Methodology

Given the theoretical framework of post-Keynesian scholars who emphasize the reduction of exchange rate volatility and the imposition of tighter capital controls to address the challenges peripheral economies face in the international currency hierarchy, the CFA franc system seems to embody these recommended strategies. However, its implementations' overall impact and effectiveness remain a contentious subject of debate, economically and politically. This discrepancy – between theoretical agreement with advocated policies and conflicting empirical debates – calls for a closer study of the functioning and implications of this monetary system. Thus, this thesis aims to answer the primary research question: Does adopting the CFA franc serve as an effective strategy for peripheral economies to mitigate the challenges associated with their position in the international currency hierarchy, and does it allow them to ascend within this hierarchical structure?

To address our research question, we will begin with an in-depth review of the institutional foundations of the CFA franc, which serves as the background for the subsequent empirical investigation. Our empirical study entails a comparative analysis, focusing on the volatility of exchange rates, interest rates, and reserves within two distinct groups: countries within the Economic Community of West African States (ECOWAS)[1] that are members of the CFA franc zone (WAEMU) and those that are non-members, and have declared a floating exchange rate regime. Interestingly, the latter has also demonstrated higher GDP growth than their non-CFA counterparts (Appendix A.6). In integrating countries of the same region into our analysis, we aim to provide an ideal backdrop for investigating the implications of varying exchange rate arrangements within the currency hierarchy. To perform the empirical analysis, we employ the strategy of Calvo and Reinhart's (2002) "fear of floating" study. This

[1] Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo

approach involves gathering data on monthly percentage changes in exchange rates, international reserves, and interest rates and comparing the frequency distributions of these changes across various exchange rate regimes. Once we identify the level of volatility in the variables, we will integrate our empirical insights with our historical examination to draw some conclusions about these differences and the positioning of the CFA franc within the currency hierarchy.

This thesis is organized into six parts. Chapter 2 discusses the literature addressing the optimal exchange rate regime within the currency hierarchy and the resulting challenges for peripheral countries. In Chapter 3, we examine the formation and evolution of the CFA to gain an initial understanding of its position within the hierarchy. In the following Chapters 4 and 5, we complement this initial understanding with a comparative empirical analysis of exchange rate dynamics. In Chapter 6, we will interpret our results to our research question. Finally, Chapter 7 will conclude.

2. Literature Review

In this chapter, we explore the literature underlying our theoretical framework. We begin by discussing the prevailing debates on the choice of the optimal exchange rate regime. We posit that this discourse is best understood within an asymmetric monetary system characterized by a hierarchy of currencies. The remainder of this chapter will then focus on the implications of this hierarchy for developing economies, especially regarding the volatility of exchange rates.

2.1 Fixed or Flexible Exchange Rates?

The choice of the most appropriate exchange rate regime remains a complex issue that continues to provoke debates among post-Keynesian economists and policymakers[2]. The critical issue is whether a fixed or flexible exchange rate system is more effective in

[2] While orthodox economists disagree on the optimal exchange rate regime, the prevalent view is that a flexible exchange rate regime should be preferred. This choice is primarily supported by confidence in the efficiency of markets, which make optimal decisions (Lavoie, 2022, Chapter 7). Furthermore, most of the early analysis of choosing an exchange rate regime has taken place under the theory of optimal currency areas, which owes much to Mundell (1961), with the choice depending on the nominal or real shocks the economy is experiencing. For more details, refer to Calvo and Mishkin (2003) and Mundell (1961). For an analysis of exchange rate dynamics in the context of the CFA franc, see, e.g., Coulibaly (2014); Devarajan and Rodrik (1991).

supporting a country's economic stability and growth. The lack of consensus highlights different theoretical perspectives and contextual applications.

Some post-Keynesian scholars, notably Davidson (1992) and Wray (1999)[3] argue in favor of fixed exchange rates, with the main arguments being the reduction of uncertainty and stabilization of units of account. Davidson (1999) further argues that a fixed exchange rate generally provides predictability for exporters, facilitating the planning of prices and profit margins while mitigating risks. He suggests that a flexible exchange rate can increase perceptions of a currency's fragility and uncertainty about its value relative to other currencies. The post-Bretton Woods financial crises provide a compelling context for this argument, with much debate over whether these crises were caused by flexible exchange rates or the transition to capital mobility and expectations[4].

On the contrary, proponents of flexible exchange rates, such as Smithin (1994, 2001), argue that flexible exchange rates can buffer against adverse external shocks. These economists suggest that fixed exchange rates can create deflationary pressures and deplete foreign exchange reserves, while a floating system provides a higher degree of flexibility to pursue expansionary monetary and fiscal policies (Wray, 2006, 2012). In this context, governments and the private sector must not commit what is referred to as the 'original sin' by Eichengreen et al. (2005) and avoid borrowing in foreign currencies. If this principle is followed, countries with fully sovereign currencies, as described by MMT scholars, can have reduced harmful economic and current account deficits following currency depreciations (Lavoie, 2022, p. 539). With minimal foreign debt and flexible exchange rates, the central bank can retain interest rates at its preferred level, boosting the efficacy and independence of domestic monetary policy (Moore, 1988)[5].

[3] Wray (1999) later changes his view, advocating for a flexible exchange rate.

[4] Andrade and Prates (2013) underline the importance of the post-Keynesian approach to understanding these dynamics, particularly in the context of the post-Bretton Woods period. The authors stress the relevance of short-term capital flows and expectations in setting exchange rates. Several other researchers concur with this viewpoint. (see, e.g., L. Davidson, 1998; P. Davidson, 1999; Dow, 1999; Grabel, 1996; Harvey, 1991, 2006, 2008; Moore, 2004; Schulmeister, 1988).

[5]Advocates of the Post-Keynesian Modern Monetary Theory (MMT) school of thinking are prominent supporters of this point of view. However, it is essential to note that advocates of the Currency Hierarchy framework, which frequently highlights the disparities between core and periphery economies, may not share this viewpoint. Additionally, since currency hierarchy theorists' paradigm recognizes the advantaged standing of such nations in the global financial system, this perspective seems more pertinent to advanced economies. In a post-Keynesian framework, flexible exchange rates can boost the effectiveness of expansionary fiscal policy. This allows adopting policies promoting full employment, such as budget deficits or public debt.

The neoclassical school brings a different perspective to this debate. Research by Husain et al. (2005) and Rogoff et al. (2003) indicates that the efficacy of different exchange regimes varies across developing, emerging, and advanced economies. They suggest that fixed exchange rates may benefit countries in the early stages of development, as they can help curb inflation and provide credibility without compromising growth. However, these economies may benefit from more flexible exchange rates as financial development progresses. They contend that in comparison to fixed exchange rates, flexible exchange rates can protect economies against terms of trade shocks (Broda, 2004).

Conversely, Devarajan and Rodrik (1991) examine the costs of maintaining a peg in the context of variable terms of trade. They weigh these drawbacks against the advantages of reduced inflation and conclude that the capacity to modify the currency rate in response to external shocks may be more welfare-enhancing. Calvo and Mishkin (2003) believe that a floating exchange rate allows monetary authorities to focus on domestic issues. However, they warn that the central bank may not be able to implement countercyclical monetary policy, especially if its commitment to price stability is not convincing.

While both post-Keynesians and neoclassical economists give valuable insights, it becomes apparent that the decision between fixed and flexible exchange rates strongly depends on unique economic and institutional conditions[6]. Researchers like Kaltenbrunner (2015) and Kaltenbrunner and Painceira (2018) emphasize the difficulties in determining exchange rates and the effects of exchange rate regimes, explaining how these issues can vary greatly depending on a country's degree of integration into the International Monetary System (IMS). These researchers are among those who suggest that the process of determining exchange rates differs significantly among developing economies due to differences in institutional characteristics. It is heavily influenced by the specific challenges faced by developing economies, which, regardless of the flexibility or rigidity of their chosen

With a sovereign currency and flexible exchange rates, a government is not at risk of "running out of money," regardless of the amount of the deficit or debt. Because it is not required to maintain a pegged exchange rate, the central bank can maintain steady interest rates and will not deplete its foreign reserves. As a result, a government cannot fulfill its debts in this situation. Long-term interest rates will stay within the central bank's short-term interest rate goal if speculators recognize the nearly zero danger of default. This will prevent them from exerting extra pressure on exchange and interest rates (Lavoie, 2022, pp. 539–540). For a more detailed discussion on this topic, see. (Lavoie, 2022 Section 7.4).

[6] Furthermore, Baxter and Stockman (1989) and Flood and Rose (1995) contend that there is no discernible difference in macroeconomic performance between fixed and floating exchange rate regimes, indicating that the subject is far from decided.

exchange rate regime, frequently face external constraints that limit their monetary sovereignty, reflecting the global financial system's hierarchical nature.

2.2 The Hierarchical Nature of the International Monetary System

One of the central premises of this study is that the IMS is hierarchical[7]. However, how exactly is this hierarchy built, and what underlying forces give some currencies power while constraining others?

2.2.1 The Currency Hierarchy

The IMS's hierarchical structure results from different currencies' varying acceptance and power in the global economy. Cohen (2015, 2018) contends that a currency's strength comes from its use worldwide in both the public and private spheres. Those that perform all three monetary functions – the unit of account, medium of exchange, and store of value – enjoy the highest position in international trade and politics (Obstfeld & Taylor, 2004). This hierarchy is dominated by the U.S. dollar, followed by other currencies, including the euro, yen, pound sterling, Chinese yuan, Swiss franc, Canadian dollar, and Australian dollar – albeit with relatively lesser global importance. Conversely, currencies from developing countries, which are at the bottom of the hierarchy, are often restricted to domestic use. This hierarchy revolves around the concept of liquidity, a concept central to understanding currency hierarchies that were brought into focus by Keynes (1936) and later developed further by

7 Noteworthy are seminal studies of Kindleberger (1970), Strange (1971), and Cohen (2018), each of whom has contributed significantly to the understanding of the hierarchical structure of the IMS. Their research has been further enriched by dependency theory and structuralist school, with essential findings by Prebisch (1950), Tavares (1985), and Reis and de Oliveira (2021). In parallel, Marxist scholars such as Alami (2018), Koddenbrock (2019), and Koddenbrock and Sylla (2019) have shed light on the relationship between the dominant currency and the hierarchical system. Additional perspectives from imperialist theories, particularly those of Emmanuel (1972), Lenin (2010), and Patnaik et al. (2016), have shed light on the complexity of this hierarchical system. While critical microfinance has recently gained attention through the contributions of Gabor (2020) and (Murau et al., 2021), the post-Keynesian literature, led by scholars such as Andrade and Prates (2013), Bonizzi et al. (2019), Fritz et al. (2018), Kaltenbrunner (2015), and Svartzman and Althouse (2020), has proven crucial to our understanding of the hierarchical organization of monetary systems. The "Money View," formulated in particular by Mehrling (2013), adds another layer of understanding by providing a finance and banking perspective.

Mehrling (2018). Liquidity refers to the ability of an asset to be converted into cash quickly and with minimal loss, a property highly valued in times of uncertainty. As a result, a currency's position in the hierarchy is determined by its level of liquidity, making the U.S. dollar the most reliable and dominant force in global trade. The discussion of currency hierarchy extends beyond the use of national currencies in other countries: According to Murau et al. (2021), a country's place in the international financial system also depends on its ability to access U.S. dollar liquidity, which gives the hierarchical structure another layer. Svartzman and Althouse (2020) stress the significance of actors' propensity to hold currencies with higher liquidity premia and their use in paying off foreign debt.

2.2.2 The Challenges of Peripheral Economies in the Currency Hierarchy

Thus, developing countries at the lower end of the currency hierarchy suffer from a lower liquidity premium, leading to higher interest rates, volatile capital movements, and significant exchange rate volatility. This results in an unstable macroeconomic and financial environment, limiting the ability for growth-promoting policies (see, e.g., Bortz & Kaltenbrunner, 2018; De Conti et al., 2013; de Paula et al., 2017; Fritz et al., 2018).

The post-Bretton Woods changes in the IMS only exacerbated this instability by increasing the importance of speculative, short-term capital movements, thereby increasing the volatility and unpredictability of nominal exchange rates (Harvey, 2009). Economies outside of the United States that do not issue the primary global currency find themselves in a position of "impossible duality" (Flassbeck, 2001) or "dilemma," as stated by (Rey, 2015), where regardless of the exchange rate regime, they are required to give up their monetary independence in a setting with unlimited capital mobility. Further, these peripheral countries rely on foreign core currencies to fund essential imports and service their debts (as discussed in section 2.1, the “original sin” by Eichengreen et al., 2005)).

Peripheral countries heavily reliant on their exports are further challenged by the need to stay competitive in the international market, which demands careful macroeconomic management. Challenges arise when capital inflows finance current account deficits but also risk appreciating the domestic currency, potentially worsening the effect on trade deficits (de Paula et al., 2017). In these situations, investors in the foreign exchange market are guided by

the liquidity premium and the anticipated appreciation of the currency. Policymakers might feel compelled to increase the policy rate and financial openness to counterbalance the lower liquidity premium. However, Grabel (1996) notes that such responses can lead to a decrease in aggregate demand, thereby decreasing income and employment and increasing financial instability.

In this context, central banks become the key players in a 'self-insurance' approach to foreign reserve accumulation, often leading to a cyclical pattern of instability (Bluedorn et al., 2013; De Conti et al., 2013; Pagliari & Hannan, 2017). Furthermore, scarce foreign currency reserves limit the ability of peripheral countries to intervene, often resulting in more frequent deflationary adjustments, further hindering economic development, and deepening international economic disparities (de Paula et al., 2017).

In summary, exchange rate volatility, unstable capital flows, and illiquid foreign exchange markets pose significant challenges for peripheral countries (Andrade & Prates, 2013; de Paula et al., 2017; Fritz et al., 2018); such as impeding trade and investment decision, contributing to inflation, depreciation pressures (Aghion et al., 2009), and complicating debt repayment (Kaltenbrunner, 2015)[8]. Consequently, these economies often experience the 'fear of floating' wherein they are forced to actively manage their exchange rate by accumulating reserves to buffer against capital flow reversals (Calvo & Reinhart, 2002).

In addressing these challenges, some economists have explored appropriate policy responses. Rey (2015), for example, stressed the importance of a managed capital account, regardless of the exchange rate regime. Lavoie (2022) suggests combining a managed floating with capital controls to counteract vulnerability to inflation and the contractionary effects of currency depreciation.

In this chapter, we have looked at the many factors that complicate the determination of an optimal exchange rate for developing countries. The process is intertwined with the inherent constraints of the global currency hierarchy. Developing countries face the difficult task of managing a range of macroeconomic variables, including volatile exchange rates and

[8] Kaltenbrunner (2015) further elaborates on the issues for countries at the lower end of the currency hierarchy, in a foreign currency debtor position, and associated depreciation pressures on the exchange rate. She further adopts a Minskyan view, wherein the outstanding stock of foreign currency debt is the primary determinant of a currency's liquidity premium.

inflation. Nevertheless, it remains unclear how the CFA franc, with its unique institutional characteristics, fits into this landscape of currency hierarchy. In the following chapter, we will examine the basic principles and historical evolution of the CFA franc. This analysis serves as a precursor to an empirical investigation in subsequent chapters. In this way, we aim to provide a more comprehensive understanding of the CFA franc's place in the context of international monetary dynamics and its impact on peripheral economies.

3. The Case of the CFA franc: Institutional Dynamics and Historical Evolution

The CFA franc zone has a complicated historical background that can be traced back to French colonialism. The function and influence of finance, especially in the context of long-term and tumultuous relationships between colonizing powers and their colonies, are critical to understanding these nations' intricate positions within the currency hierarchy. In the case of France and its African colonies, monetary policy not only mirrored the shifting power dynamics but also actively shaped these regions' economic, social, and developmental trajectories.

We will take a chronological approach and divide the history of the CFA franc into three distinct phases. These phases reflect shifts in the configuration of the currency, significant political shifts in core countries, and broader changes within the IMS.

3.1 The Genesis of the CFA Franc: Stability and Colonial Ties (1895 – 1958)

In this section, we explore the early evolution of the CFA franc. It traces its history back to the imperial currency era of 1895 and its transformation post-World War II. As we proceed, we will look at the colonial ties that formed its foundation and its broader impact on colonial administration and the regional economy.

3.1.1 The Imperial Currency Era (1895 – 1944)

The establishment of the French West Africa (*Afrique occidentale française,* AOF) federation in 1895 marked a milestone in the economic history of French colonies, uniting eight

countries, including present-day Benin (Dahomey), Ivory Coast, Guinea, present-day Burkina Faso (Upper Volta), Mauritania, Niger, Senegal, and present-day Mali (Sudan) (Pigeaud & Sylla, 2018). This marked the beginning of a pivotal phase in the colonies' monetary systems – the 'monetary transition. 'Prior to this, the economies of West Africa were steeped in a diverse spectrum of indigenous currencies, from cowries and cloth to copper and gold[9]. The AOF's establishment triggered a strategic replacement of these indigenous currencies with colonial currency, effectively taking over monetary circulation within the colonies (Diallo, 2005; Pigeaud & Sylla, 2018; Şaul, 2004). The imposition of taxes that were payable only in the colonial currency served as a primary lever for this transition. This maneuver induced the local population into trading their goods and services in French franc (FF), gradually leading to the demonetization of indigenous currencies in 1922 and embedding the colonies into the colonial capitalist system. Colonial banks, such as the Bank of West Africa (*Banque d'Afrique Occidentale,* BAO), established in 1901, were critical in supporting this monetary transition. The BAO was granted the right to print FF, distinct from the ones issued by the Banque de France (Pigeaud & Sylla, 2018) [10].

The rationale behind these monetary reforms was multifaceted. Primarily, the French authorities aimed to reduce transaction costs related to trade and investment both within and between the metropole and the colonies. They envisioned the colonies as export-oriented economies, providing raw materials essential for their industrialized home economies. Additionally, the French administration sought to exert greater control over the colonies

[9] Pre-colonial monetary systems often utilized lower-denomination forms of currency such as cowries. Cowries, in particular, were popular due to their uniformity, difficulty in counterfeiting, and low individual value. They were so widely used in trade that they even held an official exchange rate against the FF. However, these currencies presented specific challenges for colonial administrators. Their value varied significantly across different regions due to local customs and supply-demand dynamics, and the lack of centralized control over their supply often resulted in substantial value fluctuations compared to higher-denomination currencies. These issues made these types of currencies less suitable for the more monetized economies that colonial authorities aimed to establish (e.g., Helleiner, 2002; Pigeaud & Sylla, 2018). Hopkins (1970) provides a vivid example of the complexities of managing colonial currencies, as seen in Lagos and the Gold Coast (now Ghana).

[10] It's worth noting that similar developments were concurrently taking shape in British West Africa, encompassing what are today the nations of Ghana, Nigeria, Sierra Leone, and The Gambia. Much like the French in their colonies, the British authorities also sought to impose their currency and monetary control as a means to facilitate the extraction of the colonies' resources and manage the regional economy. This underlines a broader pattern of colonial monetary practices not limited to the French sphere of influence, but prevalent amongst various European colonial powers across Africa during that era (see Bernards, 2023; Helleiner, 2002; Koddenbrock, 2020 for more; and Schenk, 1997 for literature for monetary transition and financial development after independence in Ghana and Nigeria).

macroeconomic conditions and capitalize on the potential for seignorage revenue – profits generated from money issuance (Helleiner, 2002; Kirshner, 1995, pp. 60–62)[11].

The systematic substitution of indigenous currencies with the colonial currency shaped the economic architecture of the colonies. This change, highlighting their aim for broad control, had profound implications for administrative structures and local economies, paving the way for future shifts within the colonial monetary system.

The French colonial empire underwent significant restructuring during the interwar period, highlighted by the 1929 economic crisis. The creation of the franc zone in 1936, following France's abandonment of the gold standard, was a significant move. The franc zone was established as a strategic maneuver to replicate the British system, which promoted unrestricted trade within the zone while imposing protectionist barriers against external economies. The franc zone was distinguished by its highly centralized architecture, which provided France with complete control over regional monetary and international trade coordination. The Currency Stabilization Fund, overseen by the Bank of France, was a critical component of the zone, as it monopolized foreign currency transactions and centralized the currencies of the entire zone. The zone improved the colonial monetary system considerably by mandating that the French authority approve all imports. This evolution enabled France to preserve its currency and trade, isolate its colonies from the global market, and encourage preferential trade with the metropole (Pigeaud & Sylla, 2018).

3.1.2 Birth and Evolution of the CFA franc (1945 – 1958)

In 1945, the monetary landscape of French African colonies underwent a significant shift. The metropolitan franc, which had been in use prior to the introduction of the franc of the French Colonies in Africa (Colonies Française d'Afrique, CFA), was replaced as the AOF's official currency (Pigeaud & Sylla, 2018; Wilson, 2021). First, the decision to introduce the CFA franc was motivated by France's economic instability after World War II. Faced with

[11] Colonial authorities, striving to offset substantial debts from railway construction, targeted the seigniorage—profits from coin production—generated by British silver coins circulated within their jurisdictions as early as 1897. Notably, the demonetization process, particularly of cowries, is perceived by some scholars as a deliberate strategy to undermine pre-colonial elites. This demonetization could potentially lead to significant financial losses for those who had accumulated wealth in this now-devalued form of currency.

rampant inflation, recurrent shortages of goods, and shrinking foreign exchange reserves, France was forced to devalue the metropolitan franc against other international currencies[12]. However, the colonies had been spared the severity of inflation in France, resulting in an unexpected outcome – the metropolitan franc also had to be devalued relative to the colonial currency, effectively terminating the previous monetary unity (Koddenbrock & Sylla, 2019; Pigeaud & Sylla, 2018). Subsequently, the parity of the CFA franc was set at 1 CFA franc, equivalent to 1.70 FF (Gounin & Rufin, 2009). However, this valuation was later considered excessively high for the AOF's economic strength, as it represented an overvalued currency relative to the FF. This overvaluation, although seemingly counterintuitive, was strategically beneficial to France's interest. With the CFA franc's high value, French products became more affordable for the colonies, promoting increased imports from mainland France. Conversely, it raised the prices of colonial exports, making them less competitive globally and encouraging the colonies to prioritize trade with the metropole (Koddenbrock & Sylla, 2019)[13].

The introduction of the CFA franc signaled a fundamental shift in France's economic and monetary dynamics with its African colonies. It institutionalized a 'principle of automaticity,' wherein the colonies were deprived of their ability to regulate their currency exchange rates, becoming subject to the unilateral decision of the metropole (Mensah, 1979). This monetary shift, underscored by the subsequent devaluation of the FF and changes in the CFA franc's parity in 1948 to 1 CFA franc equivalent to 2 FF[14], shaped the economic trajectories of both France and the African colonies, with implications that would reverberate throughout the subsequent decades (Kalife, 2016).

[12] For an in-depth analysis of France's economic condition following World War II, including its efforts to regain market share in the African colonies and secure raw materials for rebuilding its infrastructure, as well as the strategic role of the overvalued CFA franc in promoting these interests please refer to Godeau (1995); Tadei (2017)

[13] Another interesting perspective on the creation and reconfiguration of the CFA franc is provided by an analysis of Kalife (2016). Accordingly, one of the critical points of the emergence of the CFA after World War II was linked to the preceding Bretton Woods Agreement and the establishment of the United States as a new superpower. The geopolitical climate - the Cold War between the Soviet Union and the USA- was a catalyst to motivate France even more, to exert political power on its old colonies to prevent the alienation of the African countries to the Eastern Bloc. Given this background, it might be apparent that the prioritization of credit policy and monetary strategy dedicated to self-sustained development was not at the forefront during the formation of the CFA franc. This would become particularly important in the 1960s when the countries successively demanded their independence.

[14] In contrast, in the British colonies of West Africa, the colonial currency was pegged at a value equivalent to 'half as much as the British pound. This exchange rate, as noted by Pigeaud and Sylla (2018) and d'Almeida-Topor (1998), was more representative of the disparity in living standards between the colonies and the metropolis.

3.2 Navigation Newfound Independence: Monetary Unions and Regional Synergy (1958 – 1999)

This section delves into the 1958-1999 period. The focus is on the formation of monetary unions and the expansion of regional collaboration post-colonial rule. Bernard's (2023) insights guide us, urging close examination of the transition from colonial rule, as understanding the nuances of its dissolution is critical to grasping the persistent colonial financial legacies linked to present-day monetary and financial system challenges[15].

3.2.1 The post-Colonial Period (1958 – 1960)

The late 1950s were a time of upheaval for the French overseas territories as the tide of decolonization began to rise across the globe. In May 1958, General de Gaulle proposed a conditional form of independence for these territories. These conditions encompassed many key domains, including currency management and economic and fiscal policy. This new arrangement was put to a vote in a referendum in September 1958, and apart from Guinea, it received a majority of acceptance in the other territories. This resulted in establishing the 'Community' regime, with the CFA franc serving as the currency of the 'French Community of Africa' (*Communauté Française d'Afrique,* CFA). Paris still governed monetary policy in the Franc Zone, with only the French authorities authorized to change the currency's parity (Pigeaud & Sylla, 2018).

The Central Bank of West African States (*Banque Central des États de l'Afrique de l'Ouest*, BCEAO) was created in 1959 to replace the former Bank of French West Africa (BAO) and was overseen by the French Treasury. Trade relations were subject to a reciprocal preferential regime, further solidifying the economic ties between these countries and France. In theory, these countries were allowed to have their currencies and issuing institutions, but in practice, their autonomy was severely limited. Countries were obligated to deposit their foreign reserves in a particular "operation account" with the French Treasury, and all international transactions were to take place exclusively on the Paris exchange market. As a result, the "operation account" became a crucial aspect of the restructured system. Even though these

[15] For a more in-depth analysis of the changing nature of the Franco-African relationship over the second half of the 20th Century, refer to Stasavage (2018).

countries ostensibly had formal control over their currencies, actual control remained mainly with the French (Pigeaud & Sylla, 2018). The implications of this "operations account" are discussed in more detail in the following section 2.2.2

This post-colonial period, therefore, marked a continuation of French influence over the monetary systems of these newly independent African states. The CFA franc remained in use, and the French had a significant say in critical decisions and key aspects of their economies.

3.2.2 Monetary Unions and Economic Cooperation (1961 – 1999)

After the independence of most of its former colonies, the franc zone continued to include only France and a selection of sub-Saharan countries from 1962 onwards. This region comprises three main economic sub-entities in Africa: The West African Economic and Monetary Union (WAEMU)[16], the Economic and Monetary Community in Central Africa (CEMAC)[17], and the Union of Comoros. Each of these entities had its respective central bank, with France holding a unique status as guarantor.

The CFA system was still founded on four fundamental principles: a fixed exchange rate, free capital movement, free currency convertibility, and the centralization of foreign exchange reserves. The fixed exchange rate principle tied the CFA franc to the French currency, the 'anchor currency,' suggesting that the CFA franc's value did not vary due to economic factors and could only be changed by political authorities within the franc zone (Pigeaud & Sylla, 2018; Stasavage, 1997) [18].The second principle, free capital movement, enabled unlimited payment of imports and exports, repatriation of profits and dividends, and capital transfers within the franc zone. The third principle, free currency convertibility, was supposed to guarantee an unrestricted exchange of the CFA franc for the French currency, upheld by the

[16] Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo.
[17] Cameroon, Congo, Gabon, Equatorial Guinea, the Central African Republic, and Chad. Also, the WAEMU and CEMAC each have different CFA franc; the former uses the franc of the 'African Financial Community,' the latter the franc of 'Financial Cooperation in Central Africa,' and Comoros uses the 'Comorian franc' (Pigeaud & Sylla, 2018; Wilson, 2021).
[18] When the FF became freely convertible in 1967, its value could fluctuate in response to international currency markets. This opened a possibility for the CFA franc to fluctuate, mirroring changes in the value of the French franc. However, the CFA franc's value remained fixed, cementing a degree of economic dependence on France. This arrangement, while maintaining the CFA franc's stability, also prevented the newly independent African nations from exercising full monetary autonomy.

French Treasury. This tenet ensured that the franc zone's central banks would always have foreign currency access, promoting the continuous movement of capital within the zone (Pigeaud & Sylla, 2018; Stasavage, 2003). While the principle of unrestricted convertibility may be present in theory, its full realization in practice has often been impeded by economic realities and the crisis of the 1980s and 1990s. The implications and practical challenges of maintaining unrestricted convertibility will be elaborated on shortly in section 2.2.3.

The fourth principle, the centralization of foreign exchange reserves, required the BCEAO to deposit part of its foreign exchange reserves in France with the French Treasury. Implementing the four operational principles involves a key tool, the operations account, as mentioned in section 2.2.1. Consequently, to the 'assurance' of convertibility, the BCEAO must deposit a portion of 65 percent of their foreign exchange holdings there. Additionally, the coverage ratio cannot fall below the critical threshold of 20 percent. The accounts are credited and debited regularly based on the financial inflows and outflows of African countries inside the franc zone. Exporters and commercial banks, for example, are required to repatriate and transmit most of their foreign currency revenues to the BCEAO in return for CFA francs, whereas imports and international loan repayments indicate a foreign currency outflow. If the assets in the operations account exceed the required quota, the excess is transferred to a 'leveling' account, which pays interest. As a result, they can be considered subsidizing the French Treasury, as their foreign exchange reserves are available to it. Overall, the operations account is critical in foreign exchange transactions. Due to the non-listing of the CFA franc, the French Treasury serves as a currency exchange office for the franc zone economies, channeling all foreign currency transactions through the Paris foreign exchange market[19]. The idea of "free" convertibility has been praised by certain economists (e.g., Guillaumont et al., 1988), but it is important to retain that this freedom is limited by the necessary reserve requirements tied to the convertibility agreement. Tinel (2016) highlights this argument further, claiming that no specific mechanism is associated with the operations account. The following section will present evidence to back up this claim.

[19] This is a summarized explanation of the operations account. For a more detailed exploration of that topic, including specific examples and historical context, please refer to (Gulde et al., 2008; Lelart, 1996; Nubukpo et al., 2016; Pigeaud & Sylla, 2018; Stasavage, 2003)

3.2.3 The Devaluation of 1994

The devaluation of the CFA franc in 1994, implemented by France under pressure from the IMF and against the will of most African leaders, was a watershed moment in the franc zone's history. This event, which saw the value of the CFA franc fall by half, was precipitated by the rising economic crises between the 1980s and 1990s, exposing the theoretical fallibility of the idea of unlimited convertibility (Martin, 1986; Pigeaud & Sylla, 2018).

During this period, franc zone countries faced rising global interest rates, falling commodity prices, and an expanding international debt crisis, although the zone still displayed lower inflation than non-CFA countries (Bénassy-Quéré & Coupet, 2005; Pigeaud & Sylla, 2018). The unlimited convertibility concept, which required France to guarantee the exchange of CFA francs for FF at a set rate, was intended to promote economic stability. However, as these economies' realities worsened, the principle facilitated significant capital flight, with individuals and institutions rapidly converting CFA francs into more stable currencies. This led to substantial depletion of foreign exchange reserves in these countries' central banks, resulting in operational deficits (Martin, 1986). Even while France retained the convertibility promise, economic realities forced the CFA franc to be devalued, exposing the limitations of this "unlimited" guarantee[20]. The devaluation sparked widespread debate among economists[21]. Some argued that it would enhance the price competitiveness of exports from Franc zone countries, while others contended that it was merely a band-aid for the fundamental economic issues. Nevertheless, the impact was considerable: inflation, increased debt, and social discontent were the result[22] (Taylor, 2019).

In retrospect, the 1994 devaluation highlighted the limits of the principle of unlimited convertibility. The principle, intended as a measure of economic stability, proved

[20] The devaluation of the CFA franc in 1994 would not have been necessary if France had maintained its unrestricted convertibility guarantee at a stable rate. The devaluation was a measure of responding to economic reality and preventing capital flight, effectively rendering France's guarantee ineffective.

[21] For a comprehensive examination of the social consequences of structural adjustment policies in Africa, particularly the role of exchange rate decisions and the impact on social groups, see (Guillaumont & Guillaumont Jeanneney, 1992).

[22] It is worth noting that using the identical devaluation rate across all 14 countries in the franc zone was a contentious issue. Given the varying degrees of exchange rate overvaluation in the individual countries, a uniform devaluation rate may not have been the most efficient or fairest approach (Parmentier, 1996; Pigeaud & Sylla, 2018). The impacts of the devaluation are further discussed by Bouvet et al. (2022), Kalife (2016), and (Giorgioni, 2019).

economically unsustainable in the face of real challenges, illustrating the void between theoretical and practical economic realities.

3.3 The Euro-Era: Monetary Shifts and Evolving Dynamics (1999 – Present)

This section discusses the substantial monetary adjustments and dynamic evolution of the CFA franc with the introduction of the euro in 1999. The link between the CFA franc and the euro and the implications of the monetary policies outlined are central to our empirical analysis in the subsequent chapters.

3.3.1 Integration with the Euro

The switch from the FF to the euro, which began on January 1st, 1999, was a crucial turning point in the CFA franc's history (Kohnert, 1998). The euro replaced the FF as the new anchor currency, resulting in a fixed exchange rate of 1 Euro, equaling 655.957 CFA francs. The entire procedure planned and overseen by Paris, elicited varied reactions from African governments, mainly because of concerns about the CFA franc being tied to the euro, which some thought to be stronger than the dollar. The European Economic and Monetary Union (EMU) became the only authority on monetary and exchange rate policy, and its member nations were no longer permitted to negotiate monetary cooperation agreements with foreign countries. Despite this, pre-existing monetary arrangements were allowed to continue post-transition because of France's efforts during the establishment of the EMU. Notably, African states were excluded from these negotiations, implying a lack of sovereignty in a choice that would considerably impact their economies (Pigeaud & Sylla, 2018). Some saw this transition as a potential entrance to new markets for African products and an opportunity to gain access to financial market liquidity (Guillaumont & Guillaumont, 1989; Kohnert, 1998). However, the decision to link the CFA franc to the euro at a de facto fixed parity presented specific difficulties. Many African economists have expressed concern about the ramifications of such an arrangement (Kohnert, 1998, 2005). They argued that pegging to a robust economy like the eurozone would place undue pressure on African economies, causing them to compete against stronger European economies. They feared this could lead to the overvaluation of the CFA franc and restrict African countries' ability to conduct independent monetary policies (Coulibaly, 2014). Economist Adama Diaw urged that the link between the

CFA franc and the euro be "flexible, adaptable to the circumstances" (Pigeaud & Sylla, 2018, p. 18).

The combination of the euro peg and reserve holdings created further complications. For example, the French Treasury's remuneration to central banks for their operating accounts was deemed insufficient. During the 1960s and 1980s, the Bank of France set the interest rate, which was frequently lower than the French inflation rate. Cameroonian economist Joseph Tchuandjang Pouemi pointed out that African countries were effectively paying the French Treasury to retain foreign reserves (Pouemi & Diawara, 2004). However, following the 2007-2008 financial crisis, these rates were reduced to promote economic growth in the eurozone, resulting in negative real interest rates for African countries (Pigeaud & Sylla, 2018)[23].

3.3.2 Contemporary monetary politics and debates surrounding the CFA Franc System

Three key actors emerge in the current monetary system's hierarchy: the French government, the BCEAO, and commercial banks. Each of these actors plays an important role in defining the trajectory of the CFA franc's monetary policy. The French government gives its "guarantee" of convertibility and oversees the BCEAO's operations accounts through the French Treasury. The Bank of France, operating as the French Treasury's bank, handles these accounts while simultaneously functioning as the BCEAO's correspondent central bank (Pigeaud & Sylla, 2018). The BCEAO manages currency issuance, monetary and financial stability, and banking system regulation. The most important body within the central bank is the *Comité de la Politique Monétaire* (CPM). There, the primary monetary policy goals in terms of interest rates for central bank liquidity, commercial banks, and reserve requirements are set and adjusted. France’s representatives have a veto right. The main objective of the BCEAO is to maintain price stability by internally setting the inflation rate target at 2 percent and externally maintaining a fixed peg to the euro (Lampe, 2022). This commitment requires that the BCEAO maintain sufficient foreign exchange reserves to satisfy all conversion demands (Hallet, 2008).

[23] Following the transition to the euro, the French state's remuneration to CFA zone central banks, tied to the deposit and marginal lending facility rates, saw changes. Post the 2007-2008 financial crisis, the ECB lowered these rates to stimulate the Euro area's economy. Consequently, from 2010 to 2013, African countries in the CFA zone experienced negative real interest rates, as the ECB's marginal lending rate fell below the Euro area's inflation rate, leading to real-term losses (Pigeaud & Sylla, 2018).

The CFA franc's peg to the euro is the second discussion area. While it may be claimed that such pegging improves the credibility of the monetary union, it also introduces its own set of issues, such as the euro's sensitivity to external value changes (Lampe, 2022). The euro's appreciation can harm these economies by hurting their export competitiveness and increasing the cost of their dollar-denominated export earnings—furthermore, such a policy disadvantages local industries by making imports cheaper and worsening traded balances (Coulibaly, 2014). An additional complication arises from the fact that franc zone countries essentially surrender their monetary sovereignty to the eurozone, which can lead to economic policies poorly aligned with their business cycles. This lack of policy autonomy limits their response to external shocks to severe internal devaluations, leading to wage cuts and reductions in public spending that constrain economic activity. This relinquishing of policy sovereignty reduces their ability to use the exchange rate as a buffer against external shocks. They are left with no choice except to practice internal devaluation or austerity, which reduces wages, public spending, and, ultimately, economic activity (Pigeaud & Sylla, 2018).

Finally, the third fundamental difficulty is African economies' underfinancing. To keep the CFA franc parity with the euro, the central banks of these countries limit money creation, which reduces domestic credit. The restrictive monetary policy, coupled with concerns about inflation, stringent borrowing conditions, the dominance of foreign commercial banks[24], and high foreign exchange requirements[25] [26], combine to obstruct credit access, thereby hampering economic development (Dembélé, 2016; Pigeaud & Sylla, 2018; Tinel, 2016).

[24] Commercial banks in the franc zone, whose French share declined from 30 percent to 14 percent between 1994 and 2014, contribute little to the local economy. Despite the banks' excess liquidity, where reserves held exceed required reserves, these banks in the WAEMU have a low credit-to-GDP ratio of 22.9 percent, far below the 32 percent and 35 percent in Ghana and Nigeria, respectively, indicating unused savings and limited access to credit (Pigeaud & Sylla, 2018).

[25] According to a 2016 study by Tinel, the CFA franc's reserve surplus far exceeded the required level from 2010 to 2014, with reserves four to five times the international obligations. He suggests that these substantial reserves can be interpreted in two ways. For one, it suggests that the CFA franc may not be as overvalued as it appears when viewed in purely monetary terms. Conversely, it may indicate a constrained domestic economy at the current exchange rate, limiting monetary issuance and maintaining a high level of reserve coverage. In essence, these observations suggest the possibility of a more flexible monetary policy within the CFA framework that may better meet the financing needs of these economies.

[26] In response to mounting public pressure from Africa, French authorities, led by President Emmanuel Macron, declared a 'significant reform' in December 2019. This reform, initiated in reaction to the Covid-19 crisis in 2020, resulted in significant modifications to the activities of the WAEMU's central bank (BCEAO). Notably, the BCEAO was no longer required to deposit 50 percent of its foreign exchange reserves with the French Treasury, essentially ending the operations account. In addition, French state representatives were withdrawn from BCEAO bodies. While these amendments provided much-needed liquidity and relaxed constraints for the West African states within the franc CFA system, the Central African states continue to operate under the original requirements.

The CFA franc regime has created a vicious cycle of fiscal instability characterized by the free movement of capital, income inequality, capital flight, external debt, and unsustainable borrowing. This vicious cycle has drained resources from Africa, hindered development, and increased economic inequality. Fiscal constraints imposed by the CFA franc system have significantly limited countries' ability to set their monetary policy, contributing to insufficient investment and slow economic growth. Moreover, the cycle is exacerbated by unsustainable borrowing practices. Because commercial and central banks have insufficient foreign exchange reserves, countries frequently borrow money in foreign currencies at exorbitant interest rates, encouraging more capital flight (Koddenbrock & Sylla, 2019; Pigeaud & Sylla, 2018).

The consequence of this system is visible in the economic performance of the CFA franc zone countries, the majority of which, except for Côte d'Ivoire, are categorized as Least Developed Countries (LDCs). They saw much slower real GDP per capita growth between 1960 and 2017 than the leading ECOWAS economies and the North African nations that left the franc zone after gaining independence (Koddenbrock & Sylla, 2019).

In the case of the WAEMU, sticking to a monetarist-inspired "competitive disinflationary" policy-which includes anti-inflationary monetary policy, fiscal policy focused on public deficits, rationalized production costs, and structural reforms including privatization of state-owned enterprises-illustrates the systemic challenges and outcomes of the CFA franc regime (Nubukpo, 2007, p. 73).

4. Empirical Analysis

Having outlined the fundamentals of the CFA franc and discussed the obligations that the BCEAO has to fulfill to sustain the parity with the euro – particularly the need to ensure sufficient reserves – we delve into the empirical examination. Based on the methodology described in Calvo and Reinhart's (2002) fear of floating study, we conduct a comparative analysis between CFA and non-CFA countries within the same region, the latter having declared a floating exchange rate regime. Taking the theoretical basis of the hierarchical

structure of the IMS, our goal is to compare the position of these economies within this structure – particularly concerning exchange rates and foreign exchange reserves. Theoretical insights on the currency hierarchy highlight the problems these countries face, from volatile exchange rates to unstable capital flows to the nuances of a diminished liquidity premium. These challenges form the backdrop for our research approach, which examines these countries' exchange rate arrangements and compares their performance with that of peer countries. Further underlining this theory-empiricism synthesis, our selected variables—bilateral nominal exchange rates, foreign exchange reserves, and nominal interest rates—resonate with the theoretical challenges anticipated for countries lower in the hierarchy (see section 2.2.2 of this study). Such nations are posited to experience pronounced variability and volatility in these metrics, leading to higher interest rates, significant capital movements, and notable exchange rate shifts. As detailed in Equations (1) and (2), our formulated expectations regarding exchange rate and foreign exchange reserves reflect the theoretical challenges these peripheral economies face due to their hierarchical position. This observed inverse relationship between exchange rate stability and reserve variability captures the broader monetary struggles and decisions these nations grapple with, from the 'fear of floating' to policy compromises. Therefore, our methodological approach is not an isolated exercise. Rather, it is closely linked and intended to validate the theoretical postulates of the currency hierarchy within the IMS. Beyond mere validation, the methodology aims to identify the specific nuances of CFA franc countries within this theoretical framework. It seeks to answer the extent to which the posits apply to these countries and whether there are particular patterns or divergences from other peripheral countries. In this way, our study attempts to provide a nuanced understanding and determine whether all peripheral countries truly exhibit homogeneous behavior or whether specific dynamics underlie the actions of CFA franc countries in the global financial landscape.

4.1 Data and Sample Description

The methodology used in this master's thesis is primarily influenced by the seminal work of Calvo and Reinhart (2002). It focuses on the analysis of exchange rate arrangements in seventeen countries from December 1999 to June 2021. The following countries were selected for the study: Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo from West Africa, and Australia, Japan, and the United States from the Western Hemisphere. Twenty

different exchange rate arrangements were examined as part of the study. The analysis focuses primarily on floating and fixed exchange rate regimes, and the analysis of managed floating regimes is limited to two periods[27].

Following the data collection approach of Calvo and Reinhart (2002), our analysis incorporates several key variables: bilateral nominal exchange rates, foreign exchange reserves, and nominal interest rates. The exchange rates chosen are end-of-period. The interest rate we use is those most closely reflecting the monetary policy of each country in the sample. Given the limited number of countries that regularly report daily or weekly data on foreign exchange reserves, we have opted for data collected monthly for consistency across the sample.

4.2 Framework for Evaluating Exchange Rate Arrangements

We chose the United States (US), Japan, and Australia as benchmark countries. These countries were chosen due to the generally free-floating nature of the US dollar and the Japanese yen against the euro and the dollar, respectively. However, as these currencies serve as the world's reserve currencies, we incorporated Australia into the analysis due to its similarities with other developing economies in our sample, its dependency on primary commodity exports, and the resultant volatility in its terms of trade.

Our analysis is focused on countries that declare their exchange rate agreements to the IMF. These countries are classified into three categories based on the exchange rate arrangement: fixed, managed to float, and floating[28]. The anchor currency varies among these countries –

[27] There were some challenges in collecting data for this study, particularly for interest rates and foreign exchange reserves. While exchange rate data are generally easily accessible for a wide range of developing countries, the situation is quite different for interest rate data. For many West African countries, interest rate data are subject to significant gaps and discontinuities, making comprehensive analysis much more difficult. In addition, it was not easy to obtain reliable data on foreign exchange reserves before 1999. Because of these data limitations, the sample size had to be further restricted. For example, although a member of the ECOWAS, Liberia had to be wholly excluded from the sample due to these data limitations.

[28] Except for Cabo Verde, the countries classed under the fixed exchange rate regime are mainly from the West African Economic and Monetary Union (WAEMU). In the managed floating exchange rate category, only two instances were identified, both belonging to periods when Ghana and Gambia reported managing a floating exchange rate regime.

for the CFA franc countries, Cabo Verde, and the US, the euro is used, while the dollar is preferred for the remaining countries[29].

In this study, the threshold value ($'x^{c'}$) is chosen at 1.5 percent. We then calculate the probability that our key variables lie within this range, which depends on the prevailing exchange rate arrangement. A 1.5 percent fluctuation band aligns with the IMF's definition of pegged currencies and facilitates differentiation between fixed and floating exchange rate regimes[30].

We expect the following pattern to emerge for changes in the exchange rate and foreign exchange reserves: For the exchange rate, we predict the probability that the monthly exchange rate will fall within the 1.5 percent band to be most significant for fixed exchange rate regimes and lowest for floating arrangements.

For exchange rate ($x = \epsilon$) we expect:

$$P(x < x^c|\text{Peg}) > P(x < x^c|\text{Float}) \text{ for } x = \epsilon \qquad (1)$$

Given that responses to expected money demand shocks under a fixed exchange rate system are typically handled by adjusting foreign exchange reserves, we anticipate an inverse relationship: as exchange rate rigidity increases, the probability of reserve changes falling within a narrow range should correspondingly decrease, demonstrating the inverse correlation between exchange rate rigidity and variability in foreign reserves.

[29] Their respective currency arrangements determine the choice of reference exchange rate for the countries in this study. For Cabo Verde and the countries using the CFA franc, which is pegged to the euro, the exchange rate against the euro is used. For the United States, the exchange rate against the euro is used as a reference, not because of a peg, but for reasons of comparison and the importance of the euro in international trade and finance. For the other countries in the sample that are not pegged to the euro, the exchange rate to the US dollar is used as the standard reference. This approach reflects the specific currency and exchange rate arrangements of the countries concerned.

[30] In line with the IMF standards, a conventional fixed exchange rate peg permits currency fluctuations within a ±1% range. However, a more comprehensive fluctuation range exceeding ±2% is permissible for pegged exchange rates operating within horizontal bands. To ensure a nuanced comparison between these systems, we have selected a range of 1.5 percent, positioning us comfortably within these defined parameters. This choice, aligned with globally recognized definitions and standards, fortifies the credibility and applicability of our findings.

Changes in foreign exchange reserves ($x = \frac{\Delta F}{F}$) should, on the other hand follow:

$$P(x < x^c|\text{Peg}) < P(x < x^c|Float) \qquad (2)$$

Predicting interest rate volatility is a more complex task due to the interplay of monetary policy and authorities' credibility (Calvo & Reinhart, 2002). Large fluctuations in interest rates could depend on these two factors, so the likelihood of interest rates fluctuating significantly depends on these variables. Furthermore, this method offers perceptions of the fundamental frequency distribution that are not immediately obvious from the variance. As a result, this methodology remains a key tool for analyzing the nature of exchange rate arrangements and their impact on economic variables.

5. Results: Analyzing Volatility Across Key Economic Indicators

5.1 Exchange Rates

Table I, II, and III present the results of the monthly percentage changes in nominal exchange rates, foreign exchange reserves, and nominal interest rates. These values are examined across three exchange rate regimes: floating, managed floating and fixed. The first column indicates the country, the second the periods of the specific exchange rate arrangement, and the following columns the relevant probability for changes in our variables. Our chosen threshold value for exchange rates and foreign exchange reserves is 1.5 percent.

The data in Table 1 suggests the US$/€ exchange rate has a 43 percent probability of remaining within a ± 1.5 percent band within a month. Japan's relative likelihood is at 41 percent. However, Guinea, Nigeria, and Sierra Leone – countries that declared a floating exchange rate – display an elevated probability, between 86 and 94 percent, of maintaining this narrow band. Compared to Australia's 32 percent benchmark, these figures are significantly higher. The flip side of this statistic shows that Nigeria has a mere 6 percent chance that the exchange rate will fluctuate more than 1.5 percent in any given month, while for Sierra Leone and Guinea, these probabilities are around 17 and 14 percent, respectively. Within the ECOWAS, Gambia, and Ghana exhibit slightly higher exchange rate volatility,

with probabilities of exceeding the 1.5 percent fluctuation at 31 percent and 34 percent, respectively.

Table I
Volatility of Selected Indicators in "Floating"
Exchange Rate Regime

		Probability that the monthly change is		
		Within a ± 1.5 percent band:		Greater than ± 0.5 percentage points:
Country (1)	**Period (2)**	**Exchange Rate (3)**	**Reserves (4)**	**Nominal interest rate (5)**
Australia	December 1999 – June 2021	32.2	15.9	1.6
Gambia	December 2007 – June 2021	69.3	28.8	9.8
Ghana	December 2008 – June 2021	66.2	17.2	15.2
Guinea	December 1999 – December 2000	90.0	90.0	2.2
Japan	July 2006 – April 2013	40.7	86.4	0.0
Nigeria	April 2017 – June 2021	94.1	31.4	3.9
Sierra Leone	February 2011 – June 2021	83.1	35.5	10.5
United States	December 1999 – June 2021	43.4	54.7	3.5

Table II indicates that larger exchange rate fluctuations are much less common during Ghana's managed float periods. Between 2001 and 2008, the probability of monthly change staying within 1.5 percent was 89 percent. This figure suggests a significant reduction in exchange rate volatility compared to Ghana's floating periods. For Gambia, despite its shift to managed floating, the likelihood of monthly changes within the 1.5 percent band remained roughly unchanged at 70 percent.

Unsurprisingly, the findings in Table III show that for CFA franc countries, due to their institutional peg to the euro, the probability of exchange rate changes remaining within the 1.5 percent band is 100 percent for all countries, without exception. However, the only ECOWAS country in our sample with a fixed exchange rate regime, Cabo Verde, has a 92 percent probability of remaining within this narrow band. Despite being very high, it is still 8 percent less than that of the CFA franc countries. This discrepancy suggests slight variations in the configuration of their exchange rate agreements[31].

Table II
Volatility of Selected Indicators in "Managed" Exchange Rate Regime

		Probability that the monthly change is		
		Within a ± 1.5 percent band:		Greater than ± 0.5 percentage points:
Country (1)	**Period (2)**	**Exchange Rate (3)**	**Reserves (4)**	**Nominal Interest Rate (5)**
Gambia	December 2002 – November 2007	70.0	30.0	20.0
Ghana	December 2001 – November 2008	89.3	15.5	19.0

Overall, all three benchmark countries – the US, Japan, and Australia – demonstrate a lower likelihood of fluctuating monthly exchange rates within the 1.5 percent band. This suggests higher exchange rate volatility compared to DECs in Tables I, II, and III, which indicate

[31] The Cape Verde escudo (CVE) is the currency of Cabo Verde. The CVE was once linked to the Portuguese escudo, reflecting the country's colonial ties to Portugal. However, with the euro replacing the Portuguese escudo, the CVE was also tied to the euro. Cabo Verde is tied to the euro at a rate of 1 EUR = 110.265 CVE, identical to the CFA franc countries in Table 3 *(Correia et al., 2020).* It should be noted that while the peg to the euro implies a fixed exchange rate, an examination of IMF data collected for the analysis shows that the exchange rate regime has exhibited some degree of fluctuation over time. These fluctuations suggest a degree of flexibility in implementing the exchange rate peg and suggest that slight adjustments or deviations may occur within the agreed framework.

lower volatility. However, analyzing exchange rates in isolation may not offer a comprehensive understanding of exchange rate dynamics, as it does not account for the effort of policy interventions or potential fluctuations in the absence of such measures. The following section will look at how foreign exchange reserves behave to understand better how policies are used to limit exchange rate volatility.

Table III
Volatility of Selected Indicators in "Fixed"
Exchange Rate Regime

		Probability that the monthly change is		
		Within a ± 1.5 percent band:		Greater than ± 0.5 percentage points:
Country (1)	**Period (2)**	**Exchange Rate (3)**	**Reserves (4)**	**Nominal interest rate (5)**
Benin	December 1999 – March 2021	100.0	6.9	0.4
Burkina Faso	December 1999 – March 2021	100.0	4.3	0.4
Cabo Verde	December 1999 – June 2021	92.2	47.1	2.9
Côte d'Ivoire	December 1999 – March 2021	100.0	2.2	0.5
Guinea -Bissau	December 1999 – March 2021	100.0	4.9	0.5
Mali	December 1999 – March 2021	100.0	2.2	0.5
Niger	December 1999 – March 2021	100.0	5.5	0.5
Senegal	December 1999 – March 2021	100.0	4.4	0.5
Togo	December 1999 – March 2021	100.0	3.3	0.5
WAEMU	December 1999 – March 2021	100.0	32.8	0.5

5.2 Reserves

As shown in section 5.2, reserve variances should theoretically be zero in a pure float scenario. Columns (4) of Tables I, II, and III provide the frequency distribution of monthly changes in foreign exchange reserves (expressed in US dollars). Table I reveals an 86 percent probability that monthly changes in Japan's foreign exchange reserves will fall within a ± 1.5 percent band, and the equal probability for the US is 55 percent. However, this probability drops to around 31 and 36 percent for Nigeria and Sierra Leone, respectively, and further to 29 percent for Gambia. Ghana's probability is the lowest among our ECOWAS floaters, at 17 percent, surprisingly similar to Australia's 16 percent.

Our study further contrasts these findings with the probability rates during Ghana and Gambia's managed floating periods (see Table II). Despite the changes in monetary policy, these figures remained relatively constant – and in line with changes one would observe during a period of managed floating, indicating that both countries continue to actively employ foreign exchange reserves to manage their exchange rate volatility.

Turning to fixed exchange rate regimes, we observe a uniform pattern of low probability rates for reserve fluctuations (see Table III). This finding suggests that these countries frequently and aggressively employ their reserves to maintain their fixed exchange rates. However, even within this group, there are variations. For instance, the probabilities of reserve fluctuations for Côte d'Ivoire and Mali are lowest at 2 percent, while for Benin and Niger, these figures are slightly higher, though relatively low at 7 percent and 6 percent, respectively[32].

Higher volatility in foreign exchange reserves appears to be frequent in our sample of commodity exporter countries, indicating a more considerable degree of involvement in the foreign exchange market than expected in a freely floating exchange rate regime[33]. This is not just a developing-country phenomenon, as Australia's reserve movements are much more volatile than those of the United States and Japan (Calvo & Reinhart, 2002).

[32] The WAEMU row paints a picture of aggregate data for all member countries, representing the average behavior of the Union as a whole. It depicts the general exchange rate stability and the volatility of the Union's foreign exchange reserves. It also captures the collective impact of individual countries' policies and external pressures on the economy as a whole. However, it may mask individual differences across countries, underscoring the importance of separate country-level analyses for a more nuanced understanding.

[33] It is important to note that Guinea appears to be an outlier in the context of this analysis. This outlier status could be due to the limited observation period of only one year. Further investigation may be warranted to explore the reasons for Guinea's unique behavior within the observed period.

Figure I shows a plot in which the horizontal axis represents the probability that monthly exchange rate fluctuations remain within a range of 1.5 percent. The vertical axis indicates the probability that foreign exchange reserves will fluctuate by more than 1.5 percent. This plot includes data from the three different currency regimes and the three benchmark countries in our sample. The figure highlights three main insights:

(a) Exchange rate variations for the developing countries in our sample are comparatively narrow across all three regimes, and these rates are more likely to remain within a narrow band than any of the benchmark countries.

(b) Exchange rate stability appears to be a deliberate policy choice, given that countries with more stable exchange rates experience more significant swings in their international reserves. This is especially true for the CFA franc countries in our sample.[34].

(c) The behavior of international reserves aligns with our prior assumptions, confirming Calvo and Reinhart's (2002) findings that reserve variability is highest for fixed exchange rate regimes and lowest for floating regimes.

[34] Cabo Verde seems to be an exception to these observations. It goes above the scope of this paper to further investigate why this might be, but future research could investigate the configuration of their peg with the euro vs. the CFA franc arrangements. Maybe there are some insights for the CFA franc to draw from.

Figure 1: Exchange Rate and Foreign Exchange Reserves

Averaged across exchange rate regimes

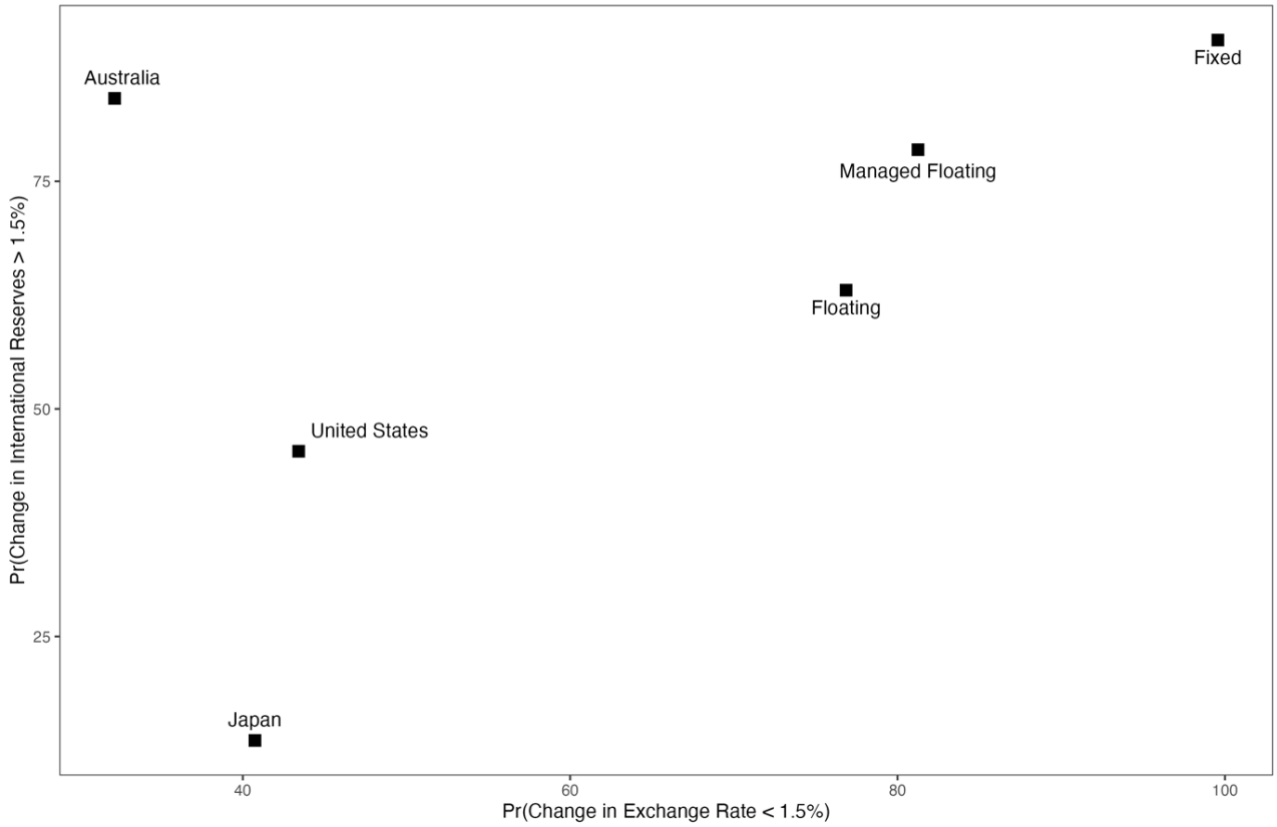
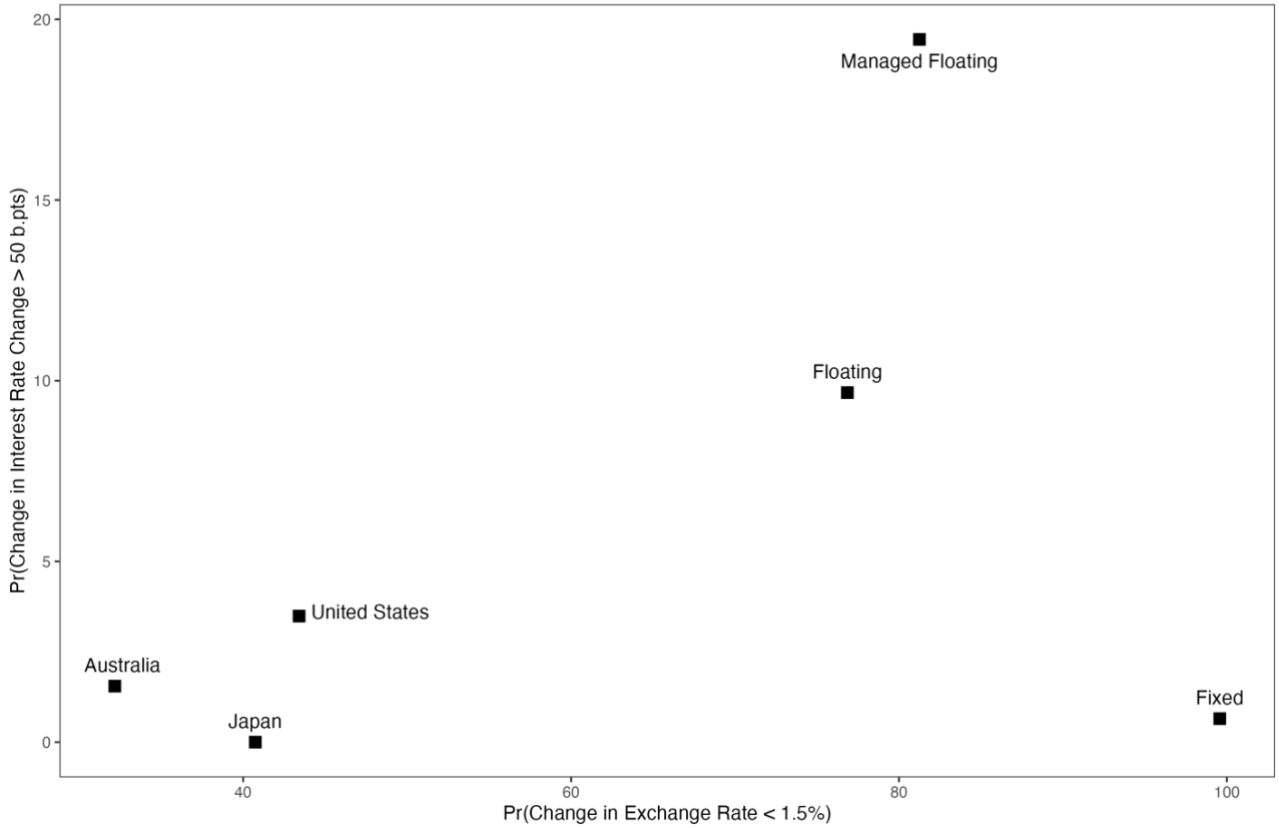


Figure 2: Exchange Rate and Interest Rate

Averaged across exchange rate regimes



5.3 Interest Rate Volatility and Monetary Policy

In section 2.3.2, we discussed how policymakers in developing countries might intervene to smooth exchange rate fluctuations and counterbalance the low liquidity premium of their currency through policy rate adjustments, contrary to countries like the US, Japan, and Australia, where domestic consideration primarily drives interest rates.

Table I reveals the stability of interest rates in the developed economies, where the probability of interest rates changing by more than 0.5 percentage points in any given month is zero for Japan, 1.6 for Australia, and 3.5 for the US. Conversely, there is a 96.5 to 100 percent probability that changes in their interest rates stay within the 0.5 percentage points margins[35]. This stability might be attributed to mature financial markets and the established credibility of their central banks. Among our samples, Guinea and Nigeria exhibit similar stability, with the probability of significant rate changes being around 2 and 4 percent, respectively. In contrast, this probability is approximately 10 to 15 percent for Gambia, Ghana, and Sierra Leone. This means that in these countries, there is an 85 to 90 percent probability that monthly changes will stay within the 0.5 percentage points margin, exhibiting higher volatility in their interest rates compared to the developing countries in our sample.

During the managed floating exchange rate (as seen in Table II), Gambia's interest rate stability differs noticeably from its performance under a floating exchange rate. This country has a 20 percent probability of interest rate changes exceeding the 0.5 percentage points limit, suggesting that it might adjust interest rates to maintain exchange rate stability, especially in the face of credibility issues or significant exchange rate price pass-through. This probability resembles Ghana's 19 percent in its managed floating episode.

[35] Following Calvo and Reinhart (2002), an initial threshold of 400 basis points was employed for the interest rate analysis. However, it's worth noting that their study inadequately represented CFA franc countries, with only Senegal included. Given that a significant portion of my sample comprises countries from the WAEMU, which are known for their notably low inflation rates, adjustments to the threshold were imperative. Countries with lower inflation rates typically experience fewer and less significant interest rate fluctuations, making them more sensitive to smaller shifts in rates compared to high-inflation nations, where larger rate swings are more commonplace. This underscores the rationale for using a reduced threshold for the CFA franc countries. Consequently, recognizing the unique economic characteristics of the CFA franc, particularly its low inflation objective and its associated limited interest rate fluctuations, the threshold was adjusted downward, first to 200 basis points. However, to better encapsulate these properties and enhance the robustness of my findings, a threshold of 50 basis points was ultimately chosen. This ensures that the results are more precisely attuned to the intricacies of the CFA franc, a primary focus of this research. For a comprehensive robustness check, wherein thresholds of both 400 and 200 basis points were also explored, refer to Appendices A.9 and A.10.

In Table III, all countries under a fixed exchange rate regime show a considerably low probability for substantial interest rate adjustments, indicating that these countries likely do not rely on significant interest rate changes to maintain exchange rate stability. Again, this somewhat surprising finding contradicts our expectations for the peripheral countries within the currency hierarchy. One reason that might explain this is the increased capital outflow controls in place since 1997, which have lowered WAEMU's capital openness well below the average of the other African countries in the sample (de Resende et al., 2022). Moreover, our observations suggest that the foreign exchange reserve coverage ratio must have been consistently high enough to maintain the exchange rate peg so that an active interest rate policy would not have been necessary.

Figure II plots the relative probability of minor changes in the exchange rate (along the horizontal axis) against minor changes in the nominal interest rate (vertical axis). It appears that the countries demonstrating the most interest rate movement are the managed floaters, Ghana, and Gambia in this sample, followed by the developing countries that are part of the fixed exchange rate regime. The benchmark countries, Australia and Japan, align with expectations with the least amount of interest rate movement.

5.4 General Observations and "Fear of Floating"

Our analysis of the volatility of exchange rates, reserves, and interest rates reveals a pattern that generally aligns with Calvo and Reinhart's "fear of floating" theory. We find that countries with floating and managed floating regimes display a higher probability of maintaining exchange rates within a 1.5 percent band compared to developed economies with similar regimes. These findings suggest developing countries engage in a more aggressive policy intervention to manage exchange rate fluctuations, thereby reaffirming Calvo and Reinhart's assertion of their preference for currency stabilization, despite an official commitment to floating regimes.

Expectedly, countries with a fixed exchange rate regime display greater stability in their exchange rates. However, the reserve volatility is consistently higher, particularly in WAMEU countries, compared to countries with floating regimes. This points to the rigorous efforts taken by policymakers to uphold currency stability in these regions. Interestingly, Cabo Verde presents a unique case in our analysis. Like the CFA franc, the Cape Verde

escudo is pegged to the euro. However, compared to the CFA franc countries, Cabo Verde exhibits some flexibility, especially when considering the volatility of its reserves: it is markedly more stable. While this study does not aim to delve deeper into this difference, and it is beyond its scope, we acknowledge that future research might benefit from examining this comparison further. There appears to be more policy space in Cabo Verde, and a comparative study might offer valuable policy insights for the CFA franc countries.

Turning our attention to interest rates, we find that non-CFA ECOWAS countries exhibit higher volatility when compared to the developing countries in our sample. Contrastingly, the CFA franc countries show minimal fluctuations. Appendix A.7 shows that the ECOWAS countries in our sample also maintain high-interest rates, characteristic of countries at the periphery of the currency hierarchy. These high-interest rates reflect the typical behavior of countries further down the currency hierarchy, which can be attributed to the low liquidity premium associated with these currencies, prompting policy maker to raise interest rates as a form of risk compensation.

6. Discussion

In this Chapter, we revisit our initial research question to evaluate our findings with the broader context of the impact of the currency hierarchy on peripheral economies. The central purpose of this thesis was to assess whether adopting the CFA franc is an effective strategy for peripheral countries to alleviate the challenges inherent in their position within the global currency hierarchy and if it provides them the leverage to ascend within this hierarchical structure. This question is especially relevant because Chapter 3 of this thesis showed that, compared to other peripheral currencies in the hierarchy, the CFA franc exhibits unique institutional features. These include a hard peg to the euro and a commitment to low inflation, which ideally should help manage the risks of exchange rate instability that economies at the bottom of the currency hierarchy face, as outlined in Chapter 2. Prior studies have highlighted the benefits of the CFA in terms of enhancing macroeconomic stability and fostering economic growth, linking these advantages to its unique exchange rate arrangement (Coquet

& Daniel, 1992; Guillaumont et al., 1988; Guillaumont & Guillaumont, 1989, 1995) or highlighting the benefits associated with maintaining low inflation and macroeconomic stability (Feindouno et al., 2020). Consequently, this Chapter aims to discuss what our findings suggest regarding the potential advantages or disadvantages of the CFA franc within the framework of the currency hierarchy.

6.1 The CFA Franc in the International Currency Hierarchy

In our comparative analysis of Chapter 5, we measured the exchange rate volatility and FX reserves staying within a ± 1.5 monthly change as benchmark non-CFA ECOWAS and WAEMU countries. The results, as illustrated in Tables I and III, provide evidence that CFA franc countries demonstrate an exceptional commitment to maintaining their fixed exchange rate regime; thus, their primary goal to maintain the peg to the euro is achieved. For this purpose, these countries exert substantial efforts to employ FX reserves. The BCEAO's de facto FX reserve targeting, established after the 1994 devaluation and rigorously monitored through the currency coverage ratio, provides evidence for this commitment (de Resende et al., 2022). The commitment to maintaining the peg with the euro, however, does not mitigate the position of the CFA franc within the currency hierarchy, a concept well-discussed by (Koddenbrock, 2020). In section 3.1.1 of this study, we have seen that the implementation of the colonial currency and the repression of endogenous currencies displayed the first hierarchies in the monetary realm. In sections 3.2.2 and 3.2.3, we revisited the principle of 'unrestricted' convertibility of the CFA franc, that in theory, has often been impeded by economic realities and crises such as the 1994 devaluation, coupled with capital flight towards more liquid currencies. This principle, in combination with explicit reserve requirements to maintain the peg, renders the operations account system not exceptional but a 'conditional' one (Tinel, 2016b).

Regarding interest rate volatility, the low probability value in Table III of our analysis reveals that the BCEAO is not actively using interest rates to manage capital flows or inflation. Instead, they primarily use FX reserves, indicated by the volatile reserves and their capital controls in place, to maintain stability with the euro (de Resende et al., 2022). This characteristic deviates from what one would typically expect from peripheral countries based on the literature reviewed in Chapter 2. However, it underlines that the monetary architecture

of CFA franc countries is designed to reduce volatility and maintain the peg, thus necessitating more active FX reserve management.

The volatility of reserves must be further contextualized against the stable exchange rate and tight control of capital outflows. Specifically, the BCEAO uses reserves to manage outflows; during periods of high demand for foreign currency to pay for imports, the BCEAO must reduce its reserves to meet this demand and maintain the peg. The highly volatile reserves of the CFA franc, coupled with the reliance on volatile commodity exports and import dependence on food and energy (de Resende et al., 2022), are typical of countries lower in the currency hierarchy (Bonizzi et al., 2019). In their recent report, de Resende et al. (2022) further state that the WAEMU encounters additional challenges as a net importer of petroleum products and foodstuffs. The need for these essential goods leads to an outflow of FX reserves, further straining the coverage ratio and the defense of the peg. This is another factor explaining the higher volatility of their reserves compared to ECOWAS countries in sections 5.1 and 5.2.

However, overlooked so far is the risk posed by imports denominated in currencies other than the euro, particularly the US dollar. The exchange rate volatility of the CFA franc vis-à-vis the dollar is presented in Appendix A.2 of this study. This volatility is significantly higher than that of the ECOWAS countries in Table I. The probability of monthly changes in the exchange rate of the CFA franc vis-à-vis the dollar staying with a ± 1.5 percent benchmark is around 43 percent for all WAEMU countries and 50 percent for Cabo Verde. This high volatility confirms expectations and theory: the highly volatile exchange rate vis-à-vis the dollar, paired with highly volatile FX reserves, indicates the CFA franc position at the lower bound of the currency hierarchy (see figures in Appendix A.3, Appendix A.4).

Much more, the fixed exchange rate regime of the CFA franc, tied to the euro, presents a double bind for these countries. The monetary policy is outsourced to the ECB, potentially causing local economic conditions and misalignments. Additionally, the volatility of the CFA franc against the dollar depends on fluctuations between the US$/€ exchange rates, currencies that freely float against each other. Thus, the excessive reserve holdings of the BCEAO strain resources to buffer against exchange rate volatility against the dollar.

In summary, despite their rigorous efforts to limit volatility by maintaining their fixed parity, inducing capital controls, and maintaining low inflation, this analysis highlights that CFA franc countries are not exempt from the realities of a currency hierarchy and its constrained policy space.

6.2 The Interplay of Inflation, Debt, and Economic Growth in the CFA Zone

6.2.1 Inflation Dynamics and Economic Growth in the CFA Zone

Within the CFA zone, a consistently low inflation rate has been observed. As per the explicit target, the inflation threshold is at 2 percent, closely aligning with the euro rate and ensuring consistent purchasing power (de Resende et al., 2022). The authors note that between 2010 and 2019, the average inflation was 1.2 percent compared to 0.9 percent within the Eurozone. The main contributors to inflation were core (48 percent), food (43 percent), and petroleum (9 percent) (*idem* p.13). Tinel (2016) shows that a significant part of the price index, particularly the inflation caused by import prices, is determined outside the national economy.

Interestingly, the inflation rate is relatively low for the level of development in the CFA countries and could have been potentially higher, with findings ranging from thresholds of 4.3 – 4.5 percent (Sanga & Gui-Diby, 2020) or 6.27 percent (Fiodendji et al., 2014), and even as high as 8.1 percent (Combey & Nubukpo, 2010) for economic growth. However, as the BCEAO's main objective is to maintain the external and internal value of the currency, as we have seen in section 3.3.2 of this study, economic growth or development issues are often disregarded. In contrast, ECOWAS countries with higher inflation rates and more unstable currencies have reported higher average growth rates (Dembélé, 2016; see, e.g., Appendix A.5 and Appendix A.6 for a comparison of inflation and growth rates of both zones)

.

6.2.2 External Debt and Its Impact on the Currency Hierarcy

Maintaining a hard peg and low inflation restricts the extent to which the BCEAO can extend credit, as this could risk depreciating the domestic currency against the euro and exacerbating the external debt problem (Nubukpo, 2015). Appendix A.8 shows that this risk is further heightened given that a significant portion of WAEMU countries' public debt is denominated

in US dollars, except for Côte d'Ivoire and Benin, which owe most of their debts in euros and a diversified currency basket, respectively. Kaltenbrunner (2015) emphasizes that the terms of borrowing in domestic currency significantly impact the country's position in the currency hierarchy. Despite having a stable currency with the euro, the WAEMU countries face considerable risks regarding the dollar. If the euro depreciates against the dollar, servicing dollar-denominated debt becomes costlier in terms of the CFA franc, putting further pressure on their reserves and maintaining the euro peg. To mitigate this risk, these countries may borrow in foreign currency, tighten fiscal policy, and induce capital controls to prevent capital outflows. Such a measure would weigh the exchange rate and deplete reserves (Kaltenbrunner, 2015).

Consequently, the CFA countries are trapped in a self-perpetuating cycle at the lowest end of the currency hierarchy. Most WAEMU countries are trade-deficit and would therefore require a competitive exchange rate to manage their debt (Keho, 2021). However, the overvaluation of their currency and the strong euro make this more challenging (Coulibaly, 2014; Gnansounou & Chouchane, 2013).

6.3 Monetary Sovereignty and the Currency Hierarchy

Our analysis has demonstrated that, macroeconomically, the CFA franc is exposed to challenges similar to those of peripheral currencies within the currency hierarchy, which are exacerbated by the peg to the euro. Most recently, this was evident in the context of the COVID-19 pandemic in 2020, when the BCEAO faced the challenge of supporting economic recovery while maintaining sufficient FX reserves to defend the peg. In response to the pandemic shock, the BCEAO found itself in a position where it needed to ease its monetary policy. This decision led to a decline in the currency coverage ratio, indicating a reduction in FX reserves relative to the money supply as an effort to build up fiscal space. Consequently, the reserve requirements treaty was abolished, reflecting an understanding of the need for increased policy space to react to external shocks (de Resende et al., 2022). However, this situation also highlighted the limited sovereignty of the BCEAO. It could not independently devise and implement these crucial responses to the crisis. Instead, these strategic decisions

had to undergo approval by a governing board and receive final from France, further highlighting the BCEAO's constrained autonomy in its policy responses[36].

Upon gaining independence, countries in the CFA zone did not receive the power to control their monetary policy. Instead, the external value of the CFA franc was delegated to an external entity, the French Treasury (Tinel, 2016). Such unique conditional independence witnessed within the CFA franc zone sharply contrasts the experience of former British colonies we have analyzed in our sample. Since its establishment in 1945, the foundational structure of the CFA franc has largely remained unchanged, illuminating a persistent pattern of monetary authority ceded to the former colonizer. This lack of monetary autonomy, historically dictated by France's economic and, at times, geopolitical needs, has not only perpetuated an overvalued currency but also denied these nations flexibility to adjust their currencies value to boost competitiveness based on their export structure (see e.g, Coulibaly, 2014). The inability to depreciate or appreciate their currency according to their economic necessities has confined these nations to a position of net importers (Keho, 2021). This situation has perpetuated their dependence on imports, stagnating their trade structure and reinforcing their reliance on the economic and geopolitical whims of the formal colonial power.

Dembélé (2016) points out, that monetary sovereignty is a fundamental component of state strategy and is crucial to Africa's economic independence. This narrative is further complicated by introducing the euro, adding another dimension to the monetary constraints for the CFA franc zone. The transition from the FF to the euro marked a shift in power dynamics from France to the ECB, illustrating that in an environment of fixed parities and free capital movement, the BCEAO is practically rendered incapable of conducting a monetary policy independent of the ECB's directives (Dembélé, 2016; Nubukpo, 2007). Evidence of this can be seen in the consistently lower inflation rates and nominal interest rates compared to other developing nations occupying the lower end of the currency hierarchy (see Appendix A.7). Pirates (2020) describes this situation as one of 'market discipline,' thereby positioning the CFA franc countries at a disadvantage compared to non-

[36] Tinel (2016) notes that in the past, the coverage ratio of the CFA franc has successively exceeded 100 percent of the requirements, thereby losing more of its monetary flexibility in an already constrained system. He argues that such excessive reserve holdings demonstrate some policy space beyond what the treaties require. This could provide an opportunity to put these reserves to better use, such as by making more credit available to the economy and stimulating demand.

CFA ECOWAS counterparts that operate with a sovereign currency. Consequently, the current monetary policy, geared towards maintaining price stability and the euro peg, often falls short in addressing domestic economic concerns, thus failing to cater to the needs of the real economies within the WAEMU (Nubukpo, 2007, 2010)[37]. This setting underlines the inherent challenges these countries face within the international currency hierarchy, which limit their monetary sovereignty and hampers their ability to respond appropriately to economic shocks and needs.

7. Conclusion

The effects of the post-Bretton Woods reconfiguration of the International Monetary system have intensified asymmetries between the center and the periphery. The particular role of the CFA franc, characterized by its peg to the euro and capital controls, represents an institutional reality that differs from that of other West African countries within this hierarchical structure, in the present study, non-CFA members of the ECOWAS. This study aimed to analyze the impact of adopting the CFA franc on peripheral economies within the global currency hierarchy. Chapter 2 of this thesis examined the mechanisms of this hierarchy and the resulting implications for developing countries, particularly concerning navigating exchange rate volatility, reserves, and interest rates. This volatility has confined developing countries to limited policy space and led to a widespread "fear of floating," in which attempts are made to stabilize exchange rate volatility by accumulating reserves against potential capital reversals. Chapter 3 traced its origins, evolution, and institutional mechanism to understand the positioning of the CFA franc within this framework. Introduced in 1945, the CFA franc has a fixed exchange rate with the FF, and now the euro, guaranteed by an operations account with the French Treasury. We noted that this unrestricted convertibility of the CFA franc into the euro is de facto neither unlimited nor free, compelling the BCEAO to hold substantial euro reserves and contradicting the traditional understanding of the function of this account. Our

[37] Several economists have examined BCEAO's banking practices and argue that policy leeway may exist to ease some of the constraints of the monetary architecture imposed by the CFA franc. Beyond considering a higher inflation rate, some point to the excessive foreign exchange holdings, which significantly exceed the mandatory coverage rate for maintaining the peg. These resources could be used more effectively, for example, by freeing up space for lending and credit in the economy, thus stimulating aggregate demand (Tinel, 2016). Others have pointed to the inefficiencies and inconsistencies in the BCEAO's banking practice, suggesting that they are not employing all the available tools (Nubukpo, 2007). Future research must assess if these measures could improve their position within the currency hierarchy.

research then focused on a comparative analysis in Chapter 4, where we analyzed the volatility of WAEMU countries with the volatility of ECOWAS member countries that do not use the CFA franc. This comparison revealed several noteworthy observations: Consistent with Calvo and Reinhart (2002), we found the "fear of floating" theory in developing countries.

Further, we found significantly higher reserve volatility among the CFA franc countries in our sample than among non-CFA countries. Interestingly, we found that contrary to the traditional theories of currency hierarchy, CFA franc countries did not exhibit volatility in their interest rates. This curiosity led us to the Chapter 6 in which we sought to determine what distinguishes the CFA franc from other peripheral currencies. The research question was: does adopting the CFA franc serve as an effective strategy to mitigate the challenges of the currency hierarchy, and does it allow these economies to rise within this hierarchical structure? Our results show that while the CFA franc has maintained relative stability, as evidenced by consistently lower inflation rates, lower interest rates, and a stable exchange rate against the euro, certain aspects – volatility against the US Dollar, substantial US dollar-denominated public debt, and consistently lower GDP growth relative to non-CFA members – have exacerbated the challenges of peripheral countries in the currency hierarchy. Our conclusion mirrors the findings of Koddenbrock and Sylla (2019), who emphasize that the external dimension of the CFA franc creates a chain of economic dependencies linked not only to the peg but also to the US dollar.

Consequently, WAEMU member countries are subject to synchronizing their monetary policies with the center countries higher in the hierarchy. The literature supports our conclusions and suggests that BCEAO's rigid monetary policy severely restricts policy space, thereby maintaining dependence on the dollar and euro. Thus, although capital controls and lower exchange rate volatility against the euro prevail, they have not enabled the CFA franc countries to circumvent the constraints of the IMS. Instead, the institutional framework appears to push the CFA franc countries more profound into the currency hierarchy than non-CFA ECOWAS member countries.

Our study highlights the need to consider each country's history and institutional framework when examining the currency hierarchy. Even if macroeconomic stability is maintained and capital controls are implemented, policymakers cannot counter "voluntary servitude," as

Nubukpo (2007) notes, especially if economic growth and development are not prioritized alongside macroeconomic stability. Further, our analysis has also drawn attention to particular patterns exhibited by Cabo Verde, pegged to the euro, but exhibiting different reserve management behavior compared to CFA franc countries. This divergence paves the way for future research exploring these differences and thus contributing to policy implications for the CFA franc.

Appendix A.1 Data Definitions and Sources

1. **Nominal Exchange rates.** Domestic Currency per U.S Dollar, end of period, monthly for all non-CFA countries, including Australia and Japan. For CFA franc countries, including the United States: Domestic Currency per Euro, end of period, monthly. *Source: IMF, Institutional Financial Statistics (IFS)*

2. **Reserves.** International Liquidity, Total reserves excluding Gold, in US dollars, monthly in Millions. *Source: IMF, Institutional Financial Statistics*

3. **Nominal Interest Rates**. Financial Interest Rate, Monetary Policy-related, percent per annum, monthly. *Source: IMF, Institutional Financial Statistics*

4. **Inflation Rate.** Consumer Price Index, all times (CORE), percentage change previous period, monthly. *Source: IMF, Institutional Financial Statistics*

5. **Debt Statistics.** Public and publicly guaranteed external debt, *Source: World Bank, Institutional Debt Statistics (IDS)*

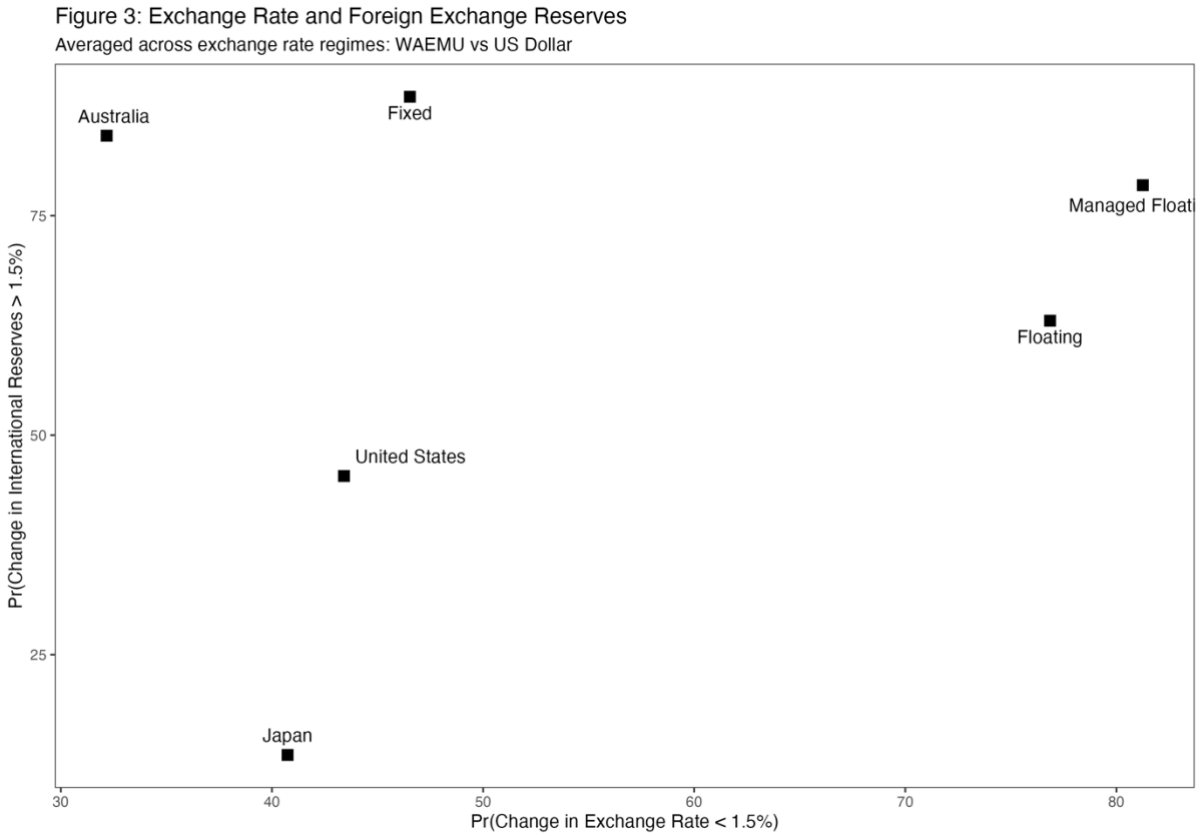
6. **Gross Domestic Product (GDP).** GDP growth (annual %) *Source: World Bank, World Bank Development Indicators*

Appendix A.2 Volatility of Selected Indicators in "Fixed" Exchange Rate Regime
CFA franc/US Dollar

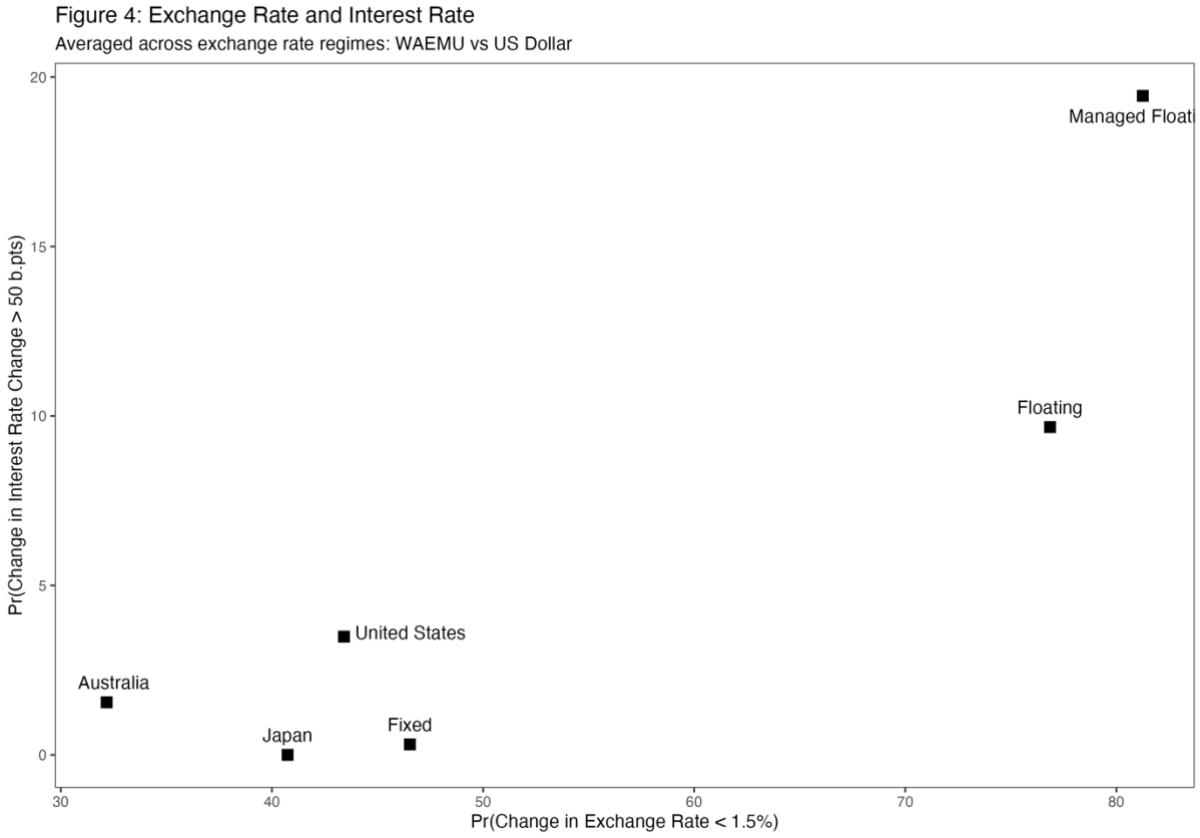
Table IV
Volatility of Selected Indicators in "Fixed"
Exchange Rate Regime
With National Currency Expressed in US Dollars

		Probability that the monthly change is		
		Within a ± 1.5 percent band:		Greater than ± 0.5 percentage points:
Country (1)	Period (2)	Exchange Rate (3)	Reserves (4)	Nominal interest rate (5)
Benin	December 1999 – March 2021	45.0	6.9	0.4
Burkina Faso	December 1999 – March 2021	45.0	4.3	0.4
Cabo Verde	December 1999 – June 2021	50.0	47.1	2.9
Côte d'Ivoire	December 1999 – March 2021	43.2	2.2	0.5
Guinea -Bissau	December 1999 – March 2021	43.2	4.9	0.5
Mali	December 1999 – March 2021	43.2	2.2	0.5
Niger	December 1999 – March 2021	43.2	5.5	0.5
Senegal	December 1999 – March 2021	43.2	4.4	0.5
Togo	December 1999 – March 2021	43.2	3.3	0.5
WAEMU	December 1999 – March 2021	43.2	32.8	0.5

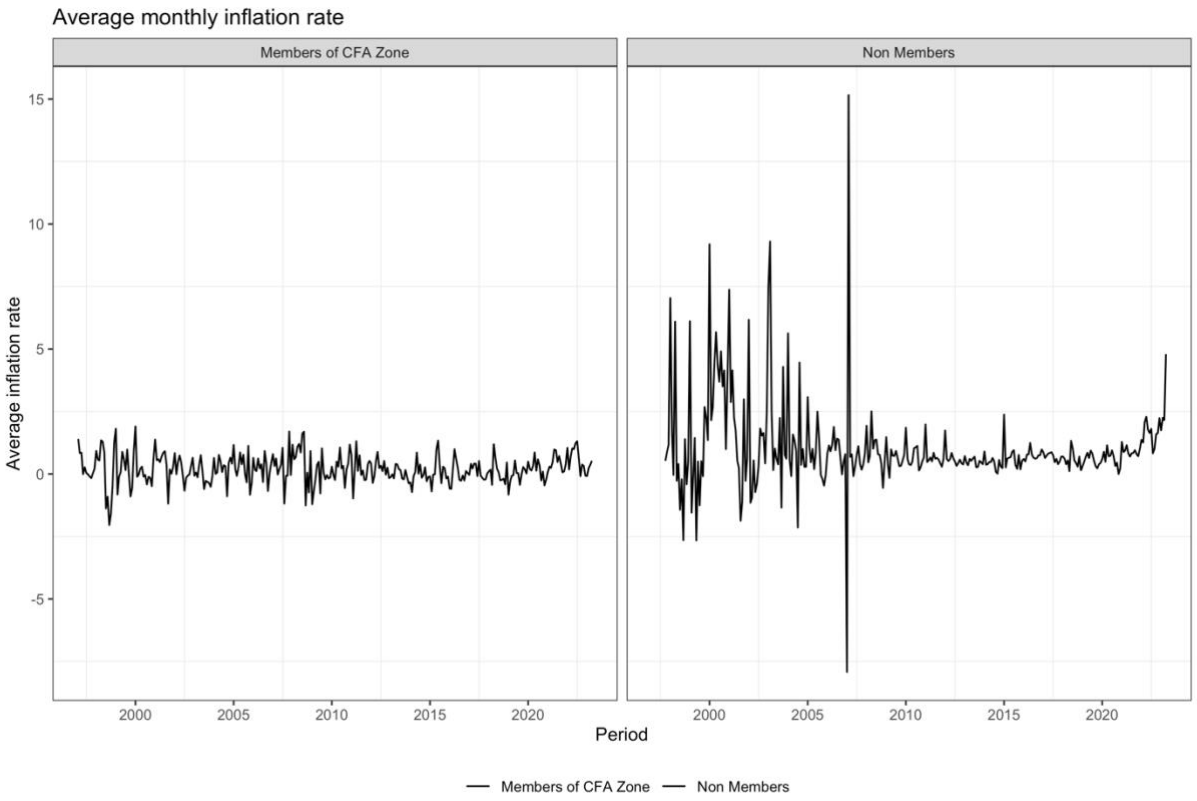
Appendix A.3 Exchange Rate and Foreign Reserves CFA franc/ US Doll



Appendix A.4 Exchange Rate and Interest Rate CFA franc/US Dollar

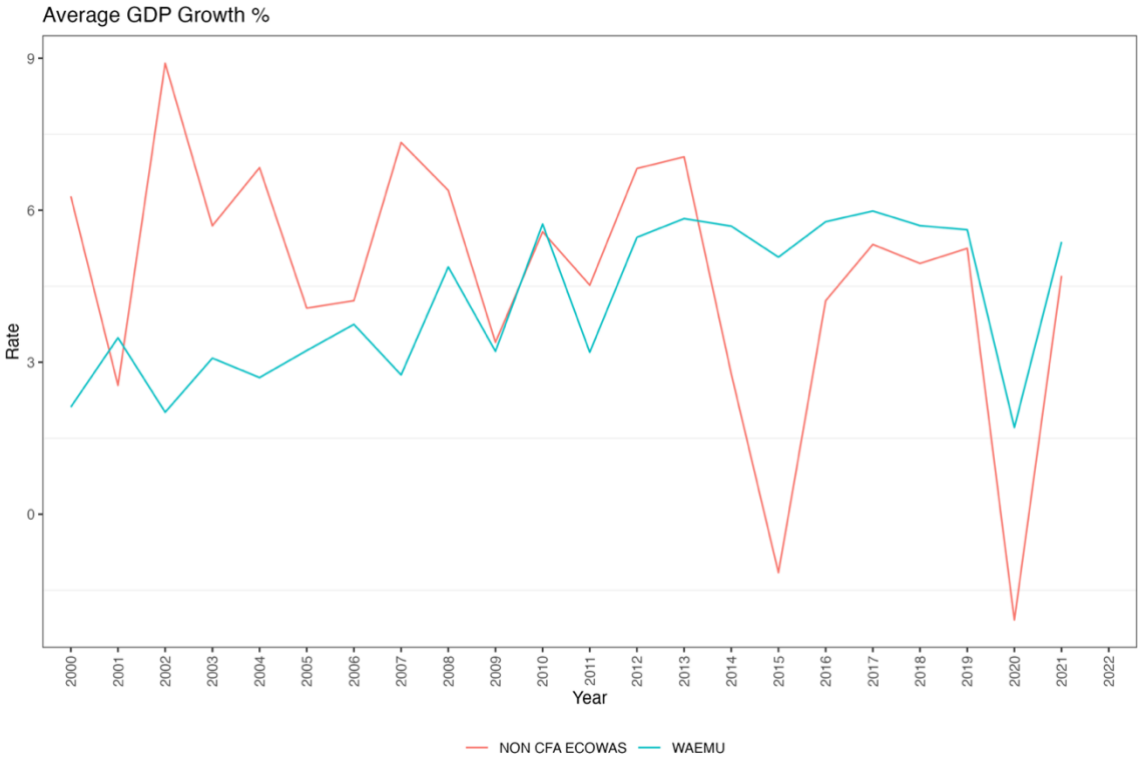


Appendix A.5 Average Monthly Inflation Rate in % WAEMU countries vs. non-CFA ECOWAS countries 1999 – 2021



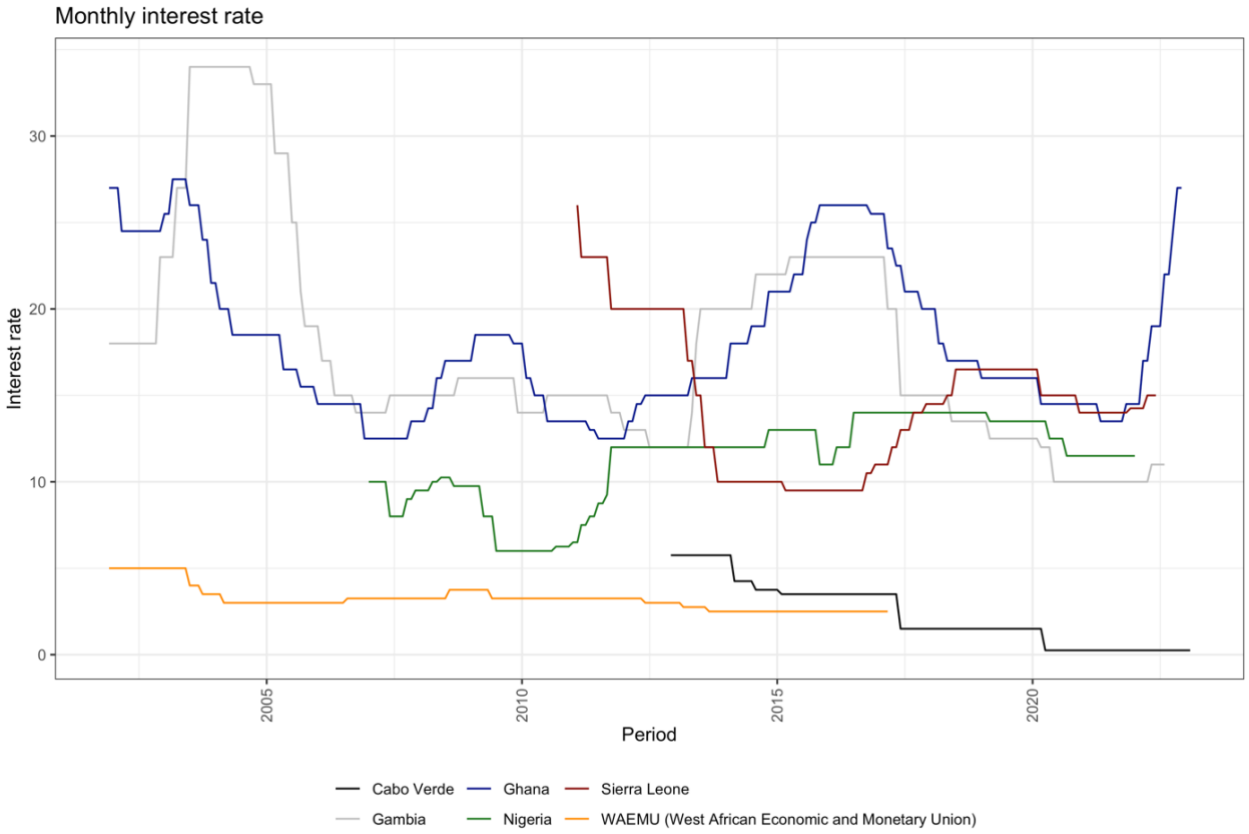
Source = IMF

Appendix A.6 Average GDP Growth in %, WAEMU vs. non-CFA ECOWAS countries 1999 – 2021



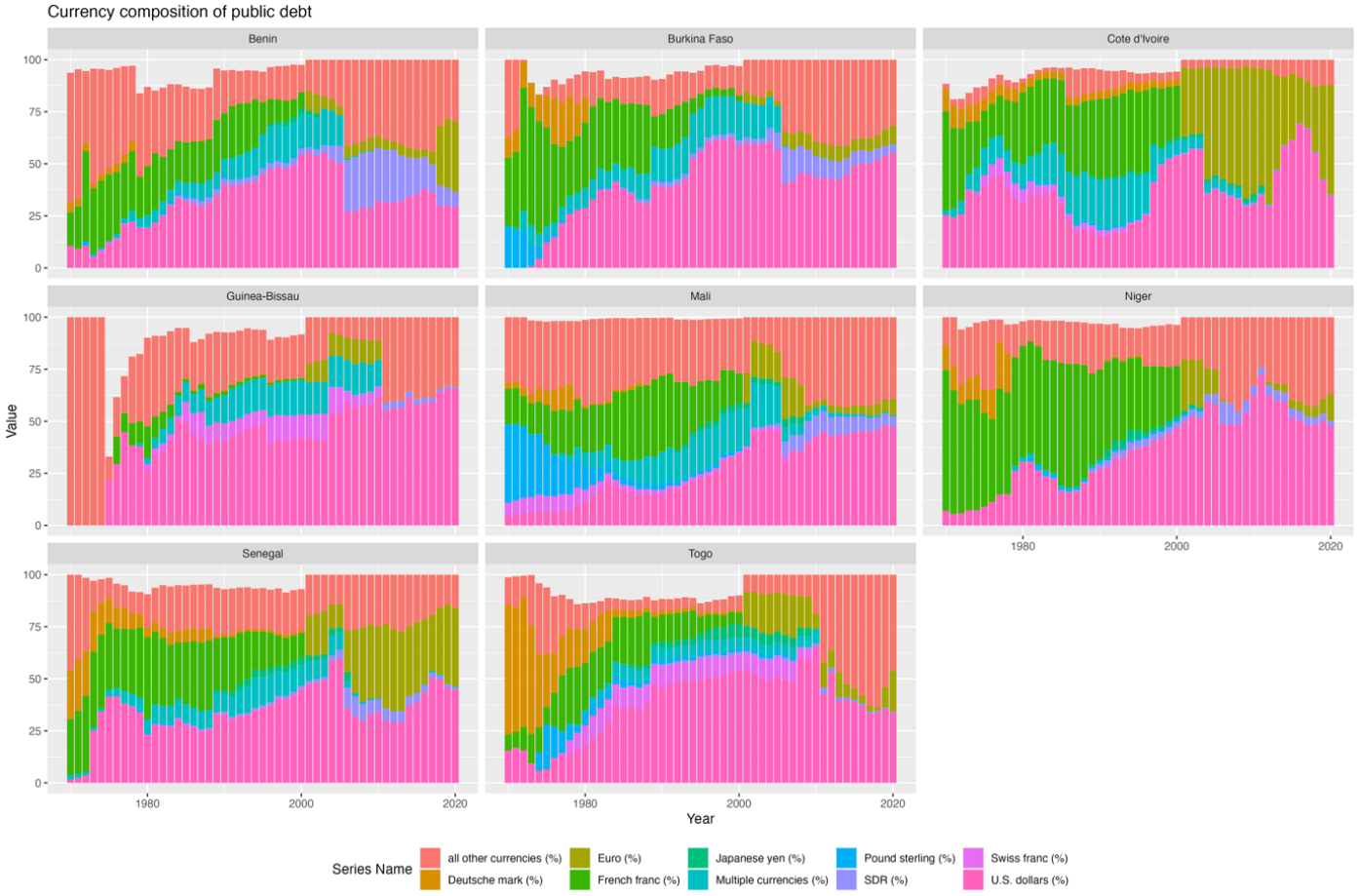
Source: World Development Indicators (WDI)

Appendix A.7 Monthly Interest Rate – Monetary Policy Related WAEMU and non-CFA ECOWAS 1999-2023



Source = IMF

Appendix A.8 Currency Composition of Public and Publicly Guaranteed Debt across WAEMU Countries 1970 – 2020



Appendix A.9 Sensitivity Test: Volatility of Selected Indicators with Interest Rate Threshold of 400 bp.

Table V
Volatility of Selected Indicators in "Floating"
Exchange Rate Regime

		Probability that monthly change is		
		Within a ± 1.5 percent band:		Greater than ± 4 percentage points:
Country (1)	Period (2)	Exchange rate (3)	Reserves (4)	Nominal interest rate (5)
Australia	December 1999 – June 2021	32.2	15.9	0.0
Gambia	December 2007 – June 2021	69.3	28.8	0.6
Ghana	December 2008 – June 2021	66.2	17.2	0.0
Guinea	December 1999 – December 2000	91.3	91.3	1.0
Japan	July 2006 – April 2013	40.7	86.4	0.0
Nigeria	April 2017 – June 2021	94.1	31.4	0.0
Sierra Leone	February 2011 – June 2021	83.1	35.5	0.0
United States	December 1999 – June 2021	43.4	54.7	0.0

Table VI
Volatility of Selected Indicators in "Managed"
Exchange Rate Regime

		Probability that monthly change is		
		Within a ± 1.5 percent band:		Greater than ± 4 percentage points:
Country (1)	Period (2)	Exchange rate (3)	Reserves (4)	Nominal interest rate (5)
Gambia	December 2002 – November 2021	70.0	30.0	3.3
Ghana	December 2001 – November 2021	89.3	15.5	0.0

Table VII
Volatility of Selected Indicators in "Fixed"
Exchange Rate Regime

		Probability that monthly change is		
		Within a ± 1.5 percent band:		Greater than ± 4 percentage points:
Country (1)	Period (2)	Exchange rate (3)	Reserves (4)	Nominal interest rate (5)
Benin	December 2001 – March 2021	100.0	6.9	0.0
Burkina Faso	December 2001 – March 2021	100.0	4.3	0.0
Cabo Verde	December 2001 – June 2021	92.2	47.1	0.0
Côte d'Ivoire	December 2001 – March 2021	100.0	2.2	0.0
Guinea-Bissau	December 2001 – March 2021	100.0	4.9	0.0
Mali	December 2001 – March 2021	100.0	2.2	0.0
Niger	December 2001 – March 2021	100.0	5.5	0.0
Senegal	December 2001 – March 2021	100.0	4.4	0.0
Togo	December 2001 – March 2021	100.0	3.3	0.0
WAEMU	December 2001 – March 2021	100.0	32.8	0.0

Appendix A.10 Sensitivity Test: Volatility of Selected Indicators with Interest Rate Threshold of 200 bp.

Table XIII
Volatility of Selected Indicators in "Floating"
Exchange Rate Regime

		Probability that monthly change is		
		Within a ± 1.5 percent band:		Greater than ± 2 percentage points:
Country (1)	Period (2)	Exchange rate (3)	Reserves (4)	Nominal interest rate (5)
Australia	December 1999 – June 2021	32.2	15.9	0.0
Gambia	December 2007 – June 2021	69.3	28.8	1.8
Ghana	December 2008 – June 2021	66.2	17.2	0.0
Guinea	December 1999 – December 2000	91.3	91.3	1.9
Japan	July 2006 – April 2013	40.7	86.4	0.0
Nigeria	April 2017 – June 2021	94.1	31.4	0.0
Sierra Leone	February 2011 – June 2021	83.1	35.5	3.2
United States	December 1999 – June 2021	43.4	54.7	0.0

Table IX
Volatility of Selected Indicators in "Managed"
Exchange Rate Regime

		Probability that monthly change is		
		Within a ± 1.5 percent band:		Greater than ± 2 percentage points:
Country (1)	Period (2)	Exchange rate (3)	Reserves (4)	Nominal interest rate (5)
Gambia	December 2002 – November 2021	70.0	30.0	10.0
Ghana	December 2001 – November 2021	89.3	15.5	2.4

Table X
Volatility of Selected Indicators in "Fixed"
Exchange Rate Regime

		Probability that monthly change is		
		Within a ± 1.5 percent band:		Greater than ± 2 percentage points:
Country (1)	Period (2)	Exchange rate (3)	Reserves (4)	Nominal interest rate (5)
Benin	December 2001 – March 2021	100.0	6.9	0.0
Burkina Faso	December 2001 – March 2021	100.0	4.3	0.0
Cabo Verde	December 2001 – June 2021	92.2	47.1	0.0
Côte d'Ivoire	December 2001 – March 2021	100.0	2.2	0.0
Guinea-Bissau	December 2001 – March 2021	100.0	4.9	0.0
Mali	December 2001 – March 2021	100.0	2.2	0.0
Niger	December 2001 – March 2021	100.0	5.5	0.0
Senegal	December 2001 – March 2021	100.0	4.4	0.0
Togo	December 2001 – March 2021	100.0	3.3	0.0
WAEMU	December 2001 – March 2021	100.0	32.8	0.0

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