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Causes, timing and consequences of financial crises

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Causes, Timing and Consequences of Financial Crises

by

Thanh Cong Nguyen

A thesis submitted in partial fulfilment of the

requirements for the award of

Doctor of Philosophy

in Economics

Loughborough University

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Contents

List of tables 4
List of figures 5
Declaration 6
Acknowledgements 7
Abstract 8
CHAPTER 1. INTRODUCTION 10
1.1. Thesis overview 10
1.2. Research backgrounds 13
1.3. Research gaps 16
1.4. Political environment and financial crises 19
1.5. Research contributions 25
1.6. Outline of the thesis 31
APPENDIX A1 33
CHAPTER 2: FINANCIAL CRISIS IDENTIFICATION AND FREQUENCY 34
2.1. Introduction 34
2.2. Types of financial crises 35
2.2.1. Systemic banking crises 35
2.2.2. Currency crises 36
2.2.3. Sovereign debt crisis 39
2.2.4. Twin crisis and triple crisis 40
2.3. Financial crisis identification 43
2.3.1. Systemic banking crisis identification 43
2.3.2. Currency crisis identification 44
2.3.3 Sovereign debt crisis identification 45
2.3.4. Twin and triple crisis identification 47
2.4. The frequency of financial crises 48
2.5. Conclusion 54
APPENDIX A2 55
CHAPTER 3: POLITICAL ENVIRONMENT AND FINANCIAL CRISES 63
3.1. Introduction 63
3.2. Review of the literature 65
3.2.1. Election agenda and financial crises 66
3.2.2. Political ideology and financial crises 67
3.2.3. Political stability and financial crises 69
3.2.4. Government support and financial crises 70
3.2.5. Macroeconomic control variables 71
3.3. Financial crisis identification 77
3.4. Data and methodology 80
3.4.1. Data and variables 80
3.4.2. Econometric methodology 83
3.4.2.(i) A summary of econometric methods 84
3.4.2.(ii) Empirical framework 88
3.5. Empirical analysis 89
3.5.1. Main findings 89
3.5.2. Sensitivity analysis 95
3.5.3. Robustness checks 100
3.5.4. Political factors and the onset of financial crises 104
3.6. Conclusions 106
APPENDIX A3 107
CHAPTER 4: POLITICAL ECONOMY OF FINANCIAL CRISIS DURATION 115
4.1. Introduction 115
4.2. Literature review 120
4.2.1. The role of economic factors 120
4.2.2. Electoral cycle and financial crisis duration 122

4.2.3. Government stability and financial crisis duration 123
4.2.4. Political ideology and financial crisis duration 124
4.2.5. Majority government and financial crisis duration 127
4.2.6. Institutional quality and financial crisis duration 128
4.3. Database and methodology 129
4.3.1. Data and variables 129
4.3.2. Methodology 136
4.3.2.(i) The continuous-time duration model 137
4.3.2.(ii) The discrete-time duration model 140
4.4. Empirical analysis 141
4.4.1. Duration dependence 141
4.4.2. Main findings 143
4.5. Sensitivity analysis 156
4.5.1. Alternative measures of political and institutional factors 156
4.5.2. A more flexible duration dependence of financial crises 160
4.6. Conclusion 166
APPENDIX A4 169
CHAPTER 5. FINANCIAL CRISES AND HUMAN DEVELOPMENT 171
5.1. Introduction 171
5.2. Review of the literature 175
5.2.1. Measuring human development 175
5.2.2. Financial crises and human development 178
5.2.3. The role of the political and institutional environment 183
5.2.3.(i) Electoral cycle and human development 183
5.2.3.(ii) Partisanship and human development 184
5.2.3.(iii) Political risk and human development 185
5.2.3.(iv) Political support and human development 186
5.2.3.(v) Democracy and human development 187
5.2.3.(vi) Political system and human development 188
5.2.4. Socio-economic factors and human development 189
5.2.5. Contributions to the literature 191
5.3. Data and methodology 193
5.3.1. Financial crisis identification 193
5.3.2 Data and variables 195
5.3.3. How episodic financial crises can affect long-term human development? 199
5.3.4. Econometric methodology 205
5.4. Empirical analysis 208
5.4.1. Financial crises and human development 209
5.4.2. Financial crises and life expectancy 215
5.4.3. Financial crises and education 217
5.4.4. Financial crises and income 220
5.5. Sensitivity analyses and robustness checks 223
5.6. Conclusion 242
APPENDIX A5 246
CHAPTER 6. OVERALL CONCLUSIONS 250
6.1. Overview 250
6.2. Summary of findings 250
6.3. Policy implications 254
6.4. Suggestions for future research 256
REFERENCES 258

List of tables

Chapter 3
Table 3.1. Descriptive statistics 83
Table 3.2. Economic and political determinants of financial crises 94
Table 3.3. Sensitivity analysis I: Alternative political determinants of financial crises 96
Table 3.4. Sensitivity analysis II: Alternative political determinants of financial crises 99
Table 3.5. Political determinants of financial crises in developed and developing countries 101
Table 3.6. Sequencing effects 102
Table 3.7. Political factors and the onset of financial crises 105

Chapter 4
Table 4.1. Descriptive statistics for the duration of different types of financial crises 130
Table 4.2. Variables definition and source 134
Table 4.3. Descriptive statistics 135
Table 4.4. Duration dependence: continuous-time Weibull and discrete-time cloglog models 143
Table 4.5. Determinants of financial crisis duration 147
Table 4.6. Determinants of financial crisis duration ï Developed vs developing economies 149
Table 4.7. Determinants of financial crisis duration 153
Table 4.8. Sensitivity analysis I: Alternative measures of political variables and duration of financial crises 156
Table 4.9. Sensitivity analysis II: Political and institutional determinants of the duration of financial crises 158
Table 4.10. Discrete-time estimations for duration dependence of financial crises 162

Chapter 5
Table 5.1. Financial crises and human development 212
Table 5.2. Financial crises and life expectancy 216
Table 5.3. Financial crises and education 218
Table 5.4. Financial crises and income 221
Table 5.5. Sensitivity analysis I: Alternative measures of political, institutional and economic factors 225
Table 5.6. Sensitivity analysis II: Linear interpolation of HDI 226
Table 5.7. Robustness check I: Fixed-effects and LSDVC estimations 229
Table 5.8. Robustness check II: Developed and developing countries 230
Table 5.9. Robustness check III: HDI growth 232
Table 5.10. Financial crises and government social spending 234
Table 5.11. Financial crises and unemployment change 237
Table 5.12. Financial crises and change in public social spending 238
Table 5.13. Financial crises and change in social spending in different income groups 241

TABLES IN APPENDICES

Table A2.1. Significant policy intervention by Laeven and Valencia (2013) 55
Table A2.2. Crises dates by country and type 56
Table A2.3. The number of financial crises by year 61
Table A2.4. The sequencing of financial crises (1970-2017) 62

Table A3.1. List of countries (1975-2017) 107
Table A3.2. Definition of the independent variables and respective sources 108
Table A3.3. Political and economic factors and the likelihood of systemic banking crises 109
Table A3.4. Political and economic factors and the likelihood of currency crises 110
Table A3.5. Political and economic factors and the likelihood of sovereign debt crises 111
Table A3.6. Political and economic factors and the likelihood of twin and triple crises 112
Table A3.7. Political and economic factors and the likelihood of all crises 113
Table A3.8. Correlation matrix 114

Table A4.1. List of countries (1976-2017) 169
Table A4.2. Discrete-time estimations for flexible duration dependence and determinants of financial crises 170

Table A5.1. List of countries (1980-2017) 246
Table A5.2. Descriptive statistics 247
Table A5.3. Panel unit root test 247
Table A5.4. Correlation matrix 248
Table A5.5. Financial crises and human development without risk rating variables 249

List of figures

Chapter 1

Figure 1.1. Average duration and numbers of banking crises 14

Chapter 2

Figure 2.1. Banking crises episodes (1970-2017) 49
Figure 2.2. Currency crises episodes (1950-2017) 50
Figure 2.3. Sovereign debt crises episodes (1960-2017) 51
Figure 2.4. Financial crises by type (1970-2017) 51
Figure 2.5. Financial crises sequencing (1970-2017) 52
Figure 2.6. The percentage of banking relative to currency and debt crises (1970-2017) 53
Figure 2.7. The sequencing of debt crises relative to currency crises (1970-2017) 54

Chapter 4

Figure 4.1. Average duration and number of financial crises 116
Figure 4.2. Political factors and percentages of financial crises ending 132
Figure 4.3. Duration dependence shapes for different types of financial crises 161

Chapter 5

Figure 5.1. Financial crises by type 195
Figure 5.2. Average HDI and number of crises episodes by year (1990-2017) 199
Figure 5.3. Young unemployment rate (%) before and after the Great Recession 201
Figure 5.4. Impulse responses of HDI to crisis shock 204

Declaration

I certify that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research. I declare that where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis has been composed solely by me and that it has not been submitted, in whole or in part, in any previous application for a degree.

A part of this work (Chapter 3) was jointly co-authored with Dr. Vitor Castro and Dr. Justine Wood. It has been published in the International Journal of Finance & Economics. In this paper, I undertook the majority of the work; Dr. Vitor and Dr. Wood helped to shape the paperôs structure, sharpen the analysis, and polish the writing.

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Abstract

In the aftermath of the Great Recession of 2007/08, the challenges facing both academics and policymakers were to provide useful insights into the causes, timing, and consequences of financial crises. Embracing those challenges and using a large cross-country sample over the last four decades, this thesis seeks to answer a set of critical questions related to those challenges: What drives financial crises? What determines the duration of financial crises? And, how do financial crises affect human development? The first empirical chapter assesses the neglected role of the political environment in the timing of financial crises. Using a fixed-effects logit model, banking and currency crises are found to be more likely to occur within one year after elections. There is also evidence that the probability of currency crises increases when right-wing parties are in office. Moreover, time in office of incumbent chief executives reduces the likelihood of any type of financial crisis. The incidence of twin and triple crises is also lower when majority governments are in office. This chapter contributes to the literature by calling the attention to the importance of some political factors for different types of financial crises.

Over the last four decades, banking crises around the globe have become longer. This, along with the unprecedented government responses to the Great Recession of 2007/08, has led to a critical question of whether political decisions were somehow to blame for these more prolonged crises. Despite growing concerns, little attention has been given to the political and institutional determinants of financial crisis duration. Employing a Weibull-based parametric duration approach, the second empirical chapter shows that, along with several economic factors that have been found in the literature, the political and institutional environment and the dynamics of duration dependence are critical to understanding the length of different types of financial crises. This analysis also shows that, to better understand the dynamics of the duration of financial crises, it is essential to look at the duration dynamics in each type of

financial crisis. Finally, allowing for more flexible duration dependence patterns, we observe that the duration of banking and twin/triple crises presents a non-monotonic cubic behaviour, while the probability of debt crisis ending decreases monotonically over time.

Finally, while the existing literature focuses on the effects of financial crises on the economic side, the third empirical chapter examines how financial crises affect the overall human development and its components: health, education and income. Relying on a System-GMM estimator, this study finds that financial crises are more important than some political, institutional and economic factors to explain the human development dynamics. Moreover, all types of financial crises have both short- and long-run adverse effects on human development and its components. Such deteriorations are permanent and increase the burden for future generations, especially for low-income households. Nevertheless, among different dimensions of human development, education is found to be the least affected by financial crises. Furthermore, low- and middle-income countries pay a higher price, in terms of human development, than developed countries as consequences of financial crises.

CHAPTER 1. INTRODUCTION

1.1. Thesis overview

The world economy is facing challenges of unprecedented severity, such as increasing public debt, the emergence of protectionism, political instability, trade wars, and especially the ongoing Covid-19 pandemic. In this context, economists provide a pessimistic view of future global economic prospects. Global growth is projected to decline by 4.9% in 2020, the deepest global recession in eight decades (World Bank, 2020). The forecast of the International Monetary Fund is even more profound, at 5.2%, despite unprecedented large-scale policy support (IMF, 2020). The global recession will be deeper if governmentsô policies take longer to bring the pandemic under control. In fact, the pandemic has resulted in severe contractions in investment, consumption, commodity markets, global trade, and supply chains. In the worst-case scenario, it could turn into a global financial crisis. In that context, a financial crisis, along with the severe consequences of the ongoing pandemic, will lead to a drastic deterioration of social and human wellbeing.

This raises several concerns about whether we have carefully prepared for an unanticipated financial crisis, how to shorten it, and whether we have any clear insights into the effects of financial crises on broad human development that encompasses not only economic activities but also social dimensions of human wellbeing. However, little is known about the determinants of financial crises and their duration as well as their effects on human development. The unprecedented responses of governments to the Great Recession of 2007/08 and its severe consequences on various economic activities and human wellbeing are evidence that little attention has been given to unanticipated economic shocks and appropriate crisis measures.

Thus, the primary aim of this thesis is to focus on three research questions: (i) What are the determinants of financial crises? (ii) What factors contribute to a longer/shorter duration of financial crises? and (iii) How do financial crises affect human development?

This article-based thesis is composed of three publishable articles, corresponding to Chapters 3, 4, and 5. Each chapter addresses the three research questions above separately. They are expected to be published in leading international peer-reviewed journals. A paper extracted from the first empirical chapter (co-authored with Dr. Vitor Castro and Dr. Justine Wood) has been accepted in the International Journal of Finance & Economics. The article-based structure allows fitting different ideas into an article format while developing the overarching idea in the background of financial crises. In particular, the three articles fit together into a coherent and continuous thesis to provide a more comprehensive view of financial crises in different dimensions: probability, duration, and consequences of financial crises.

Chapter 3 examines the determinants of financial crises with a focus on the neglected role of the political environment. It conjectures that political factors are critical to understanding the probability of different types of financial crises over the last four decades. Using a fixed-effects logit model, the results confirm this conjecture and show that the electoral cycle, political stability, political ideology, and government support have a statistically significant impact on financial crises.

Chapter 4 examines the implications of the political and institutional environment on the duration of financial crises. It argues that political and institutional factors have an important impact on financial crisis duration through their influence on governmentôs decisions and the efficiency of crisis measures. Employing a discrete-time duration model, the regression results lend support to this argument and indicate that the political and institutional environment is critical in determining of financial crisis duration. In addition, by allowing for more flexible

duration dependence specifications, this chapter also explores the non-monotonic duration dependence dynamics of financial crises.

Chapter 5 investigates the implications of financial crises on human development. Unlike previous studies that focus on the impact of financial crises on economic factors, this chapter examines how financial crises affect broad dimensions of human wellbeing, which is proxied by the Human Development Index (HDI) and its components: health, education, and income. Using a System-GMM estimator, the analysis shows that both short- and long-run effects of financial crises are detrimental to human development and its components. Moreover, education appears to be less affected by financial crises than health and income.

While the three empirical chapters focus on different topics, they share and contribute to the broad view of financial crises ï the causes, timing, and consequences of financial crises. By fitting these chapters together, this thesis significantly contributes to the literature on financial crises and can be useful for policymakers to shape appropriate policies before, during, and after a financial crisis. First, it shows which factors help to reduce the probability of financial crises. Accordingly, policymakers can better shape proper and timely policies to prevent potential crises. Next, it provides evidence of various factors that contribute to longer/shorter financial crises. In this respect, policymakers could implement appropriate crisis interventions to shorten financial crises and, thus, avoid profound economic and human costs. Finally, it shows the effects of financial crises on broad dimensions of human wellbeing. In this regard, policymakers could better shape their economic and social policies to alleviate the real effects of financial crises on human wellbeing. This is vital to protect vulnerable groups and avoid leaving a long-lasting burden on subsequent generations.

The remainder of this chapter proceeds as follows. Section 1.1 mentions the research backgrounds. Section 1.2 identifies research gaps and proposes research questions. Section 1.3

discusses how the political environment affects financial crises in Argentina and Greece. Section 1.4 discusses the main contributions. Section 1.5 outlines the thesisôs structure.

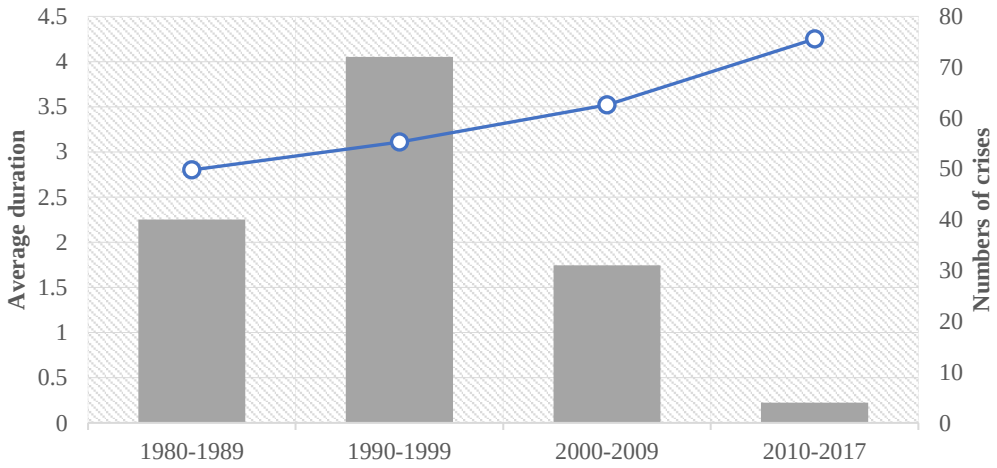
1.2. Research backgrounds

Various waves of financial crises observed over the last four decades and their aftermath have been painful reminders of the multifaceted nature of financial crises. They can arise from both public and private sectors and are not limited to domestic conditions. In fact, in the context that the worldôs largest economies are more deeply interconnected compared to the 1980s, we have witnessed waves of financial crises that rapidly spread across borders and inflicted multiple countries, such as the wave of sovereign debt crises in the early 1980s driven by sovereign defaults in Latin American countries, the wave of currency crises in the mid-1990s due to the spill-over effects of the Mexican peso crisis, and the wave of banking crises in the late 2000s. They came in various shapes and formats and can evolve into different forms, which lead to the so-called twin or even triple crises.[1]

The world economy has also witnessed a new trend of crises over the last two decades, which is different from those of the 1980s and 1990s. That is, we have experienced fewer but deeper and more prolonged crises. This is evident in Figure 1.1, which clearly shows an opposite trend between the average duration and numbers of systemic banking crises over the last four decades. In particular, the number of banking crises plummeted from 40 in the 1980s to only 4 during the period 2010-2017, while their average duration almost doubled. This indicates that future financial crises could be deeper and more severe.

[1] Twin and triple crises are defined as a simultaneous occurrence of banking, currency, and/or sovereign debt crises within one year. Details of twin and triple crises definitions are provided in Section 2.3.4.

Figure 1.1. Average duration and numbers of banking crises



Source: Laeven and Valencia (2020). *Notes*: The average duration of financial crises for the last period can be longer because several banking crises are still on going.

Given the unprecedented challenges in this fragile time, it is vital to have an insight into the drivers of different types of financial crises and their durations. However, due to their diverse and complex nature, the challenges that policymakers face to prevent and shorten a financial crisis are unprecedented. This requires appropriate policy responses to be implemented at the moments of critical junctures. Nevertheless, such responses tend to be inefficient, despite the fact that they are carefully designed and costly for government budgets (Demirguc-Kunt and Detragiache, 1998; Nguyen et al., 2020). Even when policymakers can locate the exact causes of a financial crisis, macro-prudential policies tend to be inefficient because of their unpredictable counter-cyclical effects (Goodhart, 2011). For example, bailouts of inefficient financial institutions are costly, but they may remain in business to prevent the collapse of the financial system. Loosening monetary policy to stimulate economic growth may be associated with higher inflation and currency depreciation, which can trigger a currency crisis. Printing more money to pay off public debts may also face the same consequences. For these reasons, severe and prolonged financial crises have occurred and left long-lasting consequences.

Such consequences are evident in the aftermath of the Great Recession of 2007/08, which led millions of people to lose their jobs, their businesses, their homes, and their life savings. Ten years after this crisis event, the recovery is still fragile and uneven. For example, the levels of employment in small, and medium-sized enterprises (SME) in the European manufacturing industry have not reached those before the Great Recession (European Commission, 2017). This pattern can also be observed for world economic growth, as depicted in Figure A1 (Appendix A1). Output losses associated with economic recessions have also been proved to be permanent and, in this regard, accumulated losses are more pronounced in longer recessions (Cerra and Saxena, 2017; Laeven and Valencia, 2020). However, while there is a substantial body of work that assesses the impact of financial crises on the economic environment, their effects on social and human wellbeing have received little attention. It is worth stressing that financial crises, even short-lived ones, have permanent consequences on human development and leave a burden to future generations (UNDP, 2020). For example, one-third of Argentines were living below the poverty line in 2015 due to the influence of a series of financial crises (CRS, 2020).

This long-lasting impact, along with the fact that policy responses to economic shocks tend to be inefficient, calls for the urgent need to provide useful insights into the determinants of financial crises and their durations. Understanding this dimension is vital for policymakers to respond appropriately and determinedly to potential crises, to shorten their duration and, more importantly, to avoid long lasting damage on social and human wellbeing. For these reasons, the principal aim of this thesis is to shed more light on the factors that drive the causes and the duration of financial crises, and on how financial crises affect human development, which is an issue that is less discussed in the literature.

1.3. Research gaps

Due to the severe consequences of financial crises, it is not surprising that there is a proliferation of papers that attempt to investigate the causes of different types of financial crises. Various economic factors have been found in the literature to be significant for financial crises anticipation such as foreign reserves (Kaminsky et al., 1998; Obstfeld et al., 2009), exchange rate regime (Eichengreen et al., 1996; Shimpalee and Breuer, 2006), capital controls (Wei and Zhang, 2007; Batuo et al., 2018), credit growth (Demirguc-Kunt and Detragiache, 2002, 2005; Kemme and Roy, 2012), trade openness (Detragiache and Spilimbergo, 2001; Wilms et al., 2018), inflation (Von Hagen and Ho, 2007; Reinhart and Rogoff, 2014; Balteanu and Erce, 2018), current account balance (Falcetti and Tudela, 2006), public debt (Reinhart and Rogoff, 2011, 2014; Balteanu and Erce, 2018), international interest rates (Falcetti and Tudela, 2006; Yu, 2016), and bank deposits (Kaminsky et al., 1998).

While a large body of work has been devoted to the identification of financial crises, the literature on the determinants of the duration of financial crises is largely unexplored. Only a few economic factors have been argued to influence the length of financial crises or economic recessions such as credit growth (Claessens et al., 2012), foreign reserves (Cerra and Saxena, 2017), current account balance (Mecagni et al., 2007), public debt (Bergoeing et al., 2002), and economic growth (Demirguc-Kunt and Detragiache, 1998; Craigwell et al., 2013).[2]

Despite various efforts to anticipate financial crises and their durations, undesirable events have occurred and been more prolonged recently, which indicates that there are potentially unexplored factors that contribute to the rise and duration of financial crises. This study extends the existing literature on financial crises by considering the neglected role of the political and institutional environments. As argued by Claessens and Kose (2013), macro-prudential policies should be implemented as early as possible to prevent economic shocks from turning into a

[2] Further details for these variables are provided in each empirical chapter.

financial crisis. Nevertheless, necessary policies can be delayed due to political reasons (Mian et al., 2014). For example, minority governments are less likely to implement timely policies against economic shocks due to policy gridlock (Krehbiel, 1998; Bechtel, 2009). Political fractionalisation also makes policymaking and the implementation of crisis interventions become substantially difficult in times of crisis (Mian et al., 2014; Funke et al., 2016). Thus, government interventions before and after financial crises are ultimately political choices (Rosas, 2006; OôKeeffe and Terzi, 2015). In this regard, political factors can be critical to determine and predict the likelihood and length of financial crises.

However, appropriate crisis mitigation policies alone might not always be effective to shorten a financial crisis as their efficiency has remained a question. Alesina and Drazen (1991) suggest that the credibility of government interventions is vital to determine whether those interventions are successful. For example, Bermpei et al. (2018) argue that while bank regulations on official supervisor power are strengthened in the aftermath of financial crises to prevent and correct a bankôs problems, a strong bank supervisor can exploit its power and influence credit allocations for private gains. A stronger institutional environment with better control of corruption and regulatory enforcement could address this problem. Accordingly, institutional quality should be taken into account for the understanding of financial crisis duration.

While these above studies suggest that the political and institutional environment are important to determine financial crises and their durations, empirical evidence has been limited. Hence, the first two empirical chapters in this thesis precisely provide such analysis. In particular, Chapter 3 focuses on the underlying channels through which the political environment influences the probability of financial crises. We are aware of only a few papers sharing a similar focus, namely those of Shimpalee and Breuer (2006) and Yu (2016). Nevertheless, their focus is limited to political instability. Our analysis differs from them in

that we examine the political environment in a broad sense of electoral cycle and political stability, orientation, and support. Chapter 4 examines how the political and institutional environment contributes to the duration of financial crises. To our knowledge, this is the first study that empirically explores this dimension.

Another gap in the existing literature lays in the consequences of financial crises on the overall social and human wellbeing. Previous studies investigating the impact of financial crises tend to focus on economic dimensions such as output loss, unemployment, and public debt (see, e.g., Abiad et al., 2009; Eichhorst et al., 2010; Devereux and Dwyer, 2016; Popov and Rocholl, 2018; Kose et al., 2020). Another strand of literature draws its attention to human wellbeing. However, the evidence is often limited to one or two indicators of social and human wellbeing such as household income, child poverty, and mortality rate (see, e.g., Jenkins et al., 2013; Granados and Ionides, 2017; Boyce et al., 2016; Chzhen, 2016; De Neve et al., 2017). This fragmented nature of the literature has made it difficult to have an insight into general patterns through which financial crises can influence overall human wellbeing. Taking the advantages of the HDI to measure overall human wellbeing, Chapter 5 investigates how financial crises affect HDI and its components: health, education, and income. This also represents the first attempt to explore the impact of financial crises (and their different types) on the main dimensions of human wellbeing.

Moreover, despite the growing interest in the causes, timing, and consequences of financial crises, the literature on these dimensions have been narrow in the sense that only several major crises are considered: the 1994 Mexican peso crisis (or the so-called Tequilla crisis), the 1997-1998 East Asian crises, and more recently the Great Recession. Empirical evidence found in previous studies is also limited to one type of financial crisis (see, e.g., Demirguc-Kunt and Detragiache, 1998; Vaugirard, 2007; Yu, 2016). In fact, we have observed hundreds of financial crises with various shapes and formats over the last four decades. Nevertheless, based

on their main specificities, financial crises are possible to distinguish into systemic banking, currency, debt crisis, and subsequently twin and triple crises (Reinhart and Rogoff, 2011; Babecky et al., 2014; Laeven and Valencia, 2020). This means that focusing on several major crises or one type of crisis indicates an important gap in the literature on financial crises. As a way of filling that gap, all empirical chapters presented in this thesis considers different types of financial crises. To the best of found knowledge, this thesis is the first to empirically explore the causes, timing, and consequences of different types of financial crises.

1.4. Political environment and financial crises

Along with arguments mentioned earlier for potential relationships between political factors and financial crises, this study pays a special attention to the unexplored dimension of the political environment, as evidenced by many repeated and prolonged financial crises in Argentina and Greece.

Argentinaôs current economic problems stem from both longstanding issues and recent developments. During the 1990s, a wave of capital inflows to emerging and developing countries was the main origin for a series of currency crises triggered by capital flight afterwards (Reinhart and Reinhart, 1998). First, in 1994, the Mexican peso crisis rapidly spread and caused serious financial problems to other developing countries. Next, the sudden capital outflows in the 1997 Asian crisis led to severe currency depreciation. Its effects were further elevated due to the influence of the Russian crisis in 1998. In 1999, the collapse of the Brazilian currency resulted in sharp declines in Argentinaôs export revenue and GDP growth in consecutive years. Finally, these persistent economic contractions, along with growing uncertainty about public debt, trigged a debt crisis in Argentina in 2001. The crisis shortly turned into a triple crisis formed by a banking crisis and a currency crisis during the period 2001-2002. In 2016, Argentina successfully emerged from the sovereign debt crisis, which lasted 15 years since its default in 2001.

Nevertheless, this is not the first time Argentina experienced a debt crisis. In fact, it has defaulted nine times since independence in 1816 and has entered into 21 IMF supported programmes since joining in 1956 (CRS, 2020). Although the Argentine economy was adversely affected by external conditions in the early 2000s, long-lasting recessions and repeated financial crises in Argentina over its history are not attributable to external factors but political reasons (Kiguel, 2002; Gallo et al., 2006). Indeed, political factors are the main origins of various inconsistent and inefficient economic policies and reforms that have exposed the Argentine economy to prolonged recessions and financial crises.

Economic policies in Argentina have had many directions as each incumbent chief executive tends to have different priorities. For example, Raul Alfonsin was elected to be Argentinaôs President in 1983, and his main target was to resolve economic problems caused by the previous military government. The Austral plan was one of his main efforts to prevent a hyperinflation. However, it failed and resulted in the hyperinflation in 1989 (Kiguel, 1991).[3] Carlos Menem won the election in 1989 and replaced the Austral plan with the Peso convertible plan, which sets a fixed exchange rate of one US dollar for one new Argentine peso. Despite its short-term positive effects, the fixed exchange rate regime was associated with higher dependency on volatile external financial flows and the less flexibility of economic policies and the business cycle (Ocampo, 2003, p. 24). Thus, the regime was discarded outright in 2002 after the economic crash in 2001. Other Argentine Presidents have also had inconsistent social and economic policies when they took office. This raises a concern over whether financial crises are influenced by electoral cycles when new incumbent executives tend to implement different economic policies.

[3] Austral plan prevents hyperinflation by freezing prices and wages, stopping the printing of money, and arranging spending cuts. Its positive effects did not last long when labour unions rejected the wage freeze, the business community fought against the price freeze, and the government started to print more money again to finance government debts.

One more contribution to the inconsistent economic and social policies in Argentina is the frequent changes in political orientations of the ruling governments. Argentine centre, left-wing, and right-wing governments took office in 8, 12, and 14 years, respectively, during the period 1984-2017.[4] It is noticeable that most financial crises in Argentina occurred when right-wing governments stayed in office: banking crises (1989-1991; 1995; 2001-2003), currency crises (2002; 2016). In contrast, left-wing governments staying in office witnessed only one currency crisis (2013-2014).[5]

Inconsistent policies arise when newly elected governments have an opposite political ideology to the previous one. For example, Carlos Saul Menemôs right-wing government promoted financial liberalisation and privatisation of state-owned companies and spending cuts. Despite the income from those privatisations, the economy was still unstable with a high unemployment rate (10%), social unrest, budget deficits, and public debts (Lischinsky, 2003). In contrast, Nestor Carlos Kirchnerôs government formed by the left-wing prioritised more spending to support the poor. During his term (2003-2007), a range of social policies were implemented to increase wages, reduce economic inequality, and promote social welfare and unemployment insurance. This exacerbated government budget deficits and resulted in a higher inflation rate. These examples indicate that different policy priorities influence the economy in different ways. For this reason, it is important to determine which political ideology is associated with a higher probability of financial crises.

In addition to the electoral cycle and political orientation, the risk of policy changes is more pronounced when a government is unstable. The frequent changes in the incumbent chief executives or ruling parties will lead to more inconsistent economic and social policies. In the

[4] As classified by the World Bankôs Database of Political Institutions (DPI), left-wing governments refer to political parties that are defined as communist, socialist, and social democratic. Right-wing governments imply political parties that are conservative and Christian democratic (DPI, 2017). The fundamental differences between left-wing and right-wing ideologies are given in Table A1 in Appendix A1.
[5] Both left- and right-wing governments experienced long-lasting sovereign debt crises.

case of Argentina, the period 1999-2003 witnessed five presidents assume office. A triple crisis formed by a banking crisis (2001-2003), a debt crisis (2001-2016), and a currency crisis (2002) occurred in the same period. This adds weight and credibility to the question: Does political instability influence the probability of financial crises in countries like Argentina?

Azzimonti (2019) argues that government policies such as macro-prudential policies and economic reforms are vital to prevent a potential financial crisis. A question for Argentina is why their economic policies and reforms are inefficient. One possible reason is the fragmentation of its political system. Argentina is a federal country formed by 23 provinces and the City of Buenos Aires. It has a multi-party system with two largest political parties: the Justicialist Party (PJ) and the Radical Civic Union (UCR). Argentinaôs political system is highly fragmented because the electoral mechanisms strengthen the power of provincial political leaders.[6] Thus, economic policies or reforms in Argentina can be constrained by provincial governors, who are members of different small parties (Bambaci et al., 2002). This, coupled with the complex benefits of legislators in different parties relating to a reform package, creates obstacles for a necessary policy or reform to be implemented.[7] While Argentina's electoral mechanisms could obstruct necessary reforms, majority governments in other countries holding an absolute majority of seats in the parliament are expected to face fewer obstacles in implementing timely policies and reforms.

The discussions above reveal four political factors that directly relate to financial crises in Argentina: the electoral cycle, political ideology, political stability, and political support. However, financial crises appear to be more frequent in emerging and developing countries,

[6] Both Senators and Deputies are elected in provincial districts. Candidate selections for the national legislators are based on the intra-party methods, which empower the influence of provincial party leaders (Bambaci et al., 2002)

[7] Bambaci et al. (2002) mention that incumbent executives in Argentina may gather support for their reform packages by buying votes. The idea is that if the total costs for a reform package is less than its benefit, the package will be accepted. The costs of buying votes depend on whether legislators relating to the reform package are in the same party, in small independent parties, or in the mainstream opposition party.

especially for sovereign debt and currency crises (Laeven and Valencia, 2020; Nguyen et al., 2020). This raises the question of whether the implications of political factors on financial crises only matter for developing countries like Argentina. However, looking at the case of Greece, it seems that political factors also play a role in driving Greek financial crises over the last decade.

Greece recently experienced a 2008-2012 banking crisis and a 2012-2013 sovereign debt crisis.[8] While the banking crisis, which was triggered by the adverse effects of the Great Recession, ended in 2012, the economy has been suffering from the sovereign debt crisis. The crisis was triggered by the surge in the international interest rates due to the global financial crisis leading to the overburden of government debts. However, other developed countries did not experience a sovereign debt crisis despite having the same or even higher levels of government debts.[9] In fact, the Greek sovereign debt crisis is the result of both high levels of debt and deficit (Baltas, 2013; Mink and de Haan, 2013).

The left-wing party (PASOK) implemented a range of economic and social policies to increase wages, improve healthcare and pensions, and various other fringe benefits. This trend was slowed down at the end of the 1990s as an effort to join the Eurozone. Once Greece successfully joined the Eurozone, the party continued its programmes to increase wages and to create new public structures such as universities, hospitals, public agencies, and research centres, leading to a high level of deficit and debt. Although the right-wing government (New Democracy) took office in 2004, the incumbent executive (Kostas Karamanlis) did not implement any significant measures to lower the deficit. This is because both the Karamanlisôs

[8] A currency crisis is less likely to occur in Greece over the last two decades as it has joined the Eurozone since 2001.

[9] According to the IMF, the average levels of debts to GDP in Greece in 2006 and 2007 is about 105%, while the figures for Belgium, Italy, and Japan are even higher, at 90%, 115%, and 170%, respectively.

government and other parties did not acknowledge the seriousness of fiscal deficits and government debts during their electoral campaigns (Lyrintzis, 2011).[10]

When Karamanlis was forced to call an election for an economic plan to alleviate fiscal and debt conditions, the mainstream opposition party (PASOK), led by Papandreou, attacked the plan and proposed a new fiscal stimulus package, which was expected to increase domestic demand and government revenue. Although it was clear that the government could not finance the package, PASOK won the election and took back office. Papandreou failed to gather support from opposition parties to implement necessary policy plans. He had to seek help from the IMF. Instead of cooperating with the incumbent government, opposition parties accused Papandreou of easily accepting the IMFôs harsh terms. Lyrintzis (2011) argues that Papandreou could have achieved better terms in the memorandum if he had had stronger political support from other parties. This scenario also attracts our attention to the role of political support in the development of the sovereign debt crisis in Greece.

Moreover, the frequent changes in the incumbent governments could also explain why the governments failed to provide an efficient policy or reform to stabilise the economy. Before the sovereign debt crisis, the period 2009-2012 witnessed four prime ministers from different parties staying in office: Papandreou (PASOK), Lucas Papademos (Independent), Panagiotis Pikrammenos (Independent) and Antonis Samaras (New Democracy). Thus, political instability may also have contributed to the escalation of the Greek debt crisis.

The cases of Argentina and Greece show that changes in political factors influence the probability of financial crises. Hence, it is a shortcoming to ignore the potential impact of political factors in the literature on financial crises. However, this thesis does not limit itself to Argentine and Greek economies. Instead, it is inspired by the cases of Argentina and Greece ï which are only two paradigmatic examples among others ï and motivated by the need to

[10] Kostas Karamanlis was involved in three election campaigns in 2004, 2007 and 2009.

understand the role of political environment on the occurrence and duration of financial crises around the globe. Specifically, this thesis examines how the electoral cycle, political ideology, government stability, and political support affect the probability and the duration of different types of financial crises in the world.

1.5. Research contributions

The main structure of this thesis is divided into three empirical chapters. Each chapter addresses one research question. In particular, the first empirical chapter (Chapter 3) examines the effects of the political environment on financial crises. The second empirical chapter (Chapter 4) explores how political and institutional factors contribute to the duration of financial crises. The third empirical chapter (Chapter 5) investigates the implications of financial crises on HDI and its components. First and foremost, these chapters depart from existing studies in terms of the types of financial crises analysed. Instead of focusing only on one type of financial crisis or several major crisis events, these chapters assess the probability, duration, and consequences of systemic banking, currency, sovereign debt, and twin and triple crises. A core contribution of this thesis is the compilation of a rich financial crises dataset that covers all main types of financial crises in 125 countries since 1975.

Unlike previous studies on the early warning signals of financial crises, the first empirical analysis provided in Chapter 3 focuses on the unexplored effects of the political environment on financial crises as a whole and their different types. As financial crisis (dependent) variables are binary, this chapter employs pooled, fixed-effects and random effects logit modes, and instrumental variables probit models in the respective estimations. However, the favoured econometric approach is the fixed-effects logit model due to its better performance in the diagnostic tests and the fact that it allows controlling for time-invariant unobservable country and time effects.

The results provide evidence that the probability of banking and currency crises, on average, is 32% higher within one year after elections, giving support to the ñhoneymoon hypothesisò. That is, new policies and reforms tend to be implemented in the immediate aftermath of elections and, in this regard, higher economic uncertainty increases the probability of financial crises. In addition, a longer incumbent chief executive tenure appears to reduce the likelihood of any type of financial crisis, which emphasises the need to promote political stability. In this sense, governmentsô macro-prudential policies could be more persistent and effective. As in the case of Argentina during the period 1999-2003, there were five presidents taking office before the outburst of the triple crisis in 2001. Thus, it is not surprising that short-lived policies are not effective.

Moreover, the probability of currency crises is higher when right-wing governments stay in office. This happens because they tend to refrain from implementing necessary economic reforms during pre-crisis periods, given their higher propensity to promote economic freedom. Furthermore, majority governments help to reduce the probability of twin and triple crises by 68%, ceteris paribus. This implies that adequate political support is vital to implement timely macro-prudential policies without facing policy gridlock.

In short, the first empirical chapter provides evidence that the political environment ï which is virtually unexplored in the literature on financial crises ï appears to be important to determine the likelihood of different types of financial crises. However, an important message here is that the political effects only become evident when we dig deeper into the analysis of the different types of financial crises.

Although understanding the drivers of financial crises is critical to avoid potential crises, having an insight into the determinants of financial crisis duration may help to shorten them and minimise their potential damages to the economy and human wellbeing. For this reason, the second empirical chapter (Chapter 4) explores the factors that contribute to the duration of

financial crises, with special attention paid to the political and institutional environment. This will be a significant contribution to the literature on financial crisis duration, which has received very little attention so far. Indeed, the literature in this field is limited to the analysis of duration dependence and the role of some economic factors. They conclude that the probability of a financial crisis ending increases persistently over time (Mecagni et al., 2007; Claessens et al., 2012). In fact, long-lasting debt crises in emerging and developing countries in several decades might indicate that the longer a crisis is, the more difficult to bring it to an end. Thus, along with a range of economic factors ï including those that have been found in the literature ï this chapter also explores the duration dependence dynamics of financial crises to explain this dichotomy.

We conjecture that the real patterns of the duration dependence dynamics of financial crises are not linear, as shown in the studies by Mecagni et al. (2007) and Claessens et al. (2012). This is because their methods only allow the probability of a crisis ending to increase/decrease monotonically overtime. Instead, this chapter employs a duration analysis with a flexible polynomial baseline hazard function. As far as we are concerned, this study is the first to examine flexible duration dependence dynamics over different types of financial crises. Our first key finding is that the probability of financial crisis ending does not necessarily increase monotonically over time as observed in previous studies. In fact, banking and twin and triple crises present a non-monotonic cubic behaviour over time. More specifically, the likelihood of those events ending increases until their second year of duration, then it decreases until the fourth year before increasing again. Currency crises exhibit no clear evidence of duration dependence, while the probability of a debt crisis ending has been proven to decrease monotonically over time. These findings significantly contribute to the literature as it is the first empirical evidence of non-monotonic duration dependence dynamics of financial crises.

Our second main insight lays on the analysis of the neglected role of political and institutional factors, which have been argued to be important to determine the length of a financial crisis (Rosas, 2006; OõKeeffe and Terzi, 2015). They argue that the decisions for government interventions during financial crises ultimately involve political choices. Following up on this argument, we expect that appropriate and timely policy responses can effectively shorten a financial crisis. Nevertheless, under a favourable political environment, appropriate crisis mitigation policies could be inefficient due to the poor institutional environment. Thus, it is essential to assess how political and institutional environment affects financial crisis duration. Indeed, our analysis confirms the statistically significant effects of political and institutional factors on financial crisis duration. To the best of the authorôs knowledge, no previous studies have directly unveiled the effects of the political and institutional environment ï which potentially influences the governmentôs decisions and the efficiency of crisis interventions ï on the duration of financial crises.

Our results show that banking and twin and triple crises are more likely to end within the first year after elections. This happens because politicians tend to postpone necessary crisis interventions before elections to avoid losing votersô support. The finding echoes our statistics that 40% of those crises ended within the first year after elections. Moreover, banking and debt crises tend to be longer with left-wing governments. This might be due to the adverse effects of the ñtwin deficitsò strategies caused by the right-wing governments.[11] A typical example of those strategies is policies adopted by the George W. Bush (right-wing) administration (Corsetti et al., 2006). During his first tenure (2000-2004), tax cuts and altering spending policies led the government budget balance to GDP reduced from 0.3% to -5.8%. At the end of his second term, the budget deficit reached 7.4% of GDP in 2008. This, along with the

[11] ñTwin deficitsò refer to the rapid expansions of current account deficits and deterioration of fiscal balances (Broz, 2013).

persistent current account deficit, created a ñtwin deficitsò, which left less scope for Barack Obamaôs (left-wing) government to deal with the Great Recession of 2007/08.

Additionally, we find that majority governments are associated with shorter sovereign debt and twin and triple crises. Using the depth of our historical crisis dataset, our statistics corroborate this finding by showing that 65% currency, debt and twin and triple crises were ended by majority governments. This happens because favourable political positions allow majority government to rapidly respond to financial crises without facing policy gridlock.

Finally, our analysis confirms that financial crises are shorter in a sounder institutional environment, likely reflecting the role of institutional quality in promoting the credibility and efficiency of crisis measures. However, this statistical analysis offers some interesting findings that banking crises tend to last longer in developed countries, where the institutional environment is normally stronger and sounder. Not surprisingly, Laeven and Valencia (2020) report that more than 50% of banking crises in developed countries lasted five years or more, while most emerging and developing countries experienced shorter banking crises lasting four years or less. They argue that developed countries tend to experience deeper banking crises and, hence, require large fiscal resources to address. Moreover, they face more difficulties in providing appropriate crisis responses due to the complexity of their large financial systems and institutions.

Generally, the first two empirical chapters provide interesting findings that economic, political, and institutional factors are important to understand not only the escalation of financial crises but also their duration. Nevertheless, their effects are heterogeneous across types of financial crises, which means that, again, special attention should be given to the different shapes and forms of financial crises. Their findings are valuable to both academics and policymakers, in particular for their efforts to prevent potential crises and shorten ongoing financial crises.

The last empirical chapter (Chapter 5) provides a complete picture of financial crises by examining their consequences on human development. Due to the real and prolonged effects of financial crises, especially in the aftermath of the Great Recession, it is not surprising that understanding the consequences of financial crises has received more attention. However, the research on the impact of financial crises on social and human wellbeing is relatively scarce and limited to the dimensions of unemployment and income losses (see, e.g., Deaton, 2012; Jenkins et al., 2013; Boyce et al., 2016; Chzhen, 2016; De Neve et al., 2017). In fact, income should be complemented with education and health to produce a broader view of human wellbeing (Vollmer and Ziegler, 2009; UNDP, 2010). Using the HDI, this study employs a System-GMM approach to examine how different types of financial crises affect human development and its components. To our knowledge, this is the first attempt to explore the effects of financial crises on overall human wellbeing and its components, considering different types of financial crises on a large sample of hundreds of crises over the last four decades.

Our main result is that all types of financial crises have a detrimental impact on human development and its components: health, education, and income. Two potential concerns with this finding are: (i) Which type of financial crisis is the most harmful to human development? (ii) Are the adverse effects of financial crises on human development only short-lived?

First, we find that the adverse effects of twin and triple crises on human development are more pronounced than other types of financial crises. This seems to be in line with Bordo et al. (2001), Calvo (2010), and Balteanu and Erce (2018), who provide empirical evidence that twin and triple crises are associated with larger output losses and fiscal costs than single financial crises. More importantly, our analysis shows that the effects of banking crises on human development are less severe than other types of crises. This indicates an important shortcoming in the literature as previous studies tend to focus only on the consequences of banking crises

on human wellbeing. Our study is the first to compare the adverse effects of different types of financial crises on human development.

Second, we find that the long-run influence of financial crises on human development is substantially stronger than that of the short-run, especially for twin and triple crises. We thus confirm the statement in the recent report of the United Nations, which emphasises that financial crises, even short-lived ones, have permanent consequences on human development (UNDP, 2020). Our results also reveal that financial crises exert a stronger impact on human development than the political, institutional and socio-economic factors, indicating that financial crises are the main factor that slowed down human development over the last four decades.

By digging deeper into the components of human development, we show that financial crises appear to be more damaging on income. In contrast, education is only marginally influenced by banking and debt crises. This can be because education budgets are often more protected than those of other sectors. Moreover, we identify an important asymmetry that developed countries tend to experience deeper financial crises, but the deterioration of overall human development in those countries is less severe than in developing countries. This is valuable for policymakers in developing countries to be aware of the real effects of financial crises on human development. Developing countries might be less damaging in terms of income losses than developed countries, but they tend to pay a higher price regarding the overall human development.

1.6. Outline of the thesis

The rest of the thesis is organised as follows. Chapter 2 provides a review of financial crises dating methods and how different types of financial crises can coincide and/or precede each other. Based on the advantages and disadvantages of the existing methods, this chapter uses the database of Laeven and Valencia (2020) for systemic banking crisis identification and

proposes new measures to date currency and debt crises. This chapter also shows the rising of different types of financial crises and how they link together over the period 1970-2017.

Chapter 3 examines the effects of the political environment on financial crises. It starts with an extensive review of the relationships between political factors and financial crises. The next section describes the data sample, variables used, and the econometric methods. The following section presents and discusses the main findings. Various sensitivity analyses and robustness checks are also provided to corroborate the main findings. This chapter ends with a brief summary of the main findings and suggests important implications for policymakers.

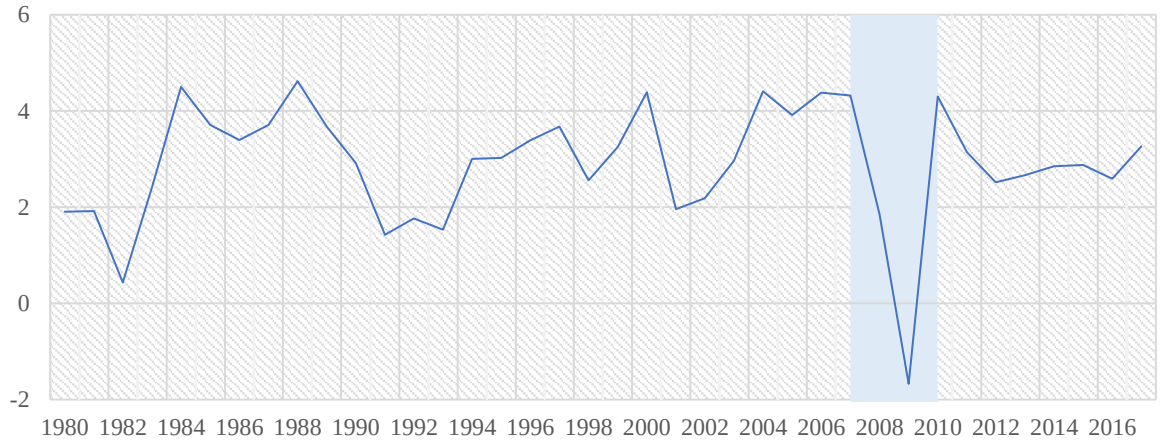
Chapter 4 studies the political economy of financial crisis duration. This chapter starts by reviewing the potential effects of economic, political, and institutional factors on the duration of financial crises. Extensive analyses of descriptive statistics for financial crisis duration and econometric methods are provided next. Following this, the empirical analysis section discusses the main findings and provides various sensitivity analyses and robustness checks. The last section concludes emphasising the main findings and their implications.

Chapter 5 examines the relationship between financial crises and human development. Firstly, it analyses the potential channels through which financial crises affect human development. This section also reviews how political, institutional, and socio-economic factors can explain the evolution of human development. Next, data, variables, and regression models are presented. Then, it provides a detailed discussion of the main empirical findings, sensitivity analyses, and robustness checks. Finally, it summarises the main findings and suggests some policy implications.

Chapter 6 provides an overall conclusion, where the main contributions of this thesis are highlighted. More importantly, it provides important policy recommendations for policymakers. Some research limitations and recommendations for future research are also discussed there.

APPENDIX A1

Figure A1. World GDP growth (%)



Source: World Bank

Table A1.1. Main specifications between the left- and right-wing governments

Left-wing government	Right-wing government
Government intervention in the economy	Free market competition
Public sector expansion	Small government
Nationalizations	Privatizations
More government spending	Less government spending
Expansion of welfare	Welfare retrenchment
Market regulation	Deregulation
Redistribution and Keynesian economies	Supply-side economic
Labour market control	Labour market flexibility
Higher taxes	Lower taxes
Trade unions: positive opinion	Trade unions: negative opinion

Source: Ivaldi (2015)

CHAPTER 2: FINANCIAL CRISIS IDENTIFICATION AND FREQUENCY

2.1. Introduction

The first step to explore the causes, timing, and consequences of financial crises is to define financial crises. However, so far there has been no consensus on the definition of a financial crisis as it depends on how a crisis is identified. Some studies provide general definitions for financial crises without clearly pointing out how they were identified. For example, Bordo et al. (2001) define financial crises as episodes that experience significant problems of illiquidity and insolvency of financial-market participants and/or significant government interventions. Some recent studies identify financial crises by measuring the levels of systemic financial stress constructed by the country-level index of financial stress and the industrial production index (see, e.g., Duca et al., 2017; Duprey et al., 2017).

However, financial crises tend to have different forms, formats, and characteristics, which means that studying the determinants of financial crises can be biased when we rely only on a single definition of financial crisis. For example, the drivers of banking crises could be different from those of currency and debt crises. Given the multifaceted nature of financial crises, the existing literature agrees on three main types of financial crises: systemic banking, currency, and sovereign debt crises (Laeven and Valencia, 2008, 2013, 2020).[12] The various combinations of these types can also be formed into twin and triple crises. Based on these classifications, this chapter provides an overview of definitions for different types of financial crises. Following this, the chapter discusses the method to identify them. Finally, an analysis of the frequency of financial crises is also provided.

[12] Some studies classify financial crises into four types, including the additional sudden stop or balance of payments crisis (e.g. Clasessens and Kose, 2013; Calvo et al., 2008). However, sudden stops crises can be included with currency crises (see Section 3.1.2).

2.2. Types of financial crises

2.2.1. Systemic banking crises

Banking distress can take place in only a few banks or on a large scale. Some studies ignore the severity of banking distress and hence do not distinguish the differences between localised banking crises and systemic banking crises (see, e.g., Kaminsky and Reinhart, 1999; Caprio et al., 2005; Jing et al., 2015). However, most recent studies only pay attention to systemic banking crises because of their contagion effects. Specifically, the possibility that bank insolvency can spread out and lead to the insolvency of other banks and then to the collapse of the payment system distinguishes between bank insolvency and nonfinancial firm insolvency.[13] The failures of several banks would definitely not be considered as a systemic problem; however, the contagion effect of bank insolvency can lead to a systemic banking crisis. Therefore, academics have provided various criteria to identify when banking distress turns into a systemic banking crisis.

Scholars also have different views regarding the definition and identification of a systemic banking crisis. Caprio and Klingebiel (1996) define a systemic banking crisis as episodes when loan losses are large enough to wipe out almost the entire or the entire banking system capital. Under this definition, they identified 86 systemic banking crises in 69 countries from the late-1970s to 1995.[14] They are the first to provide a database of systemic banking crises. However, they admit that a crisis could be dated too late because the negative net worth (a situation that loan losses are higher than the banking systemôs capital) can persist for a period before being detected. The information used to date banking crises highly relied on the general acceptance of financial experts familiar with the examined countries, which indeed cannot guarantee

[13] Nonfinancial firms can continue to operate when they are insolvent because they may have both core business activities, which may remain profitable, and new investment opportunities as well as sizeable illiquid fixed capital. Moreover, they can lower the imbalances between assets and liabilities by issuing new and lower-value assets. For example, a part of their liabilities can be converted into new equity for debtholders.

[14] The authors also use qualitative methods to identify systemic banking crises in several countries due to the limitations and the credibility of data. This is because authorities can understate the real size of bank losses.

accuracy. In addition, they also find difficulties in determining when a systemic banking crisis ends and whether there are multiple crises in a country.

In the same spirit, Demirguc-kunt and Detregiache (1998) attempt to distinguish between distressed episodes and crises, and between localised and systemic crises. They define a distress period to be identified as a systemic banking crisis when at least one out of the four following conditions hold: (1) the ratio of non-performing assets to total assets in the banking system is higher than 10%; (2) the cost of the rescue operation exceeded 2% of GDP; (3) large scale nationalisation of troubled banks; and (4) extensive bank runs took place or emergency measures such as deposit freezes, prolonged bank holidays,[15] or generalised deposit guarantees that were enacted by the government in response to the crisis.

Among the definitions of systemic banking crises that rely on qualitative methods, those of Laeven and Valencia (2008, 2013, 2020) appear to be more specific. They use both quantitative and qualitative methods to measure the severity of bank losses and the degree of government interventions. They define a banking crisis to be systemic when two conditions hold: (1) significant signs of financial distress in the banking system, as reflected by significant bank runs, losses in the banking system, and or bank liquidations; (2) significant government policy interventions in response to significant losses in the banking sector.

2.2.2. Currency crises

Existing studies define currency crises either by the degree of currency depreciation (Frankel and Rose, 1996) or the severity of exchange market pressure under speculative attacks (Eichengreen et al., 1995). Some studies suggest that speculative attacks are the main reasons behind most currency crises. This can be reflected by a massive and sudden selling of domestic currency, which results in sharp currency depreciation. A speculative attack creates a surge in

[15] Bank holiday is a measure through which governments can intervene in the banking sector when a financial crisis becomes severe. Depositors are prevented from withdrawing their money or their withdrawals are limited (Rockoff, 2003). The main purpose of the measure is to prevent banks from further suffering from runs.

exchange market pressure and normally associates with one the following outcomes: (1) a sharp depreciation of domestic currency if the speculative attack is successful; (2) a significant decline in international reserves; (3) an increase in the interest rate (Kaminsky et al., 1998; Kraay, 2003; Classens and Kose, 2013; Goldstein, 2013).

The purpose of currency speculators is to deplete central banksô international reserves and profit from the significant depreciation of the targeted currencies. When central banks run out of foreign reserves, they are unable to purchase the domestic currency at the prevailing price and will allow the exchange rate to float based on the market demand and supply. This often results in a large depreciation of domestic currencies. In order to defend the currency peg, central banks must hold adequate international reserves to purchase all of their liabilities in urgent situations.[16] An additional method that central banks can use to defend their currencies is to increase the interest rate. Speculators often short domestic currency and cover the short once the currency is highly devaluated. Increasing the interest rate can make it prohibitively costly for shorting a domestic currency. Moreover, increasing short-term interest rates can reduce capital outflows and stimulate capital inflows (Dreher et al., 2006).

Given the responses of governments to currency crises, some studies rely on the degree of exchange market pressure to identify currency crises. Eichengreen et al. (1995) developed the exchange market pressure index (EMPI) based on the work of Girton and Roper (1977) to measure the degree of the changes in international reserves, exchange rate, and interest rate in comparison with a reference country. A currency crisis is then defined when the exchange market pressure exceeds a certain threshold. However, the EMPI appears to have some drawbacks. First, data for the interest rate is unavailable in many low- and middle-income countries. In practice, several studies ignore the changes in the interest rates due to date

[16] Adequate foreign reserve is often referred to as a ñwar chestò, which is a collection of a large amount of money stored to address a dangerous situation.

limitations (see, e.g., Kaminsky et al. 1998; Kaminsky and Reinhart, 1999; Coudert and Gex, 2008). Using the EMPI without considering the changes in interest rate can ignore a large number of unsuccessfully speculative attacks, which are often followed by a significant increase in the interest rate. Second, there is no theoretical support in determining the threshold of the EMPI. Previous studies tend to choose different thresholds (β) to meet their particular objectives (Pérez, 2005). For instance, Eichengreen et al. (1995) chose $\beta = 1.5$, while Kim et al. (2013) set the threshold based on $\beta = 2$. Nevertheless, they do not provide any explanation for their choices.

Another strand of literature identifies currency crises based on the depreciation of the domestic currency against a reference country, normally the US dollar. The method was first proposed by Frankel and Rose (1996), who use a threshold of 25% depreciation vis a vis US dollar. Other studies slightly adjust the threshold to meet their particular objectives. For instance, Laeven and Valencia (2013, 2020) define a currency crisis as a nominal depreciation of the domestic currency against the US dollar of at least 30% and at least a 10% depreciation compared to the year before. The main advantage of this method is the availability of data over a long period of time.

It is worth noting this method also allows to account for sudden stops which share some similarities with currency crises. Calvo et al. (2004) define sudden stops as a phenomenon of a large and sudden reduction in capital inflows resulting in the sharp decline in a countryôs outputs. In fact, sudden stops often coincide with or lead to currency crises. This is why some studies interchangeably use the terms of sudden stops and currency crises (see, e.g., Kaminsky and Reinhart, 1999; Kaminsky, 2006; Willett and Wihlborg, 2013). As mentioned in the previous sub-section, a currency crisis relates either to a sharp depreciation of a countryôs currency value (Frankel and Rose, 1996) or an exceptional exchange market pressure under speculative attacks (Eichengreen et al., 1995). Though the definitions of sudden stops and

currency crises are not identical, sudden stops crises can be identified by the same means as currency crises.

Recall that a currency crisis is often associated with one (or more) of the following outcomes: (1) a sharp depreciation of domestic currency (if the speculative attacks are successful); (2) a significant decline in international reserves; and (3) a sharp increase in the interest rate. Note that a successful speculative attack results in the significant depreciation of the domestic currency, while an unsuccessful attack does not as the governments can successfully defend their currencies by either raising the interest rate and/or having a sufficiently large war chest. Similarly, a sudden stop will not turn into a crisis when the government can successfully prevent currency depreciation (Zhao et al., 2014).

Therefore, sudden stop crisis is not considered as one of the main types of financial crises in this study because it can be identified through a currency crisis. More specifically, if a sudden stop is severe, it will turn into a sudden stop crisis reflected by a sharp depreciation in domestic currency, which is also the definition of a currency crisis.

2.2.3. Sovereign debt crisis

Most studies consider a country to be in a sovereign debt crisis when it fails to meet its principals and/or interest payments on the due date and/or when it reschedules its debts with less favourable terms. (see, e.g., De Bonis et al., 1999; Reinhart and Rogoff, 2009, 2014; Classens and Kose, 2013). This definition, however, also considers many sovereign defaults ï which are too small compared to the size of the economy ï as debt crises. This means that many identified debt crises can be negligible and may not indicate real debt crises. To address this problem, Detragiache and Spilimbergo (2001) identify a sovereign debt crisis if the arrears of principal or interests on the external obligations towards commercial creditors exceed 5% of total commercial outstanding debt.

Moreover, existing studies on sovereign debt crisis identification tend to ignore some important creditors due to the lack of data. This may undermine the real size of sovereign defaults as a country can raise their external debts from both official and commercial creditors. Balteanu and Erce (2018) are among the first to resolve this problem. They use the sovereign defaults information from the Standard & Poorôs ï S&P (2007) which also defines sovereign defaults as situations where: (i) a country fails to meet their principals or interest payments on the due date or (ii) a country uses either debt rescheduling or a debt exchange (bond debt) with less favourable terms than the original ones. However, as the S&Pôs dataset includes only defaults on private external debt, Balteanu and Erce (2018) add their crisis events with those of Reinhart and Trebesh (2016) to provide a full dataset on external debt, which includes both official external debt and private external debts, coupled with data for countries that are not rated by the S&P agency.

2.2.4. Twin crisis and triple crisis

A financial crisis may not be a single event. Existing studies provide empirical evidence that different types of financial crises could be related (see, e.g., Babecky et al., 2014; Balteanu and Erce, 2018; Laeven and Valencia, 2020). This sub-section reviews the linkages through which different types of financial crises can precede or coincide each other.

a. The linkage between banking and currency crises

Kaminsky and Reinhart (1999) are among the first to study the linkage between banking and currency crises and find that a banking crisis can precede a currency crisis within 24 months. They suggest that governmentsô bailouts of inefficient banks during a banking crisis are associated with higher credit creation because those bailouts are financed by printing more money (Krugman, 1979; Velasco, 1987). This, however, comes at the cost of a significant currency depreciation, which is an antecedent of a currency crisis. In addition, as banking crises tend to be associated with credit crunches and worse economic conditions, international

investors may respond by withdrawing their funds, causing capital flights and then a significant depreciation of domestic currency (Babecky et al., 2014).

Conversely, a currency crisis can also precede a banking crisis. A significant increase in the interest rate could imply governmentsô attempts to defend their currencies. This exposes banks to a vulnerability of maturity mismatch between assets and liabilities, especially those holding a large proportion of unhedged foreign liabilities (Obstfeld, 1994; Glick and Hutchison, 2001). This pushes banks on edge to bankruptcy and, in the worse scenario, triggers a systemic banking crisis (Goldstein, 2013).

b. The linkage between currency and debt crises

Dreher et al. (2006) suggest that currency and debt crises tend to coincide each other. They argue that international investors and lenders are sensitive to macroeconomic shocks. In this regard, when they realise that the macroeconomic conditions are becoming worse, they tend to stop rolling over maturing debts and withdraw their investments. In that case, sovereign debt crises occur when governments have no further access to the international capital market or are unable to accept new debts at prohibitively high interest rates.

Some studies argue that currency crises often precede sovereign debt crises. This is because a sharp depreciation of domestic currency can significantly increase the cost of outstanding sovereign debts denominated in foreign currencies (Kaminsky and Reinhart, 1999; Reinhart and Rogoff, 2011). Moreover, as governments often increase the interest rates as a measure to defend their currencies (Dreher et al., 2006), they will be more indebted and then more exposure to a debt crisis.

With respect to the transmission of sovereign debt crises to currency crises, the linkage is not well understood. De Bonis et al. (1999) suggest that sovereign defaults send negative signals to international investors. This results in capital flights when they withdraw their investments, thereby increasing the probability of currency crises.

c. The linkage between banking and debt crises

Recent literature also shows two channels through which a banking crisis can precede a sovereign debt crisis. First, fiscal costs associated with government interventions during a banking crisis can significantly drive up budget deficits and public debts (Balteanu and Erce, 2018; Laeven and Valencia, 2020).[17] If the current level of deficit is high, there will be inadequate fiscal space to finance those interventions. In the case governments sacrifice their creditworthiness for their crisis interventions by issuing additional debts, they are more likely to experience a sovereign debt crisis (Acharya et al., 2014).

Second, a banking crisis might evolve to a debt crisis due to its adverse effects on the economy. Candelon and Palm (2010) and Reinhart and Rogoff (2015) find that tax proceeds tend to be lower during a systemic banking crisis, which deteriorates a countryôs fiscal position. Also, governments will spend more on social securities and measures designed to stimulate demand. These automatic stabiliser mechanisms can substantially drive up budget deficits and public debts. Furthermore, credit crunches which are often observed in times of banking crises can also increase the interest rates and then governmentsô debt burden (Balteanu and Erce, 2018).[18]

On the contrary, a few studies argue that a sovereign debt crisis might precede a banking crisis. In particular, there has been a growing trend that emerging countries are more reliant on debt issued in local markets, especially domestic public debts (Reinhart and Rogoff, 2011, 2014). Sovereign defaults will, in turn, influence domestic banks first as they hold a significant share of government bonds. This is in line with Balteanu and Erce (2018) who find that the consequences of sovereign defaults on the banking system are more severe in times of financial

[17] Government debt burdens could be more severe than the level that the public can be aware of because governments often pour out them of the woodwork (Reinhart and Rogoff, 2011). Most of these ñhidden debtsò are undocumented domestic public debt.

[18] A credit crunch is associated with the deterioration of the bankôs assets because banks must reduce the size of loan portfolios due to the increased capital losses and loan loss provisions or due to the stricter lending regulations.

repression.[19] In that sense, banks are forced to hold more government bonds, leading to a higher likelihood of bankruptcy.[20] This is because they cannot escape the captive market, where governments impose capital controls and raise more reserve requirements (Reinhart and Sbrancia, 2015).[21]

2.3. Financial crisis identification

Based on the review of the definitions of different types of financial crises presented above, this section provides details for the methods employed to identify financial crises in this study.

2.3.1. Systemic banking crisis identification

This study borrows from Laeven and Valencia (2008, 2013, 2020) for the identification of systemic banking crises. Existing studies also rely on this database to identify systemic banking crises (see, e.g., Kim et al., 2013; Caprio et al., 2014; Fielding and Rewilak, 2015; Perugini et al., 2016; Francesco and Beniamino, 2017). Chaudron and de Haan (2014) are the first to compare the reliability of different systemic banking crisis databases by examining four banking crisis events: the United States savings and loan crisis during the 1980s, Japanôs banking crisis of the 1990s, Norwayôs banking crisis during the early 1990s, and Turkeyôs crisis during the late 1990s. Based on the data of bank failures and losses, they find that the Laeven and Valenciaôs (2008, 2013) banking crisis database is more accurate than that of Caprio et al. (2005) and Reinhart and Rogoff (2009).

Laeven and Valencia (2020) define a systemic banking crisis as an event that meets two conditions: (1) significant signs of financial distress in the banking system, as reflected by significant bank runs, losses in the banking system, and or bank liquidations; (2) significant

[19] Financial repression refers to measures that governments use to keep the interest rate lower than the inflation rate (negative real interest rate) with the aim to borrow cheaper and hence reduce debt burdens (Reinhart and Sbrancia, 2015).

[20] Reinhart and Sbrancia (2015) estimate the reduction in government debt burden from financial repression measures in 12 advanced and emerging countries from 1945 to 1980 and find that interest expenses saved from the negative real interest rate is around 1 to 5% of GDP.

[21] Raising reserve requirements and imposing capital restrictions to limit transfers of assets abroad are also measures of financial repression.

government policy interventions in response to significant losses in the banking sector. However, as highlighted by the authors, it is not always straightforward to measure financial distress in a timely and precise manner. This is because financial losses can be significantly reduced and addressed by effectively crisis mitigation policies. Moreover, capturing financial distress by examining bank balance sheets could have some delay in low- and middle-income countries (Laeven and Valencia, 2013). To address these issues, Laeven and Valencia (2020) provide six policy interventions that cover all responses of a government to a banking crisis. They argue that financial distress turns into a systemic banking crisis when at least three out of six policy interventions are significant. Specific details of significant policy interventions are provided in Table A2.1 in Appendix A2.

2.3.2. Currency crisis identification

Following Frankel and Rose (1996), this study identifies currency crises based on the depreciation of the domestic currency against the US dollar. The authors identify a currency crisis when the nominal dollar depreciation of a currency vis a vis US dollar at least 25% in a year. As mentioned in Section 2, a country experiencing a sharp currency depreciation tends to have a high level of inflation, which leads to higher expectations of depreciation. The authors avoid counting depreciation as an independent crisis by requiring that the change in the exchange rate must be greater than the previous yearôs change by at least 10 percentage points. In addition, to avoid counting the same currency crisis, they allow for three-year ówindowò around the first date of a currency crisis.

Using this definition, Laeven and Valencia (2008, 2013, 2020) adjust the threshold of 25 to 30%. Note that the higher the thresholds, the lower the number of currency crises identified. In addition, they allow for a five-year window for episodes that meet the two conditions for several continuous years to reduce the likelihood of counting the same crises. This longer

exemption window will reduce the number of currency crises in comparison with the three-year window used in the study of Frankel and Rose (1996).

This thesis also follows Laeven and Valencia (2008, 2013, 2020) and uses five-year windows to avoid counting the same currency crises. However, as they use the end-of-period exchange rates, a number of currency crises that end before the last date of the crisis year will be ignored. This thesis resolves this issue by using the average exchange rate, consistent with Eichengreen et al. (1996) and Frankel and Rose (1996). However, the average exchange rate could identify currency crises too late. As using the end-of-period exchange rate can resolve this problem, one year before crisis episodes will be added if Laeven and Valencia (2020) identify them as crisis episodes. Several currency reforms that are identified as currency crises will be removed, such as Burundi (1965), Vietnam (1985), Guinea (1986), and China (1994).

2.3.3 Sovereign debt crisis identification

The existing literature identifies sovereign debt crises when governments fail to meet their principals or interest payments on the due date and when they postpone their obligations by rescheduling debts with less favourable terms (De Bonis et al., 1999; Detragiache and Spilimbergo, 2001; Reinhart and Rogoff, 2014). However, due to the lack of data on worldwide sovereign defaults, existing studies face three main problems.

First, most studies have examined sovereign debt crises in a few countries or a group of limited countries. Second, some studies only focus on only external debt crises. This, however, is a problem as there is a growing trend that emerging market governments are more reliant on debts denominated in domestic currency (Reinhart and Rogoff, 2014). This means that examining only external debts can largely ignore many domestic debt crises, which explains why many sovereign debt crises are unnoticed. For example, Balteanu and Erce (2018) only examine external defaults from private and official creditors. Third, most studies rely on a few sources of sovereign defaults, which undermine the real size of sovereign defaults and hence

provide false identifications of sovereign debt crises. For example, the Laeven and Valenciaôs (2020) sovereign debt crisis database contains defaults from private creditors and ignores those from official creditors.

These problems emphasise the importance of having sufficient worldwide data on sovereign defaults of both domestic and external sectors for all types of creditors.[22] This study resolves these problems by using the Bank of Canadaôs Credit Rating Assessment Groupôs (CRAG) sovereign defaults database published by the Bank of Canada and the Bank of England. The database provides detailed sovereign defaults of all creditor types, including the values of debt rescheduling and/or restructuring on a global basis from 1960 to 2017. This is the first database of sovereign defaults that contains different types of creditors and fills this information gap of sovereign defaults in the literature (Beers and Mavalwalla, 2018).

This thesis identifies a sovereign default when a country either: (i) fails to pay its interests and/or principal obligations by the due date or (ii) postpones its obligations by rescheduling or restructuring debts with less favourable terms than the original ones. This is consistent with the definitions of De Bonis et al. (1999), Detragiache and Spilimbergo (2001), Standard & Poorôs (2007), Reinhart and Rogoff (2014), and Balteanu and Erce (2018).

However, the CRAG database shows a lot of sovereign defaults which are too small to be considered as sovereign debt crises. For this reason, this study follows Balteanu and Erce (2018) to use the threshold of 1% of GDP for at least three consecutive years to remove defaults that are negligible. To detect any missing crisis episodes, this study compares the results with the sovereign debt crisis database by Laeven and Valencia (2020)[23] and finds several sovereign debt crises that occurred in less than three years. This means that the proposed condition will

[22] CRAG database reports sovereign defaults from the following types of creditors: International Monetary Fund, International Bank for Reconstruction and Development (a part of the World Bank Group), Paris Club, other official creditors, private creditors, foreign currency bank loans, foreign currency bonds, and local currency debt.
[23] The reason for choosing the database of Laeven and Valencia (2020) is because this study examines the same period: 1970-2017. The authors collect information about sovereign debt crises from existing studies, IMF Staff reports, credit rating agency reports and the media.

miss some crises occurred in a short period of time, such as Belize (2012-2013), Greece (2012-2013), St. Kitts and Nevis (2011-2012), and Uruguay (1990-1991; 2003). This study recognises that those missing crises appeared to be more intense than countries experiencing sovereign defaults in more than three consecutive years. The lowest degree of default is 7% of GDP. Thus, in order to include serious debt crises like Greece that would otherwise have been excluded, this study applies the second condition that sovereign defaults exceeding 7% of GDP in less than three consecutive years are considered as debt crises.

Therefore, this study defines sovereign debt crises as episodes when either of the two following conditions holds: (1) total sovereign defaults exceed 1% of GDP in at least three consecutive years, and (2) total sovereign defaults exceed 7% of GDP. The first year in which either of these conditions met is the start year of a sovereign debt crisis. In contrast, a debt crisis ends when total sovereign defaults, including debt restructuring or rescheduling as a share of GDP, are smaller than 1% of GDP.

2.3.4. Twin and triple crisis identification

While it is accepted that a twin crisis is defined as a simultaneous occurrence of banking, currency, and/or sovereign debt crisis, existing studies use different lengths of the time window to identify simultaneous episodes. The literature shows that the lengths vary from one year (Laeven and Valencia, 2008, 2013, 2020), two years (Kaminsky and Reinhart, 1999), to three years (Balteanu and Erce, 2018).

Using the definition of twin and triple crises by Laeven and Valencia (2008, 2013, 2020), this study defines a twin crisis in year t when a banking crisis in year t is preceded or followed by a currency or sovereign debt crisis within [t-1, t+1]. The definition clearly shows how a banking crisis is followed by, coincided with or preceded by a currency (sovereign debt) crisis. Similarly, a triple crisis is identified when a banking crisis in year t follows or precedes a currency crisis during the period [t-1, t+1], and a sovereign debt crisis during the period [t-1,

t+1]. Using the same approach, currency and sovereign debt crises are set at time t to identify twin and triple crises.

One-year length is chosen because contagion effects can spread rapidly. For example, investigating the linkages between currency and debt crises, Dreher et al. (2006) find that any investors are sensitive to macroeconomic conditions. Investors withdraw their investments as soon as they realise that economic conditions are worsening and will not wait for several years.

2.4. The frequency of financial crises

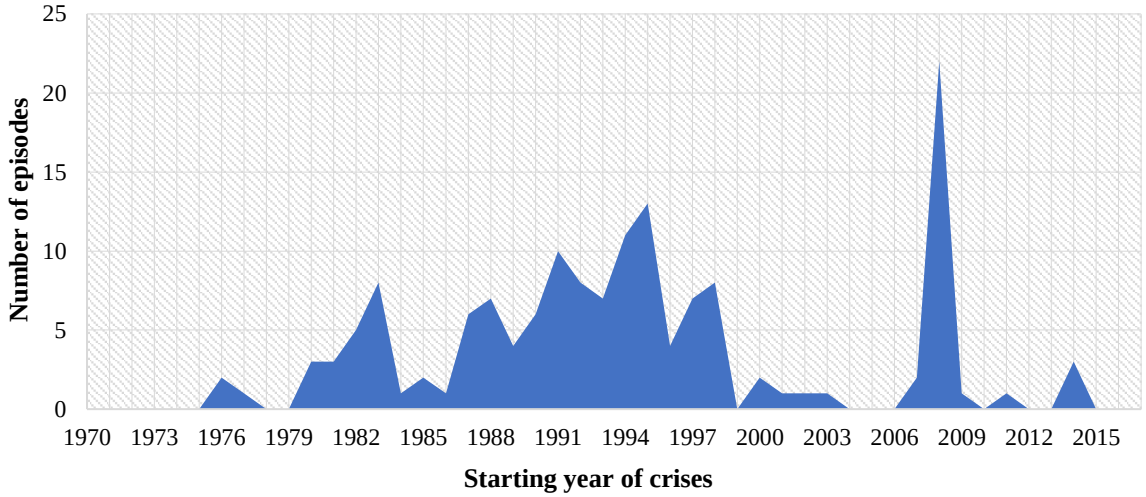
Using the definitions for different types of financial crises discussed above, this subsection analyses the frequency of each type of financial crisis. Tables A2.2 and A2.3 in Appendix A2 provide details on the timing and the numbers of financial crises by year.

a. Banking crises episodes during the period 1970-2017

The systemic banking crisis database provided by Laeven and Valencia (2020) includes 151 banking crises over the period 1970-2017 in 201 countries. As highlighted by the authors, there are only four banking crises that occurred after 2010: Cyprus (2011), Guinea Bissau (2014), Moldova (2014), and Ukraine (2014). More than half of the examined countries experienced at least one systemic banking crisis during the period 1970-2017. Twenty-nine countries of which had more than one banking crisis, while only three countries experienced more than two banking crises over this period: Argentina, the Democratic Republic of Congo, and Ukraine.

Figure 2.2 shows the frequency of systemic banking crises from 1970 to 2017. It can be seen that banking crises tend to come in waves. The first wave arose during the period between 1982 and 1983. This could be explained by the influence of the Latin American crisis. A few years later, the second wave took place from the mid-1980s to the late 1990s, indicating the adverse effects of the breakup of Soviet Union, the Mexico peso crisis, and the Asian financial crisis. The third wave came in the period 2007-2008 due to the influence of the recent Great Recession. The period also witnessed the highest number of systemic banking crises (22).

Figure 2.1. Banking crises episodes (1970-2017)



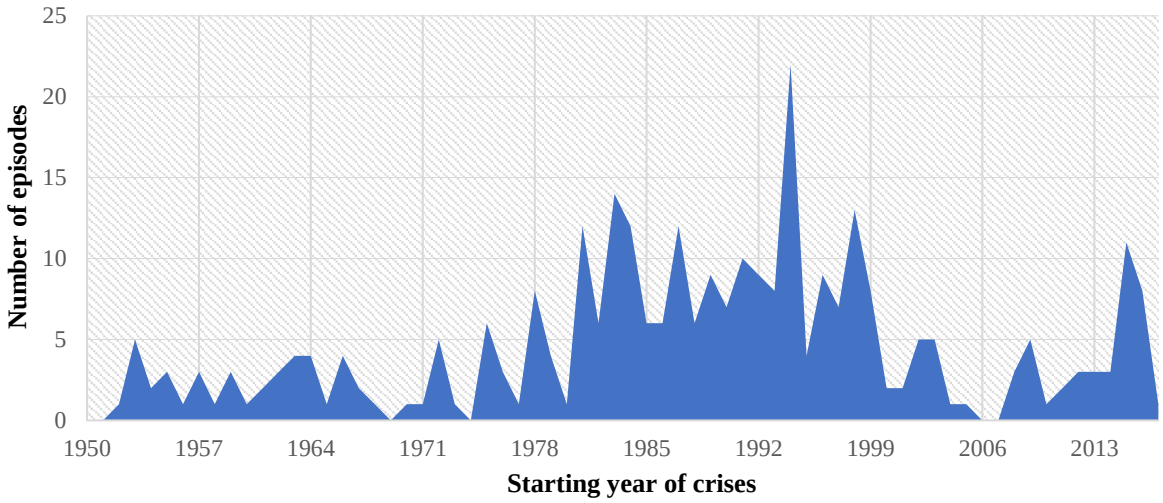
Source: Laeven and Valencia (2020)

b. Currency crises episodes during the period 1950-2017

Based on the definition described above, this study identifies 307 currency crises in a sample of 206 countries over the period 1950-2017. There are 85 out of 206 countries that did not experience any currency crisis. This means that most countries experienced at least one currency crisis during this period. Moreover, 66 countries are reported to have more than one currency crisis, which makes up around 55% of countries that experienced a currency crisis. Brazil and the Democratic Republic of Congo are two countries that have the highest number of currency crises (10).

Figure 2.2 shows the frequency of currency crises from 1950 to 2017. They mainly occurred from the early 1980s to the late 1990s. There are 23 currency crises that started in 1994; this is the year that witnessed the highest number of currency crises. Some widely known currency crises in 1994 are the Mexican peso and the Turkish Lira crises. Nevertheless, currency crises were less frequent in the 2000s despite the influence of the Dot-com bubble (2000-2002) and the recent Great Recession of 2007/08. However, the wave of currency crises had emerged again during the period 2015-2016 in developing countries such as in Egypt, Venezuela, Nigeria, or Kazakhstan. It could be triggered by the currency depreciation of many commodity-exporter countries in 2015 (Kohlscheen et al., 2017).

Figure 2.2. Currency crises episodes (1950-2017)



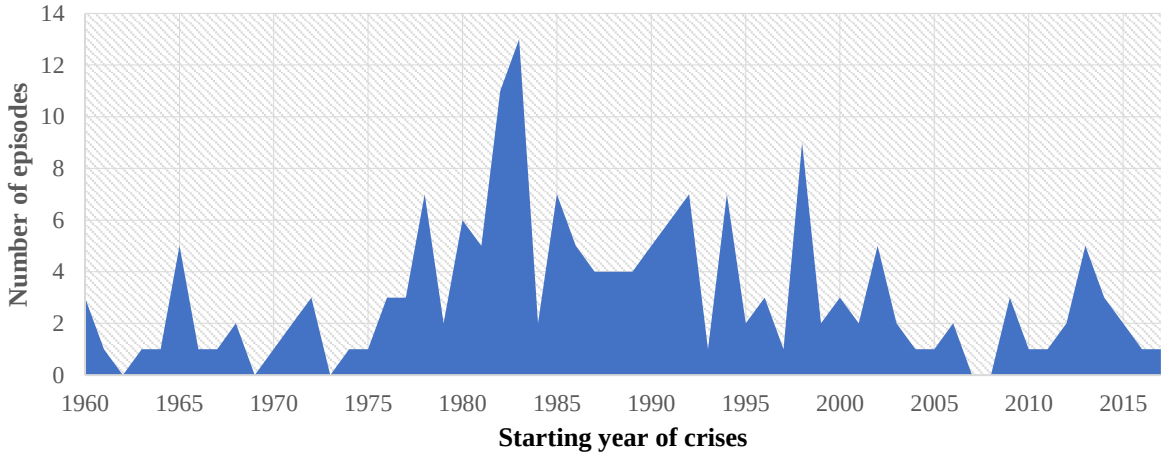
Source: Author's calculations

c. Sovereign debt crises episodes during 1960-2017

Using the CRAG database, this study identifies 177 sovereign debt crises in 203 countries over the period 1960-2017. More specifically, there are 120 countries experiencing single sovereign debt crises, and 39 countries of which had multiple debt crises. Note that many countries experienced a single long-lasting debt crisis such as Cuba (1982-2016), C¹ te dôIvoire (1983-2013) or Guinea (1986-2016).

Figure 2.3 illustrates the frequency of sovereign debt crises from 1960 to 2017. Similar to currency and banking crises, debt crises also come in waves. The most noticeable one occurred from the late 1970s to the late 1990s. The year that witnessed the highest number of sovereign debt crises is 1983, which can be explained by the influence of a series of debt crises in Latin American such as Brazil, Argentina, and Mexico.

Figure 2.3. Sovereign debt crises episodes (1960-2017)

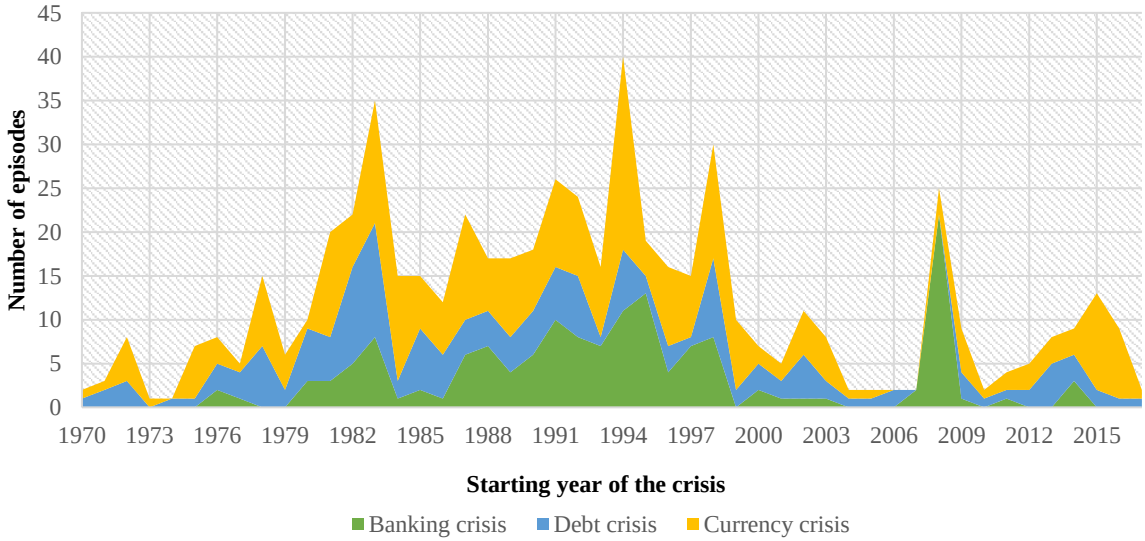


Source: Author's calculations

d. Financial crises sequencing

To provide a complete picture of different types of financial crises, Figure 2.4 shows the frequency of banking, currency, and debt crises over the period 1970-2017. Currency crises are generally more frequent than the other types of crises.

Figure 2.4. Financial crises by type (1970-2017)



Sources: Laeven and Valencia (2020) and author's calculations.

As financial crises tend to come in similar waves, this implies that a financial crisis may evolve into another form. This means that we need to pay a special attention to twin and triple crises. Figure 2.5 shows the number of single-event and twin and triple crises from 1970 to

2017.[24] In particular, this study identifies 197 single currency, 120 sovereign debt, and 95 systemic banking crises. In addition, there are 67 twin crises and 15 triple crises. The numbers of twin and triple crises are slightly higher than those identified by Laeven and Valencia (2020) with 53 twin crises and 11 triple crises. This is because our currency and debt crises definitions allow identifying more crises episodes. It is clear in Figure 2.5 that currency crises tend to coincide with systemic banking crises or sovereign debt crises. In contrast, systemic banking crises rarely coincide with debt crises, consistent with the findings of Laeven and Valencia (2020).

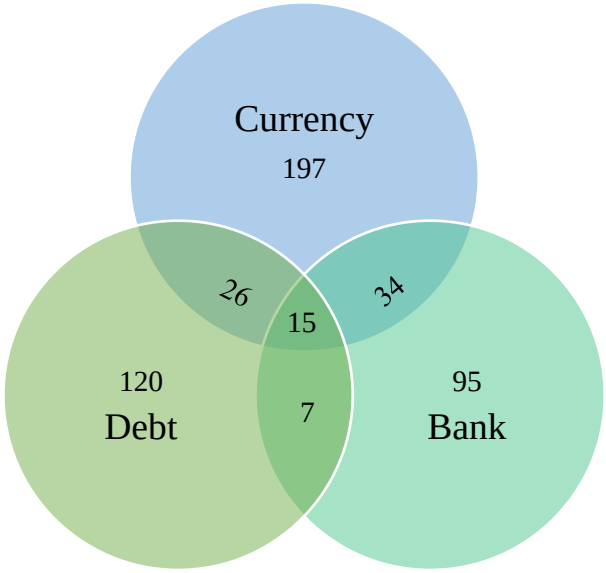


Figure 2.5. Financial crises sequencing (1970-2017)
Source: Authorôs calculations

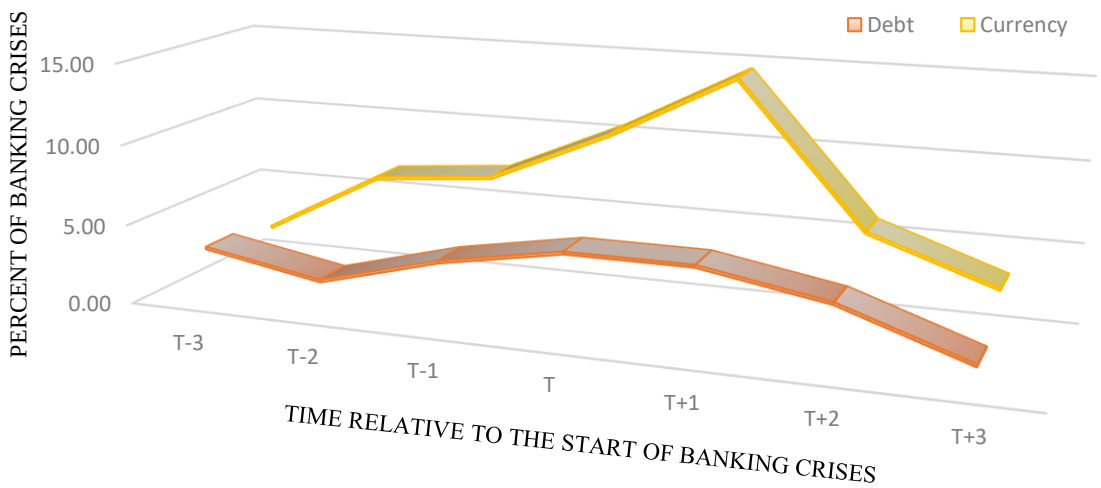
While Figure 2.5 shows the numbers of twin and triple crises, it is critical to determine how a banking, currency or debt crisis is preceded and/or followed by another type of crisis. For this reason, Figure 2.6 provides more details for the percentage of banking crises that were followed by, coincided with and preceded by currency and sovereign debt crises. It is worth stressing that despite the different definitions of financial crises, the results of crisis sequencing are consistent with those of Kaminsky and Reinhart (1999), Komulainen and Lukkarila (2003),

[24] The period is chosen to avoid missing observations of twin and triple crises.

Reinhart and Rogoff (2011) and Laeven and Valencia (2020). That is, banking crises tend to coincide with or precede currency crises and sovereign debt crises within one year.

Looking at the percentage of currency crises to banking crises, around 10% of banking crises coincided with currency crises. In particular, more than 5% of banking crises were followed by currency crises within a year, while around 15% of banking crises preceded currency crises within the same time interval. Furthermore, systemic banking crises tend to precede or coincide with debt crises. For example, around 5% of banking crises occurred at the same time or preceded sovereign debt crises. These trends are consistent with the conclusions of Laeven and Valencia (2020). The percentages of currency crises to banking crises or banking crises to debt crises are much smaller in the second (T+2) and the third year (T+3), justifying the choice of one-year interval for the definitions of twin and triple crises.

Figure 2.6. The percentage of banking relative to currency and debt crises (1970-2017)



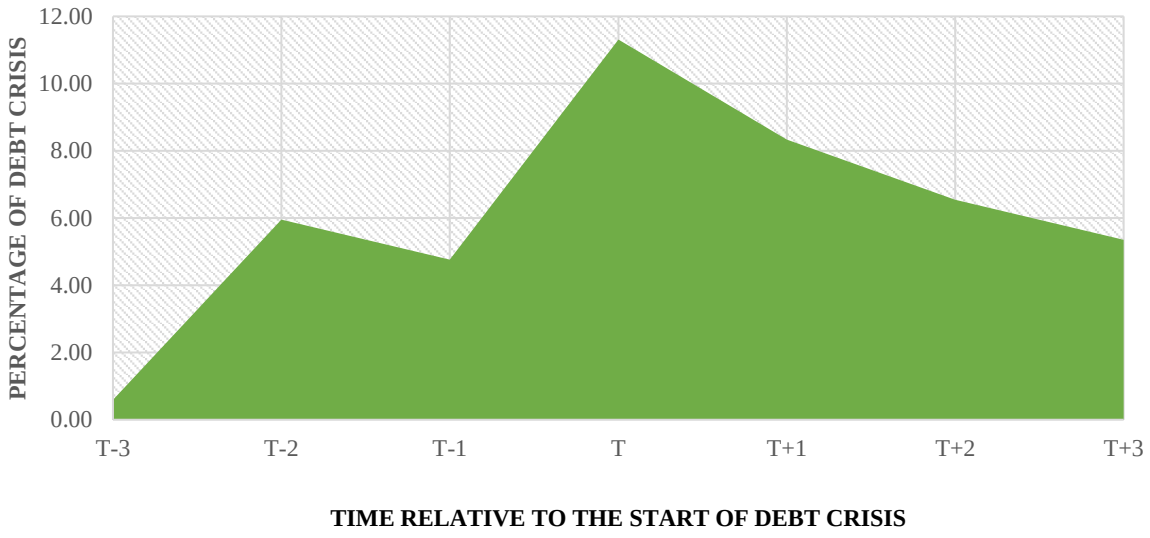
Sources: Laeven and Valencia (2020) and author's calculations. *Notes:* The figure shows the percentages of currency and sovereign dent crises to systemic banking crises to illustrate how banking crises were followed, coincided or preceded by sovereign or currency crises. T indicates the start year of the banking crisis. See Table A3.4 for data of financial crisis sequencing (1970-2017).

Regarding the linkages between sovereign debt and currency crises, Figure 2.7 shows the percentage of currency to debt crises from 1970 to 2017. It is obvious that debt crises tend to

coincide and precede currency crises. Particularly, more than 11% of debt crises coincided with currency crises, and around 8% of debt crises preceded currency crises.

In general, most financial crises are not single events. Instead, they tend to coincide and/or precede each other. In addition, systemic banking and sovereign debt crises tend to precede currency crises. It is also frequent that debt crises are followed by systemic banking crises. For this reason, unlike previous studies that examine only single crises in the literature, this thesis accounts for both single and twin and triple crises.

Figure 2.7. The sequencing of debt crises relative to currency crises (1970-2017)



Source: Authorôs calculations. *Notes*: The figure shows the percentages of currency crises to sovereign debt crises, showing how debt crises were followed, coincided or preceded by currency crises. T indicates the start year of the debt crisis. See Table A2.4 for data of financial crisis sequencing.

2.5. Conclusion

This chapter provides an overview of how different types of financial crises are defined and identified. However, the methods employed to identify currency and sovereign debt crises in existing studies reveal several drawbacks. For this reason, we develop new approaches, which we regard preferable in many respects, to identify them. The contribution of this chapter to the existing literature is twofold. On the conceptual side, besides providing a thorough review and discussion of financial crises identifications, it provides an organised view of the channels

through which one type of financial crisis can evolve into different forms. On the empirical side, it empirically shows a broad view of the rising of different types of financial crises over the last five decades. As far as we are concerned, this study is the first to provide such a complete database of financial crises over a long period of time.

APPENDIX A2

Table A2.1. Significant policy intervention by Laeven and Valencia (2013)

1	*Deposit freeze and bank holidays*: determine whether a government imposes restrictions on deposit withdrawals or installs a bank holiday. In the case that a government use these interventions, the authors observe the duration of deposit freeze and/or bank holidays and which types of deposits are affected.
2	*Significant nationalisations*: the situation that the government takeover major financial institutions or large shares of their capital to protect the financial system.
3	*Significant bank guarantees*: indicate that the government provides guarantees on bank liabilities, which can be full protection on liabilities or only non-deposit liabilities. The authors do not provide a specific threshold on the degree of government guarantees. However, they are significant when the government commitments on bank liabilities are extensive compared to the size of the corresponding economies. Policy interventions that only raise the degree of deposit insurance coverage are not included.
4	*Liquidity support*: indicate the liquidity provided by the central banks, which is measured by the ratio of central bank claims on deposit money bank and liquidity support from the Treasury to total deposits and liabilities to nonresidents. Total deposits are the sum of demand deposits, other deposits, and liabilities to nonresidents. It is significant when the ratio exceeds 5% and more than doubles relative to its level in the previous year.
5	*Bank restructuring costs*: the gross fiscal outlays directed to the restructuring of the financial sector. The authors exclude liquidity support from the Treasury because it is taken into account of liquidity support measure. They suggest that restructuring cost is considered to be significant when it exceeds 3% of GDP. Gross fiscal cost is preferred to net fiscal cost because it shows the intensity of the government intervention.
6	*Asset purchases*: refer to the value of assets purchased by the central bank, the Treasury, or government entity. The intervention is significant when purchased assets exceed 5% of GDP.

Table A2.2. Crises dates by country and type					
Country	***Systemic banking crisis***	***Sovereign debt crisis***	***Currency crisis***	***Twin crisis***	***Triple crisis***
Afghanistan, Islamic Republic of		1964-1966;2000-2008;2010-2012;2014-2016	1963		
Albania		1991-2002	1997		
Algeria	1994	1991-1998	1991;1994		1990-1991
Angola	1990-1994	1989-2006	1991-1995;1996-1999;2015-2016		
Anguilla					
Antigua and Barbuda		1985-1986;1996-2011;2014-2016			
Argentina		1982-1993;2001-2016	1967;1975;1981-1985;1987-1989;2002;2013-2014;2016		1980-1982;2001-2003
Armenia, Republic of	1980-1982;1989-1991;1995;2001-2003	1993-1998		1993-1994	
Aruba	1994				
Australia					
Austria					
Azerbaijan, Republic of	2008-2012		1994;2015-2016	1994-1995	
Bahamas, The	1995				
Bahrain, Kingdom of					
Bangladesh			1975-1976		
Barbados	1987				
Belarus		1994-1996	1997-1999;2009;2011;2015	1994-1995	
Belgium	1995				
Belize	2008-2012	1992-1994;2006-2008;2012-2013			
Benin		1965-1981;1983-2006	1994		
Bermuda	1988-1992				
Bhutan		1991-1993	1966		
Bolivia		1960-1969;1980-2007	1953;1956;1973;1981-1985	1980-1985	
Bosnia and Herzegovina	1986;1994	1994-2000			
Botswana	1992-1996		1984-1985		
Brazil		1983-1994	1953;1958;1961;1964;1976-1980;1982-1985;1987-1990;1992-1993;1999;2015	1982-1985	
Brunei Darussalam	1990-1993;1994-1998				
Bulgaria		1990-1999	1994;1996-1997	1996-1997	
Burkina Faso	1996-1997	1986-2006	1994		
Burundi	1990-1994	1989-2011			
Cabo Verde	1994-1998	1985-2003			
Cambodia	1993	1971-2017	1971-1972;1992-1993	1971-1972	
Cameroon		1985-2007	1994	1994-1995	
Canada	1987-1991;1995-1997				
Cayman Islands					
Central African Republic		1972-1985;1987-2016	1994	1994-1995	
Chad	1976;1995-1996	1974-2004;2014-2015	1994		
Channel Islands	1983;1992-1996				
Chile		1972-1975;1983-1990	1955-1956;1963;1972-1974;1982-1985	1972-1974	1981-1985
China, P.R.: Mainland	1976;1981-1985				
China, P.R.: Hong Kong	1998				
China, P.R.: Macao					
China, P.R.: Taiwan					
Colombia			1957-1958;1963;1985;2015		

Comoros	1982;1998-2000	1984-2013	1994		
Congo, Democratic Republic of		1960-1965;1976-2011	1964;1967;1976;1979;1983-1984;1987-1991;1992-1996;1999-2001;2009;2016-2017	1976;1983;1991-1993	
Congo, Republic of	1983;1991-1993;1994-1998	1971-1979;1982-2016	1994		
Costa Rica	1992-1994	1981-1996	1981;1991	1981	
Côte d'Ivoire	1987-1991;1994-1995	1983-2013	1994		
Croatia	1988-1992	1992-1996			
Cuba	1998-1999	1982-2016			
Curaçao					
Curaçao and Sint Maarten					
Cyprus		2013			
Czech Republic	2011-2015				
Denmark	1996-2000				
Djibouti	2008-2009	1992-2010;2013-2016		1991-1995	
Dominica	1991-1995	2002-2016			
Dominican Republic		1961-1964;1966-1969;1982-1999;2005	1985;1987-1988;1990-1991;2003	2003	
Ecuador	2003-2004	1982-2000;2009	1982-1983;1986-1988;1992;1998-1999	1998-1999	1982-1983
Egypt	1982-1986;1998-2002	1965-1970;1977-1994	1979;1990-1991;2003;2016-2017	1979-1980	
El Salvador	1980	1981-1993;2017	1986;1990	1989-1990	
Equatorial Guinea	1989-1990	1981-2002	1994		
Eritrea	1983	2002-2016	1992-1993	1992-1993	
Estonia	1993				
Ethiopia	1992-1994	1990-2011	1992-1993		
Faroe Islands					
Fiji			1998		
Finland			1993		
France	1991-1995				
French Polynesia	2008-2009				
Gabon		1986-2008	1994		
Gambia, The		1982-1989;2001-2015	1984-1986;2003		
Georgia		1994-2006	1999		
Germany	1991-1995				
Ghana	2008-2009	1965-1979;1982;1987-1996;1998-2006	1978;1983-1986;1993;1996;2000;2009;2014		1982-1983
Gibraltar	1982-1983				
Greece		1960-1965;2012-2013	1953;1981;1983		
Grenada	2008-2012	1983-2016			
Guatemala		1986-2006	1986;1990	1986	
Guinea		1986-2016	2005	1985-1986	
Guinea-Bissau	1985;1993	1979-2016	1994	1994-1995	
Guyana	1995-1998;2014-2017	1976-2016	1987;1989-1991		
Haiti	1993	1991-1995;2009-2011	1992;2003	1991-1992	
Honduras	1994-1998	1982-2007	1990		
Hungary					
Iceland	1991-1995;2008-2012		1960;1968;1975;1978-1982;1983;1989;2008	2008	
India	2008-2012		1966		
Indonesia	1993	1967-1970;1998-2002	1979;1983;1998		1997-1998
Iran, Islamic Republic of	1997-2001	1987-1996	1957;1993;2013		
Iraq		1988-2017			
Ireland		2013			

Israel	2008-2012		1953;1962;1975;1978-1982;1983-1985	1983-1985	
Italy	1983-1986		1981		
Jamaica	2008-2009	1978-2013	1978;1983-1984;1991-1992;1994	1978	
Japan	1996-1998				
Jordan	1997-2001	1988-2008	1989		1988-1989
Kazakhstan	1989-1991		1999;2015-2016		
Kenya	2008	1989-1994;1998-2002;2004-2007	1993	1992-1993	
Kiribati	1985;1992-1994				
Korea, Republic of			1953;1955;1961;1964;1998	1997-1998	
Kosovo, Republic of	1997-1998				
Kuwait					
Kyrgyz Republic	1982-1985	1994-2005	1997-1999	1994-1999	
Lao People's Democratic Republic	1995-1999	1991;2003	1959;1964;1972;1978;1981;1985-1988;1997-1998		
Latvia					
Lebanon	1995-1996;2008-2012	1985-1992	1984-1987;1990-1992	1984-1987;1990-1992;	
Lesotho	1990-1993		1984-1985		
Liberia		1963;1968-1969;1980-2016			
Libya	1991-1995		2002		
Liechtenstein					
Lithuania					
Luxembourg	1995-1996				
Macedonia, FYR	2008-2012	1992-1997		1992-1995	
Madagascar	1993-1995	1980-2016	1984;1987;1994;2004	1987-1988	
Malawi	1988	1983;1987-1990;1998-2007	1994;1998;2012;2016	1998	
Malaysia			1998	1997-1998	
Maldives	1997-1999		1975		
Mali		1970-1980;1983-2007	1994		
Malta	1987-1991				
Marshall Islands, Republic of					
Mauritania		1978-2016	1993		
Mauritius	1984				
Mexico		1982-1990	1954;1977;1982-1986;1995	1994-1995	1981-1985
Micronesia, Federated States of	1981-1985;1994-1996				
Moldova		1996;1998-2008	1999;2015	1998-1999;2014-2015;	
Monaco	2014-2017				
Mongolia		1997-2004	1993;1997	1997	
Montenegro	2008-2009				
Montserrat					
Morocco		1983-1992;1999-2002	1981	1980-1981	
Mozambique	1980-1984	1980;1984-2016	1987;1991-1992;2001;2015-2016	1987	
Myanmar	1987-1991	2000-2016	1975;2012		
Namibia			1984-1985		
Nauru		1994-2017			
Nepal					
Netherlands	1988				
Netherlands Antilles	2008-2009				
New Caledonia			1959		

New Zealand					
Nicaragua		1978-2016	1979;1985;1988	1978-1979	
Niger	1990-1993;2000-2001	1983-2016	1994	1983-1985	
Nigeria	1983-1985	1982-2006	1986-1987;1989;1992;1999;2016	1991-1992	
Norway	1991-1995;2009-2012				
Oman	1991-1993				
Pakistan		1972-1978;1998-2001	1972	1972	
Palau					
Panama		1983-2003			
Papua New Guinea	1988-1989		1998		
Paraguay		1985-1994;2002-2004	1952-1953;1955-1956;1984;1987;1989;2002	1984-1985;2002;	
Peru	1995	1968-1970;1978-1980;1983-1998	1976-1978;1981-1985;1988-1990	1983	
Philippines	1983	1983-1992	1962;1970;1983-1984;1998	1997-1998	1983-1984
Poland	1983-1986;1997-2001	1981-1994	1978-1979;1982;1987-1990	1981-1982	
Portugal	1992-1994	2013	1983		
Puerto Rico	2008-2012	2016			
Qatar					
Romania			1990-1992;1996-1997;1999	1998-1999	
Russian Federation	1998-1999	1991-2004	1998-1999;2014-2015	1998	
Rwanda	1998;2008-2009	1992-2007	1966;1991;1995	1991-1992	
Samoa		1982-1985			
San Marino			1981		
São Tomé and Príncipe		1985-2016	1987-1988;1991-1995;1996-1997	1991-1992	
Saudi Arabia	1992				
Senegal		1981-1987;1989-1996;1998;2006-2007	1994	1988-1991	
Serbia, Republic of	1988-1991	1995-2006	2000		
Seychelles		1986-2013	2008		
Sierra Leone		1976-2016	1983-1986;1989-1990;1998	1989-1990	
Singapore	1990-1994				
Sint Maarten					
Slovak Republic					
Slovenia	1998-2002	1992-1996		1992	
Solomon Islands	1992;2008-2012	1995-2011			
Somalia		2013-2016	1982;1985-1989		
South Africa		1985-1987	1984-1985	1984-1985	
South Sudan		2015-2016	2015-2016	2015-2016	
Spain			1983		
Sri Lanka	1977-1981;2008-2012	1996-2002	1978		
St. Kitts and Nevis	1989-1991	2011-2012			
St. Lucia					
St. Vincent and the Grenadines		2002-2005			
Sudan		1977-2016	1981-1982;1985;1988;1991-1995;1996;2012		
Suriname		1998-2010	1994-1995;1999-2001;2016	1998-2001	
Swaziland		2009-2016	1984-1985		
Sweden	1995-1999		1993		
Switzerland	1991-1995;2008-2009				
Syrian Arab Republic	2008-2009	1990-2001	1954;1988;2011-2015;2016		
Tajikistan		1994-2006	1995-1999;2015	1994-1999	
Tanzania		1980-2016	1984-1986;1992		

Thailand	1987-1988		1997-1998	1997-1998	
Timor-Leste, Dem. Rep. of	1983;1997-2000				
Togo		1977-2012	1994	1993-1994	
Tonga	1993-1994	2002-2004			
Trinidad and Tobago		1988-1990	1986		
Tunisia					
Turkey	1991	1978-1980;1999	1959;1978-1980;1984;1988;1991-1995;1996-2000;2001	1978-1980	1999-2001
Turkmenistan	1982-1984;2000-2001	1994-2002	1996		
Tuvalu					
Uganda		1978-2006	1980-1984;1986-1988		
Ukraine	1994	1998-2001;2015-2017	1998-1999;2009;2014-2015	2008-2009	1998-1999;2014-2015
United Arab Emirates	1998-1999;2008-2010;2014-2017				
United Kingdom					
United States	2007-2011				
Uruguay	1988;2007-2011	1965;1983-1986;1988;1990-1991;2003	1957;1963;1965-1968;1972-1975;1983-1985;1988-1990;2002	1983-1985;1988;	2002-2003
Uzbekistan	1981-1985;2002-2005		1997-2000;2017		
Vanuatu					
Venezuela, Republica Bolivariana de		1983-1990;1992-1994	1984;1987;1989;1993-1996;2002;2010-2011;2013;2016	1983-1984	1992-1994
Vietnam	1994-1998	1975;1978;1980-2005	1962;1966;1972;1981;1987-1988	1980-1981	
Virgin Islands (U.S.)	1997				
Yemen, Republic of		1990-2010	1995	1995-1996	
Yugoslavia, SFR	1996		1952; 1981-1985;1987-1989		
Zambia		1979-2016	1983-1986;1989-1992;1996;1998;2009;2015	1995-1996	
Zimbabwe	1995-1998	1965-1980;2000-2016	1983;1991;1998;2003-2007;2008		

Table A2.3. The number of financial crises by year

Year	Banking	Debt	Currency	Twin	Triple
1950					
1951					
1952			1		
1953			5		
1954			2		
1955			3		
1956			1		
1957			3		
1958			1		
1959			3		
1960		3	1		
1961		1	2		
1962			3		
1963		1	4		
1964		1	4		
1965		5	1		
1966		1	4		
1967		1	2		
1968		2	1		
1969					
1970		1	1		
1971		2	1	1	
1972		3	5	2	
1973			1		
1974		1			
1975		1	6		
1976	2	3	3	1	
1977	1	3	1		
1978		7	8	3	
1979		2	4	1	
1980	3	6	1	3	1
1981	3	5	12	2	2
1982	5	11	6	1	2
1983	8	13	14	6	1
1984	1	2	12	3	
1985	2	7	6	1	
1986	1	5	6	1	
1987	6	4	12	2	
1988	7	4	6	2	1
1989	4	4	9	2	
1990	6	5	7	1	1
1991	10	6	10	6	
1992	8	7	9	4	1
1993	7	1	8	2	
1994	11	7	22	8	
1995	13	2	4	2	
1996	4	3	9	1	
1997	7	1	7	5	1
1998	8	9	13	6	1
1999		2	8		1
2000	2	3	2		
2001	1	2	2		1
2002	1	5	5	1	1
2003	1	2	5	1	
2004		1	1		
2005		1	1		

2006		2			
2007	2				
2008	22		3	2	
2009	1	3	5		
2010		1	1		
2011	1	1	2		
2012		2	3		
2013		5	3		
2014	3	3	3	1	1
2015		2	11	1	
2016		1	8		
2017		1	1		

Notes: The figure reports the total number of sovereign debt crises (1960-2017), currency crises (1950-2017), systemic banking crises (1970-2017), twin and triple crises (1970-2017) by years. *Source*: Authorôs calculation.

Table A2.4. The sequencing of financial crises (1970-2017)

	C→D	**C→B**	**D→C**	**D→B**	**B→C**	**B→D**	**CD**	**DB**	**BC**
T							19	8	16
T+1	8	11	14	6	22	8			
T+2	10	10	11	3	9	6			
T+3	1	4	9	5	5	2			

Notes: C is currency crisis; D is sovereign debt crisis; B is systemic banking crisis; C→D means currency crises precede sovereign debt crisis. This is the same for C→B, D→C, D→B, B→C, and B→D. CD, DB, and BC refer to the coincidence of currency and debt crises, debt and banking crisis, and banking and currency crises, respectively. T indicates the start year of a financial crisis. *Source*: Authorôs calculation.

CHAPTER 3: POLITICAL ENVIRONMENT AND FINANCIAL CRISES

3.1. Introduction

Research on financial crises has evolved over time with studies on the 1930s Great Depression, the 1994 Tequilla crisis, the 1994-1995 Latin American crisis, the 1997-1998 East Asian crises, and more recently the 2007-2008 global financial crisis. As the worldôs largest economies are more deeply interconnected compared to the 1990s, financial crises with domestic or external origins can rapidly spread across borders with severe consequences. Policymakers have responded to financial crises in different ways and using different instruments, depending on the respective type, magnitude and consequences. Even though such interventions are carefully designed, they tend to be inefficient and costly for government budgets. In view of large costs and consequences associated with financial crises, predicting them is undoubtedly a major concern for both academics and policymakers.

A substantial body of research has explored the immediate causes of financial crises by looking at credit expansions (Perugini et al., 2016), a range of macroeconomic factors (Demirguc-Kunt and Detragiache, 2005; Falcetti and Tudela, 2006), institutional quality (De Bonis et al., 1999) or financial regulations (Barth et al., 2004; Kim et al., 2013; Caprio et al., 2014). However, the role of the political environment in the timing of financial crises remains largely unexplored. Among a few works that take political factors into account, the role of political stability has been the most prominent (see, for example, Shimpalee and Breuer, 2006; Yu, 2016). This study provides a more complete picture of the link between the political environment and financial crises. For that purpose, we examine how the electoral cycle, political ideology, political stability and government support have influenced the likelihood of financial crises over the last four decades.

Previous studies tend to focus only on one type of financial crisis (see, for example, Demirguc-Kunt and Detragiache, 1998; Vaugirard, 2007; Yu, 2016). However, crises have

different specificities that make it possible to distinguish them into different types. Moreover, financial crises tend to be related and come in waves (Laeven and Valencia, 2020). Therefore, it is important to dig deeper into the effects of political factors on different types of financial crises. Motivated by the works of Kim et al. (2013) and Laeven and Valencia (2020), three main types of financial crises are considered: systemic banking, currency, and sovereign debt crises. Kaminsky and Reinhart (1999), Reinhart and Rogoff (2011) and Balteanu and Erce (2018) provide both the theoretical framework and empirical evidence of the linkages among them, leading to the so-called twin and triple crises. Another aim of this study is to distinguish the impact of the political environment on the likelihood of those types of crises. This analysis allows us to uncover the impact of political factors on the prevalence of different types of crises. This is an important contribution to the existing literature on the causes and timing of financial crises.

A fixed-effects logit model is employed to test the impact of the political factors on the likelihood of financial crises as a whole and their different types over a sample of 85 developed and developing countries during the period 1975-2017. This analysis provides some striking findings and helps to uncover the important, but overlooked, role of the political environment on the unfolding and timing of financial crises. In particular, this study shows that: (i) banking and currency crises are more likely to occur within the first year after elections; (ii) the likelihood of currency crises increases with right-wing governments; (iii) the probability of any type of financial crisis is smaller when incumbent chief executives stay in office for longer; and (iv) majority governments significantly reduce the probability of twin and triple crises.

One important conclusion here is that the role of the political environment on the development of financial crises is better understood when the analysis focuses on the individual types of crises rather than treating them all as simply ñfinancial crisesò.

The organisation of this chapter is as follows. Section 2 reviews the relevant literature. The methods to identify financial crises are discussed in Section 3. Section 4 describes the data and econometric methodology. The empirical findings are presented and discussed in Section 5. Section 6 concludes.

3.2. Review of the literature

The existing literature on the causes of financial crises focuses mainly on the imbalances of a wide variety of economic factors that are often accompanied by worsening macroeconomic conditions. More specifically, various research papers attempt to empirically assess whether economic fundamentals predict different types of financial crises. For example, Kaminsky et al. (1998) use 95 economic variables to detect early warning signals of currency crises and find that international reserves, credit growth, domestic inflation, real GDP growth, and fiscal deficits are useful for currency crisis anticipation. In the same vein, Demirguc-Kunt and Detragiache (1998, 2005) find that higher credit growth, interest and inflation rate, and the presence of a deposit insurance scheme increase the likelihood of banking crises. Moreover, investing 50 economic factors in a large sample of countries, Manasse and Roubini (2009) report that sovereign debt crises are less likely to occur in countries with low levels of short-term debts to reserves and external public debts to fiscal revenue.

Despite these efforts, financial crises do occur, and they tend to be unpredictable. If authorities could accurately predict financial crises, governments would have the ability to stop financial imbalances from growing to the points where they turn into financial crises. Even when policymakers can locate the exact causes of a financial crisis, macro-prudential policies tend to be inefficient because of their unpredictable counter-cyclical effects (Goodhart, 2011). This could explain why some countries like Argentina face repeated financial crises.[25] It is

[25] Kiguel (2002), Gallo et al. (2006) and Glaeser et al. (2018) argue that long-lasting recessions and repeated financial crises in Argentina are not attributable to external factors but political reasons. Political factors are the main origins of various inconsistent and inefficient economic policies and reforms in Argentina.

difficult to explain the inefficient preventive policies and the recurrence of such undesirable events without considering the effects of political factors.

This study extends works on financial crises by considering the role of the political environment. This is an important dimension that has been overlooked by the existing literature. Political factors such as electoral cycle, political ideology, government stability and political support have long been studied as important conditionings in different areas. This paper brings this dimension to the study of financial crises and respective types.

3.2.1. Election agenda and financial crises

The political business cycle literature claims that governments act opportunistically before elections by inducing short-term economic expansions to increase their chances of re-election (Nordhaus, 1975; Rogoff and Sibert, 1988; Rogoff, 1990); this excessive spending is compensated after elections by spending cuts and tax increases that end up cooling down economic growth. This means that after elections, financial crises have better chances to proliferate. This is more pronounced in authoritarian regimes, where the dominant party could aggressively use public resources to buy voters and outspend competitors to make sure that they virtually win elections regardless of higher indebtedness afterwards (Dixit and Londregan, 2000; Greene, 2010).

Election years also come with political uncertainty, which has been a catalyst for financial crises because market participants are uncertain about policy continuity (Vaugirard, 2007). Various studies provide both theoretical arguments and empirical evidence of the adverse effects from electoral uncertainty, such as higher stock return volatility (Bialkowski et al., 2008), financing cost (Kelly et al., 2016), equity price, bond yields (Snowberg et al., 2007), and lower corporate investments (Julio and Yook, 2012; Yonce, 2015; Jens, 2017) and industry sensitivities (Boutchkova et al., 2012).

Another type of uncertainty arising in the year after elections has been attributed to policies implemented by newly elected governments (Pastor and Veronesi, 2012; Burgoon et al., 2012). Extensive reforms are usually implemented during an incumbentôs first year in office, which increases macroeconomic uncertainty and the probability of financial crises (Abiad and Mody, 2005). This is the so-called ñhoneymoon hypothesisò. Alesina et al. (1997), Veiga and Veiga (2004) and Burgoon et al. (2012) confirm this hypothesis and report that new policies tend to be implemented in the immediate aftermath of elections, resulting in the higher risk of policy changes. The risk could be higher when a newly elected government has an opposite political ideology to the previous one. New governments may have more incentive to implement financial reforms to realise their benefits before the next election (Krueger, 1993, p.124). However, it is not always clear whether proposed policy changes or reforms during honeymoon periods are motivated by partisan considerations or by purposes of social welfare (Abiad and Mody, 2005; Pastor and Veronesi, 2012). Based on the discussions above, the first hypothesis is stated as followed:

H1: The probability of financial crises is higher within the first year after elections.

3.2.2. Political ideology and financial crises

Liberal and conservative commentators suggest that financial crises are attributable to the failures of activist policies, government regulations and poor institutions (Bjørnskov, 2016). For example, credit expansion policies with repeated monetary policy failures creating a boom and then a bust in the money market during the period 1920-1929 is the main driver of the Great Depression in 1929 in the US (Persons, 1930; Friedman and Schwartz, 1963). In addition, the improper labour policies of President Hoover that increased the minimum wages above the competitive levels of labour ability further contributed to the deeper and prolonged Great Depression (Ohanian, 2009). The failures of financial liberalisation policy, exchange rate regimes, underregulated financial intermediaries, and unsustainable credit expansion in

Thailand were also the main reasons for the Asian crisis in 1997-1998 (Lauridsen, 1998). Likewise, the US government policies that encouraged homeownership resulted in the strong trend toward low-documentation and then no-documentation loans are among the main causes of the recent Great Recession of 2007/08 (Sowell, 2009).[26]

As government policies are highly influenced by the political ideologies of the incumbents, this leads to the question of whether political ideology can also play a role in the unfolding of financial crises. Governments are heterogeneous in the sense that they are characterised by the left-wing or right-wing governmentsô spectrum of their ideologies. Hence, they tend to be identified as having opposite economic policies (Hibbs, 1977, 1987; Alesina, 1987). While left-wing governments tend to favour higher government spending, stricter market and business regulations and stronger government interventions, right-wing governments are more prone to promote economic freedom, free trade and deregulation (Castro and Martins, 2020), sustainable development (Aidt et al., 2018) and reduction in government spending (Pickering and Rockey 2011, 2013). These different behaviours may also influence the build-up and unfolding of financial crises.

In particular, Bechtel (2009) shows that there are three channels through which right-wing governments promote financial stability and reduce economic policy uncertainty. First, they tend to pursue friendly and reliable investment policies, which benefit high-income individuals and investors. They will try to secure a favourable investment environment by reducing economic policy uncertainty. Second, right-wing governments with favourable policies for the business environment tend to have strong connections with industrial associations and firms. This reduces the cost of information sharing and improves the confidence of market participants about future economic policies, which in turn reduces the systematic capital risk.

[26] Loosening lending standards to homeowners in the US led to the unstainable house price increase. When the housing prices began falling, homeownersô loan balance is higher than the current house price, which means that these loans are ñunderwaterò. Many borrowers decided to give up their loans, triggering the financial crisis in 2008 (Bodie et al., 2014).

Third, right-wing governments appear to have better reactions to exogenous economic shocks. Industrial associations and firms are the first to absorb the side effects of an economic policy (Brauninger and Bernhagen, 2005). By having strong relationships with them, right-wing governments might be better informed about the negative sides of a policy and hence can react more efficiently to economic shocks. For these reasons, financial crises might be less likely during their tenures. Therefore, the second hypothesis is stated as followed:

H2: The probability of financial crises is lower when right-wing governments are in office.

3.2.3. Political stability and financial crises

Political stability is also an important aspect of the political environment to which some attention has been given by Shimpalee and Breuer (2006), Vaugirard (2007) and Aisen and Veiga (2013). The frequent changes in incumbent executives can undermine the overall stability and the efficiency of macro-prudential policies, which might increase the probability of a financial crisis. Thus, the longer the time in office of an incumbent chief executive, the more likely that he carries on with his announced programmes. This reduces the uncertainty regarding future policy changes, which has been proved to be detrimental to various economic and social activities (see, for example, Aisen and Veiga, 2013; Jens, 2017), ending up promoting economic stability.

Moreover, when governments are both unable to pursue their announced programmes and to stay in office, international investors consider this as a signal of a deterioration of the political and institutional environment and therefore greater risk exposure (Dreher et al., 2006). They can respond to such political instability by withdrawing their investments on a large scale, which may result in a panic selling of currency (Shimpalee and Breuer, 2006). Also, Chang (2007) argues that when foreign lenders are pessimistic about a countryôs political stability,

they could significantly increase the interest in debts.[27] This is because investors ask for higher compensation for increased risk-taking due to political instability. In the worse scenario, foreign lenders may refuse to roll over maturing sovereign debts or only accept to provide new debts with prohibitively high interest rates (Vaugirard, 2007). This exacerbates the insolvency position of a country and thereby increasing the likelihood of a sovereign debt crisis. Therefore, the third hypothesis is formulated as follows:

H3: Political instability is associated with a higher probability of financial crises.

3.2.4. Government support and financial crises

Another political factor that potentially determines the probability of financial crises is government support, which measures governmentsô ability to implement necessary and timely macro-prudential policies and reforms against economic shocks (Azzimonti, 2019). However, due to the associated political costs, policymakers could have different views about the costs in comparison with the benefits of those policies or reforms. Such conflicts may result in a policy gridlock and obstruct ruling governments to quickly react to economic shocks. This eventually increases the likelihood of financial crises (Krehbiel, 1998; Bechtel, 2009).

The ability of governments to affect the economic environment and to implement necessary policies can be reflected by the split or the percentage of government seats in the legislature (Redl, 2020). In this regard, minority governments with less than half of seats in the legislature will face more difficulties in adopting preventive policies or reforms because they require the consent of incumbent and opposition parties. In fact, for the purpose of replacing the minority incumbent governments, mainstream opposition parties may choose to further weaken the incumbentsô position rather than to co-operate for the nationôs sake. This is plausible because minority governments often have unstable coalition governments (Leblang and Satyanath,

[27] Chang (2007) defines political instability as the divergence between policymakersô objectives for debt repayment and those of the electorate. In the sense that chief executives are frequently changed, these objectives can be inconsistent.

2006). For example, De Giorgi et al. (2014) examine the behaviour of minority and majority governments in Portugal for austerity measures during pre-crisis periods and find that mainstream opposition parties are more adversarial when they are getting more chances to replace the minority incumbent governments. For this reason, majority governments are more able to implement macro-prudential policies without facing policy gridlock. Hence, the fourth hypothesis can be presented as follows:

H4: Majority governments are associated with lower probability of financial crises.

3.2.5. Macroeconomic control variables

While this study pays a special attention to the political environment, it is vital to account for macroeconomic factors that have been found in the literature to have an impact on the likelihood of financial crises. The choice of these variables is based on three main considerations: (1) theoretical underpinnings; (2) data availability; and (3) findings from existing studies.

Reserves to GDP

Foreign reserves as a share of GDP is an important indicator of currency crises because reserves are used to cope with the increased exchange market pressure. The occurrence of currency crises depends on whether central banks have sufficient large international reserves to defend speculative attacks. Most currency collapses are often preceded by a period of decline in foreign reserves as a reflection of central banksô efforts in defending their exchange rates (Kaminsky et al., 1998). A fall in reserves might not indicate a currency devaluation as central banks can successfully defend speculative attacks. However, if speculators successfully deplete all foreign reserves, central banks will be unable to purchase domestic currency at prevailing prices. In that case, the exchange rate will surge, leading to a currency crisis. Moreover, a decline in reserves may refer not only the central banksô attempts in defending their domestic currencies but also other internal sources of financial instability (Obstfeld et al., 2009). For

instance, international reserves can be used to finance debt repayments. A collapse in reserves may indicate a countryôs financial difficulty in dealing with its debt burden.

Exchange rate regime

The linkages between the exchange rate regime and financial crises relate to speculative attacks in a pegged exchange rate system. The target of currency speculators is to deplete all foreign reserves so that the central banks are unable to purchase domestic currency at the prevailing price (Eichengreen et al., 1996). Speculators gain profits when central banks abandon their pegs and allow the exchange rates to float based on the market demand and supply, which often result in a large depreciation of the domestic currency. In other words, speculators aim to attack currencies in pegged exchange rate systems with low levels of flexibility. Thus, a fixed exchange rate regime may increase macroeconomic uncertainty and directly relate to the probability of currency crises. For example, examining currency crises in 30 countries, Shimpalee and Breuer (2006) find robust evidence that a de factor fixed exchange rate regime increases the probability of currency crises.

Capital account openness

The classic view of Greenwald et al. (1984) and Edwards (1999) suggests that free capital mobility improves the efficiency of the allocation of resources and welfare to the economy. Following up on this argument, imposing controls on capital flows reduce the efficiency of capital allocations and increase macroeconomic disequilibria (Edwards, 1999). For example, a government can tighten controls on capital outflows to preserve domestic savings or allocate capital to specific sectors (Mitchener and Wandschneider, 2015). In this regard, investors are compelled to exchange their foreign assets to domestic assets, leading to a higher degree of inflation (Alesina et al., 1993). Moreover, capital controls can distort trading activities by raising costs to export and import activities (Wei and Zhang, 2007). Likewise, capital controls are often associated with lower saving rates and more constraints for accessing foreign funds,

which result in lower investments and growth (Chamon and Garcia, 2016). For these reasons, maintaining free capital mobility can reduce macroeconomic uncertainty and thereby lowering the probability of financial crises. This is consistent with Batuo et al. (2018) who argue that if an economic system cannot operate efficiently, it will hinder economic growth and amplify financial fragility.

On the contrary, appropriate capital control policies can be effective tools to enhance financial stability (Farhi and Werning, 2014; Devereux and Yu, 2018).[28] In particular, policymakers can adjust capital controls based on the risks associated with the increase in capital inflows or outflows to prevent a currency crisis (Forbes et al., 2015). For example, in response to currency depreciation, a country can tighten controls on capital outflows and loosen those on capital inflows. However, capital controls, in practice, are persistent as they tend to be imposed for a long period of time. Once controls are removed, they are rarely restored (Eichengreen and Rose, 2014). This means that capital controls could not be flexibly used to prevent a financial crisis. In addition, the effectiveness of the strategy remains a question. This could be because investors can find ways to go around the controls and then transfer massive volumes of funds out of a country (Edwards, 1989; Magud et al., 2018).

Credit to private sector growth

Lessons from the 1930ôs Great Depression and the Great Recession of 2007/08 imply that credit booms can be a source of financial crises. In fact, recent studies confirm that credit booms followed by various liberalised and deregulated policies tend to end abruptly and turn into financial crises (see, e.g., Lane and Milesi-Ferretti, 2011; Elekdag and Wu, 2013; Perugini et al., 2016). This is because those policies increase opportunities for excessive risk-taking and

[28] Magud et al. (2018) report four main reasons why capital controls can enhance financial stability. First, a surge in capital inflows creates an appreciation pressure on the domestic currency, which reduces the competitive power of domestic manufactures. Second, a sudden injection of funds into a small economy may expose it to the risk of sudden withdrawal. Third, large capital inflows searching for higher yield can create asset bubbles and encourage excessive risk-taking activities. Fourth, governments may fear the loss from monetary autonomy when the interests of foreign investors and domestic policymakers are conflicting.

fraud (Demirguc-Kunt and Detragiache, 1998). In particular, mismanaged liberalisation induces financial institutions to loosen their lending standards for more credit expansion to the economy. This fuels unsustainable credit booms and asset bubbles, which eventually turn into financial crises (Demirguc-Kunt and Detragiache, 2002, 2005; Kemme and Roy, 2012).

Trade openness

Despite the critical role of trade openness in fostering economic growth, its effects on economic risk remain ambiguous. One the one hand, countries with high levels of trade openness are more fragile to shocks in the international market. More specifically, a decline in aggregate demand caused by global trade shocks may expose small economies, which are highly reliant on international trade, to a higher incidence of a financial crisis (Levchenko et al., 2009). Following up on this argument, Claessens et al. (2010) find that small open countries with extensive trade linkages, especially with crisis-origin countries, would suffer from collapses in the global demand. On the other hand, more open countries may have better risk-sharing opportunities (Wilms et al., 2018). In particular, they may have better positions to service their external debts through export revenues (Detragiache and Spilimbergo, 2001).

Real GDP growth

Real GDP growth is introduced as an explanatory variable because it reflects the overall health of the economy. A faster growth generates more cash flows, attract more investments (Yu, 2016) and reflects higher aggregate demand (Perugini et al., 2016). In addition, a high growth improves investor confidence and expectation on the future economic prospect. Conversely, slow developments in the real side of the economy is a major source of financial instability (Demirguc-Kunt and Detragiache, 1998; Demirguc-Kunt and Detragiache, 2002). In this regard, low real GDP growth is a signal of worsening economic conditions and prospect. Indeed, most empirical studies provide evidence that lower growth is associated with a higher

likelihood of financial crises (see, e.g., Leblang and Satyanath, 2006; Kohlscheen, 2010; Balteanu and Erce, 2018).

Inflation rate

This analysis provided in this chapter also includes inflation as a proxy for macroeconomic uncertainty because the mismanagement of macroeconomic policies can be a source of economic uncertainty and financial crises. There has been evidence that inflation is a predictor for banking crises as it is a signal of credit booms created by mismanaged monetary and fiscal expansions (Von Hagen and Ho, 2007). As argued by Demirguc-Kunt and Detregiache (1998, 2002), a surge in inflation might suddenly increase short-term interest rates and then the maturity mismatches in the banking system. Moreover, inflation might also serve as an indicator of currency crises. In practice, high inflation rates are often accompanied by a significant depreciation of the domestic currency, which is also the main criteria for currency crisis identification (Komulainen and Lukkarila, 2003). This is in line with Eichengreen et al. (1996), who find that countries that are vulnerable to financial crises tend to pursue monetary policies that lead to high inflation rates and reserve losses. Furthermore, as inflation is associated with higher short-term interest rates, indebted countries will be more exposed to a sovereign debt crisis under higher pressure of borrowing costs (Reinhart and Rogoff, 2014; Balteanu and Erce, 2018).

Current account balance

Current account deficits are widely used to measure the levels of external vulnerabilities because a country with large external imbalances (deficits) would be more reliant on external capital flows (Lane and Milesi-Ferretti, 2011; Wilms et al., 2018). When deficits reach a certain high level, market participants may consider it as a sign of unsustainability and, on this basis, they would expect the domestic currency to depreciate (Bucevska et al., 2011). In that sense, they may withdraw their investments, and international lenders also refuse to roll credit

extensions over on deficit countries. Consequently, large external financing needs will put pressure on the exchange market and, in the worst scenario, can trigger a currency crisis and/or a sovereign debt crisis when a country fails to finance its external obligations. Thus, an increase in current account surplus is expected to reduce the probability of currency devaluation and to lower the incidence of currency and debt crises, which is consistent with Eichengreen et al. (1996), Komulainen and Lukkarila (2003), and Manasse and Roubini (2009).

Government debts

The rising levels of debts have also been considered to be an important fact for financial crisis anticipation. In fact, the association between government debts and sovereign debt crises is straightforward as a debt crisis occurs when a nationôs sovereigns become unsustainable and overburdened. Dreher et al. (2006), for example, examine sovereign defaults in 80 developing countries over the period 1975-2000 and find that high levels of debts to GDP are the main predictor of debt crises. However, high indebtedness not only matters for debt crises but also currency and banking crises. This is because emerging countries are becoming more reliant on debts issued in the domestic market (Reinhart and Rogoff, 2011, 2014) and, in this regard, commercial banks may hold a substantial accumulation of government debt. Once governments default, it is more likely that banks will also default because of the sudden large written offs of those debts (Balteanu and Erce, 2018). Moreover, international investors may withdraw their investments when they start to realise the increased risks associated with high levels of government debts. This could result in capital flights and then currency crises.

International interest rate

The likelihood of financial crises, especially currency and debt crises, can also be influenced by the international interest rate. This happens because an increase in the US interest rate is often associated with higher capital outflows, which increases the probability of a currency crisis (Kaminsky et al., 1998; Komulainen and Lukkarila, 2003). Specifically, investors could

withdraw their investments to buy financial assets denominated in the US dollar, which are more stable, when the international interest rate meets their expectations. Moreover, an increase in the US interest rate may increase the probability of a sovereign debt crisis because higher borrowing rates increase the burden on debtor countries (Yu, 2016). In particular, borrowers will incur higher funding costs to obtain new funds because they may need to increase bond spreads relative to the US interest rate to attract lenders.

Bank deposit

A significant decline in bank deposits to GDP can reflect the losing faith of depositors on the banking system, which is a signal of a banking crisis (Bucevska, 2011). When investors wish to withdraw their deposits and transfer funds abroad, there will be great pressure on the exchange market and then a higher likelihood of a currency crisis. Thus, deposits can precede financial crises caused by runs and withdrawals. However, deposits can signal a crisis too late because they tend to drop only when a crisis is unfolded. Kaminsky and Reinhart (1999) find that the growth rate of bank deposit to GDP is still high during 8 months prior to banking and currency crises but will reduce quickly when financial crises occur.

3.3. Financial crisis identification

Before analysing the role of the political environment on the unfolding of financial crises, we briefly define financial crises. Further details are provided in Chapter 2. What follows in the next paragraphs are how financial crises are identified and how the respective variables are defined to be used later in the empirical analysis.

Systemic banking crisis: We use Laeven and Valenciaôs (2020) banking crisis database as it is preferable in many respects and fits our data sample.[29] Laeven and Valencia (2008, 2013,

[29] Other studies also use this database (see, e.g., Caprio et al., 2014; Fielding and Rewilak, 2015; Kim et al., 2013; Perugini et al., 2016). Chaudron and de Haan (2014) are the first to compare the reliability of different systemic banking crisis databases by examining four banking crisis events: the United States savings and loan crisis during the 1980s; the Japanese banking crisis in the 1990s, the Norwegian banking crisis during the early 1990s, and the Turkish crisis in the late 1990s. Based on the data from bank failures and losses, they find that Laeven and

2020) identify systemic banking crises based on the intensity of policy interventions. They argue that financial distress turns into a systemic banking crisis when at least three out of six policy interventions are significant.[30]

Currency crisis: Frankel and Rose (1996) were the first to identify a currency crisis based on the depreciation of a currency. A currency crisis occurs when the nominal depreciation of the domestic currency vis a vis US dollar exceeds 25% a year. They avoid counting a depreciation as an independent crisis by a requirement that the change in the exchange rate must be greater than the previous yearôs change by at least 10 percentage points. Laeven and Valencia (2008, 2013, 2020) adjust the threshold of 25 to 30%. They allow a five-year window for episodes that meet the two conditions for several continuous years to reduce the likelihood of counting the same crises. We borrow from them to identify currency crises. Unlike Laeven and Valencia (2008, 2013, 2020), who use the end-of-period exchange rate, we use the average exchange rate, consistent with Frankel and Rose (1996) and Eichengreen et al. (1996). In that sense, as our method may identify currency crises too late, we add one year prior to crisis episodes if Laeven and Valencia (2020) identify them as crisis episodes.

Sovereign debt crisis: Previous studies identify a sovereign debt crisis when a country fails to meet its principals or interest payments on the due date, or when the country postpones its obligations by rescheduling debts with less favourable terms (see, among others, De Bonis et al., 1999; Detragiache and Spilimbergo, 2001; Reinhart and Rogoff, 2014). We define sovereign debt crises when either total sovereign defaults exceed 1% of GDP in at least three consecutive years or they exceed 7% of GDP. The first year that either of these conditions meets is the start year of a sovereign debt crisis. A debt crisis ends when total sovereign defaults, including debt restructuring or rescheduling as a share of GDP, is smaller than 1%.

Valenciaôs (2008; 2013) banking crisis database is more accurate than those by Caprio et al. (2005) and Reinhart and Rogoff (2009).

[30] Six policy interventions are designed to cover all the responses of a government to a systemic banking crisis. For further details see Honohan and Laeven (2005) and Laeven and Valencia (2008).

For the first condition, we use the threshold of 1% of GDP to remove sovereign defaults that are negligible, which is consistent with Balteanu and Erce (2018). The second condition is provided because we find that all sovereign debt crises occurring in less than 3 years have the lowest degree of default is 7% of GDP. To detect any missing crisis episodes, the results are compared with the sovereign debt crisis database of Laeven and Valencia (2020); the two conditions cover all crisis episodes identified by them.

Twin and triple crises: Following Laeven and Valencia (2008, 2013, 2020), we define a twin crisis in year *t* when a banking crisis in year *t* is preceded by or followed by a currency or sovereign debt crisis within [*t*-1, *t*+1]. This definition clearly shows how a banking crisis is followed, coincided or preceded by a currency or sovereign debt crisis. Similarly, a triple crisis is identified when a banking crisis in year *t* follows or precedes a currency and sovereign debt crisis during the period [*t*-1, *t*+1]. Using the same approach, currency and sovereign debt crises are set at time *t* to identify other variations of twin and triple crises. For the three types of crises identified above (bank, currency and debt) we construct a dummy variable that takes the value of 1 in the years in which the respective crises are occurring (and 0 otherwise); for twin and triple crises, the dummy takes the value of 1 in the years in which a type of crisis coincides with or is preceded and/or followed by another type (and 0 otherwise). In addition, we also construct a dummy variable for ñall crisesò, which takes the value of 1 when any type of financial crisis occurs in a given year, and 0 otherwise.

3.4. Data and methodology

3.4.1. Data and variables

Due to data availability, our study is limited to the period 1975-2017. Our sample covers a maximum of 85 countries, depending on the type of financial crisis.[31] Our panel is unbalanced because most variables do not contain information for some countries/years. Data for political variables (electoral cycle, political ideology, political stability and government support) are extracted from the World Bankôs Database of Political Institutions (DPI, 2017).[32] The macroeconomic variables were obtained from the World Development Indicators (WDI, 2019) and International Financial Statistics (IFS, 2019).[33] Table 3.1 reports descriptive statistics for financial crises dummies and all the variables used in this chapter.

To account for the role of the political environment on the likelihood of financial crises, we employ the following variables:

(i) Political ideology: RIGHTGOV; LEFTGOV; CENTREGOV. These dummy variables take the values of 1 when the incumbent government is formed by the right-wing, left-wing, or centre parties, respectively, and 0 otherwise. Right-wing governments could reduce the likelihood of financial crises as they tend to pursue friendly and reliable investment policies, are more concerned with sustainable development, and have strong connections with industrial associations and firms; however, their greater willingness to deregulate the economy may play the opposite effect in this dynamic.

(ii) Year after election (YAFELECTION). This dummy variable takes the value of 1 in the election year and the year after the election, and 0 otherwise. The ñhoneymoon hypothesisò states that

[31] The list of countries in our samples can be found in Table A3.1 in Appendix A3.

[32] See Beck et al. (2001).

[33] The definition for each variable and respective data source is listed in Table A3.2 in Appendix A3. Note that we observe a 35% share of country-year observations for all types of financial crises. However, when we look at the different types, the share varies substantially from around 8% for currency and banking crises to 28% for debt crises. This high share of country-year observations for debt crises is due to the fact that many sovereign debt crises in emerging and developing countries last for several decades. In particular, they have sovereign defaults exceeding 1% of GDP for many years. It is noteworthy that unlike banking and currency crises, the long duration of debt crises can be a result of the unwillingness to pay rather than the incapability to pay (De Bonis et al., 1999; Reinhart and Rogoff, 2009, p. 54). A decision of default is associated with reputational damage and possible sanctions as well as output losses (Arellano, 2008, Reinhart and Trebesch, 2016). However, as many countries have already been insolvent, they are unwilling to repay their debts as the benefits of being defaults can outweigh their relative costs (Manasse and Roubini, 2009).

new policies tend to be implemented in the immediate aftermath of elections, leading to the higher risk of major policy shifts; hence, crises might be more likely after elections.

(iii) The time a chief executive is in office (YEXEOFFICE). This variable counts the number of years that a chief executive stays in office. As a longer tenure allows incumbent chief executives to pursue the announced policies, the risk of instability and policy changes is lower. Hence, it is expected that longer tenures will reduce the probability of financial crises.

(iv) Majority government (MAJORGOV). This dummy variable takes the value of 1 when an incumbent government has more than half of the seats in the legislature or parliament. It is expected that majority governments are less likely to face policy gridlock and, hence, they might be more able to implement preventive policies or necessary reforms to stabilise economic conditions.

The economic variables were selected from the relevant literature on financial crises to control for the most relevant economic factors to the timing of financial crises. The following economic variables are used in our model:

(i) The prevalence of a fixed exchange rate regime (EXREGIME) is expected to expose the domestic currency to a higher likelihood of a speculative attack. Less flexible exchange rate regimes allow speculators to profit when central banks abandon the pegs and allow the exchange rates to float (Eichengreen et al., 1996). Hence, the likelihood of financial crises, especially currency crises, is expected to be more likely under those regimes.

(ii) The effects of capital account openness (KAOPEN) on financial crises are inconclusive. Free capital mobility improves the efficiency of the allocation of resources (Edwards, 1999), which benefit social welfare, trading activities, and investments (Chamon and Garcia, 2016). However, capital controls can be used to enhance financial stability, such as preventing sudden stops and capital flights (Farhi and Werning, 2014; Forbes et al., 2015; Magud et al., 2018; Devereux and Yu, 2018).

(iii) Credit growth (PSCGROWTH) can signal financial crises as mismanaged credit expansions turning into credit booms or asset bubbles can cause a banking crisis (Demirguc-Kunt and Detragiache, 1998, 2002, 2005). Empirical evidence shows that credit booms often precede financial crises (see, for example, Falcetti and Tudela, 2006; Fielding and Rewilak, 2015; Perugini et al., 2016).

(iv) The relationship between trade openness (TRADE/GDP) and financial crises is controversial. Countries with high levels of trade openness are more exposed to shocks from the international market (Kaminsky and Reinhart, 1999). Conversely, more open countries can be in a better position to service their external debts through revenues from their export activities (Detragiache and Spilimbergo, 2001).

(v) Real GDP growth (RGDPGROW) is introduced as an explanatory variable in the financial crises equation because it reflects the overall economic performance. Faster growth generates more cash flows, attracts investments (Yu, 2016; Demirguc-Kunt and Detragiache, 1998, 2002), and increases aggregate demand (Perugini et al., 2016). Conversely, slow developments in the real side of the economy is a major source of financial instability (Demirguc-Kunt and Detragiache, 1998, 2002). Overall, it is expected that better economic performance reduces the likelihood of financial crises.

(vi) Inflation rate (INFLATION) is a proxy for macroeconomic uncertainty. High levels of inflation indicate the mismanagement of macroeconomic and monetary policies, which is a source of economic uncertainty and financial crises (Eichengreen et al., 1996, Demirguc-Kunt and Detregiache, 1998, 2002).

(vii) Current account balance as a percentage of GDP (CUACC/GDP) is used to account for external vulnerabilities. A country that has large external imbalances (deficits) is more reliant on external capital flows (Falcetti and Tudela, 2006) and, therefore, might be more vulnerable to financial crises.

(viii) Government debt as a percentage of GDP (GOVDEBT/GDP) is a variable of extreme importance, especially in what concerns to the rise of a sovereign debt crisis. Previous studies are consistent in showing that higher levels of government debts are positively associated with financial (debt) crises (Dreher et al., 2006; Reinhart and Rogoff, 2011, 2014; Balteanu and Erce, 2018).

(ix) US real interest rate (USRATE) is used as a proxy of the global interest rate. An increase in the international interest rate is associated with higher capital outflows (Kaminsky et al., 1998; Falcetti and Tudela, 2006), which represents an additional burden on debtor countries (Yu, 2016). Consequently, it may also be linked to an increase in the likelihood of financial crises.

(x) Bank deposits as a percentage of GDP (DEPOSIT/GDP) is another important indicator as it can signal bank runs and the loss of depositorsô faith in the banking system. When investors wish to withdraw their deposits and transfer funds abroad, there will be increased pressure on the exchange rate markets, which could trigger a currency crisis (Kaminsky et al., 1998).

(xi) Finally, foreign reserves as a percentage of GDP (RESERVES/GDP) are another important indicator of financial crises, especially currency ones, because reserves can be used to finance eventual increases in exchange market pressure. The occurrence of a currency crisis depends on whether a central bank has sufficiently large international reserves to defend speculative attacks or not (Kaminsky et al., 1998; Berg and Pattillo, 1999). Moreover, foreign reserves are a reliable indicator of a countryôs ability to deal with debt repayments.

Table 3.1. Descriptive statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
Currency crises	3,416	0.08	0.27	0	1
Banking crises	3,655	0.08	0.27	0	1
Debt crises	3,438	0.28	0.45	0	1
Twin and triple crises	3,623	0.03	0.18	0	1
All crises	3,469	0.35	0.48	0	1
RESERVES/GDP	3,245	13.09	17.63	0.04	302.01
INFLATION	3,293	45.79	419.66	-26.32	13109.5
KAOPEN	3,570	0.07	1.46	-1.91	2.36
EXREGIME	3,570	0.46	0.50	0	1
CUACC/GDP	3,250	-3.18	8.23	-65.03	62.30
PSCGROWTH	3,216	49.31	2155.41	-99.86	119007.9
RGDPGROW	3,386	3.37	5.35	-62.08	123.14
TRADE/GDP	3,328	70.74	34.79	6.32	274.97
GOVDEBT/GDP	3,282	55.67	50.25	1.19	830.27
USRRATE	3,655	0.80	2.29	-3.32	5.41
DEPOSIT/GDP	3,195	40.76	37.76	0.26	883.40
YAFELECTION	3,420	0.42	0.49	0	1
Y1AFELECTION	3,381	0.20	0.40	0	1
YEARELECTION	3,420	0.21	0.41	0	1
Y1BELECTION	3,472	0.19	0.40	0	1
NUMYEAFELEC	3,381	2.31	2.39	0	18
YEXEOFFICE	3,487	5.68	6.35	1	45
STABS	3,334	0.14	0.29	0	1
PARTYINOFF	3,098	10.18	12.42	1	71
RIGHTGOV	2,882	0.39	0.49	0	1
LEFTGOV	2,882	0.50	0.50	0	1
CENTREGOV	2,882	0.11	0.32	0	1
MAJORGOV	3,241	0.79	0.41	0	1
SINMAJGOV	3,215	0.53	0.50	0	1
COLIMAJGOV	3,215	0.26	0.44	0	1

Notes: This table reports the number of observations, mean, standard deviation, minimum and maximum values of all variables for the maximum number of countries that can be used in the estimates (85 countries) over the period 1975-2017.

3.4.2. Econometric methodology

This section describes econometric methods employed to investigate the implications of political factors on the probability of financial crises (and their types). As the dependent variables are dummies which equal to 1 when a country experienced a financial crisis (or a specific type), and 0 otherwise, selected econometric methods should work with binary dependent variables. For this reason, signals approach, classification and regression tree, and binary response models are three commonly used methods to investigate factors influencing

the likelihood of financial crises. This section discusses three approaches and explains which one fits the data and the aims of this study.

3.4.2.(i) A summary of econometric methods

Signals approach

Following the early work of Kaminsky and Reinhart (1999), existing studies have used signals approach with ex-post crisis data to determine whether a number of indicators matter to signal potential crises (see, e.g., Alessi and Detken, 2011; Detken et al., 2014; Drehmann and Juselius, 2014). More specifically, an indicator is considered to be a signal of a financial crisis when its value exceeds a predetermined threshold in a bad direction (Bucevska, 2011). This approach uses a non-parametric method and assumes an extreme non-linear relationship between an indicator and a crisis episode to be forecasted. Kaminsky and Reinhart (1999) are the first to the use signals approach for financial crisis anticipation. They use a grid search to compute the noise-to-signal ratio,[34] and thresholds are chosen to minimize this ratio. When the value of a variable exceeds a predetermined threshold, it is considered as a signal of a financial crisis. As the approach evaluates each variable in isolation, its main advantage is to examine various indicators without the risk of being misled by the influence of other regressors (Alessi and Detken, 2011; Detken et al., 2014).

However, this approach is not without drawbacks. First, Kaminsky and Reinhart (1999) highlight that if an indicator shows an early warning signal, and the authorities pre-empt a crisis, the signal can be marked as a false alarm with abnormally high noise-to-signal ratio. This means that the approach ignores the aggregate information provided by the indicator. Second, while thresholds are chosen based on the noise-to-signal ratio, they can be ad hoc choices as they depend on the preferences of the researchers. It is worth stressing the trade-offs

[34] A grid search of Kaminsky and Reinhart (1999) covers a large range of critical regions up to a maximum of 30%.

of those thresholds. In particular, the higher the chosen thresholds, the smaller numbers of identified crises, indicating the risk of missing real crisis signals (Type I errors). Conversely, lower thresholds will increase the numbers of crisis signals to be recognised, but at the expense of raising the numbers of wrong signals (Type 2 errors). Third, as the approach relies on predetermined thresholds, it ignores important information on whether the variable is slightly higher or well above them (Demirguc-Kunt and Detragiache, 2005). This means that the approach is unable to show the magnitude of predictors on the probability of financial crises.

Classification and regression tree

Classification and regression tree (CART) approach was developed by Breiman et al. (1984) and has applied in many fields such as marketing, medical diagnosis or engineering. CART is a machine-learning method constructed to uncover hidden non-linear and interactive structures of complex data. As highlighted by Breiman et al. (1984), CART works well with mixture types of data, data with high dimensionality or even heterogeneous data. It is similar to the signals approach; CART allows for the possible relationship between independent variables at different times.

For these reasons, it is not surprising that some studies recently apply CART to identify early-warning signals of financial crises (see, e.g., Manasse and Roubini, 2009; Detken et al., 2014; Joy et al., 2015). As the approach is designed for dependent variables to take finite values, it is suitable for binary dependent variables. CART partitions data recursively in that each parent node is split into two child nodes, which are more homogenous than the parent node. In financial crises, the outcome characteristics of child nodes refer to crisis and ñtranquilò periods. The process is repeated for each child node as a parent until reaching a terminal node, indicating the final partitioning process.

The rationale behind the splitting process is to search for possible splits for all explanatory variables and selects splits that best separate crisis episodes from tranquil episodes. Thus, the

key elements of CART are to select the best splits and to assign each terminal node. The selection of best splits is based on the minimisation of the loss function, which relies on the cost that rises when the actual splits depart from perfect splits. Perfect splits refer to the partitions that separate all crisis episodes into one node and tranquil episodes in others. The split that generates the lowest cost is chosen. The loss is minimum when terminal nodes contain only either crises or tranquil episodes. To assign a terminal node, a standard approach is to calculate the misclassification rate. The growing of the tree terminates when the decrease in misclassification rate falls below the change in the penalty accompanied by adding more terminal nodes (Manasse and Roubini, 2009; Joy et al., 2015).

The advantages of this method can be summarised as follows: (1) CART can deal with a large number of explanatory variables; (2) CART can identify indicators that best predict financial crises by examining all the indicators jointly. For example, Kaminsky (2006) uses a large set of variables to identify early-warning signals of a currency crisis in 20 countries from 1970 to 2001. The regression tree approach only selects nine indicators that can best explain currency crises. This is useful as including variables that are unrelated to the outcome variables is a cause of model misspecification; (3) the method allows to cope with complex data. As CART is non-parametric, it does not require specification of a functional form. Thus, the approach can deal with highly skewed data (Joy et al., 2015). In addition, CARTôs outcomes are robust to the presence of outliers among explanatory variables because splits usually take place at non-outlier values (Manasse and Roubini, 2009). This is useful to economic data in emerging countries during crisis episodes when some indicators of financial crises such as inflation, interest rate or exchange rate could have extraordinary values.

However, this method does have some drawbacks. The main shortcoming is that CART cannot determine the marginal contribution of explanatory variables on the probability of financial crises. This is because CART assigns a single probability to all cases in the same

class. Moreover, as non-parametric techniques are free from the assumption of the standard normal distribution, CART cannot determine the confident intervals for thresholds. Furthermore, ñmasking problemò arises when the method drops out from the regression one of two meaningful variables that have similar ability to identify a split. For instance, one of two significant and highly collinear regressors may not appear in the terminal node.

Binary response models

Signals and CART approaches are useful as they can cope with a large number of explanatory variables and complex data; however, they cannot determine the magnitude of these variables for the probability of financial crises. A binary response model can address this drawback from signals and CARTôs approaches by providing an immediate understanding of whether the effect of one variable on the probability of financial crises is statistically significant (Berg and Pattillo, 1999; Detken et al., 2014). For this reason, this chapter employs binary response models to estimate the probability of different types of financial crises.

Binary response models allow for testing the magnitude of one factor on the onset of a financial crisis (Berg and Pattillo, 1999). For example, Kaminsky and Reinhart (1999) provide a list of thresholds for economic variables and define a currency to start when these variables exceed the thresholds. Signals and CART methods, however, give no indication about the magnitude of economic and political variables on financial crises and, hence, cannot determine which factor is the best early-warning signal of financial crises. Moreover, binary response models can aggregate the information of various crisis indicators into one single regression model, while signals approach considers each possible covariate in isolation (Berg and Pattillo, 1999; Demirguc-Kunt and Detragiache, 2005; Detken et al., 2014).

The binary dependent variable has two possible outcomes that can be summarised as whether a country experiences a (specific type of) financial crisis or not. The model is estimated by the maximum likelihood function because the distribution of financial crises is defined by

a Bernoulli model (Cameron and Trivedi, 2005, p. 463). If ρ is the probability of a financial crisis to occur, then the probability of no crisis must be (1-ρ). In this study, ρ will vary across countries as a function of political and macroeconomic factors. One standard and widely used of binary response models is the logit model.

3.4.2.(ii) Empirical framework

Relying on the advantages of binary response models, a panel data logit model is used to assess the determinants of financial crises. Special emphasis is put on the neglected role of political factors.[35] The dependent variables are binary indicators equal to 1 when a financial crisis (or respective type) occurred, and 0 otherwise. Country fixed-effects are controlled to account for the possibility that the likelihood of financial crises could change cross-country independently of the explanatory variables.[36] Time effects are also controlled for with decade-dummy variables, which is consistent with Castro and Martins (2018a). As financial crises tend to come in waves (Laeven and Valencia, 2020), year-dummies may not only fail to capture such effects but imply the loss of observations when there is limited data variability.

According to the literature and our conjectures regarding the potential role of the political environment, we assume that the probability of financial crises (and each of their types) is a function of political and economic factors:

$$\Pr(FinCrises) = f(\boldsymbol{Pol}, \boldsymbol{Econ}), \tag{3.1}$$

where $FinCrises$ refers to the different types of financial crises (banking, currency, sovereign, twin and triple, and all crises). As defined in Section 3, this variable takes the value of 1 in the years in which the respective type of crises is ongoing, and 0 otherwise. $\boldsymbol{Pol}$ corresponds to the vector of political factors, and $\boldsymbol{Econ}$ is the vector of economic controllers.

[35] The logit model has been widely employed to study the incidence of banking crises (Demirguc-Kunt and Detragiache, 2005; Bordo et al., 2001), currency crises (Bordo et al., 2001; Eichengreen et al., 1995) and sovereign debt crises (Yu, 2016; Reinhart and Rogoff, 2011).

[36] Controlling for country-fixed effects implies that those variables that do not vary over time and end up being excluded from the model. Moreover, countries that did not experience a particular type of financial crises will be removed from the sample in the estimation process.

The logit model implies that equation (1) can be expressed as follows:

$$\Pr\left(FinCrises_{i,t} = 1 | \boldsymbol{Pol}_{i,t}, \boldsymbol{Econ}_{i,t-1}\right) = \Lambda\left(\boldsymbol{\alpha}'\boldsymbol{Pol}_{i,t} + \boldsymbol{\beta}'\boldsymbol{Econ}_{i,t-1}\right), \tag{3.2}$$

where i and t refer to countries and years, respectively, and $\boldsymbol{\alpha}$ and $\boldsymbol{\beta}$ are the vectors of the parameters to be estimated; $\Lambda(.)$ is the logistic cumulative distribution function $\Lambda(z) = e^z/(1+e^z)$. The structural logit model for panel data is then defined as:

$$y_{i,t}^* = \boldsymbol{\alpha}'\boldsymbol{Pol}_{i,t} + \boldsymbol{\beta}'\boldsymbol{Econ}_{i,t-1} + v_i + \tau_t + \varepsilon_{i,t}, \tag{3.3}$$

$$FinCrises_{i,t} = \begin{cases} 1 & if\ y_{i,t}^* > 0 \\ 0 & otherwise \end{cases}$$

where $y_{i,t}^*$ is the unobserved latent variable of financial crises; v_i and τ_t account for the country- and time-specific effects, respectively, and $\varepsilon_{i,t}$ is error term for country i at time t. Ignoring heterogeneity generates the usual omitted variable bias, leading to inconsistent estimates. We address this issue by employing a fixed-effects logit model.

3.5. Empirical analysis

We start by discussing the main findings, which are then corroborated by some sensitivity analyses and robustness checks. As a final exercise, we focus the analysis only on the onset of financial crises.

3.5.1. Main findings

To examine the effects of the economic and political factors on the likelihood of financial crises, several econometric methods were considered: pooled, fixed-effects (FE) and random effects (RE) logit, and instrumental variables probit (IV-Probit) models. Our favoured method is the FE logit model as it accounts for time-invariant unobservable country factors and time effects.[37][38] The overall performance of the FE logit estimator is superior to the other methods,

[37] Some studies use the conditional fixed effects logit model to explore the incidence of financial crises but ignore the influence of time effects. See, for example, Von Hagen and Ho (2007) and Yu (2016).

[38] The FE logit model can be expressed as: $y_{i,t}^* = c_i d_{i,t} + \boldsymbol{\alpha}' Pol_{i,t} + \boldsymbol{\beta}' Econ_{i,t-1} + \tau_t + \varepsilon_{i,t}$; $y_{i,t}$=1 if $y_{i,t}^*$>0, and 0 otherwise, where c_i is constant term, $d_{i,t}$ is a dummy variable that takes the value of 1 for country i, and 0 otherwise, $y_{i,t}$ is financial crisis, $y_{i,t}^*$ is unobserved latent variable.

providing the smallest values for the Schwartz Bayesian Information Criterion (SBIC). The Hausman test also favours this method over random effects and pooled logit models.

Endogeneity is a concern for studies on financial crises because economic factors could be the manifestation of economic recessions caused by financial crises themselves. To mitigate this potential reverse causality and simultaneity problem, economic control variables are lagged one year.[39] This procedure also accounts for eventual delays in reporting economic data. We further control for endogeneity by estimating an IV-Probit model.[40] As the Wald exogeneity test fails to reject the exogeneity hypothesis, (one-year lags of) our economic variables appear to be exogenous.[41] In order to detect the presence of multicollinearity, we compute the cross-country correlation between independent variables and find that all the correlation coefficients are smaller than |0.25| except that between the variables KAOPEN and DEPOSIT/GDP, which is 0.44 (See Table A3.8 in Appendix A3). This suggests that, in general, our selected variables show remarkably little correlation and do not foreshadow serious multicollinearity problem.

The main empirical findings using the conditional FE logit model are reported in Table 3.2.[42] The estimated coefficients on most of the economic variables show their usual signs and significance. As predicted and observed in the literature, financial crises are more likely to occur when: (i) international reserves (RESERVES/GDP) decrease; (ii) capital accounts (KAOPEN) are more restricted; (iii) current account deficit (CUACC/GDP) is higher; (iv) real economic growth (RGDPGROW) slows down; and (v) the level of government debt (GOVDEBT/GDP) is higher. Surprisingly, a more flexible exchange rate regime (EXREGIME) seems to raise the likelihood of financial crises. The finding is opposite to that

[39] Previous studies have also used economic variables lagged one period to examine the economic determinants of financial crises. See, for example, Bordo et al. (2001), Dreher et al. (2006), and Laeven and Valencia (2008).
[40] Instruments for the IV-probit are the second lags of the economic variables.
[41] Full outcomes from the estimations using all those econometric methods for different types of financial crises are provided in Tables A3.3 to A3.7 in Appendix A3.
[42] Partial/marginal effects cannot be obtained from the FE logit model (Wooldridge, 2010, p.622). Hence, we interpret the results of the FE logit model based on the average (semi-) elasticities, as suggested by Kitazawa (2012) and Kemp and Silva (2016).

of Eichengreen et al. (1996) and Shimpalee and Breuer (2006). This could be because a fixed exchange rate regime improves monetary discipline and, thereby, promoting macroeconomic performance and investor confidence in the long run.

Several economic factors have an insignificant impact on different types of financial crises. This is not surprising as financial crises come in different forms, which means that one economic factor can influence the incidence of each type of financial crisis differently. For example, an increase in the US real interest rate (USRRATE) appears to reduce the likelihood of a systemic banking crisis but increases the probability of sovereign debt and twin and triple crises. This happens because a slight increase in the US interest rate certainly generates pressure on the exchange market but may not turn into massive capital outflows or currency crises. However, in cases of twin and triple crises, which are normally more harmful to the economy than a single crisis (Bordo et al., 2001; Balteanu and Erce, 2018), an increase in the international interest rate might be adequate to trigger capital flights and financial crises. In addition, a higher international interest rate can amplify the debt repayment burden on indebted countries, leading to a higher probability of debt crises. On the contrary, an increase in the US interest rate could reduce the overheated capital inflows, which are often mismanaged, in emerging countries and, thus, the probability for a banking crisis is smaller.

Another interesting finding is the positive association between bank deposits (DEPOSIT/GDP) and financial crises, except for sovereign debt crises. Deposits should decline due to bank runs or capital flights, which are signals of currency and banking crises, respectively. This could be because banks may increase the deposit rates to defend runs and capital flights. Moreover, it is common that outflows from bank runs tend to move within the system from unsound banks to sound banks, which may not significantly influence the degree

of deposits to GDP (Laeven and Valencia, 2008). This, coupled with the fact that the deposit growth rate tends to be high during pre-crisis periods, can explain the positive coefficients.[43]

Moving to the main novelties of this paper, political factors have proved to play an important role in explaining the likelihood of different types of financial crises. However, their effects on financial crises in general (ñall crisesò specification) are statistically insignificant. This shows that it is necessary to dig deeper into individual types of financial crises not only to understand how they evolve but, most importantly, to unveil the role of the political factors on their development/mitigation.

As expected, banking and currency crises are more likely to occur within one year after elections (YAFELECTION), which is consistent with the ñhoneymoon hypothesisò. On average, the probability of currency and banking crises is 32% higher within the first year after elections. New policies or reforms could be implemented in the immediate aftermath of elections leading to a greater economic uncertainty from policy changes and a higher likelihood for those types of crises to thrive.[44] Moreover, banking crises are more likely to occur within the first year after elections because governments may postpone the bailouts of inefficient banks. As voters believe that using taxpayersô money to finance bailouts is a waste of money, revealing real costs of bailouts could negatively influence the chance of being re-elected. Brown and Dinc (2005) find that half of the banksô takeovers are undertaken within the first year after elections in emerging countries during the 1990s, whereas the figure for government rescues within one year before elections is only 10%.

Among all the political variables, the tenure of chief executives (YEXEOFFICE) turns out to be particularly relevant for any of the types of financial crises analysed, which is in line with

[43] Kaminsky and Reinhart (1999) find that the growth rate of bank deposits to GDP, on average, is still high during 8 months prior to financial crises.

[44] Krueger (1993, p.124) report two circumstances that financial reforms tend to be implemented: (1) A new government taking office implement reforms to realise their benefits before the next election; and (2) A government perceives an economic crisis and implements reforms.

the second hypothesis stating that the more time a chief executive stays in office, the lower the probability of any type of those financial crises will be. In particular, an additional year in office decreases the probability of any type of financial crisis by around 5% on average, ceteris paribus. These findings lend support to Dreher et al. (2006), Shimpalee and Breuer (2006) and Aisen and Veiga (2013) who argue that a longer tenure of incumbent executives allows them to continue their announced programs and policies. This reduces the political and economic uncertainties, which in turn lowers the likelihood of a financial crisis.

Additionally, this study finds that the probability of currency crises is higher when incumbent governments are formed by right-wing parties. This finding is, however, inconsistent with the expectations that right-wing governments pursue stable and friendly economic policies to promote economic development. Perhaps right-wing governments tend to refrain from necessary economic reforms during pre-crisis periods, resulting in a higher likelihood of currency crises (Galasso, 2014). Moreover, they are also more prone to promote economic freedom and freedom of trade (Castro and Martins, 2020), which might facilitate the contagion of these crises, making them more likely.

Finally, majority governments (MAJORGOV) appear to have a relevant influence on twin and triple crises. As expected, twin and triple crises are less likely to occur when incumbent governments have adequate political support. Among political variables, the impact of majority governments on twin and triple crises is critical. In particular, majority governments reduce the probability of twin and triple crises on average by more than 68%, ceteris paribus. They are less likely to face policy gridlock and, consequently, are more able to implement preventive policies or necessary reforms against economic shocks.

Table 3.2. Economic and political determinants of financial crises

	Banking crises	Currency crises	Sovereign Debt crises	Twin and triple crises	All crises
RESERVES/GDP	-0.0996***	-0.115***		-0.0751**	-0.0723***
	(0.0174)	(0.0268)		(0.0364)	(0.00953)
INFLATION	0.000121	-0.000196	0.000383	-0.000428	
	(0.000103)	(0.000108)	(0.000442)	(0.000711)	
KAOPEN	-0.234**	-0.435***	-0.521***	-0.0137	-0.358***
	(0.0965)	(0.137)	(0.0854)	(0.181)	(0.0598)
EXREGIME	-0.188	-0.935***	-1.112***	-0.123	-0.633***
	(0.208)	(0.257)	(0.231)	(0.365)	(0.131)
CUACC/GDP	-0.0177	-0.0325*	0.0193	-0.108***	-0.0117***
	(0.0144)	(0.0175)	(0.0132)	(0.0273)	(0.00866)
PSCGROWTH	-0.00254	-0.00268	0.000973	0.00158	-0.000357
	(0.00327)	(0.00244)	(0.00239)	(0.00382)	(0.00175)
RGDPGROW	-0.0973***	-0.155***	-0.00799	-0.0407	-0.0905***
	(0.0200)	(0.0226)	(0.0146)	(0.0296)	(0.0126)
TRADE/GDP	0.0118*	-0.0265***	-0.00365	-0.0565***	0.00767***
	(0.00653)	(0.00843)	(0.00513)	(0.0154)	(0.00348)
GOVDEBT/GDP	0.000334	-0.00394	0.0312***	0.0202***	0.0126***
	(0.00231)	(0.00327)	(0.00396)	(0.00634)	(0.00222)
USRRATE	-0.161***	0.0800	0.0780*	0.207**	0.0192
	(0.0558)	(0.0604)	(0.0407)	(0.0952)	(0.0280)
DEPOSIT/GDP	0.0464***	-0.00342	-0.0207***	0.0582***	0.0159***
	(0.00727)	(0.00406)	(0.00723)	(0.0175)	(0.00395)
YAFELECTION	0.320**	0.320*	-0.0244	0.244	0.0794
	(0.144)	(0.187)	(0.124)	(0.264)	(0.0855)
YEXEOFFICE	-0.0511**	-0.0498**	-0.0386**	-0.0879**	0.00835
	(0.0254)	(0.0253)	(0.0153)	(0.0415)	(0.0124)
RIGHTGOV	0.120	0.457*	0.129	-0.0804	0.134
	(0.175)	(0.265)	(0.174)	(0.368)	(0.111)
MAJORGOV	0.0750	-0.349	-0.129	-0.683*	0.0692
	(0.185)	(0.272)	(0.176)	(0.360)	(0.114)
Observations	1916	1633	1203	904	2360
Countries	69	64	47	34	85
Time effects	64.49***	13.41***	43.28***	42.35***	78.68***
Pseudo LL	-433.910	-253.704	-283.094	-144.509	-653.274
Overall test statistics	220.47***	312.75***	498.44***	112.33***	532.97***
SBIC	1011.423	647.973	693.855	416.400	1446.344
FE test	59.01***	34.19**	73.68***	37.23***	131.78***
FE vs RE test	159.10***	39.96***	46.71***	27.26**	30.13**

Notes: The table reports the effects of economic and political factors on different types of financial crises over the period 1975-2017. See Tables A1 for the list of countries. The FE logit is reported in all specifications. All estimates report the average (semi) elasticities. Standard errors are given in parentheses. ***, **, * indicate significant levels of 1%, 5%, and 10%, respectively. Overall test statistics report the statistic of the loglikelihood ratio test. Time effects report the statistics of the test on the hypothesis that all decade-dummies are equal to 0. SBIC reports that Schwartz Bayesian information criterion for comparing models, and the smaller value, the better model. FE test reports the Hausman statistic for the comparison between pooled logit and FE logit model (Greene, 2012, p. 763). FE vs RE test reports the Hausman statistic for the comparison between random effects and fixed effects logit models.

However, it is noteworthy that the effects of majority governments on a single financial crisis are insignificant. Perhaps, incumbent governments may have fewer incentives to implement preventive policies or reforms because citizens will punish and replace them if they fail in stabilising the economy, especially when the next election is imminent. If majority governments are formed by unstable coalition governments, they are more likely to be replaced by mainstream opposition parties. As highlighted by Leblang and Satyanath (2006), coalition governments and opposition parties tend to exacerbate economic conditions to increase their chances of winning the next election instead of co-operating with the incumbent party. Unless the detrimental impacts of financial crises are severe, as in the cases of twin and triple crises, incumbent governments may have less incentive to implement costly preventive policies in ñsingleò financial crises. This lends support to Drazen and Grilli (1993) who argue that the severity of economic conditions could be a necessary condition to achieve social consensus for the adoption of major policy reforms.

3.5.2. Sensitivity analysis

To check for the sensitivity of our main findings to changes in the model specifications, we run additional regressions using alternative measures for the political factors. Tables 3.3 and 3.4 present the results for the sensitivity analyses. The estimated coefficients, signs, impact and relevance of all economic control variables are consistent with those reported in Table 3.2.

With respect to the alternative measures of political factors, the electoral cycle is now proxied by three dummy variables: the first year after the election (Y1AFELECTION), the election year (YEARELECTION) and the year before the election (Y1BELECTION). The coefficients of YAFELECTION presented in Table 3.1 reveal that the probability of banking and currency crises is higher within one year after elections. This variable includes the year of elections, which include periods before and after elections, and the year after the elections.

These dummy variables allow us to locate better whether financial crises significantly arise in the election year, before or after.

Table 3.3. Sensitivity analysis I: Alternative political determinants of financial crises

	Banking crises	Currency crises	Sovereign Debt crises	Twin and triple crises	All crises
KAOPEN	-0.238**	-0.756***	-0.565***	0.0899	-0.380***
	(0.0978)	(0.150)	(0.0926)	(0.179)	(0.0618)
EXREGIME	-0.160	-1.101***	-0.980***	-0.185	-0.661***
	(0.211)	(0.271)	(0.233)	(0.368)	(0.135)
CUACC/GDP	-0.0240*	-0.0310*	0.0572***	-0.0763***	0.0130
	(0.0146)	(0.0172)	(0.0154)	(0.0292)	(0.00958)
PSCGROWTH	-0.00262	-0.00103	0.00169	0.00173	-0.000876
	(0.00311)	(0.00242)	(0.00267)	(0.00361)	(0.00184)
RGDPGROW	-0.0996***	-0.0204	-0.0342**	-0.0293	-0.0883***
	(0.0201)	(0.0190)	(0.0160)	(0.0282)	(0.0127)
RESERVES/GDP	-0.101***	-0.126***	-0.0768***	-0.0627	-0.0815***
	(0.0174)	(0.0284)	(0.0156)	(0.0405)	(0.0100)
TRADE/GDP	0.0135**	-0.0326***	0.00649	-0.0393***	0.00905**
	(0.00654)	(0.00880)	(0.00566)	(0.0134)	(0.00364)
GOVDEBT/GDP	0.000982	-0.00414	0.0296***	0.0175***	0.0136***
	(0.00267)	(0.00346)	(0.00426)	(0.00606)	(0.00235)
USRRATE	-0.173***	0.260***	0.0704	0.223**	-0.0617*
	(0.0572)	(0.0912)	(0.0447)	(0.0988)	(0.0326)
INFLATION	0.000107	-0.000153	0.000400	-0.000419	0.000427
	(0.000107)	(0.000146)	(0.000433)	(0.000683)	(0.000541)
DEPOSIT/GDP	0.0460***	-0.00307	-0.0198***	0.0343*	0.0171***
	(0.00725)	(0.00326)	(0.00720)	(0.0176)	(0.00409)
Y1AFELECTION	0.141	-0.0772	-0.0112	-0.268	0.0450
	(0.217)	(0.268)	(0.223)	(0.420)	(0.134)
YEARELECTION	0.378**	0.0547	-0.0819	0.231	0.125
	(0.193)	(0.304)	(0.174)	(0.348)	(0.118)
Y1BELECTION	0.0180	0.146	-0.0257	0.216	0.0574
	(0.201)	(0.289)	(0.173)	(0.345)	(0.119)
STABS	0.469*	1.051***	-0.172	0.917*	0.149
	(0.275)	(0.319)	(0.297)	(0.502)	(0.177)
LEFTGOV	-0.285	-0.505*	0.0588	0.233	-0.0584
	(0.190)	(0.301)	(0.183)	(0.422)	(0.117)
SINMAJGOV	0.394**	-0.250	0.00410	-0.730*	0.215*
	(0.197)	(0.310)	(0.187)	(0.430)	(0.118)
Observations	1884	1539	1151	875	2215
Countries	69	61	45	34	81
Time effects	65.06***	14.32***	36.20***	14.31***	85.34***
Pseudo LL	-426.660	-247.712	-247.542	-144.838	-607.171
Overall test statistics	223.97***	274.94***	517.06***	97.96***	529.54***
SBIC	1011.685	649.541	643.101	431.934	1376.106
FE test	60.57***	34.29**	98.27***	42.76***	143.70***
FE vs RE test	88.38***	34.65**	39.21***	42.55***	48.56***

Notes: The table reports the effects of economic and political factors on different types of financial crises over the period 1975-2017 using alternative measures of political factors. The FE logit is reported in all specifications. All estimates report the average (semi) elasticities. Standard errors are given in parentheses. ***, **, * indicate significant levels of 1%, 5%, and 10%, respectively. Overall test statistics report the statistic of the loglikelihood ratio test. Time effects report the statistics of the test on the hypothesis that all decade-dummies are equal to 0. SBIC reports that Schwartz Bayesian information criterion for comparing models, and the smaller value, the better model. FE test reports the Hausman statistic for the comparison between pooled logit and FE logit model (Greene, 2012, p. 763). FE vs RE test reports the Hausman statistic for the comparison between random effects and fixed effects logit models.

The results in Table 3.2 show that banking crises are more likely to occur in election years. This, coupled with the findings of YAFELECTION (see Table 3.1), implies that electoral effects on banking crises are stronger immediately after elections. As argued by Brown and Dinc (2005), governments tend to postpone bank bailouts when elections are approaching because revealing the real costs of those bailouts could influence their chance of re-election.

Another proxy that we use to measure the degree of political stability is the percentage of veto players who leave the government in any given year (STAB). The changes in the head of governments or governing groups can be associated with higher political instability and the probability of financial crises (Rivoli and Brewer, 1997; Yu, 2016). As expected, banking, currency, and twin and triple crises are more likely to occur when the percentages of veto players leaving governments increase. This is because new governing groups taking office could implement major policy shifts, which result in higher economic uncertainty caused by increased risks of policy changes.

The results also show that the effects of left-wing governments (LEFTGOV) on the probability of currency crises are opposite with those of right-wing governments (see Table 3.2). In particular, currency crises are less likely to occur when the incumbent governments are formed by the left-wing. As right-wing governments tend to refrain necessary economic reforms (Galasso, 2014), the inverse was expected to happen with the left-wing governments.

Regarding government support, an incumbent majority government (MAJORGOV) can be either formed by a single majority government (SINMAJGOV) or two or more coalition majority governments (COLIMAJGOV). Banking and financial crises, in general, are more likely to occur when incumbent governments are formed by a single majority government. As argued by Finer (1982) and Colomer (2012), single majority governments can be strongly socially biased. Their economic and social policies can be influenced by minority interest groups and not encompass broad social preferences.

However, single majority governments appear to reduce the likelihood of twin and triple crises, which is consistent with the previous findings on majority governments. The severity of economic conditions associated with twin and triple crises, compared to a single-event financial crisis, could be a condition for majority governments to implement necessary reforms for the nationôs sake (Drazen and Grilli, 1993).

To further check for the sensitivity of political determinants of financial crises, Table 3.4 reports the second sensitivity analysis with alternative measures of political factors. YAFELECTION is replaced by the number of years after elections (NUMYEAFELEC) to account for the increased likelihood of financial crises after elections. The results indicate that the probability of banking and currency crises is lower when the number of years after elections increases. This corroborates the findings that banking and currency crises and more likely to occur within one year after elections.

With respect to political stability, the tenure of incumbent executives (YEXEOFFICE) is replaced by the tenure of incumbent parties (PARTYINOFF). This study finds that an additional year that an incumbent party stays in office leads to a reduction in the probability of banking crises, which is consistent with the previous findings on the effects of the tenure of incumbent executives. However, its effects on other types of financial crises are statistically insignificant. It could be argued that the implications of party tenure on financial crises are less significant than those of executive tenure. This is because the risk of policy changes can also arise due to changes in chief executives even though they are in the same party.

Centre governments (CENTREGOV) and left-wing governments dummies are added simultaneously to provide a more comprehensive view of the impact of political ideology. The results are also consistent: currency crises are more likely to occur when right-wing governments stay in office, and the inverse holds for left-wing governments.

Table 3.4. Sensitivity analysis II: Alternative political determinants of financial crises

	Banking crises	Currency crises	Sovereign Debt crises	Twin and triple crises	All crises
KAOPEN	-0.190*	-0.595***	-0.574***	-0.0534	-0.422***
	(0.109)	(0.169)	(0.0927)	(0.205)	(0.0650)
EXREGIME	-0.229	-2.342***	-1.066***	-0.106	-0.675***
	(0.223)	(0.356)	(0.237)	(0.417)	(0.139)
CUACC/GDP	0.00278	-0.0375**	0.0475***	-0.0797**	0.0188*
	(0.0155)	(0.0185)	(0.0151)	(0.0331)	(0.00963)
PSCGROWTH	-0.0269***	-0.00194	0.000132	-0.00356	-0.000678
	(0.00480)	(0.00277)	(0.00217)	(0.00536)	(0.00184)
RGDPGROW	-0.142***	-0.00305	0.00833	-0.0695**	-0.100***
	(0.0215)	(0.0224)	(0.0157)	(0.0320)	(0.0140)
RESERVES/GDP	-0.1000***	-0.139***	-0.0765***	-0.0938**	-0.0820***
	(0.0187)	(0.0317)	(0.0160)	(0.0460)	(0.0102)
TRADE/GDP	0.0180***	-0.0391***	0.00245	-0.0400***	0.00840**
	(0.00679)	(0.0103)	(0.00520)	(0.0145)	(0.00356)
GOVDEBT/GDP	0.00669***	-0.00450	0.0283***	0.0292***	0.0128***
	(0.00239)	(0.00384)	(0.00416)	(0.00709)	(0.00239)
USRRATE	-0.170***	0.166**	0.0456	0.251**	-0.0798**
	(0.0601)	(0.0805)	(0.0442)	(0.112)	(0.0337)
INFLATION	0.000109	-0.000185	0.000324	-0.00128	0.000338
	(0.000117)	(0.000127)	(0.000442)	(0.00121)	(0.000528)
DEPOSIT/GDP	0.0406***	-0.00379	-0.0194**	0.0408*	0.0184***
	(0.00742)	(0.00528)	(0.00782)	(0.0210)	(0.00420)
NUMYEAFELEC	-0.116**	-0.116*	-0.00852	-0.0552	-0.0284
	(0.0487)	(0.0627)	(0.0384)	(0.0855)	(0.0258)
PARTYINOFF	-0.0189*	0.0520	0.0155	0.0293	0.00726
	(0.0110)	(0.0241)	(0.0108)	(0.0285)	(0.00663)
CENTREGOV	0.825***	-0.417	-0.537*	0.350	-0.300
	(0.312)	(0.555)	(0.318)	(0.600)	(0.187)
LEFTGOV	0.0112	-0.642*	-0.0233	0.320	-0.0707
	(0.212)	(0.384)	(0.201)	(0.512)	(0.126)
COLIMAJGOV	-0.411*	-0.956**	-0.110	-0.970**	-0.292**
	(0.222)	(0.435)	(0.232)	(0.495)	(0.139)
Observations	1814	1432	1154	829	2217
Countries	66	58	45	32	82
Time effects	63.57***	19.22***	41.17***	35.09***	94.30***
Pseudo LL	-372.118	-220.326	-256.963	-177.992	-597.640
Overall test statistics	295.95***	266.64***	484.13***	121.02***	524.21***
SBIC	894.303	585.989	654.946	370.3882	1349.357
FE test	48.51***	36.73***	97.07***	86.05***	170.10***
FE vs RE test	95.53***	39.53***	63.59***	85.82***	115.31***

Notes: The table reports the effects of economic and political factors on different types of financial crises over the period 1975-2017 using alternative measures of political factors. The FE logit is reported in all specifications. All estimates report the average (semi) elasticities. Standard errors are given in parentheses. ***, **, * indicate significant levels of 1%, 5%, and 10%, respectively. Overall test statistics report the statistic of the loglikelihood ratio test. Time effects report the statistics of the test on the hypothesis that all decade-dummies are equal to 0. SBIC reports that Schwartz Bayesian information criterion for comparing models, and the smaller value, the better model. FE test reports the Hausman statistic for the comparison between pooled logit and FE logit model (Greene, 2012, p. 763). FE vs RE test reports the Hausman statistic for the comparison between random effects and fixed effects logit models.

Moving to political support, we find that majority governments formed by (COLIMAJGOV) are associated with a lower probability of any type of financial crisis, except debt crisis. There is robust evidence that majority governments reduce the likelihood of twin and triple crises. However, while single majority governments increase the probability of financial crises, coalition majority governments show an opposite effect. This could explain why the overall effects of majority governments (MAJORGOV) on the probability of single-event financial crises are insignificant. This finding is in line with Colomer (2012) and Bawn and Rosenbluth (2006) who show that majority governments formed by coalition governments produce more stable economic policies. This, in turn, reduces the probability of financial crises.

3.5.3. Robustness checks

To control for the possibility that our main findings are influenced by the heterogeneous groups of countries in our sample, we divide the analysis into two groups: advanced and emerging/developing countries.[45] Table 3.5 reports the results for both groups of countries. As developed countries are less likely to experience currency, sovereign debt, and twin and triple crises (consequently, the number of observations is very low), this analysis focuses on the emerging and developing countries; for advanced economies, we only report the results for banking and financial crises in general (ñall crisesò).[46]

[45] These two groups of countries are identified based on the country classifications of World Economic Outlook. For details, see https://www.imf.org/external/pubs/ft/weo/2018/02/weodata/groups.htm

[46] In our dataset, advanced countries experienced only nine currency crises, four sovereign debt crises, and three twin and triple crises over the period 1975-2017.

Table 3.5. Political determinants of financial crises in developed and developing countries

	Developed countries		***Emerging/Developing countries***				
	Banking crisis	All crises	Banking crises	Currency crises	Sovereign Debt crises	Twin and triple crises	All crises
RESERVES/GDP	-0.734***	-0.686***	-0.0404**	-0.139***	[*omitted*]	-0.0915**	-0.0412***
	(0.261)	(0.238)	(0.0203)	(0.0281)		(0.0392)	(0.00891)
INFLATION	0.584	0.112	0.0000915	0.000119	0.000348	0.000159	[*omitted*]
	(0.490)	(0.435)	0.0000978	(0.000180)	(0.000419)	(0.000142)	
KAOPEN	-0.128***	-0.118***	-0.0926***	-0.364**	-0.603***	-0.00195	-0.281***
	(0.0438)	(0.0375)	(0.121)	(0.149)	(0.0895)	(0.184)	(0.0578)
EXREGIME	-0.0329*	-0.0265*	-0.0195	-0.786***	-0.807***	-0.128	-0.314**
	(0.0170)	(0.0155)	(0.257)	(0.278)	(0.216)	(0.386)	(0.134)
CUACC/GDP	-0.318***	-0.296***	0.0143	-0.00673	0.0159	-0.0924***	0.00532
	(0.0564)	(0.0503)	(0.0163)	(0.0157)	(0.0128)	(0.0301)	(0.00802)
PSCGROWTH	-0.181***	-0.171***	-0.00190	0.00140	0.000383	-0.00622	-0.000941
	(0.0477)	(0.0435)	(0.00257)	(0.00180)	(0.00208)	(0.00533)	(0.00160)
RGDPGROW	0.0314*	0.0259*	-0.0629***	-0.142***	-0.00135	-0.0298	-0.0252**
	(0.0179)	(0.0154)	(0.0219)	(0.0226)	(0.0137)	(0.0300)	(0.0108)
TRADE/GDP	-0.0127	-0.0134*	0.00864	0.0207***	-0.00599	-0.0576***	0.00420
	(0.00926)	(0.00811)	(0.00735)	(0.00733)	(0.00509)	(0.0159)	(0.00343)
GOVDEBT/GDP	-0.0567	-0.128*	0.00114	-0.00617*	0.0278***	0.0160**	0.0148***
	(0.0928)	(0.0742)	(0.00256)	(0.00347)	(0.00396)	(0.00750)	(0.00264)
USRRATE	0.0575***	0.0731***	0.0674	0.183***	0.0910**	0.296**	0.0400
	(0.0204)	(0.0268)	(0.0661)	(0.0694)	(0.0393)	(0.117)	(0.0292)
DEPOSIT/GDP	0.0781***	0.0613***	-0.000274	0.000672	-0.0372***	0.0567***	-0.0123***
	(0.0151)	(0.0125)	(0.0111)	(0.00528)	(0.00916)	(0.0195)	(0.00373)
YAFELECTION	0.566**	0.355	0.307*	0.345*	-0.0721	-0.0555	0.0764
	(0.269)	(0.246)	(0.185)	(0.194)	(0.118)	(0.278)	(0.0864)
YEXEOFFICE	0.00129	-0.0277	-0.0591**	0.0382	-0.0324**	-0.0793*	0.00867
	(0.0603)	(0.0565)	(0.0298)	(0.0237)	(0.0152)	(0.0432)	(0.0120)
RIGHTGOV	-0.0556	0.0898	0.344	0.215	0.0387	0.110	0.0933
	(0.302)	(0.270)	(0.267)	(0.294)	(0.170)	(0.393)	(0.124)
MAJORGOV	-0.592*	-0.440	0.503*	-0.192	-0.245	-0.632*	0.0230
	(0.337)	(0.305)	(0.283)	(0.292)	(0.179)	(0.374)	(0.123)
Observations	774	790	1096	1294	1072	799	1569
Countries	23	23	46	55	43	31	62
Time effects	39.43***	25.07***	27.18***	16.25***	30.41***	13.62***	18.63***
Pseudo LL	-126.229	-150.269	-249.029	-224.134	-253.278	-134.650	-439.038
Overall test statistics	210.82***	208.13***	111.00***	270.34***	532.90***	99.85***	455.02***
FE test	43.85***	42.10***	15.34***	44.95***	71.77***	24.17***	126.84***
FE vs RE test	47.06***	30.24**	52.66***	36.23***	30.54**	15.12***	139.47***

Notes: The table shows the effects of political factors on financial crises in developed and emerging countries. The FE logit is reported in all specifications. All estimates report the average (semi) elasticities. Standard errors are given in parentheses. ***, **, * indicate significant levels of 1%, 5%, and 10%, respectively. Overall test statistics report the statistic of the loglikelihood ratio test. Time effects report the statistics of the test on the hypothesis that all decade-dummies are equal to 0. SBIC reports that Schwartz Bayesian information criterion for comparing models, and the smaller value, the better model. FE test reports the Hausman statistic for the comparison between pooled logit and FE logit model (Greene, 2012, p. 763). FE vs RE test reports the Hausman statistic for the comparison between random effects and fixed effects logit models.

Table 3.6. Sequencing effects

	Banking crisis	Currency crisis	Debt crisis
RESERVES/GDP	-0.0921***	-0.106***	
	(0.0180)	(0.0271)	
INFLATION	0.000134	-0.000234**	0.000405
	(0.000130)	(0.000113)	(0.000432)
KAOPEN	-0.178*	-0.401***	-0.489***
	(0.101)	(0.139)	(0.0878)
EXREGIME	-0.0885	-0.844***	-1.024***
	(0.214)	(0.264)	(0.234)
CUACC/GDP	0.00262	-0.0301*	0.0283**
	(0.0152)	(0.0179)	(0.0132)
PSCGROWTH	-0.00297	-0.00278	0.000572
	(0.00318)	(0.00257)	(0.00272)
RGDPGROW	-0.127***	-0.138***	-0.0188
	(0.0197)	(0.0231)	(0.0147)
TRADE/GDP	0.0124*	-0.0316***	-0.00123
	(0.00652)	(0.00877)	(0.00524)
GOVDEBT/GDP	0.00237	-0.00418	0.0331***
	(0.00256)	(0.00323)	(0.00406)
USRRATE	-0.153***	0.175**	0.0701*
	(0.0575)	(0.0871)	(0.0418)
DEPOSIT/GDP	0.0433***	-0.00570	-0.0207***
	(0.00726)	(0.00484)	(0.00721)
YAFELECTION	0.305**	0.345*	-0.0197
	(0.148)	(0.193)	(0.126)
YEXEOFFICE	-0.0604**	-0.0440*	-0.0385**
	(0.0268)	(0.0257)	(0.0156)
RIGHTGOV	0.0540	0.489*	0.0869
	(0.181)	(0.281)	(0.178)
MAJORGOV	0.0896	-0.389	-0.0754
	(0.189)	(0.287)	(0.180)
CURRENCRISIS	0.896***		1.035***
	(0.268)		(0.263)
DEBTCRISIS	0.384	1.039***	
	(0.297)	(0.344)	
BANKCRISIS		1.041***	0.00857
		(0.286)	(0.241)
Observations	1909	1623	1203
Countries	69	64	47
Time effects	60.59***	16.42***	45.51***
Pseudo LL	-409.20***	-238.230	-271.915
Overall test statistics	270.69***	340.67***	520.80***
FE test	64.46***	33.76**	74.09***
FE vs RE test	70.43***	36.18**	126.17***

Notes: Estimations controlling for crisis sequencing effects over the period 1975-2017 using fixed-effects logit model. All estimates report the average (semi) elasticities. CURRENCRISIS, DEBTCRISIS, and BANKCRISIS are in contemporaneous. Standard errors are given in parentheses. ***, **, * indicate significant levels of 1%, 5%, and 10%, respectively. Overall test statistics report the statistic of the loglikelihood ratio test. Time effects report the statistics of the test on the hypothesis that all decade-dummies are equal to 0. SBIC reports that Schwartz Bayesian information criterion for comparing models, and the smaller value, the better model. FE test reports the Hausman statistic for the comparison between pooled logit and FE logit model (Greene, 2012, p. 763). FE vs RE test reports the Hausman statistic for the comparison between random effects and fixed effects logit models.

Again, the effects of the political factors on the probability of financial crises, in general, are statistically insignificant in both groups of countries, which further confirm the need to dig deeper into different types of financial crises. Most of the political effects observed in the two groups of countries are consistent with the main findings in Table 3.2. It can be concluded that our results are less likely to be influenced by the eventual heterogeneity between these two groups of countries. The only exception is the impact of majority governments on systemic banking crises. In particular, majority governments increase the probability of banking crises in emerging and developing countries, whereas they reduce the likelihood of banking crises in advanced countries. It is likely that single majority governments, which associate with higher levels of policy instability (Bawn and Rosenbluth, 2006; Colomer, 2012), are more prevalent in emerging and developing countries; moreover, they might have a political agenda that is influenced by minority groups of interests that might lead to unbalanced social, economic and financial policies. In contrast, majority governments in developed countries are more likely to be formed by coalition parties, which provides better scrutinised and more stable economic policies.

The second set of robustness tests is provided in Table 3.6, where the sequencing effects of financial crises are taken into account. Financial crises could not be single events. They tend to come in waves and influence each other. It is important to control for the possibility that one type of financial crises is influenced by others.

Our results show that that different types of financial crises do influence each other. In particular, a banking crisis is more likely to arise when a currency crisis is ongoing; but banking crises also lead to an increase in the probability of a currency crisis. Hence, banking and currency crises might precede each other. However, the impact of a banking crisis on a currency crisis is higher than the inverse effect. The sequencing effects between currency and debt crises are also positive and significant, indicating that the occurrence of one of them increases the

probability of the other unfolding. The effects of debt crises on banking crises and their inverse effects are statistically insignificant. This is reasonable as we identify only 7 twin crises relating to debt and banking crises over the period 1970-2017.

3.5.4. Political factors and the onset of financial crises

As mentioned earlier, we use lags of all economic variables to mitigate endogeneity problems. Moreover, the Wald exogeneity tests of IV-probit models reject the endogeneity hypothesis. To further control for endogeneity, we borrow from Demirguc-Kunt and Detragiache (1998) the idea of focusing only on the onset of financial crises and tranquil periods. All observations for the length of financial crises are removed except the years of their onsets. This means that our *FinCrises* dummy is now equal to 1 only in the year in which the respective type of crises arises, and 0 otherwise. This is done to avoid that the behaviour of economic and political factors could be influenced by the development of the financial crises themselves. The drawback of this method is that several years of observations are lost.

Table 3.7 reports the results for the onset of financial crises using a fixed-effects logit model. The regressions show that the impact of economic and political variables on the onset of financial crises are consistent with the main findings provided above. In particular, banking and currency crises are more likely to occur within one year after elections. Again, an additional year in office of incumbent executives increases the probability of any type of financial crisis arising. Moreover, the likelihood of currency crises is higher when incumbent governments are formed by right-wing parties. All the coefficient signs on majority governments are consistent with the main findings. However, the effects of majority governments on twin and triple crises are statistically insignificant despite carrying the same coefficient sign.

Overall, these results for the onset of financial crises corroborate the main conclusions of the analysis provided above regarding the role that the political environment can play in the timing of different types of financial crises.

Table 3.7. Political factors and the onset of financial crises

	Banking crises	Currency crises	Sovereign Debt crises	Twin and triple crises	All crises
RESERVES/GDP	-0.0350	-0.0304**		-0.0432	-0.117***
	(0.0319)	(0.0152)		(0.0567)	(0.0219)
INFLATION	0.000139	-0.000369	-0.0293**	-0.0201*	
	(0.000147)	(0.000297)	(0.0148)	(0.0103)	
KAOPEN	-0.157*	-0.318*	-0.564**	-0.0819	-0.401***
	(0.190)	(0.164)	(0.284)	(0.276)	(0.116)
EXREGIME	0.276	-1.442***	-2.316**	-1.753***	-0.601**
	(0.403)	(0.349)	(1.034)	(0.675)	(0.260)
CUACC/GDP	-0.0296	-0.0527**	0.00971	-0.0624	-0.0199
	(0.0321)	(0.0225)	(0.0551)	(0.0451)	(0.0194)
PSCGROWTH	0.0258***	0.00783	0.0376	-0.0219**	-8.60e-06
	(0.00754)	(0.00511)	(0.0275)	(0.00931)	(0.000189)
RGDPGROW	-0.136***	-0.170***	-0.102*	-0.190***	-0.176***
	(0.0391)	(0.0285)	(0.0542)	(0.0450)	(0.0263)
TRADE/GDP	0.0140	-0.0524***	-0.0146	-0.0676***	0.00356
	(0.0132)	(0.0116)	(0.0181)	(0.0240)	(0.00663)
GOVDEBT/GDP	0.00390	-0.00937**	0.0240**	-0.00270*	0.00441
	(0.00504)	(0.00417)	(0.0113)	(0.0107)	(0.00376)
USRRATE	0.102	0.0145	0.127	0.116	0.0574
	(0.0930)	(0.0734)	(0.150)	(0.139)	(0.0558)
DEPOSIT/GDP	0.0422**	-0.000145	-0.0420	0.0327	0.0327***
	(0.0167)	(0.00575)	(0.0321)	(0.0319)	(0.0103)
YAFELECTION	0.495*	0.400*	-0.196	-0.0119	0.133
	(0.275)	(0.241)	(0.424)	(0.405)	(0.182)
YEXEOFFICE	-0.0913*	-0.0609*	-0.0775*	-0.0935*	0.0174
	(0.0534)	(0.0313)	(0.0438)	(0.0559)	(0.0238)
RIGHTGOV	0.0313	0.568*	0.607	0.0707	0.206
	(0.353)	(0.341)	(0.637)	(0.624)	(0.242)
MAJORGOV	0.623	-0.162	-1.281**	-0.321	0.355
	(0.392)	(0.360)	(0.619)	(0.613)	(0.268)
Observations	1600	1444	487	738	1686
Countries	60	60	28	28	77
Time effects	25.02***	9.51**	25.54***	15.66***	25.06***
Pseudo LL	-154.409	-182.457	-67.901	-69.323	-272.716
Overall test statistics	124.36***	189.92***	59.57***	86.95***	252.35***
SBIC	448.995	503.143	247.191	264.121	679.175
FE test	28.64***	121.70***	32.05**	22.12***	78.81***
FE vs RE test	38.32***	51.34***	14.32***	32.68***	32.62***

Notes: Estimation of the effects of economic and political factors on onset financial crises over the period 1975-2017 using a fixed-effects logit model. All estimates report the average (semi) elasticities. Standard errors are given in parentheses. ***, **, * indicate significant levels of 1%, 5%, and 10%, respectively. Overall test statistics report the statistic of the loglikelihood ratio test. Time effects report the statistics of the test on the hypothesis that all decade-dummies are equal to 0. SBIC reports that Schwartz Bayesian information criterion for comparing models, and the smaller value, the better model. FE test reports the Hausman statistic for the comparison between pooled logit and FE logit model (Greene, 2012, p. 763). FE vs RE test reports the Hausman statistic for the comparison between random effects and fixed effects logit models.

3.6. Conclusions

Different types of financial crises have repeatedly occurred all over the world. To tackle their occurrence, it is important to understand their drivers. Using a fixed-effects logit model over a sample of 85 countries for the period 1975-2017, this study examines the effects of political factors on the probability of financial crises. This is the first attempt to provide a comprehensive view of the implications of the electoral cycle, political ideology, political stability, and government support on the likelihood of different types of financial crises.

We find that systemic banking and currency crises are more likely to occur within one year after elections, giving support to the ñhoneymoon hypothesisò. New policies and reforms tend to be implemented in the immediate aftermath of elections and, hence, generate higher economic uncertainty, which can turn into financial crises. In addition, governments may postpone necessary interventions and boost the economy when elections are approaching to enhance the chances of being re-elected.

Our results also indicate that a longer tenure of incumbent executives reduces the likelihood of financial crises. Among political variables, this factor exerts a consistent and statistically significant impact on all types of financial crises. By staying in office for longer, they can carry on with the announced programs. This lowers political and economic uncertainty caused by policy changes, and thus reduces the probability of financial crises.

Currency crises are more likely to occur when right-wing governments are in office. It could be argued that right-wing governments tend to refrain from implementing necessary economic reforms during pre-crisis periods given their higher propensity to promote economic freedom. Furthermore, there are robust findings that majority governments reduce the likelihood of twin and triple crises. This might be due to the fact that majority governments, holding an absolute majority of seats in the parliament, would face less policy gridlock to implement necessary preventive policies or economic reforms against economic shocks.

These findings survive sensitivity analyses and robustness checks. They indicate that political factors are important drivers of financial crises. However, an important message here is that the political effects only become evident when we dig deeper into the analysis of the different types of financial crises. Our findings suggest that policymakers should pay careful attention to the developments of the economic environment in the aftermath of elections. They should also work together to promote political stability and political cohesion, especially during times of crises. This is not an easy task but could have helped countries like Argentina and Greece to avoid more prolonged and severe crises. The length and severity of crises are issues that we intend to explore in future research.

APPENDIX A3

Table A3.1. List of countries (1975-2017)

Albania[235]	Costa Rica[12345]	Honduras[235]	Mexico[12345]	Solomon Islands[35]
Algeria [12345]	Croatia[15]	Hungary[15]	Moldova[12345]	South Africa[2345]
Angola[235]	Cyprus[135]	Iceland[1245]	Mozambique[125]	Spain[125]
Argentina[12345]	Czech Rep[15]	India[15]	Netherlands[15]	Sri Lanka[1235]
Austria[15]	Denmark[15]	Ireland[135]	Nicaragua[125]	Sweden[125]
Belize[35]	Dominican Rep[12345]	Israel[1245]	Niger[2]	Tajikistan[235]
Benin[1]	Ecuador[12345]	Italy[125]	Nigeria[1235]	Tanzania[2]
Bolivia[12345]	El Salvador[12345]	Jamaica[12345]	North Macedonia[35]	Thailand[1245]
Botswana[25]	Finland[125]	Japan[15]	Norway[15]	Tunisia[15]
Brazil[12345]	France[15]	Kazakhstan[125]	Panama[35]	Turkey[12345]
Bulgaria[12345]	Gambia The[235]	Korea Rep[1245]	Paraguay[12345]	Ukraine[12345]
Burkina Faso[1235]	Georgia[2]	Lao PDR[235]	Peru[12345]	United Kingdom[15]
Cabo Verde[135]	Germany[15]	Latvia[15]	Philippines[1245]	United States[15]
Central African Rep[124]	Ghana[235]	Lebanon[12345]	Portugal[1235]	Uruguay[12345]
Chile[12345]	Greece[1235]	Lesotho[25]	Romania[1245]	Venezuela[2345]
China[15]	Grenada[5]	Libya[25]	Russia Fed[125]	Vietnam[135]
Colombia[125]	Guatemala[2345]	Madagascar[12345]	Senegal[12345]	Zambia[12]
Comoros[35]	Guinea-Bissau[124]	Malawi[2345]	Sierra Leone[1245]	
Congo Rep[125]	Guyana[125]	Mali[3]	Slovenia[15]	

Notes: 1, 2, 3, 4, 5 indicate the countries that are, respectively, in the samples of systemic banking, currency, sovereign debt, twin and triple, and all crises. See also Table A2.2 for crises dates by country and type of crisis.

Table A3.2. Definition of the independent variables and respective sources

Variable name	*Definition*	**Source**
YAFELECTION	The year after election dummy variable that takes the value of 1 within one year after the election, and 0 otherwise.	DPI
Y1AFELECTION	The first year after election dummy variable that takes the value of 1 for the year after the election, and 0 otherwise	DPI
NUMYEAFELEC	The number of years after an election.	DPI
YEARELECTION	The year of election dummy variable that takes the value of 1 in the election year, and 0 otherwise.	DPI
Y1BELECTION	The year before election dummy variable that takes the value of 1 for the year before the election, and 0 otherwise.	DPI
YEXEOFFICE	The number of years that the chief executive stays in office.	DPI
PARTYINOFF	The number of years that an incumbent party stays in office.	
RIGHTGOV	The right-wing government dummy variable that takes the value of 1 when the incumbent government is formed by a right-wing, and 0 otherwise.	DPI
LEFTGOV	The left-wing government dummy variable that takes the value of 1 when the incumbent government is formed by a left-wing, and 0 otherwise.	DPI
CENTREGOV	The centre government dummy variable that takes the value of when the party position is centrist, and 0 otherwise.	DPI
STABS	Government stability measures the percentage of veto players who drop from the government in any given years.	DPI
MAJORGOV	The dummy variable of majority governments that takes the value of 1 when an incumbent government has an absolute majority of seats in the legislature or parliament, and 0 otherwise.	DPI
SINMAJGOV	Single party majority governments dummy variable.	DPI
COLIMAJGOV	Coalition majority government dummy variable.	DPI
RESERVES/GDP	The ratio of central bankôs international reserves to GDP.	IFS
INFLATION	Rate of change of the CPI index.	IFS
KAOPEN	Capital account openness index. It is constructed by the first standardised principal component of four types of restrictions on multiple exchange rate, current account transactions, capital account transactions, and export proceeds.	Chinn and Ito (2017)
EXREGIME	Exchange rate regime dummy variable that takes the value of 1 when a country has a fixed exchange rate regime, and 0 otherwise. A fixed exchange regime has one of the followings classifications: pre-announced peg or currency board arrangement; pre-announced horizontal band that is narrower than or equal to +/-2%; de facto peg; pre-announced crawling peg; de facto moving band narrower than or equal to +/-1%; pre-announced crawling band that is narrower than or equal to +/-2% or de facto horizontal band that is narrower than or equal to +/-2%; de facto crawling peg and de facto crawling band that is narrower than or equal to +/-2%.	Ilzetzki et al. (2017)
CUACC/GDP	The ratio of current account balance to GDP.	WDI where available; otherwise, World Economic Outlook (WEO, 2019)
PSCGROWTH	The change in the ratio of the domestic credit to private sector to GDP.	WDI
RGDPGROW	Real GDP growth rate.	IFS where available; otherwise, WDI
TRADE/GDP	Trade openness is measured by the share of the sum of imports and exports of goods and services to GDP.	WDI
GOVDEBT/GDP	The ratio of central government debts to GDP.	Global Debt Database (GDD, 2018) where available; otherwise, WDI
USRATE	US Treasury Bill rate.	IFS
DEPOSIT/GDP	The ratio of bank deposits to GDP.	Global Financial Development (GFD, 2017)

Table A3.3. Political and economic factors and the likelihood of systemic banking crises

	Pooled Logit	FE Logit	RE Logit	IV-Probit
KAOPEN	-0.0104**	-0.234**	-0.0169***	-0.0136***
	(0.00519)	(0.0965)	(0.00701)	(0.00622)
EXREGIME	-0.00864	-0.188	-0.0405***	-0.0405***
	(0.0104)	(0.208)	(0.0168)	(0.0154)
CUACC/GDP	-0.000813	-0.0177	-0.00286***	-0.00393***
	(0.000703)	(0.0144)	(0.00106)	(0.00132)
PSCGROWTH	-0.000108	-0.00254	-0.000212	-0.000186
	(0.000112)	(0.00327)	(0.000215)	(0.000248)
RGDPGROW	-0.00441**	-0.0973***	-0.00731***	-0.00679**
	(0.00180)	(0.0200)	(0.00233)	(0.00662)
RESERVES/GDP	-0.00448***	-0.0996***	-0.00341***	-0.000329**
	(0.00139)	(0.0174)	(0.00128)	(0.000911)
TRADE/GDP	0.000539	0.0118*	0.000350	0.000259
	(0.000441)	(0.00653)	(0.000257)	(0.000211)
GOVDEBT/GDP	2.02e-05	0.000334	-0.000181	-0.000368**
	(0.000103)	(0.00231)	(0.000138)	(0.000196)
USRRATE	-0.00722**	-0.161***	-0.0108***	-0.00278
	(0.00324)	(0.0558)	(0.00507)	(0.00420)
INFLATION	0.000059	0.000121	0.000106	0.000275
	(0.000067)	(0.000103)	(0.000793)	(0.000372)
DEPOSIT/GDP	0.00208***	0.0464***	0.00106***	-0.000130***
	(0.000659)	(0.00727)	(0.000384)	(0.000314)
YAFELECTION	0.0144*	0.320**	0.0219**	0.0186*
	(0.00754)	(0.144)	(0.0119)	(0.0118)
YEXEOFFICE	-0.00230*	-0.0511**	-0.00449***	-0.00526***
	(0.00125)	(0.0254)	(0.00205)	(0.00204)
RIGHTGOV	0.00522	0.120	0.00152	-0.00326
	(0.00788)	(0.175)	(0.0120)	(0.0121)
MAJORGOV	0.00307	0.0750	0.00134	0.00130
	(0.00779)	(0.185)	(0.0130)	(0.0127)
Observations	1916	1916	1916	1896
Countries	69	69	69	69
Country effects	152.81***			
Time effects	57.96***	64.49***	59.36***	109.31***
Pseudo R^2	0.2529			
Pseudo LL	-522.374	-433.910	-601.943	-31712.89
Overall test statistics	304.24***	220.47***	130.79***	119.61***
SBIC	1709.85	1011.423	1362.604	64286.19
FE test		59.01***		
Random test			15.15***	
FE vs RE test		159.10***		
Endogeneity test				6.52

Notes: The table reports the implications of economic and political factors on systemic banking crises over the period 1975-2017. See Table A3.1 for the list of countries. FE logit model reports the average (semi) elasticities because the marginal effects of the approach cannot be estimated (Wooldridge, 2010, p.622), all estimates of. Other methods report the marginal effects. Standard errors are given in parentheses. Standard errors of pooled logit and IV-Probit models are robust. ***, **, * indicate significant levels of 1%, 5%, and 10%, respectively. Overall test statistics report the statistic of the LR tests for pooled and FE logit models or Wald tests for RE logit and IV-Probit models. Time effects report the statistic of the test on the hypothesis that all decade-dummies are equal to 0. SBIC reports that Schwartz Bayesian information criterion for comparing models, and the smaller value, the better model. FE test reports the Hausman statistic for the comparison between pooled logit and FE logit model (Greene, 2012, p. 763). FE vs RE test reports the Hausman statistic for the comparison between random effects and fixed effects logit models. Random test reports the LR-test statistic for the comparison between RE logit and pooled logit. Endogeneity test reports the statistic of the Wald exogeneity test for the IV-Probit model.

Table A3.4. Political and economic factors and the likelihood of currency crises

	Pooled Logit	FE Logit	RE Logit	IV-Probit
KAOPEN	-0.00785***	-0.435***	-0.0194***	-0.0286***
	(0.00295)	(0.137)	(0.00556)	(0.00566)
EXREGIME	-0.0176***	-0.935***	-0.0443***	-0.0396***
	(0.00559)	(0.257)	(0.0124)	(0.0109)
CUACC/GDP	-0.000622*	-0.0325*	-0.00208***	-0.00133*
	(0.000376)	(0.0175)	(0.000725)	(0.00129)
PSCGROWTH	-0.0000515	-0.00268	-0.000107	-0.000144
	(0.000055)	(0.00244)	(0.000127)	(0.000177)
RGDPGROW	-0.00292***	-0.155***	-0.00680***	-0.00739***
	(0.000802)	(0.0226)	(0.00136)	(0.00125)
RESERVES/GDP	-0.00219***	-0.115***	-0.00233***	-0.00167**
	(0.000487)	(0.0268)	(0.000769)	(0.000679)
TRADE/GDP	-0.000491***	-0.0265***	-0.000453*	-0.000413*
	(0.000189)	(0.00843)	(0.000260)	(0.000230)
GOVDEBT/GDP	-0.000758	-0.00394	-0.000182	0.000780*
	(0.000651)	(0.00327)	(0.000115)	(0.000137)
USRRATE	0.00152	0.0800	0.00545*	0.00538**
	(0.00123)	(0.0604)	(0.00299)	(0.00302)
INFLATION	-0.000367*	-0.000196*	-0.000720	-0.000712
	(0.000225)	(0.000108)	(0.00053)	(0.00052)
DEPOSIT/GDP	-0.000617	-0.00342	-0.000126	-0.000614**
	(0.000534)	(0.00406)	(0.000212)	(0.000297)
YAFELECTION	0.00578*	0.320*	0.0138	0.0106
	(0.00350)	(0.187)	(0.00905)	(0.00893)
YEXEOFFICE	-0.000922*	-0.0498**	0.000893	0.000193
	(0.000577)	(0.0253)	(0.000856)	(0.000091)
RIGHTGOV	0.00829**	0.457*	0.0215**	0.0206**
	(0.00447)	(0.265)	(0.0107)	(0.00899)
MAJORGOV	-0.00655	-0.349	-0.0122	-0.0114
	(0.00447)	(0.272)	(0.0119)	(0.0103)
Observations	1633	1633	1633	1611
Countries	64	64	64	64
Country effects	153.86***			
Time effects	12.66**	13.41***	15.09***	62.62***
Pseudo R^2				
Pseudo LL	-323.336	-253.704	-396.241	-13165.529
Overall test statistics	283.00***	312.75***	155.34***	198.83***
SBIC	1260.72	647.973	947.844	26988.29
FE test		34.19**		
Random test			25.72***	
FE vs RE test		39.96***		
Endogeneity test				3.51

Notes: The table reports the impact of economic and political factors on currency crises over the period 1975-2017. See Table A3.1 for the list of countries. FE logit model reports the average (semi) elasticities because the marginal effects of the estimator cannot be estimated (Wooldridge, 2010, p.622). Other methods report the marginal effects. Standard errors are given in parentheses. Standard errors of pooled logit and IV-Probit models are robust. ***, **, * indicate significant levels of 1%, 5%, and 10%, respectively. Overall test statistics report the statistic of the LR tests for pooled and FE logit models or Wald tests for RE logit and IV-Probit models. Time effects report the statistic of the test on the hypothesis that all decade-dummies are equal to 0. SBIC reports that Schwartz Bayesian information criterion for comparing models, and the smaller value, the better model. FE test reports the Hausman statistic for the comparison between pooled logit and FE logit model (Greene, 2012, p. 763). FE vs RE test reports the Hausman statistic for the comparison between random effects and fixed effects logit models. Random test reports the LR-test statistic for the comparison between RE logit and pooled logit. Endogeneity test reports the statistic of the Wald exogeneity test for the IV-Probit model.

Table A3.5. Political and economic factors and the likelihood of sovereign debt crises

	Pooled Logit	FE Logit	RE Logit	IV-Probit
KAOPEN	-0.176***	-0.521***	-0.0985***	-0.0441***
	(0.0255)	(0.0854)	(0.0167)	(0.0151)
EXREGIME	-0.381***	-1.112***	-0.221***	-0.101**
	(0.0983)	(0.231)	(0.0448)	(0.0380)
CUACC/GDP	0.00648	0.0193	0.00264	-0.00697**
	(0.00448)	(0.0132)	(0.00273)	(0.00310)
PSCGROWTH	0.000299	0.000973	4.20e-05	-0.000275
	(0.000766)	(0.00239)	(0.000455)	(0.000612)
RGDPGROW	-0.00256	-0.00799	-0.00164	-0.00580
	(0.00559)	(0.0146)	(0.00306)	(0.0227)
TRADE/GDP	-0.00126	-0.00365	-0.000154	0.000877**
	(0.00220)	(0.00513)	(0.000908)	(0.000679)
GOVDEBT/GDP	0.0108***	0.0312***	0.00616***	0.00503***
	(0.00169)	(0.00396)	(0.000783)	(0.00100)
USRRATE	0.0259*	0.0780*	0.0158*	0.0184
	(0.0131)	(0.0407)	(0.00851)	(0.0130)
INFLATION	0.000135	0.000383	9.78e-05	0.000142
	(0.000128)	(0.000442)	(9.90e-05)	(0.000236)
DEPOSIT/GDP	-0.00713*	-0.0207***	-0.00453***	-0.0172***
	(0.00367)	(0.00723)	(0.00131)	(0.00171)
YAFELECTION	-0.0113	-0.0244	-0.00876	0.0168
	(0.0393)	(0.124)	(0.0261)	(0.0329)
YEXEOFFICE	-0.0133**	-0.0386**	-0.00663**	-0.00342
	(0.00542)	(0.0153)	(0.00302)	(0.00333)
RIGHTGOV	0.0471	0.129	0.0366	0.0662
	(0.0616)	(0.174)	(0.0353)	(0.0369)
MAJORGOV	-0.0470	-0.129	-0.0221	-0.0182
	(0.0609)	(0.176)	(0.0361)	(0.0425)
Observations	1203	1203	1203	1199
Countries	47	47	47	47
Country effects	222.29***			
Time effects	43.86***	43.28***	46.19***	66.39***
Pseudo R^2	0.573			
Pseudo LL	-342.080	-283.094	-426.170	-16296.648
Overall test statistics	285.12***	498.44***	183.13***	206.75***
SBIC	1145.177	693.855	994.192	33195.88
FE test		73.68***		
Random test			269.32***	
FE vs RE test		46.71***		
Endogeneity test				5.77

Notes: The table reports the implications of economic and political factors on sovereign debt crises over the period 1975-2017. See Table A3.1 for the list of countries. As marginal effects of FE logit estimator cannot be estimated (Wooldridge, 2010, p.622), all estimates of FE logit model report the average (semi) elasticities. Other methods report the marginal effects. Standard errors are given in parentheses. Standard errors of pooled logit and IV-Probit models are robust. ***, **, * indicate significant levels of 1, 5, and 10%, respectively. Overall test statistics report the statistic of LR tests for pooled and FE logit models or Wald tests for RE logit and IV-Probit models. Time effects report the statistic of the test on the hypothesis that all decade-dummies are equal to 0. SBIC reports that Schwartz Bayesian information criterion for comparing models, and the smaller value, the better model. FE test reports the Hausman statistic for the comparison between pooled logit and FE logit model (Greene, 2012, p. 763). FE vs RE test reports the Hausman statistic for the comparison between random effects and fixed effects logit models. Random test reports the LR-test statistic for the comparison between RE logit and pooled logit. Endogeneity test report that statistic of the Wald exogeneity test for the IV-Probit model.

Table A3.6. Political and economic factors and the likelihood of twin and triple crises

	Pooled Logit	FE Logit	RE Logit	IV-Probit
KAOPEN	0.00139	-0.0137	-0.00212	-0.00256
	(0.00303)	(0.181)	(0.129)	(0.00580)
EXREGIME	-0.00233	-0.123	-0.728**	-0.0602
	(0.00637)	(0.365)	(0.310)	(0.0173)
CUACC/GDP	-0.00188***	-0.108***	-0.0840***	-0.00271***
	(0.000648)	(0.0273)	(0.0197)	(0.00142)
PSCGROWTH	0.00310	0.00158	0.00283	0.000146
	(0.00443)	(0.00382)	(0.00291)	(0.000154)
RGDPGROW	-0.000700	-0.0407	-0.0763***	-0.00298***
	(0.000660)	(0.0296)	(0.0271)	(0.00142)
RESERVES/GDP	-0.00132*	-0.0751**	0.00507	-0.000241
	(0.000800)	(0.0364)	(0.0232)	(0.000992)
TRADE/GDP	-0.000969***	-0.0565***	-0.0157**	-0.000686**
	(0.000377)	(0.0154)	(0.00686)	(0.000305)
GOVDEBT/GDP	0.000363**	0.0202***	0.00110	0.00213
	(0.000135)	(0.00634)	(0.00309)	(0.00156)
USRRATE	0.00354*	0.207**	0.220**	0.00799**
	(0.00193)	(0.0952)	(0.0960)	(0.00434)
INFLATION	-0.000719	-0.000428	-0.00104	-0.000367
	(0.000921)	(0.000711)	(0.000866)	(0.000251)
DEPOSIT/GDP	0.00102***	0.0582***	0.00692	0.000286
	(0.000354)	(0.0175)	(0.00799)	(0.000355)
YAFELECTION	0.00439	0.244	0.122	0.00660
	(0.00442)	(0.264)	(0.267)	(0.0125)
YEXEOFFICE	-0.00153**	-0.0879**	-0.0329	-0.00185
	(0.000740)	(0.0415)	(0.0287)	(0.00148)
RIGHTGOV	-0.00135	-0.0804	-0.155	-0.00662
	(0.00630)	(0.368)	(0.270)	(0.0118)
MAJORGOV	-0.0118**	-0.683*	-0.562*	-0.0248*
	(0.00574)	(0.360)	(0.298)	(0.0132)
Observations	904	904	904	895
Countries	34	34	34	34
Country effects	53.26**			
Time effects	18.13***	42.35***	11.50**	63.94***
Pseudo R^2	0.305			
Pseudo LL	-182.951	-144.509	-216.222	-5313.735
Overall test statistics	136.52***	112.33***	58.48***	69.76***
SBIC	726.664	416.400	575.387	11232.39
FE test		37.23***		
Random test			31.90***	
FE vs RE test		27.26**		
Endogeneity test				4.81

Notes: The table reports the implications of economic and political factors on twin and triple crises over the period 1975-2017. FE logit model reports the average (semi) elasticities because the marginal effects of the approach cannot be estimated (Wooldridge, 2010, p.622). Other methods report the marginal effects. Standard errors are given in parentheses. Standard errors of pooled logit and IV-Probit models are robust. ***, **, * indicate significant levels of 1%, 5%, and 10%, respectively. Overall test statistics report the statistic of the LR tests for pooled and FE logit models or Wald tests for RE logit and IV-Probit models. Time effects report the statistic of the test on the hypothesis that all decade-dummies are equal to 0. SBIC reports that Schwartz Bayesian information criterion for comparing models, and the smaller value, the better model. FE test reports the Hausman statistic for the comparison between pooled logit and FE logit model (Greene, 2012, p. 763). FE vs RE test reports the Hausman statistic for the comparison between random effects and fixed effects logit models. Random test reports the LR-test statistic for the comparison between RE logit and pooled logit. Endogeneity test reports the statistic of the Wald exogeneity test for the IV-Probit model.

Table A3.7. Political and economic factors and the likelihood of all crises

	Pooled Logit	FE Logit	RE Logit	IV-Probit
KAOPEN	-0.110***	-0.358***	-0.0790***	-0.0587***
	(0.0219)	(0.0598)	(0.0120)	(0.00917)
EXREGIME	-0.196***	-0.633***	-0.136***	-0.134***
	(0.0453)	(0.131)	(0.0271)	(0.0231)
CUACC/GDP	0.00378	-0.0117***	-0.000519	-0.0126***
	(0.00284)	(0.00866)	(0.00174)	(0.00188)
PSCGROWTH	-0.000118	-0.000357	-6.19e-05	-0.000241
	(0.000505)	(0.00175)	(0.000368)	(0.000468)
RGDPGROW	-0.0282***	-0.0905***	-0.0200***	-0.0234***
	(0.00565)	(0.0126)	(0.00273)	(0.00354)
RESERVES/GDP	-0.0224***	-0.0723***	-0.0129***	-0.00194***
	(0.00348)	(0.00953)	(0.00171)	(0.00125)
TRADE/GDP	0.00237**	0.00767***	0.00201***	0.00115***
	(0.00117)	(0.00348)	(0.000616)	(0.000386)
GOVDEBT/GDP	0.00395***	0.0126***	0.00276***	0.00218***
	(0.000745)	(0.00222)	(0.000458)	(0.000375)
USRRATE	0.00611	0.0192	0.00486	0.0118*
	(0.00887)	(0.0280)	(0.00580)	(0.00703)
DEPOSIT/GDP	0.00487***	0.0159***	0.00119*	-0.00544***
	(0.00125)	(0.00395)	(0.000685)	(0.000748)
YAFELECTION	0.0243	0.0794	0.0152	0.0118
	(0.0254)	(0.0855)	(0.0179)	(0.0211)
YEXEOFFICE	0.00254	0.00835	0.00195	-0.000178
	(0.00389)	(0.0124)	(0.00236)	(0.00203)
RIGHTGOV	0.0407	0.134	0.0202	0.0278
	(0.0314)	(0.111)	(0.0224)	(0.0217)
MAJORGOV	0.0202	0.0692	0.0151	-0.00295
	(0.0341)	(0.114)	(0.0236)	(0.0256)
Observations	2360	2360	2360	2329
Countries	85	85	85	85
Country effects	466.53***			
Time effects	66.99***	78.68***	68.07***	1163.54***
Pseudo R^2	0.495			
Pseudo LL	-770.257	-653.274	-928.380	-35276.196
Overall test statistics	631.30***	532.97***	270.65***	423.01***
SBIC	2340.455	1446.344	2012.089	71397.49
FE test		131.78***		
Random test			456.99***	
FE vs RE test		30.13**		
Endogeneity test				3.95

Notes: The table reports the implications of economic and political factors on all types of financial crises over the period 1975-2017. See Table SA1 for the list of countries. FE logit model reports the average (semi) elasticities because the marginal effects of the estimator cannot be estimated (Wooldridge, 2010, p.622). Other methods report the marginal effects. Standard errors are given in parentheses. Standard errors of pooled logit and IV-Probit models are robust. ***, **, * indicate significant levels of 1%, 5%, and 10%, respectively. Overall test statistics report the statistic of the LR tests for pooled and FE logit models or Wald tests for RE logit and IV-Probit models. Time effects report the statistic of the test on the hypothesis that all decade-dummies are equal to 0. SBIC reports that Schwartz Bayesian information criterion for comparing models, and the smaller value, the better model. FE test reports the Hausman statistic for the comparison between pooled logit and FE logit model (Greene, 2012, p. 763). FE vs RE test reports the Hausman statistic for the comparison between random effects and fixed effects logit models. Random test reports the LR-test statistic for the comparison between RE logit and pooled logit. Endogeneity test reports the statistic of the Wald exogeneity test for the IV-Probit model.

Table A3.8. Correlation matrix

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
KAOPEN	(1)	1														
EXREGIME	(2)	-0.13	1													
CUACC/GDP	(3)	0.18	-0.02	1												
PSCGROWTH	(4)	0.00	0.02	0.01	1											
RGDPGROW	(5)	-0.12	0.14	0.00	0.00	1										
RESERVES/GDP	(6)	-0.06	0.25	0.19	-0.01	0.07	1									
TRADE/GDP	(7)	0.07	0.18	-0.07	-0.01	0.08	0.29	1								
GOVDEBT/GDP	(8)	-0.08	-0.06	-0.24	-0.02	-0.12	-0.10	0.23	1							
USRRATE	(9)	-0.18	0.03	-0.05	-0.02	-0.04	-0.20	-0.17	0.09	1						
INFLATION	(10)	-0.10	-0.07	-0.07	0.00	-0.08	-0.04	-0.07	0.20	0.06	1					
DEPOSIT/GDP	(11)	0.44	-0.17	0.00	0.00	-0.12	0.02	0.05	0.13	-0.14	-0.08	1				
YAFELECTION	(12)	0.06	0.00	-0.01	-0.02	-0.02	-0.04	-0.03	-0.01	0.01	0.01	0.03	1			
YEXEOFFICE	(13)	-0.22	0.05	0.11	-0.01	0.12	0.32	0.12	-0.02	-0.05	-0.01	-0.14	-0.07	1		
RIGHTGOV	(14)	0.14	-0.07	0.04	0.02	-0.01	-0.02	-0.02	-0.07	0.11	0.01	0.16	0.05	-0.10	1	
MAJORGOV	(15)	-0.13	0.05	-0.04	0.01	0.01	0.11	0.09	0.10	0.02	0.03	0.02	-0.08	0.19	-0.01	1

Notes: KAOPEN is capital account openness, EXREGIME is exchange rate regime, CUACC/GDP is current account balance to GDP, PSCGROWTH is credit growth, RGDPGROW is real GDP growth, RESERVES/GDP is foreign reserves to GDP, TRADE/GDP is trade openness, GOVDEBT/GDP is government debts to GDP, USRRATE is US real interest rate, INFLATION is the inflation rate, DEPOSIT/GDP is bank deposits to GDP, YAFELECTION is the dummy of election year and the first year after elections, YEXEOFFICE is the number of years that a chief executive stays in office, RIGHTGOV is right-wing governments, and MAJORGOV is majority governments.

CHAPTER 4: POLITICAL ECONOMY OF FINANCIAL CRISIS DURATION

4.1. Introduction

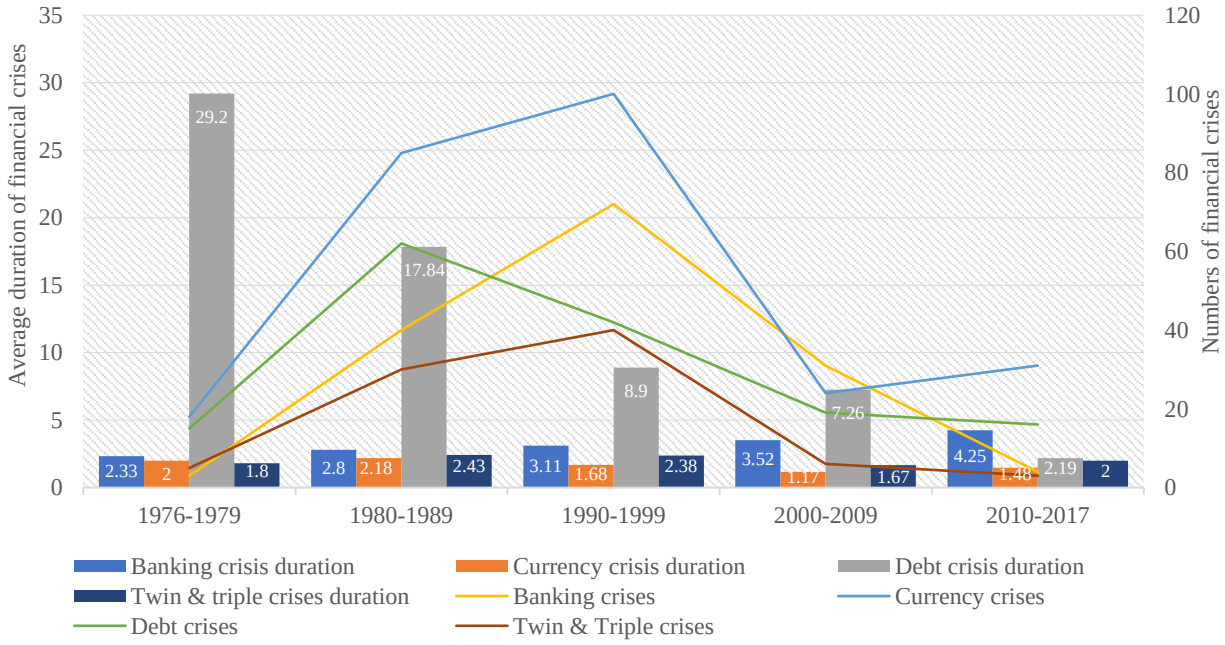
Over the last two decades, the world economy seemed to witness a new trend of financial crises. That is, we have experienced fewer and shorter currency and debt crises but deeper and more prolonged banking crises. Figure 1 shows the average duration and the numbers of different types of financial crises around the globe over the period 1976-2017. The 1980s and 1990s were characterised by a kind of ñboomò in financial crises, but we observe a significant decrease in their number in the last two decades. However, while the average duration of currency, twin and triple crises and especially debt crises have become shorter in recent decades, we seem to suffer from more prolonged banking crises with average duration almost doubled over the examined period. It has been argued that any economic recession is associated with permanent output losses, which will be more pronounced when recessions last longer.[47] The opposite trend between banking and other types of financial crises, along with the severe consequences of the recent Great Recession of 2007/08, emphasises an urgent need to pay special attention to the evolution of the duration of different types of financial crises. However, it is surprising that both academics and policymakers devote little attention to examine the determinants of their duration.

Until recently, studies on financial crises have focused on their causes and consequences, with abundant evidence on the role of economic factors. For example, mismanaged credit expansions, excessive government debts or current account imbalances have been shown to be the main reasons behind various outbursts of financial crises (Demirguc-Kunt and Detragiache, 2005; Dreher et al., 2006; Reinhart and Rogoff, 2011; Lane and Milesi-Ferretti, 2011; Perugini

[47] See Cerra and Saxena (2017) and Laeven and Valencia (2020).

et al., 2016). Another strand of literature explores the severity of financial crises by assessing the degrees of fiscal costs and output losses of financial crises (Demirguc-Kunt and Detragiache, 1998; Bordo et al., 2001; Laeven and Valencia, 2013, 2020). Despite the proliferation of papers pinpointing the causes and consequences of financial crises, the issue of duration is virtually unexplored, reflecting a major shortcoming in the recent literature on financial crises.

Figure 4.1. Average duration and number of financial crises



Sources: Laeven and Valencia (2020) for the average duration and the number of banking crises and author's calculations for duration and numbers of currency, debt and twin & triple crises. Notes: The average duration of financial crises for the period 2010-2017 can be longer because several financial crises are still on going.

Although financial crises are shorter recently, the more prolonged banking crises and their severe consequences, especially in the aftermath of the Great Recession, emphasise the need for both academics and policymakers to understand the factors that contribute to longer/shorter financial crises. However, there is little theoretical and empirical evidence in this dimension. Hence, little is known about what determines the length of financial crises and what specific policies can be implemented to shorten them. This study offers important insights into these aspects and helps to shape the design of appropriate crisis mitigation policies in times of crisis.

Against this background, a few studies have attempted to examine the duration of financial crises ï with a special focus on their duration dependence ï and produced a remarkably consistent narrative. They conclude that a financial crisis or economic recession is more likely to end when it lasts for longer (Mecagni et al., 2007; Claessens et al., 2012). This is, however, contrary to the fact that many low-income countries such as Cuba, Grenada and Guinea-Bissau have experienced long-lasting sovereign debt crises for several decades, which indicates that an opposite trend might be present: an increase in the duration of a financial crisis is associated with a lower probability of emerging from it. In order to explain this dichotomy, this study intends to determine whether the probability of a crisis ending always increases monotonically over time, as indicated in the preceding literature, or not. Moreover, this study distinguishes between different types of financial crises, as the answer to the dichotomy observed above might lay there.

A few other studies have also tried to comprehend the determinants of financial crisis duration and have successfully identified some relevant economic factors that are associated with shorter financial crises. Most notably, Mecagni et al. (2007) find that a country is more likely to exit a capital account crisis when its current account deficit and public debt are smaller. They also highlight the role of some policy responses, such as increasing the (real) interest rate and reducing the flexibility of the exchange rate regime, in contributing to shorter crises. In a more recent study, Claessens et al. (2012) indicate that higher levels of trade openness may help shorten the recessions in business and financial cycles.[48] Nevertheless, with this little evidence in the literature, the picture of the determinants of financial crisis duration is virtually incomplete.

The current study differs from Mecagni et al. (2007) and Claessens et al. (2012) as it takes into account the determinants of the duration of different types of financial crises: systemic

[48] Economic recessions dated by Claessens et al. (2012) were not necessarily financial crises.

banking, currency, sovereign debt, and corresponding twin and triple crises. More importantly, it puts an emphasis on the neglected role of political and institutional factors, which have been argued to be important to determine the length of a financial crisis (Rosas, 2006; OôKeeffe and Terzi, 2015). As noted by those authors, the decisions for government interventions during financial crises ultimately involve political choices. In this regard, political factors can be critical to predict the length of a financial crisis. However, appropriate decisions alone are not always translated into shorter financial crises as the credibility and the efficiency of crisis mitigation policies might depend on the levels of institutional quality. For these reasons, it is essential to explore the role of the political and institutional environment. To the best of our knowledge, no previous studies have directly unveiled the effects of the political and institutional environment ï which potentially influences the governmentôs decisions and the efficiency of crisis interventions ï on the duration of financial crises. Furthermore, given the fact that financial crises arise in various forms and formats, there has been no attempt so far to provide a comprehensive view on the determinants of the duration of different types of financial crises.

This study represents the first attempt to fill these important gaps in the literature. Specifically, this study assesses how the electoral cycle, political ideology, government stability, majority governments and institutional quality, along with various economic fundamentals, affect the duration of different types of financial crises over the last four decades.[49] In doing so, we employ survival models to examine how these factors affect the length of financial crises. Survival analysis ï or time to event analysis ï is used here to analyse the expected duration of financial crises until events of interest occur. In this chapter, our ñevents of interestò are the ending year of financial crises. In other words, examining the

[49] The absence of empirical research on duration of different types of financial crises in the existing literature might be due to two main constraints: (i) the difficulty in identifying different types of financial crises; and (ii) the limited number of observations of crises episodes.

determinants of financial crisis duration refers to the investigation of the likelihood of financial crisis ending, which is the probability of transition out of crisis states. If the probability of a financial crisis ending is higher, its duration can be shorter.

This is standard in this literature (see Allison, 2014; Kiefer, 1998; or Castro, 2010; for an overview) where it is clear the equivalence between the likelihood of an even ending and its longer or shorter duration. This is inherent to the nature of the duration models.

Using data for 125 countries over the period 1976-2017, our results contribute significantly to the advance of the literature and our understanding on the determinants of financial crisis duration. We show that the probability of banking and twin and triple crises ending is higher within the first year after elections, implying that politicians tend to postpone necessary crisis resolutions before elections to increase their chance of re-election. The analysis has also revealed that banking and debt crises tend to be longer with left-wing governments. This might be due to the consequences of the ñtwin deficitsò strategy caused by the right-wing governments and/or the fact that their crisis resolutions are inefficient. Additionally, majority governments are found to shorten the duration of debt and twin and triple crises, likely reflecting that they are more able to rapidly respond to financial crises without facing policy gridlock.

Our findings also confirm that currency, debt and twin and triple crises are shorter in a stronger institutional environment, which emphases its essential role in promoting the credibility and effectiveness of crises resolution. However, it is surprising that banking crises tend to last longer in developed countries, where the institutional environment is normally stronger and sounder. This is possibly because those countries tend to experience deeper banking crises and face more difficulties in providing appropriate crisis responses due to the complexity of their large financial systems and institutions.

In what concerns the duration dependence dynamics, this study shows that banking and twin and triple crises manifest a non-monotonic cubic behaviour over time. More specifically, we observe that the likelihood of those events ending increases until their second year of duration, then it decreases until the fourth year before increasing again. Currency crises exhibit no clear evidence of duration dependence, while the probability of debt crisis ending has proven to decrease monotonically over time.

This study is organised as follows. Section 2 reviews relevant literature on the economic, political and institutional determinants of financial crisis duration. Section 3 presents the data and methodology. Section 4 discusses the main findings for the impact of the political and institutional environment on the duration of different types of financial crises. Several sensitivity analyses and robustness checks are provided in Section 5. Finally, Section 6 concludes.

4.2. Literature review

4.2.1. The role of economic factors

The literature on the determinants of financial crisis duration is scarce. However, despite this shortcoming, several scholars have stressed the important role of a few economic factors that might potentially reduce the length of an economic recession. Claessens et al. (2012) find that economic recessions, together with credit crunches, result in significant output drops. Hence, they suggest that credit growth could mitigate the liquidity shortage and reduce the duration of recessions. This is somewhat consistent with Antoshin et al. (2017) who provide evidence that credit expansion played an essential role in promoting economic growth and real private investment in the aftermath of the Great Recession of 2007/08. Moreover, the accumulation of foreign exchange reserves has also been considered critical to the duration of financial crises because it can be seen as a buffer against increased pressure in the foreign exchange market, especially during currency and foreign debt crises (Cerra and Saxena, 2017).

Given the fact that current account imbalances are among one of the leading causes of financial crises (Lane and Milesi-Ferretti, 2011; Nguyen et al., 2020), some studies take this factor into account and show that massive deficits could expose a country to a more prolonged financial crisis, and the reason for this is due to the higher vulnerability of capital flows (Claessens et al., 2012; Craigwell et al., 2013). More specifically, Mecagni et al. (2007) argue that wrenching current account adjustments, often achieved by a heavy compression of imports, is strongly associated with shorter crises. Moreover, higher levels of public debts could be associated with more prolonged crises because of the higher payment pressure and lower levels of investment and output (Bergoeing et al., 2002). This happens because investors have less incentive to invest as they fear that their returns can be taxed higher to pay off government debt.

It is also worth stressing the critical role of economic growth in absorbing financial shocks in times of crisis (Demirguc-Kunt and Detragiache, 1998). Indeed, Craigwell et al. (2013) examine the duration of crises in 55 emerging and advanced countries from 1970 to 2007 and find that one percentage point increase in GDP growth doubles the probability of a banking crisis ending. Another factor that potentially affects the length of a financial crisis through its effects on investment and output growth is the level of flexibility of the exchange rate regime. In fact, a more flexible currency regime, which is associated with potentially higher levels of currency volatility, implies higher risks in foreign trade and investment activities during a financial crisis (Bernhard et al., 2002).[50]

Despite the relevance of the economic environment to explain the timing and duration of financial crises, relying on this dimension may not provide a complete picture of the duration dynamics of financial crises. This study contributes to the literature by looking at two

[50] Higher volatility in the exchange rate market increases not only exchange rate risk but also transactions costs for international transactions and investments as exchange-rate uncertainty adds more risk premium to costs of goods and assets.

unexplored dimensions: the political and the institutional environment. Fortunately, a few studies have provided hints on the channels through which political factors may trigger financial crises. For example, a shorter tenure of chief executives is associated with greater economic policy uncertainty and a higher likelihood of panic selling of currency (Shimpalee and Breuer, 2006). Additionally, weak governments could face policy gridlock and thereby be unable to implement necessary interventions against economic shocks (Krehbiel, 1998; Bechtel, 2009). Following these lines, we will explain ï in the sub-section below ï the links through which we expect that the political and institutional environment may affect the duration of financial crises and, in particular, their specific types.

For now, it is important to stress that the political environment is important to determine not only the likelihood of a financial crisis (Aisen and Veiga, 2013; Nguyen et al., 2020) but also its duration. Political shocks could exacerbate the disruption of economic activities during financial crises and thereby increase the duration of recessions (Cerra and Saxena, 2008). Adverse political conditions can also influence governmentsô ability to implement reforms or macroeconomic interventions precisely at the moments of critical junctures (Mian et al., 2014). However, these studies do not provide a direct investigation of the relationship between political factors and the duration of financial crises. For this reason, one of the main objectives of this study is precisely to provide such analysis.

4.2.2. Electoral cycle and financial crisis duration

A large body of the literature has provided empirical evidence that economic performance determines the success of an election (Weatherford, 1978; Cole et al., 2012; Broz, 2013) and, in that sense, poor economic performance reduces the probability of incumbent parties being re-elected.[51] This induces governments to delay necessary crisis interventions and to avoid

[51] Voters simply punish the ruling governments for poor economic conditions such as low growth and high unemployment during financial crises and reward those who better control economic issues (Bartels, 2013; Lindvall, 2014).

revealing the real economic conditions when elections are tight. This lends support to Brown and Dinc (2005) who provide empirical evidence that almost half of the government bailouts of troubled banks are undertaken within the first year after elections, while the figure for one year before elections is only 10%. They argue that revealing the real costs of bank bailouts or takeovers financed by taxpayersô money before elections may lead incumbents to lose votersô support. In a more competitive election, in which incumbent governments are more likely to be replaced for poor performance, they may have a stronger motivation to postpone interventions on inefficient financial institutions (Keefer, 2007a). As measures to tackle financial crises are more likely to be implemented in the immediate aftermath of elections, the probability of exiting them will be higher within the first year after elections.

Moreover, the ñdelayed investmentò effect associated with the increased political uncertainty and instability before elections can also explain prolonged crises. If major policy shifts can be implemented after elections, firms are induced to hold off on investment projects until some (or all of the) policy uncertainty is resolved (Julio and Yook, 2012; Yonce, 2015; Jens, 2017). Thus, within the first year after an election, when the election outcome is certain, firms would have a greater incentive to undertake their investments. This is an important force in the middle of a financial crisis to foster economic recovery and hence reducing the length of the crisis. This leads to the first hypothesis to be tested in this study:

H1: The probability of a financial crisis ending is higher within the first year after elections.

4.2.3. Government stability and financial crisis duration

There is a growing body of work that mentions the critical role of government interventions during crisis episodes. However, governments might be unwilling to undertake necessary interventions or reforms during politically unstable periods. As argued by Edwards and Tabellini (1991a), the frequent transfers of power of ruling governments indicate that they might not expect to benefit from reform packages as they are uncertain about their future re-

appointments. This happens because they do not expect to control the allocations of proceeds and burden associated with those reforms when they fail to be re-elected (Edwards and Tabellini, 1991b). Instead, they have more incentives to implement short-run policies at the expense of long-term development to make sure that they can yield benefits from those policies during their tenures (Keefer, 2007b; Gerring et al., 2012).

Even in the case that governments pursue their announced programmes, a shorter tenure is a constraint for them to produce cohesive responses to financial crises (Alesina and Perotti, 1996; Shimpalee and Breuer, 2006). For example, a newly elected government might terminate the crisis mitigation policies implemented by the previous one and proposes a new measure. This issue could be more pronounced when they have opposite political ideologies. As in the case of Argentina, the inconsistent responsive programmes between the left- and right-wing governments to financial crises can explain the countryôs prolonged and repeated undesirable events.[52] Other studies also point out that government instability exerts negative effects on various economic and social activities (Aisen and Veiga, 2013; Jens, 2017), which may further contribute to more prolonged financial crises. Therefore, the second hypothesis to be tested can be stated as follows:

H2: The probability of a financial crisis ending is higher when incumbent parties stay longer in office.

4.2.4. Political ideology and financial crisis duration

Governments are heterogeneous as they can be characterised by the left- or right-wing spectrum of their ideologies, which can produce opposite orientations in economic policies (Hibbs, 1977,

[52] For example: Carlos Sa¼l Menemôs right-wing government (1989-1999) tried to address several economic problems in Argentina by promoting financial liberalisation and privatisation of state-owned companies and reducing government spending. Despite the income from these privatisations, the economy was still unstable with higher levels of unemployment (10%), social unrest, budget deficits and public debts (Lischinsky, 2003). Néstor Carlos Kirchnerôs left-wing government (2003-2007) followed a different approach. He implemented a range of policies to increase wages, reduce economic inequality, promote social welfare and unemployment insurance. This exacerbated government budgets and resulted in a higher level of inflation.

1987; Pickering and Rockey, 2011, 2013; Aidt et al., 2018; Castro and Martins, 2020). Given their different viewpoints, political ideology may determine the paths of government interventions in times of crisis (Capoccia and Kelemen, 2007; Starke et al., 2013). This is because a party may have a strong motivation to maintain its core policy positions and party cohesion (Sacchi and Roh, 2016), or according to Bjørnskov and Rode (2018), financial crises may induce governments to more aggressively push forward their ideologies. Following up on this argument, Talving (2017) argues that right-wing governments tend to favour fiscal austerity, whereas left-wing governments would prioritise fiscal expansion during financial crises. By the same token, whilst right-wing governments tend to implement smaller and purely temporary intervention programmes, left-wing governments are more favourable to bigger and more permanent stabilisation programmes during financial crises (Bjørnskov and Rode, 2018; Castro and Martins, 2019a).[53]

Despite their opposite orientations, there are three reasons to expect that financial crises are less likely to terminate when left-wing governments stay in office. First, a right-wing government will have an incentive to run higher fiscal deficits than they would when they face the prospect of being replaced in office to force the succeeding left-wing government to curtail public spending (Persson and Svensson, 1989). More specifically, right-wing governments might pursue the ñtwin deficitsò strategy that leads to a surge in the current account deficit and a significant deterioration of fiscal balance (Broz, 2013). This might happen because they are more likely to deregulate the financial market (Castro and Martins, 2020), stimulating the build-up of a credit boom, which will eventually culminate in a crash and, hence, left-wing governments will be more prone to replace them.[54] In this context, left-wing governments may

[53] Right-wing governments, with the aim of reducing government spending, tend to pursue smaller and purely temporary programmes, and the inverse should hold for left-wing governments.

[54] The partisan pattern of financial cycles is that right-wing governments implement policies that will eventually fuel credit booms, whereas left-wing governments are elected as a consequence of the crash. For example, in the United States, the Republican party was in office before the onset of the recent Great Recession and was replaced by the Democratic party.

have less fiscal space to implement necessary interventions or to pursue long-lasting stabilisation programmes.

Second, although left-wing governments favour more substantial interventions and prolonged stabilisation programmes, such measures may not turn into shorter financial crises. This is because crisis resolutions that further exacerbate government budget tend to significantly increase fiscal costs and lengthen the duration of a financial crisis (Honohan and Klingebiel, 2003; Detragiache and Ho, 2010). This is somewhat consistent with Castro (2010), who finds evidence that economic recessions tend to be longer when left-wing parties are in office.

Third, left-wing governments, which represent the low- and middle-income constituents, tend to expand social spending and apply less harmful crisis measures to these groups (Starke, 2006; McManus, 2018, 2019; Savage, 2019). This, however, could take longer to produce the desired effect of bringing a crisis to an end. For example, they may avoid implementing welfare state retrenchment regarding the generosity of welfare benefits during a financial crisis, which means that social contributions, reservation wage and corresponding structural unemployment are less likely to be reduced (Sacchi and Roh, 2016). In contrast, right-wing governments might be more concerned with the high-income voters and may act more quickly to end a crisis by implementing tougher measures such as drastic austerity (Starke et al., 2013; Shahidi, 2015; McManus, 2019) despite the adverse effects on lower-income groups.[55] Based on these discussions, the third hypothesis is stated as follows:

H3: The probability of a financial crisis ending is lower when left-wing governments are in office.

[55] Right-wing governmentsô crisis measures have been proven to be detrimental to various dimensions of the quality of life of the poor such as social protection, health care, pension, and labour market (see, e.g., Shahidi, 2015; Sacchi and Roh, 2016; Stuckler et al., 2017; Lobao et al., 2018).

4.2.5. Majority government and financial crisis duration

The length of a financial crisis may also be influenced by the ability of incumbent governments to implement preventive policies against economic shocks. The literature on macroeconomic responses to financial crises has described the important role of macro-prudential policies in reducing the severity of financial crises (see, e.g., Ghosh et al., 2009, Ding et al., 2013; Klomp, 2013). However, the implementation of such policies could be constrained by policy gridlock arising in the aftermath of a financial crisis. This might be the case because the ability for an incumbent government to implement crisis resolutions depends on how the legislature is split, i.e. the percentage of seats in the parliament (Bussière and Mulder, 2000; Brown and Dinc, 2005; Redl, 2020). Severe financial crises could significantly increase the fractionalisation and polarisation of the parliaments, as well as the number of parties (Funke et al., 2016). In that sense, a stronger opposition party or a highly fragmented legislature leads to political conflicts, which obstruct the implementation of any kind of reforms (Mian et al., 2014; Funke et al., 2016).

One explanation for this issue is that political parties might not reach an agreement about how to share the associated burden, such as the likelihood of increasing taxes and spending cuts to reduce budget deficits (Alesina and Drazen, 1991). This leads to the so-called ñwar of attritionò in which political parties try to make their opponents pay a larger share of the cost. Moreover, De Giorgi et al. (2014) find that mainstream opposition parties may aim to replace the incumbent government by further exacerbating economic conditions rather than co-operating with the incumbent party for the nationôs sake. Thus, minority governments are more likely to face policy gridlock and have increased difficulty in implementing timely crisis interventions, which will result in more prolonged crises. Therefore, the fourth hypothesis is formulated as follows:

H4: The probability of a financial crisis ending is higher with majority governments.

4.2.6. Institutional quality and financial crisis duration

Another factor that potentially explains the duration of financial crises is the effectiveness of crisis measures, which relates to institutional quality. More specifically, a strong institutional environment with a better rule of law and control of corruption is expected to improve the effectiveness of government policies during financial crises. This can be traced back to Alesina and Drazen (1991) who suggest that the credibility of government interventions is critical to determining whether these interventions are successful. They find that the utility loss from distortionary financing of government spending in times of crisis delays the success of stabilising programmes. In this direction, Anginer et al. (2014) assess the effectiveness of bank regulations on official supervisory power in the aftermath of banking crises. They highlight that although these regulations are designed for supervisory authorities to prevent and correct bank problems, their effects are distorted in countries with a weak institutional environment. In particular, poor control of corruption induces such regulators to exploit their power to extend credit to politically connected firms or ignore banksô excessive risk-taking (Bermpei et al., 2018). Claessens et al. (2001) tell a similar story, in which a better institutional development is essential to promote the credibility of crisis resolutions, reduce fiscal costs of crises and foster economic recovery. Other studies also provide empirical evidence that a weak institutional environment is associated with more severe crises (Demirguc-Kunt and Detragiache, 1998; Honohan and Klingebiel, 2000). Hence, the fifth hypothesis can be presented as follows:

H5: The probability of a financial crisis ending is higher in a stronger institutional environment.

4.3. Database and methodology

Before assessing the determinants of financial crisis duration, this section discusses data for financial crises and their durations, key political and institutional variables and econometric strategy.

4.3.1. Data and variables

The database used in this study covers a maximum of 338 financial crises observed in 125 countries over the period 1976-2017. As financial crises are rare events, the number of observations is relatively small, an issue that becomes even more evident when the analysis is split into types of crises.

In order to date financial crises, this study relies on the database of Laeven and Valencia (2020), which provides information on 151 systemic banking crises around the globe over the period 1970-2017. Regarding currency crises, this study borrows from Frankel and Rose (1996) to identify a currency crisis. They occur when the nominal depreciation of the domestic currency vis a vis US dollar exceeds 30% a year. Previous studies identify a sovereign debt crisis when a country fails to meet its principals or interest payments on the due date (Detragiache and Spilimbergo, 2001; Reinhart and Rogoff, 2014). Following Balteanu and Erce (2018) and using the CRAG database of sovereign defaults, we identify a debt crisis when either: (i) total sovereign defaults exceed 1% of GDP in at least three consecutive years or (ii) total sovereign defaults exceed 7% of GDP. As different types of financial crises can coincide, this study identifies twin and triple crises using the methods of Laeven and Valencia (2020) and Nguyen et al. (2020).[56]

The duration variable, which is used to determine the effects of duration dependence, represents the number of years that a financial crisis lasts. Table 4.1 reports the number of financial crises and their mean durations and provides a comparison between developed and

[56] See also Chapter 2 for further details.

developing countries. In particular, around 16% of financial crises broke out in developed countries over the period 1976-2017, indicating that financial crises seem to be a more common phenomenon in developing countries. Specifically, very few sovereign debts and twin/triple crises occurred in developed countries. Currency crises appear to occur more frequently than any other types of financial crises; nevertheless, their durations are the lowest, at only 1.69 years on average. One possible reason is that their consequences are less severe than in banking and debt crises. The average duration of banking and currency crises, however, is much shorter than debt crises, which lasted, on average, more than 13 years. Moreover, the average duration of any type of financial crisis is shorter in developed than in developing countries. The exception is banking crises, which lasts 3.74 years, on average, in developed countries compared to 2.91 years in developing countries. This is possibly because systemic banking crises hit deeper in developed countries (Laeven and Valencia, 2020).

Table 4.1. Descriptive statistics for the duration of different types of financial crises

	# Crises	Mean	Sta. Dev	Min	Max
All countries (total)	338	8.17	10.30	1	47
Systemic banking crises	150	3.10	1.63	1	5
Currency crises	305	1.69	1.20	1	5
Sovereign debt crises	171	13.42	11.90	1	47
Twin and triple crises	87	2.30	1.15	1	6
Developed countries (total)	55	3.07	2.08	1	9
Systemic banking crises	34	3.74	1.52	1	5
Currency crises	26	1.38	1.13	1	5
Sovereign debt crises	6	2.67	2.25	1	6
Twin and triple crises	4	1.75	0.96	1	3
Developing countries (total)	283	9.16	10.95	1	47
Systemic banking crises	116	2.91	1.62	1	5
Currency crises	279	1.72	1.20	1	5
Sovereign debt crises	165	13.81	11.92	1	47
Twin and triple crises	83	2.33	1.16	1	6

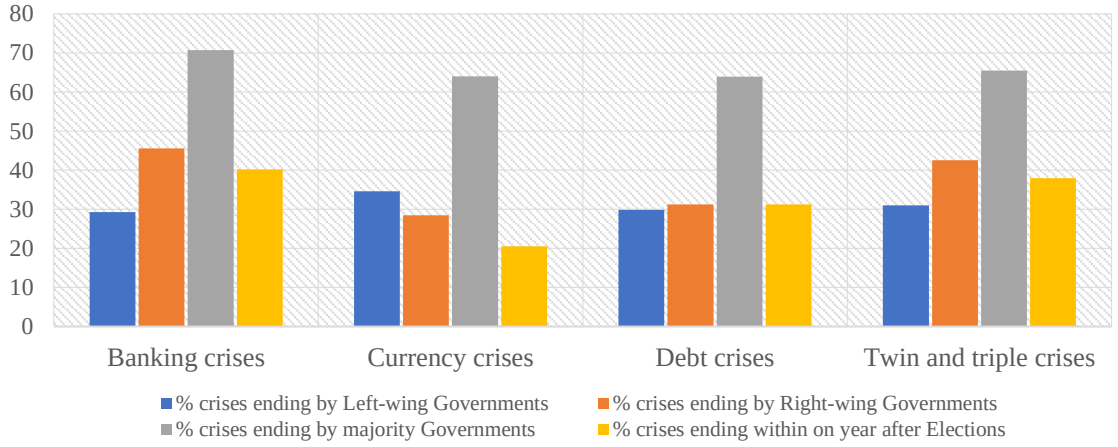
Notes: The table reports the numbers of crises (# crises), the mean duration (Mean), the standard deviation (Sta. Dev), the minimum (Min) and maximum (Max) duration for four different types of financial crises in 125 countries over the period 1976-2017. The total number of financial crises is not the sum of the types of crises as some overlap in time; hence, in those cases, the (generic) financial crises is only one event.

Turning back to the critical question of whether political factors, to some extent, matter for the understanding of the duration of financial crises. Figure 2 provides some preliminary but very insightful findings that might help to understand the potential influence of the political

environment on the evolution of financial crisis duration. In terms of the political cycle, around 40% of banking crises and twin and triple crises ended within the first year after elections. The figure is much higher than those of currency and debt crises, at 20.5% and 31.3%, respectively. This evidence indicates that electoral cycle might have an impact on the probability of a banking and twin and triple crises ending, which sheds some light on Brown and Dincôs (2005) findings that almost half of the government bailouts of troubled banks are undertaken within the first year after elections.

With regards to political ideology, most financial crises end when right-wing governments stay in office. In particular, more than 45% of banking crises end in the tenure of right-wing governments, which is much higher than left-wing governments at 29%. These numbers are slightly higher than those of twin and triple crises with 42.5% of crises ending during the tenure of right-wing governments and 31% of the left-wing governments. The large difference between the two governments might imply that right-wing governments are more efficient in bringing banking and twin and triple crises to an end. This contrasts with currency crises when left-wing governments are better at terminating a crisis as 34.6% of currency crises ended when they stay in office in comparison with 28.4% of the right-wing governments. On the contrary, the probability of a debt crisis ending is less likely to be driven by political orientation as the percentages of terminated debt crises for right- and left-wing governments are relatively the same, at 31% and 30%, respectively.

Figure 4.2. Political factors and percentages of financial crises ending



Source: Author's calculations

As for political support, majority governments seem to play an important role in terminating any type of financial crisis. Specifically, 70% of banking crises were ended by majority governments. The figures for currency, debt and twin and triple crises are slightly lower but still impressive, at around 65%, likely reflecting the advantages of majority governments in implementing crisis mitigation policies without facing policy gridlock.

While the evidence presented above only reveals some basic information obtained from descriptive statistics, it clearly shows the potentially heterogeneous effects of political factors across different types of financial crises. This means that examining the implications of the political environment on financial crisis duration could be too general. Instead, special attention should be paid on types of financial crises, which is the main focus of this study. In doing so, an appropriate econometric method described in the next sub-section is employed to determine whether and how political environment is important for the understanding of the evolution of financial crisis duration.

In addition to the political and institutional environment, several control variables are included to capture those key indicators that have been found in the literature on the duration of financial crises (see, for example, Bergoeing et al., 2002; Claessens et al., 2012; Cerra and Saxena, 2017). They can be divided into two categories: financial factors (credit growth and

international reserves) and economic factors (exchange rate flexibility, current account balance, economic growth, and public debt). They reflect the theories of the determinants of crisis duration summarised in the literature review and data availability. See Tables 4.2 and 4.3 for the further details on all variables used in this study and respective descriptive statistics.

Starting by the set of economic variables, a more flexible exchange rate regime (EXREFLEX) might be associated with higher currency volatility (Bernhard et al., 2002) and hence, longer crises. Larger current account deficit as a share of GDP (CUACC/GDP) could also increase the length of a financial crisis due to the associated vulnerability of capital flows (Claessens et al., 2012; Craigwell et al., 2013). With regards to credit growth (PSCGROWTH), credit expansion might reduce the duration of a financial crisis because credit crunches have been found to be associated with significant output drops (Claessens et al., 2012; Antoshin et al., 2017). Moreover, the real GDP growth rate (RGDPGROW) is important to absorb financial shocks (Demirguc-Kunt and Detragiache, 1998; Craigwell et al., 2013). Similarly, higher levels of international reserves as a percentage of GDP (RESERVES/GDP) could play an essential role in absorbing shocks in foreign exchange market caused by a currency crisis or a foreign debt crisis (Cerra and Saxena, 2017). In contrast, financial crises could last longer in countries with a high degree of public debt to GDP (GOVDEBT/GDP) due to the higher associated payment pressure and lower investments and outputs (Bergoeing et al., 2002).

Table 4.2. Variables definition and source

Variable	Definition	Source
YAFELECTION	The year after election dummy variable that takes the value of 1 within one year after the election and 0 otherwise.	Database of Political Institutions (DPI)
Y1AFELECTION	The first year after election dummy variable that takes the value of 1 for the year after the election and 0 otherwise	DPI
NUMYEAFELEC	The number of years after an election.	DPI
YEXEOFFICE	The number of years that the chief executive stays in office.	DPI
PARTYINOFF	The number of years that the incumbent party stays in office.	DPI
RIGHTGOV	The right-wing government dummy variable that takes the value of 1 when the incumbent government is formed by right-wing parties, and 0 otherwise.	DPI
LEFTGOV	The left-wing government dummy variable that takes the value of 1 when the incumbent government is formed by left-wing parties, and 0 otherwise.	DPI
CENTREGOV	The centre government dummy variable that takes the value of 1 when the incumbent government party position is centrist, and 0 otherwise.	DPI
MAJORGOV	Majority government dummy variable takes the value of 1 when the incumbent government has more than half of the seats in the legislature or parliament, and 0 otherwise.	DPI
STABS	Government stability measures the percentage of veto players who drop from the government in any given years.	DPI
SINMAJGOV	Single party majority government dummy variable.	DPI
COLIMAJGOV	Coalition majority government dummy variable.	DPI
INSQL	Institutional quality index. It measures the quality of the overall institutional environment, which is constructed by political rights and civil liberties ratings. The index values vary between 2 and 14 with smaller values (or higher ratings) indicating a better institutional environment. In terms of political rights, countries with higher ratings have a range of political rights, including free and fair elections, i.e. elected candidates have real power, political parties are competitive, and the opposition has a strong power in the government. As for civil liberties, high-rating countries have a fair legal system, strong rule of law, independent judiciary, free economic activity, freedom of expression, assembly, association, education and religion, and equality of opportunity for everyone, including women and minority groups.	Freedom House
INSQL-PCA	The institutional quality index is constructed by using the principal component analysis to capture the levels of corruption within the political system, the strength and impartiality of the legal system, democratic accountability, and the institutional strength and quality of the bureaucracy. A higher value for this index indicates a better institutional environment.	Political Risk Component -International Country Risk Guide
RESERVES/GDP	The ratio of the central bankôs international reserves to GDP	IFS
EXREFLEX	The exchange rate regime flexibility variable ranging from 1 to 6 with higher values indicate a more flexible exchange rate regime.	Ilzetzki et al. (2019)
CUACC/GDP	The ratio of the current account balance to GDP.	WDI where available. Otherwise, World Economic Outlook (WEO)
PSCGROWTH	The change in the ratio of the domestic credit to private sector to GDP	WDI
RGDPGROW	The real GDP growth rate	IFS where available. Otherwise, WDI
GOVDEBT/GDP	The ratio of central government debt to GDP	Global Debt Database (IMF) where available. Otherwise, WDI

Table 4.3. Descriptive statistics

	# Obs	Mean	Sta. Dev	Min	Max
EXREFLEX	2,525	2.55	1.58	1	6
CUACC/GDP	2,157	-5.99	10.28	-148.00	54.67
PSCGROWTH	2,199	3.07	23.78	-91.25	260.87
RGDPGROW	2,456	3.19	9.10	-44.90	241.42
RESERVES/GDP	2,136	9.22	8.91	0.01	61.74
GOVDEBT/GDP	2,265	79.04	62.86	1.43	495.95
YAFELECTION	2,322	0.38	0.49	0	1
PARTYINOFF	2,232	11.57	11.87	1	102
LEFTGOV	2,064	0.50	0.50	0	1
CENTREGOV	2,038	0.15	0.36	0	1
MAJORGOV	2,263	0.85	0.36	0	1
INSQL	2,577	8.65	3.63	2	14

Notes: The reports the number of observations (# Obs) and the mean (Mean), the standard deviation (Sta. Dev), the minimum (Min) and maximum (Max) values of regressors for all crises estimations of 125 countries over the period 1976-2017. See Table A4.1 for the definitions of these variables.

To unveil the effects of political and institutional environment on the duration of financial crises, which are unexplored in the literature, the main variables of interest are described as follows:

(i) Year after elections (YAFELECTION) captures the effects of the electoral cycle on the duration of financial crises. This dummy variable takes the value of 1 in the election year and the year after an election, and 0 otherwise. As significant political measures tend to be implemented in the immediate aftermath of elections, it is expected that the probability of a financial crisis ending is higher within the first year after elections.

(ii) Party in office (PARTYINOFF), a proxy of government stability, corresponds to the number of years that an incumbent party stays in office. More stable governments could increase the probability of a crisis ending because their crisis resolutions are more consistent and less likely to be terminated.

(iii) RIGHTGOV; LEFTGOV; CENTREGOV dummy variables capture the political ideology of the incumbent government. They take values of 1 when the incumbent government is formed by right-wing, left-wing, or centre parties, respectively, and 0 otherwise. Left-wing governments are conjectured to be associated with longer financial crises because their actions to fight a financial crisis might be constrained by the ñtwin deficitsò strategy caused by the right-wing governments (Persson and Svensson, 1989; Broz, 2013).

(iv) Majority government (MAJORGOV). This dummy variable takes the value of 1 when an incumbent government holds more than half of seats in the legislature or

parliament. Majority governments could be associated with shorter financial crises because they are able to rapidly respond to financial crises without facing policy gridlock.

(v) Institutional quality (INSQL) is constructed by the ratings of political rights and civil liberties, which range from 2 to 14 with higher ratings (smaller values) indicating a better institutional environment. Crisis mitigation policies are expected to be more credible and efficient in a stronger institutional environment and, in this regard, financial crises might be shorter.

4.3.2. Methodology

Duration analysis became popular first in the biomedical sciences, but quickly spread to other sciences. In economics, it started to be widely applied in labour economics to examine the duration of unemployment (see, for example, Meyer, 1990; Carling et al., 1996; Sengupta, 2008). Due to its characteristics, duration analysis is also suitable to be applied to the study of the length of financial crises (see, for example, Mecagni et al., 2007; Claessens et al., 2012).

In duration analysis, a duration variable measures the length of a specific event (see, for example, Allison, 1982; Castro, 2010). As we focus on crisis events, this chapter particularly focuses on how political and institutional factors affect the length of financial crises or the probability of transition out of crisis states. For this reason, examining financial crisis duration implies the investigation of the probability of financial crisis ending, which is measured by a hazard rate. Hazard-based duration models are employed as they are constructed to model data that focus on an end-of-duration occurrence, given that the duration has lasted until a specified time (Kiefer, 1988; Hensher and Mannering, 1994). In particular, we employ these models to examine how the likelihood of a crisis ending depends on the length of time since the onset of the respective financial crises, which is the start of a crisis duration. Given the nature of these models, a higher (lower) likelihood implies a longer (shorter) duration for the respective event.

Parametric and non-parametric approaches can be used to estimate the hazard rate. However, non-parametric methods like Kaplan-Meier are subjected to two issues. First, they cannot estimate the magnitude of duration dependence (this is also a problem with semi-parametric models, like the most famous one proposed by Cox (1972)). Second, they cannot evaluate simultaneously the effects of various covariates on the duration of an event (Castro, 2010). For these reasons, this study relies on parametric methods to estimate the hazard rate. Two parametric methods that allow for examining crisis duration and the inclusion of controllers are: (i) continuous-time duration models (these can rely on different distributions: Weibull, Gompertz, log-normal, gamma, generalized gamma, among others); and (ii) discrete-time duration models (being the complementary log-log model one of the most popular).

4.3.2.(i) The continuous-time duration model

Duration analysis is employed in the study to assess the determinants of the duration of financial crises. If we assume T is a discrete random variable that represents the length or duration of a crisis spell, its probability distribution can be specified by the following cumulative distribution function:

$$F(t) = Pr(T \leq t), \;\; t \geq 0 \tag{4.1}$$

This probability function measures the probability of the random variable (T) being less than or equal to a certain value t, a typical point in the T range. The corresponding density function of T is then denoted by $f(t) = dF(t)/dt$. Its survivor function can be described by $S(t) = \Pr(T > t) = 1 - F(t)$. This measures the probability that the duration of a random selected financial crisis will be greater or equal to t.

The hazard function, $\lambda(t)$, measures the instantaneous probability of a financial crisis ending at t, given that it lasts until that moment. It is defined as

$$\lambda(t) = \lim_{\Delta t \to 0} \frac{P(t \leq T \leq t + \Delta t | T \geq t)}{\Delta t} = \frac{f(t)}{S(t)}, \tag{4.2}$$

where Δt represents a small interval of time.

The hazard function allows characterising the duration dependence path. If the slope of the hazard function is upward ($\delta\lambda(t)/\delta t > 0$), the probability of a financial crisis ending in moment t, given that it lasts until that moment, increases with its length or age. This is known as the case of positive duration dependence. An opposite conclusion (negative duration dependence) will be given if the slope is downward. In the case that $\delta\lambda(t)/dt = 0$, there will be no duration dependence.

In a parametric continuous-time duration model, the proportional hazard model is one of the most important methods to model the impact of multiple time-invariant factors on the probability of an event ending. The conditional hazard rate can be given as follows:

$$\lambda(t, \mathbf{x}) = \lambda_0(t)\phi(\mathbf{x}, \beta), \tag{4.3}$$

where $\lambda_0(t)$ is the baseline hazard function that measures duration dependence, $\mathbf{x}$ is a vector of covariates, and β is a vector of parameters to be estimated. The most common choice for the scale factor $\phi(\mathbf{x}, \beta)$ is the exponential form: $\phi(\mathbf{x}, \beta) = \exp(\mathbf{x}\hat{\beta})$ as it simplifies the estimation and inference. Thus, the corresponding conditional hazard rate is given by: $\lambda(t|\mathbf{x}) = \lambda_0(t)exp(\mathbf{x}'\beta)$. Different kinds of proportional hazard models can be achieved by making different assumptions about the distribution of the baseline hazard function. The Weibull distribution, which corresponds to a parametric continuous-time model and which is widely applied due to its flexibility (Nelson, 1982), is used in this study and leads to the so-called Weibull model.[57] The respective baseline hazard function can be written as:

$$\lambda_0(t) = \gamma p t^{p-1}, \gamma > 0, p > 0, \tag{4.4}$$

where γ is a constant term, p is the shape parameter that captures the presence of duration dependence. If $p > 1$ there is a positive duration dependence, which means that the probability of financial crisis ending increases over time (with its ñageò); and if $p < 1$ the probability of

[57] There are other models using different types of distribution to estimate the conditional hazard rate such as the exponential distribution, the gamma distribution, the Gompertz-Makeham distribution, and the log-normal distribution. However, Weibull distribution ï which leads to the so-called Weibull-based duration models ï is the most commonly used as it flexible enough to model a variety of data sets (Nelson, 1982).

financial crisis ending decreases over time (i.e. negative duration dependence). In the case that $p = 1$, which leads to the so-called exponential model, there is no duration dependence, and the probability of crisis ending remains constant over time, regardless the length of the financial crisis.

Applying the Weibull distribution on the baseline hazard function in Equation (3), the Weibull proportional hazard function and its corresponding survival function can be defined as follows, respectively:

$$\lambda(t, \mathbf{x}) = \gamma p t^{p-1} \exp(\mathbf{x}'\beta). \tag{4.5}$$

$$S(t, \mathbf{x}) = \exp[-\gamma t^{p} \exp(\mathbf{x}'\beta)]. \tag{4.6}$$

Although the duration of financial crises is a continuous-time process, the sample of this study is measured as grouped duration data. This means that the maximum likelihood estimations of continuous-time models will be inconsistent, and the bias is higher with longer interval lengths of discrete data (Ryu, 1995). Another model that corresponds to the nature of the data in this study is the discrete-time duration model. The outcomes of continuous-time and discrete-time models are very similar only when the discreteness or time interval is small enough (Thompson, 1977; Allison, 1982). Cameron and Tridevi (2005, p.600) indicate that discrete-time proportional hazard models are more appropriate when observed time intervals are in years, months or weeks. As the duration of financial crisis recorded in this study is in annual data, it is appropriate to apply discrete hazard (Agnello et al., 2013; Jenkins, 1995; Alandejani et al., 2017). In addition, discrete-time duration models allow for the inclusion and easy treatment of time-varying covariates (Jenkins, 1995; Cameron and Tridevi, 2005, p.600; Wooldridge, 2010, p. 1011; Castro, 2010). For these reasons, this study employs a discrete-time duration model to explore the impact of political and institutional environment on the likelihood of a crisis ending.

4.3.2.(ii) The discrete-time duration model

In economics, discrete-time duration models have been applied to assess the duration of several economic events: sovereign ratings cycle phases (Agnello et al., 2019); unemployment (Caliendo et al., 2012); economic expansions and recessions (Castro, 2010); credit booms (Castro and Martins, 2018a), and international trade (Hess and Persson, 2012), among others. However, as far as we are concerned, no previous study using this discrete-time duration approach to examine factors affecting the duration of financial crises.[58] This study employs, for the first time, this approach to determine the determinants of the duration of four different types of financial crises: systemic banking, currency, sovereign debt and twin and triple crises. Moreover, this study looks at the unexplored role of the political and institutional environment.

The discrete-time proportional hazards model developed by Prentice and Gloecker (1978) is implemented here to proceed with the analysis. Assuming that the data consists of years (t) and there are n independent financial crises (i), where the onset of a financial crisis is labelled at $t = 1$. The duration of a financial crisis continues until time t_i, at which a financial crisis ends, or its observation is censored. The associated discrete-time hazard rate is then given by:

$$P_{it} = \Pr[T_i = t | T_i > t, \mathbf{x}_{it}], \tag{4.7}$$

where $\mathbf{x}_{it}$ is the vector of time-varying covariates, T_i is the discrete random variable indicating the uncensored time at which a financial crisis ends. Thus, P_{it} measures the conditional probability of a financial crisis ending at time t, given that it has not ended until that moment. Assuming that data is treated under the continuous-time framework (5), the corresponding discrete-time proportional hazard function, as suggested by Prentice and Gloecker (1978), can be written as:

$$P_{it} = \lambda(t, x_{it}) = 1 - \mathrm{e}^{-\lambda_t e^{\mathbf{x}_{it}'\beta}} = 1 - e^{-e^{\theta_t + \mathbf{x}_{it}'\beta}}, \tag{4.8}$$

[58] One exception is Mecagni et al. (2007) who examine the determinants of the duration of capital account crisis. The other few existing studies focus mainly in exploring the factors driving the likelihood of different types of financial crises (see, for example, Alandejani et al., 2017; Bouvatier, 2017; Ghulam and Derber, 2018).

which is equal to the so-called complementary log-log (or cloglog) hazard function:

$$\text{cloglog}(P) = \text{cloglog}(\lambda_{it}) = \log[-log(1-\lambda_{it})] = \theta_t + \mathbf{x}'_{it}\beta, \tag{4.9}$$

where θ_t is the logarithm of an unspecified baseline hazard function of time ($\log\lambda_t$), $\mathbf{x}_{it}$ is the vector of time-varying variables with their coefficients $\boldsymbol{\beta}$. Note that we assume the effects of covariates **x** to be the same within each time interval.

To estimate this model, the unspecified function of time (θ_t) needs to be defined. One appropriate functional form is the discrete-time analogue to the Weibull model. The corresponding θ_t is then defined as

$$\theta_t = log\,\lambda_t = \alpha + (p-1)log\,t. \tag{4.10}$$

Thus, Prentice and Gloecker (1978) and Jenkins (1995) propose the use of the following log-likelihood function for the discrete-time duration model with a sample of *i* with *n* spells

$$\log L(\cdot) = \sum_{i=1}^{n}\sum_{j=1}^{t_i} y_{it}\log\left(\frac{P_{ij}}{1-P_{ij}}\right) + \sum_{i=1}^{n}\sum_{j=1}^{t_i}\log\left(1-P_{ij}\right), \tag{4.11}$$

where $\boldsymbol{y}_{it}$ is a binary measure that takes the value of 1 if a financial crisis *i* ends at time *t*. This model is estimated by the Maximum Likelihood using an appropriate specification for the baseline hazard function, where P_{ij} is given by Eqs. (4.8) and (4.10).

4.4. Empirical analysis

In this section, we first determine whether the probability of a crisis ending is higher when its duration grows older, i.e. whether there is positive duration dependence. Next, we assess the role of the political and institutional environment in explaining the duration of different types of financial crises.

4.4.1. Duration dependence

Table 4.4 presents a set of basic results of the duration dependence parameter for different types of financial crises. This preliminary analysis is made using a basic continuous-time Weibull model and a discrete-time complementary log-log (cloglog) model. Based on the baseline

hazard function $\lambda_0(t) = \gamma p t^{p-1}, \gamma > 0, p > 0$, the value of the shape parameter (p), which captures duration dependence, can determine whether there is a positive duration dependence ($p > 1$), negative duration dependence ($p < 1$), or no duration dependence ($p = 1$). In the case of positive duration dependence, the hazard function also allows determining whether the function increases at an increasing, decreasing or constant rate if $p > 2$, $p < 2$, or $p = 2$, respectively (Castro, 2010). This study is also the first to examine the duration dependence dynamics of different types of financial crises. Among a few works that explore this dimension, they focus only on one type of financial crisis and produce the same conclusion: A financial crisis is more likely to end when it grows older (Mecagni et al., 2007; Claessens et al., 2012).

The regression results confirm that systemic banking and twin and triple crises are indeed more likely to end when their ages increase, which is consistent with the findings of previous studies. For instance, a 1% increase in the duration of a banking crisis from its start is associated with a 0.996% increase in the hazard of ending, ceteris paribus.[59] However, sovereign debt crisis and financial crisis ñin generalò present a negative duration dependence (see cloglog estimations), which means that the probability of these kinds of crises ending decreases monotonically over time.[60] This contrasts with the findings in the literature and indicates the necessity to explore the duration dependence of each type of financial crisis. This result means that if there is no external dynamics (economic, institutional and/or political) that takes a country out of a debt crisis, it can end up stuck in that state by the time-dynamics of the process. Nevertheless, the pattern of the duration dependence of currency crises appears to be inconsistent between the Weibull and cloglog models. One possible reason is that the duration

[59] This estimate is obtained from the equation (4.10): $log\lambda_t = \alpha + (p-1)logt$. See Allison (2014) for further details on how this is computed and interpreted.

[60] The duration of all crisis ñin generalò may not accurately capture the states of different types of financial crises because the exit state of one type of financial crisis is overlapped by the duration of another type of financial crisis. In this study, due to the prolonged duration of sovereign debt crises, the probability of exiting a crisis state of all crises is highly influenced by the duration of a sovereign debt crisis.

dependence dynamics is non-monotonic. Indeed, this is confirmed in the sensitivity analysis presented further below.

Table 4.4. Duration dependence: continuous-time Weibull and discrete-time cloglog models

	Banking crisis	Currency crisis	Debt crisis	Twin and triple crises	All crises
Continuous-time model					
P	1.996$^{+,c}$	1.539$^{+,d}$	0.937	2.131$^{+,c}$	0.839^{-}
	(0.138)	(0.065)	(0.064)	(0.162)	(0.034)
Pseudo LL	-138.927	-329.309	-271.914	-64.138	-584.193
AIC	281.854	662.619	547.829	132.277	1152.387
BIC	287.876	670.059	554.112	137.209	1160.033
Number of crises	150	305	171	87	338
Cloglog model					
p	1.820$^{+,c}$	0.368^{-}	0.764^{-}	1.957$^{+,c}$	0.361^{-}
	(0.182)	(0.130)	(0.0796)	(0.189)	(0.0559)
Observations	465	521	2323	200	2766
Pseudo LL	-276.056	-343.453	-535.608	-125.346	-884.706
Wald test	20.18***	23.54***	8.76***	25.60***	130.69***
AIC	556.112	690.905	1075.216	254.689	1773.412
BIC	564.396	699.417	1086.717	261.286	1785.263
Number of crises	150	305	171	87	338

Notes: The table reports the duration dependence of different types of financial crises over the period 1975-2017 using both the continuous-time Weibull and the complementary log-log (cloglog) models. Robust standard errors are reported in parentheses. AIC and SBIC report the values of Akaike information criterion and Schwartz Bayesian information criterion, respectively, and the smaller their values, the better models. The number of crises includes those that are still ongoing.
$^{+}$ indicates a positive duration dependence at a 5% significant level.
$^{-}$ indicates negative duration dependence at a 5% significant level.
^{c} indicates a constant positive duration dependence at a 5% significant level.
^{d} indicates a decreasing positive duration dependence at a 5% significant level.
^{i} indicates a decreasing positive duration dependence at a 5% significant level.

4.4.2. Main findings

Table 4.5 displays the main results for the determinants of the duration of financial crises over the period 1976-2017, where different types of financial crises are considered. All economic variables are lagged one period (year) to reduce the possibility of reversal relationship. The duration dependence estimates for each type of financial crises - except for currency crisis - remains consistent with the results presented in Table 4.4 despite the inclusion of economic, institutional and political variables in the model. More specifically, when a banking crisis becomes older, the probability of ending increases at a constant rate. Similarly, the probability of twin and triple crises ending as they grow older also increases but at an increasing rate. By contrast, the likelihood of sovereign debt and all crises ending decreases monotonically over

time. Finally, currency crises are characterised by a lack of duration dependence. This might explain why the duration dependence dynamics for currency crisis presented earlier was inconsistent.

The results presented in Table 4.5 are clear in showing that all financial and economic factors emerge as significant determinants of financial crisis duration, despite little theoretical support in the existing literature. More specifically, all specifications show that higher levels of current account balance (as a percentage of GDP) contribute to shorter durations of any kind of financial crisis, which is consistent with Claessens et al. (2012) and Craigwell et al. (2013). They argue that current account deficits are associated with more volatile capital flows and longer crises. A better economic environment also appears to reduce the length of financial crises. To be more specific, a 1 percentage point increase in the real GDP growth leads to an increase in the probability of banking and debt crises ending by around 5%.[61] As indicated by Demirguc-Kunt and Detragiache (1998), higher growth alleviates economic shocks during a financial crisis.

Other economic and financial variables, however, are found to be important in explaining the duration of only a specific type of financial crisis. For example, a less flexible exchange rate regime is only important to reduce the duration of currency crises. Higher shares of international reserves to GDP are also found to shorten the duration of currency and sovereign debt crises, reflecting the important role of having sufficient ñwar chestò as buffers against increased pressure in the foreign exchange market, particularly in the midst of currency and foreign debt crises (Cerra and Saxena, 2017). Furthermore, the probability of exiting banking and twin and triple crises increases with higher credit growth. This is in line with Claessens et al. (2012) who argue that credit expansion could ameliorate the liquidity shortage in the market

[61] According to Allison (2014), 100(exp(b) ï 1) corresponds to the percentage change in the hazard with a one unit increase in the explanatory variable, ceteris paribus.

and reduce the length of economic recessions. As for the levels of public debt to GDP, it is striking that indebted countries tend to experience shorter banking and currency crises. This might happen because those crises could precede sovereign debt crises as governments tend to rely on external sources to finance their crisis measures. This lends support to Mecagni et al. (2007) who find evidence that larger IMF financing packages help to shorten financial crises. This, however, exposes countries receiving external aids to a higher likelihood of a more prolonged sovereign debt crisis.

As far as the focus of the analysis is concerned, the effects of political factors on the duration of financial crises are heterogeneous across different types of financial crises. This emphasises the need to dig deeper into types of crises in order to obtain a more comprehensive picture of the political effects on the duration of financial crises.

In terms of the electoral cycle, the likelihood of banking and twin and triple crises ending is higher within the first year after elections. This is in line with the reasoning that incumbent governments may delay costly crisis resolutions and avoid revealing the real economic conditions before elections to avoid votersô punishment for poor performance (Brown and Dinc, 2005). Instead, significant crisis resolutions are more likely to be implemented after elections, and thus the probability of banking and twin and triple crises ending is higher in that period. Moreover, the decision for a crisis resolution or a reform package to be implemented could be the result of a ñwar of attritionò, leading to slower responses to a financial crisis. In that sense, an electoral victory can break this war, and it is expected that stabilisation programmes following elections can lead to the end of financial crises (Alesina and Drazen, 1991; Drazen, 2000).

Government stability which is proxied by the number of years that an incumbent party stays in office (party tenure), does not seems to be an important determinant of the duration of

financial crises. However, the positive coefficient might indicate that the probability of a financial crisis ending is higher when an incumbent party stays in power for longer.

Another interesting finding is that banking and debt crises are more prolonged when left-wing governments are in office. This could be the result of the ñtwin-deficitsò strategy instigated by the right-wing governments when they force the following left-wing governments to curtail public spending during a financial crisis (Persson and Svensson, 1989; Broz, 2013). Even in the case that left-wing governments have sufficient fiscal space to pursue big and long-lasting stabilisation programmes, their measures could further exacerbate fiscal deficits and significantly increase the direct costs of financial crises, which eventually result in more prolonged economic recessions and crises (Bordo et al., 2001; Honohan and Klingebiel, 2003; Detragiache and Ho, 2010). There is, however, an alternative explanation that left parties representing low- and middle-income constituents may apply measures that are less harmful to their constituents (Starke, 2006; McManus, 2018, 2019; Savage, 2019), despite the fact that they could take them longer to exit a financial crisis. The regression results also indicate that centre governments exert little or no significant influence on the duration of any type of financial crisis.

Nevertheless, left-wing governments appear to be more successful in terminating a currency crisis faster than right-wing and centre governments. Specifically, the estimated hazard of a currency crisis ending for left-wing governments is approximately 1.4 times (exponentiating 0.337, see Allison, 2014) higher than when they are not in the office.[62] This can be explained by the fact that currency crises need stronger policy adjustments, such as reducing the flexibility of the exchange rate regime and capital account openness rather than significant stabilisation programmes. As indicated by Bjørnskov and Rode (2018) and Castro and Martins

[62] Alternatively, this can be computed as 100(exp(b) -1), which means that the probability of a currency crisis ending is 40% higher when left-wing governments stay in office.

(2019a), left-wing governments are more likely to significantly tighten economic regulations in times of crisis. This can also be reflected by the negative and significant relationship between the flexibility of the exchange rate regime and currency crisis duration.

Table 4.5. Determinants of financial crisis duration

	Banking crisis	Currency crisis	Debt crisis	Twin and triple crises	All crises
p	2.340[+,c]	0.756	0.691[-]	2.810[+,i]	0.598[-]
	(0.238)	(0.209)	(0.114)	(0.361)	(0.0748)
EXREFLEX	-0.0628	-0.235***	-0.0912	-0.103	-0.100*
	(0.0767)	(0.0701)	(0.0903)	(0.145)	(0.0596)
CUACC/GDP	0.0366**	0.0201*	0.0593***	0.0513*	0.0359***
	(0.0173)	(0.0120)	(0.0172)	(0.0303)	(0.00883)
PSCGROWTH	0.0131***	0.00179	0.00174	0.0132**	0.00108
	(0.00335)	(0.00289)	(0.00494)	(0.00546)	(0.00384)
RGDPGROW	0.0547***	0.0159	0.0478**	0.110***	0.0141
	(0.0198)	(0.0191)	(0.0230)	(0.0341)	(0.0166)
RESERVES/GDP	0.00482	0.0278*	0.0297**	-0.0542	0.0219***
	(0.0112)	(0.0147)	(0.0119)	(0.0303)	(0.00769)
GOVDEBT/GDP	0.00404**	0.00273**	-0.00932**	-0.00213	-0.00924***
	(0.00174)	(0.00114)	(0.00391)	(0.00373)	(0.00257)
YAFELECTION	0.357*	0.210	0.276	0.777**	0.158
	(0.210)	(0.185)	(0.232)	(0.327)	(0.155)
PARTYINOFF	0.00178	0.00272	0.0111	-0.00841	0.00744
	(0.0119)	(0.00728)	(0.0101)	(0.0129)	(0.00693)
LEFTGOV	-0.449*	0.337*	-0.689***	-0.170	-0.228
	(0.237)	(0.199)	(0.258)	(0.401)	(0.177)
CENTREGOV	-0.459	0.409	-0.314	-0.879	-0.0624
	(0.283)	(0.276)	(0.319)	(0.487)	(0.212)
MAJORGOV	0.0739	0.281	0.534**	1.073**	-0.128
	(0.263)	(0.227)	(0.254)	(0.452)	(0.196)
INSQL	0.0500*	-0.0674**	-0.0893**	-0.192**	-0.0436*
	(0.0289)	(0.0325)	(0.0453)	(0.0756)	(0.0260)
Observations	341	263	1114	110	1399
Pseudo LL	-180.480	-149.114	-262.348	-57.379	-459.361
Wald test	51.46***	43.49***	57.52***	36.60***	132.07***
AIC	388.961	326.228	552.696	142.759	947.751
SBIC	442.607	376.238	622.916	180.566	1020.131
Number of crises	150	305	171	87	338

Notes: The table reports the results of the determinants of financial crisis duration for different types of financial crises over the period 1976-2017 using the complementary log-log (cloglog) model. See Table A4.1 for the list of countries for each type of financial crises. See Table 4.4 for technical details. ***, **, * refer significant levels of 1%, 5% and 10%, respectively.

This study also finds that countries with majority governments tend to emerge faster from sovereign debt and twin and triple crises. This is not surprising as majority governments holding an absolute majority of seats in the legislatures or parliaments would face less policy gridlock for the implementation of necessary crisis management policies.

Political factors, in particular, the electoral cycle and majority governments indicate the need for the implementation of timely crisis measures to shorten financial crises. This means that any delay in those interventions, due to political purposes or positions, might come at the cost of more prolonged financial crises. For example, fiscal stimulus is most effective when it is implemented as early as possible in a recession (Stone, 2020). However, timely crisis measures alone are inadequate to fight financial crises as they could be inefficient.

In fact, crisis mitigation policies are expected to be more efficient and credible in a stronger institutional environment (Alesina and Drazen, 1991; Anginer et al., 2014; Amaglobeli et al., 2017; Bermpei et al., 2018). Following up on this argument, this study takes institutional quality (INSQL) into account and finds that the duration of currency, sovereign debt, twin and triple crises, and financial crises, in general, appear to be shorter in a better institutional environment. This is in line with Claessens et al. (2001) who argue that inefficient crisis resolutions in a weaker institutional environment will further exacerbate fiscal deficit and slow economic recovery.

Nevertheless, it is striking that the probability of emerging from a systemic banking crisis is lower in a stronger institutional environment. We conjecture that this effect is driven by developed countries, which have stronger institutional quality but tend to be hit deeper during systemic banking crises.[63] In order to assess this possibility, a ñdevelopedò dummy variable, which equals to 1 when a country is classified as an advanced economy, and 0 otherwise, is added to our regressions. The results presented in Table 4.6 confirm that the probability of a banking crisis ending is lower in developed countries. Surprisingly, this dummy variable seems to capture the effects of the institutional environment on the duration of banking crises as the coefficients of institutional quality turn out to be statistically insignificant. This is further

[63] As shown in Table 4.1, the average duration of banking crisis over the period 1970-2017 is 3.74 years in developed countries, while the figure for developing countries is only 2.91 years.

confirmed when the sample of systemic banking crises is split into developed and developing countries. The estimated coefficients of institutional quality for banking crisis are statistically insignificant and carry the same (negative) sign with those of other types of financial crises.[64]

As mentioned by Laeven and Valencia (2020), direct fiscal costs for banking crises in high-income countries are much higher than those in low- and middle-income countries. In addition, they highlight that output losses in developed countries are more persistent in the aftermath of banking crises. This is because larger financial systems and institutions require more complicated resolutions and larger financial resources, which often results in longer banking crises. Moreover, developed countries with the ability to use monetary and fiscal policy to mitigate the real effects of systemic banking crises could discourage weak financial institutions from restructuring, leading to more prolonged crises (Claessens et al., 2011). Thus, despite having a better institutional environment, developed countries tend to suffer from longer banking crises.

Table 4.6 also serves as a robustness check for the possibility that heterogenous groups of countries are differently influenced by economic and political factors. For example, financial crises in developing countries may face substantially different conditions from those of advanced economies (Eichengreen and Rose, 1998; Montinola, 2003). By adding the developed dummy variables, the coefficient signs and significant levels of economic and political factors remain unchanged.

Table 4.6. Determinants of financial crisis duration ï Developed vs developing economies

	Banking crisis	Banking crisis	Banking crisis	Currency crisis	Twin and triple crises	All crises
		Developed countries	Developing countries			
p	2.379$^{+,c}$	3.945$^{+,i}$	2.127$^{+,c}$	0.737^{-}	2.815$^{+,i}$	0.636^{-}
	(0.239)	(0.627)	(0.267)	(0.178)	(0.362)	(0.0858)
EXREFLEX	-0.0986	0.0241	-0.121	-0.224***	-0.109	-0.0813
	(0.0777)	(0.201)	(0.0855)	(0.0689)	(0.147)	(0.0611)
CUACC/GDP	0.0347*	0.109**	0.0106	0.0211*	0.0520*	0.0351***

[64] However, the duration dependence parameter is higher for developed countries which means that the probability of a banking crisis ending increases over time at a higher rate than in developing countries. We suspect this is due to the small number of observations or variability within the sub-sample of developed countries.

	(0.0177)	(0.0493)	(0.0200)	(0.0122)	(0.0302)	(0.00926)
PSCGROWTH	0.0124***	0.0224	0.0120***	0.00138	0.0133**	-0.00092
	(0.00337)	(0.0258)	(0.00355)	(0.00285)	(0.00563)	(0.00367)
RGDPGROW	0.0526***	0.351***	0.0204	0.0167	0.113***	0.0173
	(0.0202)	(0.0940)	(0.0224)	(0.0189)	(0.0347)	(0.0155)
RESERVES/GDP	-0.00140	0.00298	-0.00189	0.0294*	-0.0561*	0.0235***
	(0.0127)	(0.0211)	(0.0141)	(0.0152)	(0.0311)	(0.00679)
GOVDEBT/GDP	0.00449***	-0.000426	0.00332*	0.00269**	-0.00167	-0.0092***
	(0.00166)	(0.00558)	(0.00177)	(0.00114)	(0.00395)	(0.00268)
YAFELECTION	0.378*	-0.463	0.542**	0.242	0.811**	0.151
	(0.212)	(0.470)	(0.242)	(0.184)	(0.337)	(0.159)
PARTYINOFF	0.00191	-0.0861**	0.00318	0.00106	-0.00863	0.00745
	(0.0117)	(0.0397)	(0.0125)	(0.00751)	(0.0130)	(0.00763)
LEFTGOV	-0.481**	-1.080**	-0.317	0.365*	-0.204	-0.240
	(0.237)	(0.491)	(0.274)	(0.202)	(0.410)	(0.182)
CENTREGOV	-0.457	-0.262	-0.460	0.429	-0.873	-0.110
	(0.285)	(0.576)	(0.337)	(0.276)	(0.486)	(0.223)
MAJORGOV	0.0397	0.209	-0.0513	0.237	1.068**	-0.127
	(0.263)	(0.426)	(0.315)	(0.229)	(0.453)	(0.201)
INSQL	-0.00509	-0.296	-0.00345	-0.0369	-0.200**	-0.0167
	(0.0406)	(0.294)	(0.0423)	(0.0351)	(0.0800)	(0.0310)
Developed	-0.674**			0.631*	-0.283	0.471*
	(0.334)			(0.365)	(0.642)	(0.277)
Observations	341	114	227	263	110	1399
Pseudo LL	-178.334	-36.649	-127.899	-148.786	-57.323	-458.178
Wald test	57.79***	34.88***	29.13***	50.06***	36.20***	151.37***
AIC	386.667	101.298	283.798	327.573	144.648	946.355
BIC	444.146	139.605	331.748	381.155	185.156	1025.008
Number of crises	150	34	116	305	87	338

Notes: The table reports the results of the determinants of financial crisis duration for different types of financial crises over the period 1976-2017 using the complementary log-log (cloglog) model. Unfortunately, the regression for the sovereign debt crisis cannot be performed because of insufficient observations for the developed dummy variable. See Tables 4.4 and 4.5 for technical details.

When we split the sample of banking crises into two groups of countries (developed versus developing), we find some evidence that the duration of banking crises is affected by the heterogeneous effects that characterise them. First, the electoral cycle is important for developing countries, whereas its influence on the duration of banking crises in developed countries is statistically insignificant. One possible reason is that the significant economic vulnerability, resulting from the real magnitude of banking problems that is only revealed after elections, could hinder the effectiveness of crises measures implemented by developed countries (Bussière and Mulder, 2000). In contrast, developing countries experiencing less severe banking crises and, in this regard, their crisis measures implemented after elections might be more efficient in bringing a crisis to an end. Second, a longer tenure of ruling parties

in developed countries tends to experience more prolonged banking crises, while the effect of party tenure on any type of financial crisis in a full sample of countries is never significant. That is, perhaps, due to the complexity of systemic banking crises in developed countries. Hence, inefficient parties might face more difficulties to emerge from a crisis. Third, the effect of political ideology is only significant in developed countries, likely reflecting that political parties are more polarised in developed than in developing countries.[65]

Additionally, this study also checks for the robustness of the main findings with additional economic controllers. In fact, the literature on financial crisis duration is limited to only a few economic factors such as current account deficit, public debt and exchange rate flexibility. This study accounts not only for all of these factors but also for other economic variables such as economic growth, credit growth and international reserves. Nevertheless, within the narrowed literature, there might be other unexplored economic factors that are also important to explain the duration of financial crises.

To check for this possibility and to reduce the possibility of endogeneity as other factors might jointly determine the dependent variable, other variables are included in the regressions. First, this study conjectures that some international factors that have been found to increase the probability of financial crises might also affect the duration of financial crises. Specifically, higher international interest rates can trigger a currency and debt crisis as it is associated with higher capital outflows (Kaminsky et al., 1998; Komulainen and Lukkarila, 2003) and borrowing costs (Kohlscheen, 2010; Yu, 2016; Nguyen et al., 2020). In this regard, higher international rates during a financial crisis will further exacerbate exchange rate pressure and indebtedness burden, which might result in more prolonged currency and debt crises. Moreover, higher borrowing costs could be a constraint for some countries to finance their

[65] Unfortunately, as currency, sovereign debt and twin and triple crises are rare events in developed countries, we cannot split the samples for these types of financial crises.

crises resolutions. In addition, better global conditions could also lift a country from a financial crisis. Indeed, Claessens et al. (2012) find that higher world output growth alleviates the severity of recessions and helps the economy emerge faster from recessions. This is because external demand could offset contractions in domestic demand.

To this aim, the international interest rate proxied by the US real interest rate (GLOINTERATE) and the global growth rate (GLOBALGROW) are added into the regressions. Table A4.7 shows that, as expected, higher international interest rates are found to lengthen the duration of currency, debt, twin and triple crises, and financial crises in general. This means that the international interest rate is not only an early warning signal of financial crises but also a driver of financial crisis duration. This can be evident from the sovereign debt crisis in Greece in 2012, which was triggered by a surge in the international interest rates (Baltas, 2013; Mink and de Haan, 2013). Moreover, higher global growth rates appear to shorten twin and triple crises and financial crises, in general, likely confirming that foreign output growth could strengthen exports and foster economic recovery (Kaminsky et al., 1998; Claessens et al., 2012).

Another potential factor that may determine the duration of financial crises is monetary and fiscal responses. As argued by Mecagni et al. (2007), by raising higher interest rates, central banks can effectively defend the domestic currency from speculators and shorten currency crises. This is because increasing interest rates make it prohibitively costly for speculators to short the domestic currency. Moreover, higher interest rates can reduce capital outflows and stimulate capital inflows (Dreher et al., 2006). However, the use of monetary policies could be completely different during a banking crisis. Governments in that scenario tend to cut interest rates to stimulate borrowing and investment (Del Negro et al., 2019). In this regard, a surge in the interest rate could imply the poor efforts of the governments in supporting the economy

and in preventing credit crunches. Thus, the effects of higher interest rates on financial crisis duration could be inconsistent across types of financial crises.

As expected, some results provided in Table 4.7 confirm this argument. Specifically, higher interest rates (INTERRATE) are associated with shorter currency crises but longer twin and triple crises. This emphasises the critical roles of monetary authorities to flexibly use a range of monetary measures to counteract the macroeconomic impact of financial crises. For example, the primary purpose of central banks for reducing interest rates is to help spur business spending on capital goods, which supports the economyôs long-term growth, and to boost household expenditures (Kollmann et al., 2013). More importantly, during a banking crisis, the largest banks tend to be undercapitalised, which obstructs them from increasing credit provision to the economy during the initial stages of the recovery. In this regard, central banks help to recapitalise the banking system by keeping interest rates at low levels to raise banksô net interest margin. This, in turn, enhances retained earnings and then capital (Kliesen, 2010). For these reasons, reducing interest rates help shorten the duration of twin and triple crises, particularly those preceded by banking crises. On the contrary, setting higher interest rates is vital to shorten a currency crisis as it discourages speculators from shorting the domestic currency (Mecagni et al., 2007) and prevents capital outflows during harsh times (Dreher et al., 2006).

Along with monetary policies, increasing government spending might be essential to reduce the detrimental impact of financial crises and stimulate economic growth. This can be traced back to the classic Keynesian theory (Keynes, 1936) which states that fiscal policy expansion increases aggregate demand and stimulate short-run output growth. Nevertheless, there has been disagreement about the effectiveness of this fiscal policy in times of crisis (see, e.g., Cavallo and Cavallo, 2010; Makin, 2019).

Table 4.7. Determinants of financial crisis duration

	Banking crisis	Currency crisis	Debt crisis	Twin and triple crises	All crises
p	2.602[+,i]	1.336	0.560[-]	8.987[+,i]	0.662[-]
	(0.288)	(0.294)	(0.115)	(2.531)	(0.088)
EXREFLEX	-0.0263	-0.409***	-0.0755	0.0540	-0.0788
	(0.104)	(0.116)	(0.122)	(0.307)	(0.0927)
CUACC/GDP	0.0497*	0.0313**	0.0566**	0.315***	0.0358***
	(0.0270)	(0.0160)	(0.0234)	(0.104)	(0.0106)
PSCGROWTH	0.0188***	0.00697*	0.00393	0.0956***	-0.000139
	(0.00600)	(0.00373)	(0.00645)	(0.0298)	(0.00475)
RGDPGROW	0.0240*	0.0195	0.0334*	0.524***	-0.0230
	(0.0260)	(0.0398)	(0.0315)	(0.169)	(0.0231)
RESERVES/GDP	-0.00117	0.0181**	0.0313**	-0.226	0.0222**
	(0.0143)	(0.0175)	(0.0204)	(0.0741)	(0.00904)
GOVDEBT/GDP	0.00323**	0.0169***	-0.0133***	0.0204	-0.0109***
	(0.00238)	(0.00467)	(0.00507)	(0.0191)	(0.00324)
INTERRATE	-0.000445	0.000105**	0.000166	-0.0458***	-0.00307
	(0.000370)	(0.000045)	(0.000303)	(0.0145)	(0.00285)
ΔGOVEXP/GDP	0.0365*	0.0158	-0.00177	-0.0708*	0.0181
	(0.0204)	(0.0329)	(0.0207)	(0.0391)	(0.0136)
GLOINTERRATE	-0.101	-0.0694	-0.174**	-0.709***	-0.163***
	(0.0686)	(0.0658)	(0.0716)	(0.246)	(0.0509)
GLOBALGROW	0.129	0.103	0.139	0.863*	0.154**
	(0.0832)	(0.106)	(0.101)	(0.480)	(0.0733)
YAFELECTION	0.622**	0.258	-0.00932	1.756**	0.217
	(0.255)	(0.252)	(0.277)	(1.136)	(0.189)
PARTYINOFF	0.0100	0.00363	-0.00114	0.00245	0.00235
	(0.0121)	(0.0103)	(0.0117)	(0.0306)	(0.00855)
LEFTGOV	-0.564**	0.211	-0.729**	-2.203***	-0.275
	(0.293)	(0.277)	(0.329)	(0.853)	(0.228)
CENTREGOV	-0.808	-0.0118	-0.599	-4.593	-0.275
	(0.337)	(0.358)	(0.375)	(1.415)	(0.260)
MAJORGOV	-0.0109	0.356	-0.627**	3.353***	-0.235
	(0.310)	(0.289)	(0.307)	(1.142)	(0.218)
INSQL	0.120***	-0.103**	-0.0185**	-0.829***	-0.00166
	(0.0385)	(0.0465)	(0.0611)	(0.303)	(0.0333)
Observations	269	154	627	78	843
Pseudo LL	-124.690	-77.367	-169.696	-17.685	-305.827
Wald test	63.78***	47.55***	86.16***	33.21***	120.24***
AIC	285.379	190.734	375.391	71.370	647.654
SBIC	350.084	245.399	455.328	113.791	732.919
Number of crises	150	305	171	87	338

Notes: The table reports the results of the determinants of financial crisis duration for different types of financial crises over the period 1976-2017 using the complementary log-log (cloglog) model. See Table A4.1 for the list of countries for each type of financial crises. See Table 4.4 for technical details. ***, **, * refer significant levels of 1%, 5% and 10%, respectively.

To determine whether fiscal expansion can effectively shorten financial crises, measuring the change in government expenditure to GDP (ΔGOVEXP/GDP) is considered.[66] The findings indicate that increasing government expenditure appears to be associated with shorter banking

[66] Due to data availability, including INTERRATE and æGOVEXP/GDP puts some constraints on the estimations of regression models.

but more extended twin and triple crises. Perhaps, large fiscal stimulus measures are critical to stimulate recoveries and shorten banking crises (Blinder and Zandi, 2015; Stone, 2020). For example, large fiscal stimulus packages are estimated to increase real GDP growth in the US by around one percentage point in 2009 (International Labour Organisation, 2011). However, in cases of twin and triple crises, where governments tend to suffer from high levels of deficits and debts, fiscal expansions will further exacerbate deficits and increase the direct costs of financial crises, which result in more prolonged recessions (Honohan and Klingebiel, 2003; Detragiache and Ho, 2010). Instead, a better solution is to implement substantial pro-market reforms, including reducing public sector size, which has been argued to be associated with smaller recessions and shorter crises (Drazen and Grilli, 1993; Krueger, 1993).

Despite the inclusion of additional controllers, the political effects on financial crisis duration generally remain unchanged. The only exception is that the effects of left-wing governments on the length of currency crises turn out to be statistically insignificant. Nevertheless, their effects on other types of financial crises are consistent and significant, which corroborate the main findings and strengthen the reasoning that crisis measures of left-wing governments are less efficient than those of right-wing governments.

The empirical evidence presented so far also implies that various factors can contribute to the duration of financial crises. In particular, not only economic and political environment but also international factors, as well as monetary and fiscal policies, are critical to understanding the length of financial crises. Also, the findings emphasise the need to focus our attention on the types of financial crises. To further check for the robustness of the main findings, some sensitivity analyses were performed and discussed in the next sub-section.

4.5. Sensitivity analysis

To further check for the robustness of the baseline results presented earlier, this section uses alternative measures of political and institutional variables and allows for more flexible duration dependence dynamics.

4.5.1. Alternative measures of political and institutional factors

As a check for the effects of the political environment on the duration of financial crises, the first sensitivity analysis presented in Table 4.8 uses different proxies for the political factors. The results confirm the main findings showed above. Moreover, economic and institutional variables remain significant, and their coefficients do not significantly change.

Regarding the electoral cycle, the dummy variable YAFELECTION is replaced by the number of years after elections (NUMYEAFELEC). The results corroborate the main findings that the probability of systemic banking and twin and triple crises ending is higher within the first year after elections. As another proxy for government stability, YEXEOFFICE stands for the number of years that chief executives stay in office. This variable might better capture the degree of government stability than PARTYINOFF because instability can also arise due to changes in chief executives even though they are in the same political party. However, government stability again seems to have little influence on the duration of financial crises.

With respect to political ideology, right-wing governments (RIGHTGOV) are added to provide a comparison with left-wing and centre governments. As right- and left-wing governments tend to produce opposite crisis resolutions (Talving, 2017; Bjørnskov and Rode, 2018), it is expected that their effects on the duration of financial crises are also opposite. Regression results confirm this argument and again corroborate the main findings: right-wing parties appear to be associated with shorter banking and debt crises, but more prolonged currency crises.

Table 4.8. Sensitivity analysis I: Alternative measures of political variables and duration of financial crises

	Banking crisis	Currency crisis	Debt crisis	Twin and triple crises	All crises
p	2.303[+,c]	0.815	0.647[-]	2.868[+,i]	0.575[-]
	(0.229)	(0.208)	(0.113)	(0.416)	(0.0817)
EXREFLEX	-0.105	-0.245***	-0.0880	-0.174	-0.128**
	(0.0769)	(0.0709)	(0.0869)	(0.155)	(0.0609)
CUACC/GDP	0.0341**	0.0202*	0.0601***	0.0263	0.0418***
	(0.0169)	(0.0114)	(0.0180)	(0.0304)	(0.00972)
PSCGROWTH	0.0134***	0.00206	-0.00213	0.0156**	-0.00186
	(0.00343)	(0.00275)	(0.00451)	(0.00727)	(0.00369)
RGDPGROW	0.0540***	0.0136	0.0446**	0.0738*	0.0220
	(0.0193)	(0.0184)	(0.0216)	(0.0381)	(0.0150)
RESERVES/GDP	0.00170	0.0286*	0.0278**	-0.0405	0.0174**
	(0.0111)	(0.0163)	(0.0128)	(0.0330)	(0.00768)
GOVDEBT/GDP	0.00408**	0.00288**	-0.0116***	0.00359	-0.0097***
	(0.00166)	(0.00118)	(0.00399)	(0.00497)	(0.00270)
NUMYEAFELEC	-0.120***	-0.0409	-0.0354	-0.124*	-0.0929**
	(0.0463)	(0.0405)	(0.0464)	(0.0738)	(0.0379)
YEXEOFFICE	-0.00934	0.0114	0.0101	0.0397	-0.00421
	(0.0215)	(0.0131)	(0.0195)	(0.0262)	(0.0136)
RIGHTGOV	0.450**	-0.355*	0.556**	0.644*	0.153
	(0.213)	(0.187)	(0.233)	(0.388)	(0.162)
COLIMAJGOV	0.0308	0.347	0.156**	0.755	0.00191
	(0.275)	(0.281)	(0.320)	(0.478)	(0.239)
SINMAJGOV	0.0712	0.202	-0.071	0.914*	-0.0890
	(0.277)	(0.235)	(0.268)	(0.501)	(0.206)
INSQL	0.0659**	-0.0685**	-0.0609*	-0.209**	-0.0225
	(0.0327)	(0.0346)	(0.0497)	(0.0829)	(0.0286)
Observations	344	267	1145	106	1431
Pseudo LL	-181.697	-151.744	-262.862	-55.624	-460.600
Wald test	59.86***	43.66***	62.43***	34.79***	148.19***
AIC	391.395	331.488	553.724	139.248	949.200
SBIC	445.164	381.710	624.329	176.536	1022.925
Number of crises	150	305	171	87	338

Notes: Details of alternative measures of political factors are given in Table A4.1. See Tables 4.4 and 4.5 for technical details.

As for the effect of political support, the majority government dummy variable is decomposed into the dummies: coalition majority government (COLIMAJGOV) and single majority government (SINMAJGOV). The results remain consistent with the main finding that the probability of sovereign debt and twin and triple crises ending is higher with majority governments. In particular, coalition majority governments are found to shorten the duration of debt crises, whereas single majority governments help to raise the probability of exiting from twin and triple crises.

As a final exercise, the second sensitivity analysis presented in Table 4.9 uses alternative measures of the political and institutional environment and controls for the influence of time effects. In this analysis, decade dummy variables (Dec80, Dec90, Dec00) are included to control for time-decade effects as financial crises tend to come in waves (Laeven and Valencia, 2013, 2020; Amaglobeli et al., 2017). The results confirm that the effects are statistically significant, and the findings for economic and financial controllers are generally robust, yielding very similar parameter estimates and significant levels.

A new index of institutional quality (INSQL-PCA) is constructed by using the principal component analysis to capture the levels of corruption within the political system, the strength of law and order, democratic accountability, and the institutional strength and quality of the bureaucracy.[67] However, as the database only covers the period 1985-2017, the regression models lose several observations. Again, while a better institutional environment reduces the lengths of sovereign debt and twin and triple crises, it increases the duration of systemic banking crises.

With regards to the political environment, YAFELECTION, which includes the election year and the year after an election, is replaced by the dummy variable of the year after an election only (Y1AFELECTION). This allows determining whether the probability of crisis ending is higher in the year after elections because if crisis resolutions are implemented in the immediate aftermath of financial crises (election years), the probability of exiting a financial crisis will be higher in the year after elections. As expected, the probability of systemic banking, currency, and twin and triple crises ending is higher in the year after elections.

Table 4.9. Sensitivity analysis II: Political and institutional determinants of the duration of financial crises

	Banking crisis	Currency crisis	Debt crisis	Twin and triple crises	All crises
p	$2.743^{+,i}$	0.705	0.551^{-}	$4.046^{+,i}$	0.605^{-}
	(0.260)	(0.229)	(0.130)	(0.870)	(0.0947)

[67] Note that the coefficient signs of INSQL-PCA and INSQL are expected to be opposite, but their effects on the duration of financial crises are the same.

EXREFLEX	-0.164*	-0.188**	-0.0524	-0.0922	-0.109
	(0.0948)	(0.0889)	(0.108)	(0.241)	(0.0838)
CUACC/GDP	0.0491**	0.0205*	0.0518*	0.136**	0.0391***
	(0.0194)	(0.0133)	(0.0285)	(0.0600)	(0.0134)
PSCGROWTH	0.0133***	0.00609	-0.00328	0.0308**	-0.00814
	(0.00398)	(0.00420)	(0.00498)	(0.0128)	(0.00499)
RGDPGROW	0.0722***	0.00948	0.0484*	0.238***	0.0188
	(0.0254)	(0.0213)	(0.0270)	(0.0728)	(0.0180)
RESERVES/GDP	-0.00347	0.0447***	0.0166	-0.1441	0.0170*
	(0.0145)	(0.0174)	(0.0174)	(0.0545)	(0.00926)
GOVDEBT/GDP	0.00402*	0.00142	-0.0139***	0.00220	-0.0094***
	(0.00216)	(0.00121)	(0.0044)	(0.00849)	(0.0029)
Y1AFELECTION	0.516**	0.653**	-0.368	2.160**	0.269
	(0.261)	(0.267)	(0.353)	(0.904)	(0.237)
STABS	0.220	-0.198	0.217	0.0242	-0.0483
	(0.338)	(0.356)	(0.501)	(1.038)	(0.369)
LEFTGOV	-0.490*	0.198	-0.843***	-0.914	-0.214
	(0.287)	(0.222)	(0.316)	(0.650)	(0.217)
CENTREGOV	-0.338	0.160	-0.425	-2.518***	-0.202
	(0.312)	(0.313)	(0.408)	(0.748)	(0.271)
COLIMAJGOV	0.0973	0.201	0.0876*	0.318	-0.159
	(0.345)	(0.335)	(0.336)	(0.683)	(0.270)
SINMAJGOV	-0.00357	0.469*	-0.0537	1.120**	-0.190
	(0.325)	(0.262)	(0.324)	(0.870)	(0.234)
INSQL-PCA	-0.176**	0.00436	0.280**	0.723*	0.0475
	(0.0819)	(0.0708)	(0.113)	(0.411)	(0.0615)
Dec80	1.390***	0.469	-1.850***	-2.232**	-0.735*
	(0.463)	(0.390)	(0.648)	(0.974)	(0.383)
Dec90	0.943***	0.502	-0.777	-1.298*	-0.569**
	(0.325)	(0.376)	(0.486)	(0.759)	(0.287)
Dec00	0.882**	1.018***	-0.426	0.0432	-0.395
	(0.358)	(0.375)	(0.401)	(0.868)	(0.254)
Observations	286	200	837	83	1066
Pseudo LL	-140.601	-106.394	-188.454	-28.877	-348.616
Wald test	77.74***	41.19***	75.09***	47.70***	120.04***
AIC	317.202	248.787	412.907	91.754	733.233
SBIC	383.009	308.157	498.044	132.874	822.723
Number of crises	150	305	171	87	338

Notes: The table reports the results of the second robustness check for the determinants of financial crisis duration over the period 1985-2017 using the complementary log-log (cloglog) model. Details of alternative measures of political and institutional factors are given in Table A4.1. Dec80, Dec90 and Dec00 are dummy variables that take the values of 1 during the period 1985-1989, 1990-1999, and 2000-2009, respectively, and 0 otherwise. See Tables 4.4 and 4.5 for technical details.

To further check the effects of government stability, this study relies on the percentage of veto players who drop from their governments (STABS). Veto players are able to support or decline a choice of crisis resolutions. Higher levels of changes in veto players could be associated with inconsistent measures of crisis interventions. However, the findings show that the effects of STABS on the duration of financial crises are statistically insignificant, which are consistent with the main findings and the first robustness check. In other words, there is

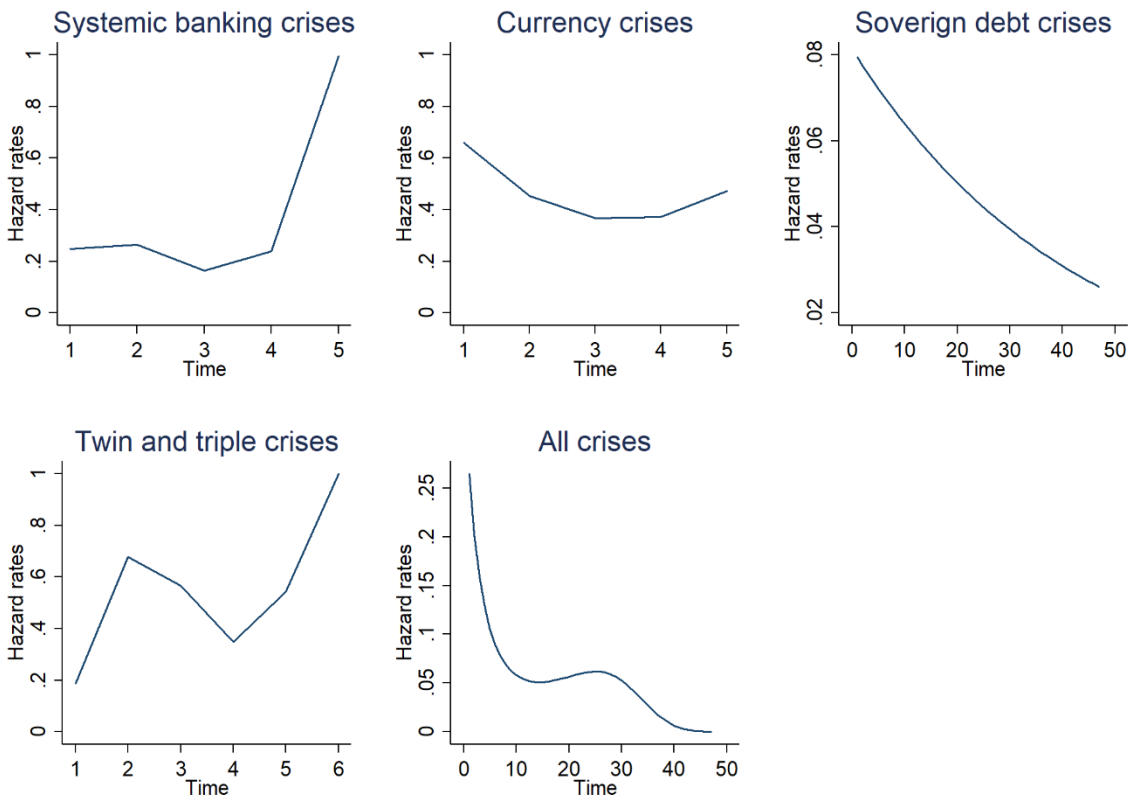
strong evidence that the duration of financial crises is less likely to be influenced by government stability.

4.5.2. A more flexible duration dependence of financial crises

The shape of the baseline hazard function considered in the analysis so far may not fully capture the real patterns of the duration dependence of a financial crisis because it only allows for the monotonical increase/decrease in the hazard of a financial crisis ending over time. Hence, this study provides a test for more flexible polynomial baseline hazard functions using a cloglog model. Table 4.10 reports the hazard rates of linear, quadratic, and cubic specifications for the duration of different types of financial crises. The results highlight the importance of examining the shape of the duration dependence dynamics. We observe that systemic banking, currency, and twin and triple crises and financial crises in general, present a monotonic pattern in what regards their duration dependence dynamic. This is because not only their coefficients are statistically significant at 1% levels, but also their values of AIC and SBIC are lower.[68] In particular, the baseline hazard functions of systemic banking, twin and triple crises, and all crises, in general, are better characterised by a cubic specification, while the function for currency crisis presents a quadratic behaviour. In contrast, the probability of a country emerging from a sovereign debt crisis decreases in a monotonic way, which is consistent with the findings presented so far. The best way to illustrate the shapes of hazard functions for each type of financial crisis is to look at Figure 4.3.[69]

[68] In particular, the values of AIC and SBIC in banking, twin and triple crises, and financial crises in general models with cubic specifications are smaller than those in models with linear and quadratic specifications.
[69] Hazard rate here measures the conditional probability that a financial crisis will end at a particular time, given that the crisis has not ended, and it is at risk at that time (see Allison, 2014).

Figure 4.3. Duration dependence shapes for different types of financial crises[70]



[70] Table 4.10 reports the estimations of duration dependence of different types of financial crises. Using a flexible duration dependence, the coefficients reported in the table reflect the linear, quadratic, and cubic specifications for the shape of duration dependence. They do not imply that those coefficients are inconsistent or conflicting. These coefficients need to be analysed together and not independently as these account for nonlinear specifications of time/duration.

Table 4.10. Discrete-time estimations for duration dependence of financial crises

	Banking crisis	Banking crisis	Banking crisis	Currency crisis	Currency crisis	Currency crisis	Debt crisis	Debt crisis	Debt crisis	Twin and triple crises	Twin and triple crises	Twin and triple crises	All crises	All crises	All crises
Duration	0.450***	-1.981***	3.982***	-0.285***	-1.020***	-1.403	-0.0248**	-0.0354	-0.122*	0.332***	1.460***	7.695***	-0.0805***	-0.173***	-0.362***
	(0.0700)	(0.314)	(1.183)	(0.0686)	(0.270)	(1.128)	(0.00977)	(0.0287)	(0.0668)	(0.0796)	(0.458)	(1.712)	(0.0112)	(0.0210)	(0.0534)
Duration^2		0.422***	-1.925***		0.148***	0.309		0.000344	0.00706		-0.201**	-2.636***		0.00345***	0.0197***
		(0.0523)	(0.449)		(0.0514)	(0.462)		(0.00083)	(0.00476)		(0.0878)	(0.693)		(0.00057)	(0.00446)
Duration^3			0.268***			-0.0192			-0.000131			0.273***			-0.00033***
			(0.0503)			(0.0548)			(0.0000932)			(0.0824)			(0.000098)
Observation	465	465	465	521	521	521	2323	2323	2323	200	200	200	2766	2766	2766
Pseudo LL	-265.933	-236.684	-226.063	-345.825	-341.887	-341.825	-536.248	-536.175	-535.135	-129.613	-124.856	-112.967	-905.474	-894.364	-885.207
Wald test	41.25***	210.28***	363.32***	17.27***	28.03***	28.55***	6.46**	6.91**	8.61**	17.46***	25.36***	35.30***	51.47***	91.73***	130.57***
AIC	535.867	479.367	460.127	695.650	689.774	708.673	1076.496	1078.349	1078.271	263.226	255.712	233.935	1814.949	1794.729	1778.413
BIC	544.151	491.793	476.695	704.161	702.541	691.650	1087.997	1095.601	1101.273	269.823	265.607	247.128	1826.799	1812.504	1802.114
Number of crises	150	150	150	305	305	305	171	171	171	87	87	87	338	338	338

Notes: The table reports the estimations of hazard rates for duration dependence of different types of financial crises using cloglog model over the period 1975-2017. Duration, Duration^2, and Duration^3 indicate the linear, quadratic and cubic specifications, respectively. See Tables 4.4 and 4.5 for technical details.

Among different types of financial crises, the probability of debt crisis ending is the lowest. Its decreasing hazard rate over time indicates that the longer a sovereign debt crisis is, the more difficult for a country to emerge from it will be. This explains why the duration of debt crises is much longer than other types of financial crises. In fact, when foreign lenders are pessimistic about the ability of sovereign borrowers to meet their debt-service obligations, they may either refuse to roll over maturing debts or only accept to provide new debts with prohibitively high interest rates (Chang, 2007). In this sense, debt crises will be longer when sovereign borrowers have no further access to the international capital market or are unable to accept new costlier debts. Furthermore, sovereign borrowers may have less incentives to exit a debt crisis. This happens because sovereign defaults could be a result of the unwillingness to pay rather than the incapacity to pay (De Bonis et al., 1999; Reinhart and Rogoff, 2009, p. 54). A decision of default or restructuring is associated with reputational damage and possible sanctions as well as output losses (Arellano, 2008, Reinhart and Trebesch, 2016). However, as they have already been insolvent, they are unwilling to repay their debts as the benefits of being defaults can outweigh their relative costs (Manasse and Roubini, 2009).

Regarding the hazard functions of other types of financial crises, Figure 4.3 confirms the necessity of using flexible duration dependence as their shapes are non-monotonic. This contrasts with those of the preceding literature, in particular those reported by Mecagni et al. (2007) and Claessens et al. (2012), who conclude that financial crises are more likely to end when they grow older. This simply indicates that the probability of a financial crisis ending increases monotonically over time. By allowing for a more flexible duration dependence dynamics, this study, to the best of our knowledge, represents the first to unveil the non-monotonic patterns of the duration of different types of financial crises.

More specifically, the hazard functions of systemic banking and twin and triple crises ending present a non-monotonic cubic behaviour over their duration, i.e. the likelihood of these events ending increases until their second year of duration, then it decreases until the third/fourth year before increasing again. This might reflect the effects of various crisis containments and resolutions implemented at different phases. The first phase, which is known as short-term containment phase (Claessens et al., 2001; Honohan and Klingebiel, 2003; Amaglobeli et al., 2017), involves unlimited guarantees and extensions of liquidity support to restore public confidence and prevent the moral hazard of financial institutions from gambling for their survival. Notwithstanding the real effects of these measures, as reflected by the higher hazard rates in the first year of banking and twin and triple crises, they can be inadequate to end severe crises. In this regard, more significant crisis resolutions in phases 2 and 3 ï such as restructuring weak financial institutions ï will be undertaken (Claessens et al., 2001). However, these policies could not be immediately translated into higher financial stability or systemic crises ending. In fact, they are expected to be effective from three to four years since the onset of financial crises (Detragiache and Ho, 2010). This is in line with the trends that the probability of exiting systemic banking and twin and triple crises is higher since the third and the fourth year of duration.

Currency crises also exhibit a non-monotonic behaviour, but in this case, a quadratic one: their probability of ending decreases until the third or fourth year before increasing again. However, when economic and political and institutional regressors are added, no evidence of duration dependence is found, which is consistent with the results presented and discussed above.

In order to further check the real shapes of the duration dependence of each type of financial crisis, this study uses more flexible polynomial baseline hazard functions with the inclusion of economic, institutional, and political factors. Those additional results are reported in Table

A4.2 in Appendix A4. They confirm the cubic shape on the duration dependence of systemic banking and twin and triple crises. Also, it confirms that the probability of debt and financial crises (in general) ending decreases monotonically over time. It is worth stressing that the magnitudes of the estimated coefficients of duration dependence do not change much with the inclusion of controllers. However, the duration dependence of currency crisis turns out to be statistically insignificant. This is in line with the inconsistent coefficients produced by Weibull and cloglog models (see Table 4.4) and the lack of duration dependence observed in Table 4.5 for currency crises. Thus, it can be concluded that the duration of currency crisis is less likely to be influenced by the time-dependence effect.

4.6. Conclusion

Due to the severe consequences of financial crises, it is not surprising that a large body of work has been motivated to seek for early-warning signals of financial crises. Nevertheless, both theoretical and empirical literature on the determinants of the duration of financial crises has been largely unexplored, despite the fact that permanent output losses are more pronounced in prolonged crises. The only exception is a few studies that focus on the duration dependence dynamics and a few economic factors. Consequently, little is known about the evolution of other critical determinants of financial crisis duration. Against this background, the primary aim of this study is to provide new evidence on the determinants of the length of financial crises by examining the neglected role of the political and institutional environment. Our analysis also differentiates from previous studies by digging deeper into the analysis of the types of financial crises.

This study uses, for the first time, a discrete-time duration model to analyse the duration dynamics of financial crises. Our findings are in contrast with previous studies, in particular those reported by Mecagni et al. (2007) and Claessens et al. (2012), who concluded that a financial crisis is more likely to end when it grows older. This study, however, suggests that the path of the duration dependence dynamics is not that simple. Allowing for more flexible duration dependence specifications, this study finds robust evidence that the duration patterns of systemic banking and twin and triple crises exhibit non-monotonic cubic behaviour. Another striking finding is that the probability of a sovereign debt crisis ending appears to reduce monotonically over time. That is, without external dynamics such as economic, institutional, and political dynamics, a country can end stuck indefinitely in a debt crisis.

Moreover, whilst a few studies have successfully identified some economic factors that can explain the probability of financial crises and the duration of economic recessions such as current account balance and the level of debt, this study accounts not only for these economic

factors but also for the role of the political and institutional environment, which was ignored in previous studies (see, e.g., Mecagni et al., 2007; Claessens et al., 2012). The findings clearly show that economic factors are found to be significant predictors of financial crisis duration. Most importantly, our results emphasise that the political and institutional environment does matter for the understanding of the duration of different types of financial crises. Specifically, the probability of systemic banking and twin and triple crises ending is higher within the first year after elections. Moreover, left-wing governments are associated with longer banking and sovereign debt crises. The inverse relationship holds when right-wing governments are in office. Furthermore, majority governments are more likely to be associated with shorter sovereign debt and twin and triple crises. Nevertheless, despite some empirical efforts, government stability does not seem to be as important as other political factors to explain the duration of any type of financial crisis.

This study also examines the role of the institutional environment and finds that it helps to reduce the length of currency, sovereign debt, and twin and triple crises. However, it is striking that the probability of exiting a banking crisis is smaller in developed countries, where the institutional environment is often healthier. Upon further examination, this study indicates that systemic banking crises tend to hit developed countries deeper, and it is more difficult for governments in those countries to implement efficient crisis resolutions due to the more complex financial systems and institutions.

Overall, our findings offer important insights into the political and institutional effects on financial crisis duration. Policymakers should be aware that any delay of crisis interventions due to political reasons, such as the electoral cycle and inadequate political support, may contribute to more prolonged financial crises. For this reason, government interventions should take place as early as possible. Moreover, minority governments might diagnose and recognise that the real problem preventing their immediate actions in times of crises is the lack of political

supports. In this regard, an election might be necessary to address the problem of policy gridlock and the way forward to eventually form a new majority government.

The effects of political factors on financial crisis duration seem to be different across heterogeneous groups of countries, at least in what regards to systemic banking crises. This is because developing countries tend to face substantially different conditions relatively to more advanced economies in times of crisis (Eichengreen and Rose, 1998; Montinola, 2003). However, as very few currency and debt crises occurred in developed countries, we are unable to observe the potential heterogeneous effects of political determinants of the duration of currency and debt crises. Nevertheless, the results of this study open the door to future research to obtain new drivers that allow us to better understand the length of different types of financial crises. Looking forward, it is useful to examine how fiscal costs influence the financial crisis duration, which might help policymakers to judge the effectiveness of substantial crisis management policies.

APPENDIX A4

Table A4.1. List of countries (1976-2017)

Albania[23]	Costa Rica[1234]	Honduras[23]	Mexico[1234]	Slovenia[1]
Algeria[1234]	Croatia[1]	Hungary[1]	Moldova[1234]	Solomon Islands[3]
Angola[23]	Cyprus[13]	Iceland[124]	Mongolia[1234]	South Africa[234]
Argentina[1234]	Czech Rep[1]	India[1]	Morocco[1234]	Spain[12]
Austria[1]	Denmark[1]	Indonesia[1234]	Mozambique[123]	Sri Lanka[123]
Belarus[23]	Djibouti[3]	Ireland[134]	Myanmar[23]	Sudan[23]
Belgium[1]	Dominican Rep[1234]	Israel[124]	Netherlands[1]	Suriname[3]
Belize[3]	Ecuador[1234]	Italy[12]	Nicaragua[123]	Sweden[12]
Benin[123]	Egypt[1234]	Jamaica[1234]	Niger[23]	Syrian Arab Rep[23]
Bolivia[1234]	El Salvador[1234]	Japan[1]	Nigeria[123]	Tajikistan[23]
Botswana[2]	Ethiopia[3]	Kazakhstan[12]	North Macedonia[3]	Tanzania[23]
Brazil[1234]	Fiji[2]	Kenya[1234]	Norway[1]	Thailand[124]
Bulgaria[1234]	Finland[12]	Korea Rep[124]	Panama[13]	Trinidad and Tobago[23]
Burkina Faso[123]	France[1]	Kyrgyz Rep[1234]	Papua New Guinea[2]	Tunisia[1]
Burundi[13]	Gabon[23]	Lao PDR[23]	Paraguay[1234]	Turkey[1234]
Cabo Verde[13]	Gambia, The[23]	Latvia[1]	Peru[1234]	Uganda[123]
Cameroon[1234]	Georgia[23]	Lebanon[1234]	Philippines[1234]	Ukraine[1234]
Central African Rep[1234]	Germany[1]	Lesotho[2]	Poland[13]	United Kingdom[1]
Chad[123]	Ghana[23]	Liberia[3]	Portugal[123]	United States[1]
Chile[1234]	Greece[123]	Libya[2]	Romania[124]	Uruguay[123]
China[1]	Grenada[3]	Luxembourg[1]	Russia Fed[123]	Venezuela[1234]
Colombia[12]	Guatemala[234]	Madagascar[1234]	Samoa[3]	Vietnam[13]
Comoros[3]	Guinea-Bissau[1234]	Malawi[234]	Senegal[1234]	Yemen Rep[1234]
Congo Dem Rep[23]	Guyana[123]	Malaysia[124]	Sierra Leone[1234]	Zambia[123]
Congo Rep[123]	Haiti[1234]	Mauritania[3]	Slovak Rep[1]	Zimbabwe[123]

Notes: 1, 2, 3, 4, 5 indicate the countries that are, respectively, in the samples of systemic banking, currency, sovereign debt, twin and triple, and all crises. See also Table A2.2 for crises dates by country and type of crisis.

Table A4.2. Discrete-time estimations for flexible duration dependence and determinants of financial crises

	Banking crisis	Banking crisis	Banking crisis	Currency crisis	Currency crisis	Currency crisis	Debt crisis	Debt crisis	Debt crisis	Twin and triple crises	Twin and triple crises	Twin and triple crises	All crises	All crises	All crises
DURATION	0.635***	-1.565***	5.673***	-0.0854	-0.669	-0.528	-0.0330**	-0.0502	-0.146	0.637***	2.065***	11.03***	-0.054***	-0.079***	-0.155**
	(0.0853)	(0.397)	(1.491)	(0.0996)	(0.414)	(1.536)	(0.0142)	(0.0435)	(0.0966)	(0.140)	(0.678)	(2.544)	(0.0113)	(0.0303)	(0.0686)
$DURATION^2$		0.373***	-2.467***		0.110	0.0514		0.000561	0.00819		-0.250**	-3.790***		0.000916	0.00745
		(0.0656)	(0.553)		(0.0751)	(0.624)		(0.00132)	(0.00705)		(0.121)	(1.045)		(0.00100)	(0.00545)
$DURATION^3$			0.325***			0.00689			-0.00015			0.399***			-0.00014
			(0.0616)			(0.0739)			(0.00014)			(0.126)			(0.00011)
EXREFLEX	-0.0479	0.00202	-0.000905	-0.249***	-0.221***	-0.221***	-0.0954	-0.0976	-0.0915	-0.0307	-0.104	-0.0841	-0.127**	-0.122**	-0.111*
	(0.0771)	(0.0826)	(0.0950)	(0.0688)	(0.0711)	(0.0711)	(0.0903)	(0.0912)	(0.0909)	(0.134)	(0.140)	(0.150)	(0.0593)	(0.0597)	(0.0604)
CUACC/GDP	0.0344**	0.0274	0.0353	0.0201*	0.0195	0.0195	0.0566***	0.0576***	0.0577***	0.0440*	0.0488	0.0612*	0.0348***	0.0353***	0.0351***
	(0.0176)	(0.0221)	(0.0265)	(0.0120)	(0.0122)	(0.0123)	(0.0176)	(0.0180)	(0.0178)	(0.0265)	(0.0316)	(0.0314)	(0.00925)	(0.00915)	(0.00909)
PSCGROWTH	0.0139***	0.0106**	0.00821*	0.00197	0.00145	0.00143	-0.00143	-0.00141	-0.00180	0.0130**	0.0118**	0.00981**	0.000104	-6.81e-05	-0.000536
	(0.00340)	(0.00420)	(0.00445)	(0.00284)	(0.00297)	(0.00298)	(0.00505)	(0.00499)	(0.00509)	(0.00526)	(0.00533)	(0.00426)	(0.00378)	(0.00380)	(0.00385)
RGDPGROW	0.0527***	0.0269	0.0285	0.0170	0.0145	0.0146	0.0431*	0.0447*	0.0463**	0.0982***	0.105***	0.113***	0.0190	0.0193	0.0176
	(0.0202)	(0.0248)	(0.0277)	(0.0188)	(0.0197)	(0.0198)	(0.0232)	(0.0230)	(0.0231)	(0.0323)	(0.0352)	(0.0340)	(0.0166)	(0.0166)	(0.0167)
RESERVES/GDP	0.00374	0.00322	0.00846	0.0275*	0.0289*	0.0288*	0.0320***	0.0314**	0.0302**	-0.0501	-0.0495*	-0.0575*	0.0232***	0.0227***	0.0223***
	(0.0111)	(0.0112)	(0.0134)	(0.0145)	(0.0152)	(0.0152)	(0.0122)	(0.0126)	(0.0126)	(0.0310)	(0.0293)	(0.0327)	(0.00776)	(0.00777)	(0.00776)
GOVDEBT/GDP	0.00379**	0.00277	0.00326*	0.00271**	0.00274**	0.00274**	-0.00968**	-0.00959**	-0.00961**	-0.00196	-0.00132	-0.00181	-0.010***	-0.0099***	-0.0097***
	(0.00179)	(0.00178)	(0.00195)	(0.00114)	(0.00114)	(0.00114)	(0.00394)	(0.00399)	(0.00392)	(0.00362)	(0.00367)	(0.00347)	(0.00257)	(0.00260)	(0.00259)
YAFELECTION	0.376*	0.378*	0.364	0.209	0.208	0.209	-0.0367	-0.0357	-0.0345	0.767**	0.692**	0.442	0.150	0.152	0.155
	(0.212)	(0.222)	(0.251)	(0.185)	(0.185)	(0.185)	(0.232)	(0.232)	(0.232)	(0.327)	(0.335)	(0.344)	(0.155)	(0.155)	(0.155)
PARTYINOFF	0.00355	0.00512	0.00413	0.00279	0.00293	0.00294	0.0121	0.0118	0.0112	-0.00764	-0.00683	-0.00356	0.00908	0.00878	0.00819
	(0.0116)	(0.0118)	(0.0137)	(0.00731)	(0.00716)	(0.00716)	(0.0100)	(0.0101)	(0.0101)	(0.0121)	(0.0128)	(0.0129)	(0.00688)	(0.00689)	(0.00692)
LEFTGOV	-0.476**	-0.492*	-0.459	0.339*	0.339*	0.339*	-0.675***	-0.688***	-0.658**	-0.163	-0.100	-0.0462	-0.226	-0.229	-0.213
	(0.239)	(0.254)	(0.289)	(0.200)	(0.200)	(0.200)	(0.257)	(0.261)	(0.263)	(0.389)	(0.395)	(0.418)	(0.176)	(0.176)	(0.177)
CENTREGOV	-0.498	-0.551	-0.577	0.411	0.413	0.414	-0.317	-0.317	-0.312	-0.842	-0.813	-0.778	-0.0900	-0.0852	-0.0778
	(0.281)	(0.288)	(0.355)	(0.277)	(0.275)	(0.275)	(0.321)	(0.320)	(0.320)	(0.468)	(0.480)	(0.509)	(0.212)	(0.212)	(0.212)
MAJORGOV	0.103	0.0866	0.169	0.288	0.247	0.248	0.569**	0.562**	0.553**	1.032**	0.892*	1.308**	-0.136	-0.135	-0.135
	(0.264)	(0.277)	(0.337)	(0.227)	(0.228)	(0.229)	(0.254)	(0.255)	(0.256)	(0.418)	(0.456)	(0.548)	(0.196)	(0.196)	(0.197)
INSQL	0.0514*	0.0507*	0.0581*	-0.0693**	-0.0657**	-0.0658**	-0.0914**	-0.0909**	-0.0897**	-0.180**	-0.172**	-0.272***	-0.0474*	-0.0457*	-0.0448*
	(0.0286)	(0.0295)	(0.0329)	(0.0325)	(0.0323)	(0.0324)	(0.0462)	(0.0458)	(0.0457)	(0.0729)	(0.0763)	(0.0915)	(0.0260)	(0.0259)	(0.0260)
Observations	341	341	341	263	263	263	1114	1114	1114	110	110	110	1399	1399	1399
Pseudo LL	-172.183	-158.195	-147.940	-149.415	-148.438	-148.434	-262.957	-262.858	-262.178	-61.717	-58.153	-48.778	-460.231	-459.831	-459.059
Wald test	73.09***	140.07***	165.01***	43.16***	44.16***	44.26***	53.02***	54.54***	55.51***	29.18***	31.59***	48.95***	130.33***	131.13***	132.67***
AIC	372.366	346.389	327.879	326.830	380.458	386.023	553.915	555.716	556.356	151.434	146.306	129.557	948.462	949.662	950.118
SBIC	426.013	403.867	389.189	376.840	326.876	328.868	624.135	630.952	636.608	189.241	186.814	172.765	1021.871	1028.315	1034.014
Number of crises	150	150	150	305	305	305	171	171	171	87	87	87	338	338	338

Notes: The table reports the estimations of hazard rates for duration dependence of different types of financial crises using cloglog model over the period 1976-2017. Duration, $Duration^2$, and $Duration^3$ indicate the linear, quadratic and cubic specifications, respectively. See Tables 4.4 and 4.5 for technical details.

CHAPTER 5. FINANCIAL CRISES AND HUMAN DEVELOPMENT

5.1. Introduction

Despite recent global economic advances and unprecedented progress in reducing extreme poverty, almost half of the worldôs population ï 3.4 billion people ï still lacked access to basic needs in 2015 (World Bank, 2018). The prospect of human wellbeing has become further emergent due to the on-going Covid-19 pandemic, which has led to an unprecedented human development crisis in the modern age. The associated measures of social distancing and the pause in nonessential business have significantly slowed down human activities. Billions of people have been called to stay at home, schools around the world are closed, and approximately 1 million people have died due to Covid-19 as of September 2020. In addition, 170 countries are expected to experience substantial negative GDP per capita growth in 2020 (UNDP, 2020).

These consequences are significant setbacks in the development of peopleôs health, education and income, which have been considered to be directly related to the overall wellbeing of individuals and families (Merriam, 1978). Facing the deterioration of human wellbeing, the aims of reducing poverty and improving human development are again at the heart of governmentsô social policy agenda to promote essential elements of human life, especially in the context that the Covid-19 pandemic, which in the worst scenario, might turn into a global financial crisis.

This raises an important question: Have we yet fully understood how financial crises influence human development? Surprisingly, the causal effects of financial crises on human development are less explored in the literature, despite that fact that the recent Great Recession of 2007/08 led millions of people to lose their jobs, businesses, homes and life savings.

Indeed, the unprecedented governmentsôresponses to the Great Recession around the world imply that policymakers were unprepared to take measures to protect human development.

Moreover, they seem to have underestimated the real effects of financial crises on overall human and social wellbeing. In fact, the losses in terms of human development in times of crisis might *per se* eliminate the whole progress achieved during long tranquil periods (Calvo, 2010) and leave long-lasting consequences to subsequent generations (UNDP, 2020). Thus, investigating the impact of financial crises on human development is critical to understand their dynamics, build resilience and prepare appropriate responses to future shocks.

The existing efforts to examine the adverse effects of financial crises on human wellbeing tend to focus on the dimension of income losses due to a surge in unemployment, and how this surge links to the deterioration of human wellbeing (see, e.g., Deaton, 2012; Jenkins et al., 2013; Boyce et al., 2016; Chzhen, 2016; De Neve et al., 2017). While income is an important indicator of human development as it creates opportunities for people to achieve the way to a better life, other human capital factors such as education and health are also critical for people to have the skills and ability to take advantages of those opportunities (Psacharopoulos, 1995). This sheds light on Harding and Wantchekon (2010), who suggest that ñthe richness of human lifeò should be realised in the way that people have capabilities to achieve a decent standard of living, long and healthy lives, and knowledge. The most widely used measure that covers these broad dimensions is the Human Development Index (HDI), which was developed by the United Nations Development Programme (UNDP) in 1990. However, very few studies have empirically examined the effects of financial crises on non-income dimensions of human development. Taking the advantages of the HDI, this study represents the first attempt to explore the impact of financial crises on the main dimensions of human and social wellbeing - the HDI and its components: health, education, and income.

As done in the antecedent literature, the effects of financial crises on human wellbeing are generally not a clear cut. In order to respond to financial crises, governments tend to implement costly measures to tackle their real effects, such as bailouts of troubled financial institutions

and quantitative easing programmes. As they finance these measures with public debts, the soaring borrowings and budget deficits afterwards are inevitable. This calls for the need to raise money either by increasing taxes or reducing social expenditure. The latter option has been proven to be more effective and less harmful to the economy (Alesina and Perotti, 1997; Yang et al., 2015; Lobao et al., 2018). This, however, comes at the cost of a deterioration of the overall human wellbeing, especially for low-income groups (Mladovsky et al., 2012; Donald et al., 2014; Mohseni-Cheraghlou, 2016). Nevertheless, governments can alleviate the adverse effects of financial crises on human wellbeing through various welfare expansion programmes (Vis et al., 2011; Shahidi, 2015). Some studies point out that there is not yet a consensus that financial crises have a negative impact on human wellbeing, especially on education and health (Lobao et al., 2018; Thompson et al., 2019). Other studies go even further by providing evidence of the positive effects of economic recessions on human wellbeing (see, e.g., Ruhm, 2000; Gerdtham and Ruhm, 2006). As controversy remains in this regard, this study intends to provide an answer to the critical question: How do financial crises influence human development and its different dimensions?

This study goes one step further by examining the effects of different types of financial crises on human development. The existing literature on financial crises and human wellbeing frequently refers to the adverse effects of banking crises, especially in what regards to the recent Great Recession (see, e.g., Calvo, 2010; Deaton, 2012; Stiglitz, 2012; Simou and Koutsogeorgou, 2014; Shahidi, 2015; Chzhen, 2016). However, financial crises are not always single events. In practice, they tend to come in waves with different shapes and formats, which can be distinguished into three broad types: systemic banking, currency, and debt crisis (Laeven and Valencia, 2008, 2013, 2020; Reinhart and Rogoff, 2011; Babecky et al., 2014). The various combinations of these types can also be aggregated into twin and triple crises. Therefore, to provide a more comprehensive view of the relationship between financial crises and human

development, this study, to the best of our knowledge, is the first to analyse the effects of different types of crises on the evolution of human development and its components.

For this analysis, we employ a two-step System-GMM estimator over a sample of hundreds of financial crises that occurred in 113 countries over the period 1980-2017. To date, there has been no cross-country study that assesses the effects of financial crises on different dimensions of human development relying on such a large set of crises over this long period of time. The findings indicate that any type of financial crisis is harmful to both the short- and long-term evolution of human development and its components, which emphasises the need to focus on types of financial crises rather than simply banking crises or several major crisis events. Moreover, financial crises have proven to be even more important than some political, institutional and economic factors, in terms of magnitude, to explain the evolution of human development.

By digging deeper into the components of human development, financial crises appear to be more damaging on income, likely reflecting their adverse effects on unemployment and lower government spending on social protection. In contrast, education is only marginally affected by banking and debt crises. This is because education budgets are often more protected than those of other sectors. Moreover, while developed countries might be hit harder in terms of output losses during a financial crisis, the deterioration of overall human development in those countries is less severe than in developing countries.

The rest of this study is organised as follows. Section 2 provides an overview of human development measurement and the potential effects of financial crises on human development. Section 3 presents the data and describes the empirical methodology. Section 4 discusses the main findings. Several sensitivity analyses and robustness checks are provided in Section 5. Section 6 concludes.

5.2. Review of the literature

There is a growing literature that measures overall human wellbeing and observes how it changed in the aftermath of the Great Recession of 2007/08. A comprehensive review of these themes is beyond the scope of this study. Instead, we provide a brief summary of how to measure human development and the channels through which financial crises can affect human development and its components.

5.2.1. Measuring human development

As summarised by Fleurbaey (2009), happiness indices, adjusted GDP, and the HDI are three main approaches to measure individual wellbeing and social welfare. The first approach relying on surveys on wellbeing suffers from the difficulty of compiling sufficiently comparable data across time and space (Gerring et al., 2012; Castro and Martins, 2018b). Moreover, the validity of answers to subjective wellbeing questions remains a somewhat open question (Stevenson and Wolfers, 2008).

The second approach measures human wellbeing by looking at the dimension of income. The relationship between income and life satisfaction has been mainstream research in economic psychology for several decades with a remarkably consistent narrative: income is an important and robust predictor of life satisfaction and wellbeing (Di Tella et al., 2010; Deaton, 2012; Boyce et al., 2016; De Neve et al., 2017). However, as mentioned by the United Nations Development Programme, ñincome is not the sum total of human lifeò (UNDP, 1990, p.9). Indeed, income creates opportunities for people to earn their way to a better life, but investing in human development such as education, health and other social services is critical to take advantages of these opportunities (Psacharopoulos, 1995). Ivanov (2009) refers the concept of human development to both the ñstate of developmentò and the ñpattern of developmentò. While the former relates to the scope of societiesô progress, GDP per capita, the latter notion implies increasing human capabilities, which is also the essence of human development.

Specifically, human development focuses on people and their abilities to advance ñthe richness of human lifeò by translating resources into the functioning and ultimately into capabilities (Harding and Wantchekon, 2010).

The HDI was developed to capture the richness of human life in the dimensions of longevity, knowledge, and decent living standards (UNDP, 2010). In this regard, income is only a fair measure of a decent living standard and needs to be complemented with the other two elements relating to life expectancy, health, literacy and education attainment. This is in line with Vollmer and Ziegler (2009) who argue that education and health are also important components of human development as they determine the capabilities of people to choose the kind of life they desire. Hence, by capturing these dimensions, HDI has been considered to produce a more comprehensive measure of human wellbeing and social welfare. Based on the technical notes of the Human Development Report, HDI is the geometric mean of normalised indices for each of three key dimensions: a long and healthy life; access to education; and a decent standard of living (UNDP, 2018).

However, this index is not without limitations. In fact, Martins and Veiga (2014) and Castro and Martins (2018b) point out that it weights different components of human development in the same way for all individuals and ignores other comparable factors across countries such as the quality of education and health. Nevertheless, HDI has been considered to be complete and provides a more comprehensive and better measure of different aspects of human development than any other indicators or indices (Nafziger, 2012). Taking part of its advantages, this study examines how different types of financial crises affect human development over the last four decades.

Income inequality can also be used to measure human and social wellbeing. It matters because rising income inequality could slow down poverty reduction, weaken economic growth, and create social tension that may result in political instability and social conflicts

(Wilkinson and Pickett, 2011; Kakwani and Son, 2016). Financial crises might have an impact on income inequality, which indirectly affects human and social wellbeing. However, income inequality is not a perfect measure of human and social wellbeing. According to a recent report of the United Nations, income inequality focuses on the income dimension, while human development index goes beyond income, assessing additional dimensions of development such as education and health (UNDP, 2019). For example, Mohseni-Cheraghlou (2016) examines the impact of financial crises on human and social wellbeing through income inequality and other factors such as health, nutrition, social security, and education. This is because income inequality alone might not reflect a broad picture of human and social wellbeing. For this reason, the human development index covering both income, education, and health dimensions would be a better proxy of the overall human and social wellbeing. Thus, this chapter focuses on how financial crises affect human development.

Moreover, the effects of financial crises on income inequality are as yet unclear. On the one hand, Bridges et al. (2018) find that income inequality tends to rise after a financial crisis. They argue that financial crises result in higher unemployment and put downward pressure on the wages of the lowest paid. This is because higher unemployment reduces the bargaining power of workers. Baldacci et al. (2002) also find that the poverty gap widened after banking and currency crises, leading to an increase in the depth of poverty. One the other hand, some studies pinpoint that there is no clear evidence of higher income inequality as a result of financial crises. For example, Grabka (2015) concludes that there is no significant change in income inequality in Germany during the Great Recession. Using a sample of 70 countries over the period 1973-2006, Gokmen and Morin (2019) find that income inequality shows no clear pattern of change in the aftermath of financial crises. Agnello and Sousa (2012) study the impact of banking crises on income inequality in 62 countries from 1980 to 2006 and find that income gaps increase before banking crises but fall significantly afterwards.

While the impact of financial crises on income inequality remains ambiguous, previous studies provide robust evidence that income inequality is a robust predictor of financial crises. They provide evidence that income inequality fuels unsustainable credit growth and increase financial instability (see, for example, Kirschenmann et al., 2016; Agnello et al., 2017; Cairo and Sim, 2018). In particular, Kumhof et al. (2015) show that income inequality is directly related to higher levels of leverage in middle-income and poor households as a consequence of higher borrowing against future incomes. This eventually leads to a credit boom and a subsequent crash. In the same vein, Perugini et al. (2015) argue that governments tend to placate their voters by adopting policies that enhance votersô access to credit such as deregulation of credit markets and encouraging of state-owned mortgage agencies to expand credit to low-income households, which could create a glut of credit and lays a foundation for a financial crisis.

5.2.2. Financial crises and human development

Despite the detrimental impact of financial crises on human development, little attention has been given to this dimension. We begin by considering two of the numerous possible causal channels linking financial crises and human development. The first channel is through their influence on unemployment. The outbursts of financial crises create pressure on the labour market when firms shrink their operations or close, especially in small and medium-sized enterprises (SMEs). It is worth stressing that SMEs create more than 60% of total employment in OECD and developing countries (Beck and Demirguc-Kunt, 2006; OECD, 2019). The contribution of SMEs to the labour market in European countries is also more significant, at 67% of total employment (European Commission, 2015). Despite the important role of SMEs in promoting sustainable economic development, they are more vulnerable to external shocks and financial crises. Due to the lack of inflexible wages and high firing costs, SMEs have more incentives to reduce the number of employees during hard times. This explains why

unemployment tends to significantly increase during financial crises. For example, unemployment in Greece unprecedentedly increased from 9.5%, on average, during the period 2000-2007 to 21% during 2010-2013 (IMF, 2013) or from 4.6% in 2007 to 10.6% in 2010 in America (Deaton, 2012).

A surge in unemployment has a negative impact on human development by reducing income, which in turn results in lower consumption and more tightening access to quality food, health care and social services (Calvo, 2010; IMF, 2013; OECD, 2014). In addition, Catalano (2009), Simou and Koutsogeorgou (2014), and Drydakis (2015) point out that the severe increase in unemployment in times of crisis is harmful to mental health due to the associated increase in antisocial behaviour and clinical depression, unhealthy eating habits, substance abuse, and generally less healthy lifestyles. It is also worth stressing that financial crises negatively influence not only unemployed and economically inactive people, but also their children. This happens because unemployed parents from low-income households may face difficulties to afford their children access to education and healthcare. For example, income losses, along with lower government spending on education, make good-quality education more costly for these households (OECD, 2014). This can be observed in the increase of the rate of child poverty in the United States from 18% in 2007 to 22.5% in 2011 (Chzhen, 2016) or from 21.8% to 42.6% in Greece over the period 2009-2012 (Matsaganis, 2013).

Moreover, unemployment could reduce human development by impeding the engagement of people in socio-economic activities and the expansion of skills and health (World Bank, 2006). This is consistent with Stiglitz (2012) who argues that rising unemployment, as a consequence of financial crises, inhibits human development directly through the loss of skills during an extended period of unemployment. It is also worth noting that the detrimental impact of financial crises on the labour market tends to be permanent. For example, the SME employment levels in the manufacturing industry in European countries has not reached those

before the Great Recession (European Commission, 2017). Thus, we can expect that financial crises have long-lasting consequences on human development.

The second channel relates to the reduction of public social spending. In order to cushion the immediate effects of financial crises, governments implement various economic and social policies to protect the financial system and citizensô wellbeing. For example, they can implement short-term containments such as unlimited guarantees and extensions of liquidity support. Then stronger crisis resolutions like bailouts of failing financial institutions might be undertaken to prevent an economic collapse. Regarding social policies, governments may also extend welfare provisions such as income transfers, health care, and other public services to make economic shocks less damaging to human wellbeing. Even when these policies are carefully designed, they might be inefficient and costly for government budgets (Demirguc-Kunt and Detragiache, 1998; Nguyen et al., 2020). In practice, government spending might rapidly approach its limits because of the associated pressure of tremendous budget deficit and sovereign debt. For example, some countries initially increased their social spending such as Iceland, Ireland and Spain between 2008 and 2009 to cope with the effects of the Great Recession on their labour markets. Nevertheless, they were unable to maintain these programmes due to the soaring deficits and borrowings and, on that basis, painful cuts coming afterwards were inevitable. Greece and Portugal also followed the same path and ended-up being rescued by external packages that imposed austerity measures with painful consequences to their citizens.

As spending on the welfare state is heavily dependent on the government budget, a country might be unable to finance these policies when facing a significant budget deficit (Stoilova, 2016). This eventually forces political actors to choose the option of implementing welfare state reforms regarding retrenchment and recommodification because it is more effective and less harmful to the economy than that of raising taxes (Alesina and Perotti, 1997; Vis et al.,

2011; Yang et al., 2015; Lobao et al., 2018). For instance, significant welfare state retrenchments can be observed in European countries during the recent financial crisis in 2008 such as the ones that occurred in Iceland, Ireland, Portugal, Spain, the United Kingdom, Czech Republic and Slovenia. In this regard, cuts on social spending, despite the surge in demand for unemployment benefits and social protections, have significant negative effects on human development, especially on low-income groups. More specifically, spending cuts affect householdsô income and their ability to engage in quality education and healthcare systems (World Bank, 2006; Stuckler et al., 2009; Stiglitz, 2012; Mohseni-Cheraghlou, 2016). In fact, low-income households are more vulnerable as they lack the ability to come up with emergency funds (UNDP, 2020).

It is worth noting that welfare retrenchments and austerity policies appear to focus on poor people who have less political power and are consistent with the narrative that their plight is due to their own faults (Paulus et al., 2017; Lobal et al., 2018).[71] Additionally, the wealthy might be able to avoid and protect themselves against government cutbacks based on their powerful political influence (Stiglitz, 2012). Consequently, the poor ï who are most dependent on social expenditure ï are more affected by spending cuts during financial crises. Some studies report substantial increases in liquidity-constrained households who suffered from the cuts in public transfers due to the austerity programmes associated with the recent Great Recession in European countries such as Greece, Spain, Italy, Portugal and Latvia (Clinton et al., 2011; Paulus et al., 2017).[72]

These retrenchments are more pronounced in countries that received financial aids from external organisations such as the International Monetary Fund, the European Commission and

[71] For example, Diamond and Lodge (2013) report that welfare state retrenchment in the UK in the aftermath of the recent Great Recession disproportionately influenced the young and the poor, who tend to vote with least frequency.

[72] Paulus et al. (2017) define liquidity-constrained households as those that are unable to pay for unexpected financial expenses.

the European Central Bank. As in the case of Greece and Hungary, despite a substantial increase in unemployment, real social spending plunged by around 18% and 14%, respectively, over the period 2008-2012. This is because the soaring borrowing costs forced them to seek rescue deals from these external organisations. However, the associated condition is to restructure their domestic social protection policies, including reducing reservation wages and social spending cuts such as pensions and healthcare (Petmesidou and Guillen, 2014).

Based on the theoretical and empirical evidence presented above, this study conjectures that financial crises inhibit human development through their effects on unemployment and social spending. Thus, the hypothesis that this study aims at testing can be stated as follows:

H1: Financial crises have a negative impact on human development and its components.

However, the adverse effects of financial crises on human development are not always translated into lower human development. The primary purpose of social policies during financial crises is to help unemployed people and households to cope with economic shocks and to prevent them from turning into long-term consequences (OECD, 2014). Governments can significantly expand welfare provisions against the real effects of financial crises on their citizens (Vis et al., 2011; Shahidi, 2015). Investigating poverty during the Great Recession, Chzhen (2016) finds that increasing expenditure on social protections appeared to cushion the adverse impact of the crisis on household income and reduce the risk of poverty during the period 2008-2013. Despite soaring budget deficits to finance welfare expansion programmes, political actors may face difficulties in implementing drastic spending cuts because those programmes are broadly supported by the public (Vis et al., 2011). As argued by Burstein (2003), public attitudes play a critical role in shaping government policymaking and action. Moreover, recent studies point out that there is not yet consensus that financial crises have negatively affected education and health (Lobao et al., 2018; Thompson et al., 2019). Some studies go even further by providing evidence of the positive effects of economic recessions on

human wellbeings, such as reducing mortality and deaths (Ruhm, 2000; Gerdtham and Ruhm, 2006).

5.2.3. The role of the political and institutional environment

Research on socio-economic development has become increasingly engaged with the questions of how political choices and institutional structures shape the patterns of social policies. In order to isolate the causal effects of financial crises, this study also brings to the forefront the channels through which political and institutional factors affect human development.

5.2.3.(i) Electoral cycle and human development

The political business cycles theories (PBC) generally indicate that incumbent governments, regardless of their ideological orientation, aim to maximise the probability of re-election by generating short-run expansions before elections (Rogoff, 1990; Brender and Drazen, 2005; Klomp and de Haan, 2013; Bohn, 2018). These opportunistic effects can be generated through fiscal policy manipulations: increased government consumption spending, credit extensions or tax cuts. Castro and Martins (2018b) extend the PBC theory to social dimensions in the sense that politicians may implement welfare expansion programmes that promote the general human wellbeing and citizensô needs to achieve more votes when elections are tight. This should have a positive effect on basic social dimensions such as health, education and social protection. Indeed, some studies provide empirical evidence of incumbentsô opportunistic behaviour of increasing spending on public services, healthcare and social protection in election years (Shi and Svensson, 2006; Potrafke, 2010; Castro and Martins, 2015).

However, it is worth stressing that the PBC theory also indicates that contraction measures tend to be implemented to address imbalances generated to produce short-term manipulations for electoral purposes. This leads to a higher likelihood of economic recession after elections due to associated problems of budget deficit or sovereign debt (Block, 2002; Shi and Svensson, 2006; Greene, 2010; Bohn, 2018), which might adversely affect human development.

5.2.3.(ii) Partisanship and human development

As the evolution of human development involves various social policy outcomes, it is important to investigate the role of political orientations in shaping these policies. The partisan hypothesis implies that the ideological spectrums of ruling parties determine the path of social policies to maintain party cohesion and to avoid losing votersôsupport (Sacchi and Roh, 2016). Governments are heterogeneous as reflected by different viewpoints of economic and social policies between the left- and right-wing governments (Hibbs, 1977, 1987; Alesina, 1987). When in office, different parties pursue their own policy orientations and hence affect human development in different ways. Left-wing governments tend to promote public spending, stricter financial regulations and the role of the government in the economy, whereas right-wing governments favour public spending cuts, deregulation, economic integration, and fewer government interventions (Hibbs, 1997; Pickering and Rockey, 2011, 2013; Castro and Martins, 2020).

Given their systematically different viewpoints about economic policies, they may also pursue opposite social policies when facing similar socio-economic conditions. Left-wing governments tend to favour higher public social expenditure and generous and redistributive welfare states because they represent the middle and lower-class voters, who are most vulnerable to economic hardship and most likely to benefit from welfare expansions (Garrett and Mitchell, 2001; Jahn, 2006; Diamond and Lodge, 2013; McManus, 2017). Right-wing governments, by contrast, represent the interests of middle and upper-class voters and tend to traditionally favour balanced budgets and lean welfare states with scanty financing and provision of social benefits (Herwartz and Theilen, 2014; Savage, 2019; McManus, 2019). In times of crisis, this partisanship effect could be more pronounced when governments are induced to aggressively push their ideologies (Bjørnskov and Rode, 2018). Talving (2017) argues that right-wing governments tend to implement fiscal austerity, whereas left-wing

governments are more likely to pursue fiscal expansion. In that sense, welfare state retrenchment is more likely to be implemented by right-wing governments, while welfare state expansion should be pursued by the left-wing governments. Partisan politics, therefore, imply that left-wing governments are more prone to pursue social policies that may better benefit human development.

5.2.3.(iii) Political risk and human development

Another important political aspect to consider is political instability. While implementing social policies to promote human wellbeing is at the heart of governmentsô concerns, frequent cabinet changes result in little programmatic cohesion of social policies. This happens because incumbent governments do not expect to reap benefits from long-term policies as they are uncertain about their future re-appointments (Edwards and Tabellini, 1991; Jens, 2017). Instead, they tend to pursue short-run policies at the expense of long-term development (Keefer, 2007b; Gerring et al., 2012).

Moreover, Gyimah-Brempong and De Camacho (1998) show two main channels through which political instability negatively affects human capital formation. First, in an uncertain socio-political environment, economic agents are less likely to invest in the human capital formation such as education, training, skills and health because they are not sure about the capabilities to benefit from such investment. This is in line with Aisen and Veiga (2013) who argue that political instability creates uncertainty about the expected returns in the future and, on this basis, people may have less incentive to invest in education. Indeed, high-skilled labour or those with high levels of human capital tend to emigrate to countries with a more stable political environment. Second, political instability may force the governments to allocate resources from investing in physical and human capital to the security sector. For example, in countries with an unstable political environment such as Venezuela and Yemen, the priority of

the governments would be spending more on military and security to protect the regime from internal conflicts rather than investing on human development.

5.2.3.(iv) Political support and human development

Another political factor of interest is political support, which can be seen as a measure of the incumbent governmentôs ability to implement social policies or welfare state reforms. This is determined by whether an incumbent government holds an absolute majority of seats in the parliaments or not. As pointed out by Bussière and Mulder (2000), Brown and Dinc (2005) and Redl (2020), the split in the legislature, which is indicated by the percentage of seats, determines the ability of the ruling government to implement necessary policies or reforms. A stronger opposition party indicates higher levels of fractionalisation and polarisation in the parliaments, which lead to political constraints in implementing any kind of policies or to the so-called ópolicy gridlockô (Mian et al., 2014; Funke et al., 2016). During financial crises, this gridlock could be more pronounced as mainstream opposition parties have more chances to replace the incumbent government. As in the case of the Asian financial crisis in 1997, the elected president Kim Dae-Jung of Korea aimed to permanently expand the scope of the existing social protection benefits in order to reduce the adverse effects of various pro-market reforms on the labour market.[73] However, the conservative opposition party (Grand National Party), which held the largest share of the legislature rejected president Kimôs welfare expansion policies and led to the political deadlock in the National Assembly. To deal with this situation, the incumbent government started to enlarge its size by attracting defectors from other opposition parties and formed a coalition with the Liberal Democratic Union (Sacchi and Roh, 2016). Although political support is important to determine the ability of governments to

[73] As parts of the IMF conditions for financial aid, Korea was compelled to implement significant reforms such as: (i) restructuring of financial and corporate sectors and (ii) increasing labour market flexibility. All of which resulted in a significant increase in unemployment and subsequently soaring demand for social protection.

pursue their policies, it is not clear how majority governments affect human development as it might depend on the political agenda of the incumbent party.

5.2.3.(v) Democracy and human development

As a proxy for institutional factors, the level of democracy is expected to play an important role in promoting human development. Different social groups represent different political institutions, whereby they can determine the allocation of political power and resources. Besley and Kudamatsu (2006) and Robinson and Acemoglu (2006) argue that autocracy represents the dictatorship of elites, while democracy represents the dictatorship of the poor and middle-income classes. As democracy represents the majority of citizens or the plurality of voting electorate, elites with the aim to compete for those votes are more accountable to respond to the citizensô redistributive concerns (Brown and Hunter, 2004; Gerring et al., 2012). This is, however, opposite to the autocratic regimes, where political competition is inhibited, elites are less likely to respond to the needs of citizens (Lake and Baum, 2001). Inadequate political competition in such regimes enables political actors to maintain their power without being replaced, albeit fewer responses to the citizensô needs. In fact, they tend to repress political opposition and the media to protect their power and stifle public debates about redistribution (Besley and Kudamatsu, 2006).

In addition to accountability, democracy may promote human development through the selection effect. This is because higher levels of political competition in the electoral process allow for selecting more competent and honest incumbent chief executives, who are more able to implement efficient social policies (Besley and Kudamatsu, 2006). In this regard, democracies could provide not only more but better public goods and services, while redistribution in autocracies is only limited to levels that serve the purpose of maintaining the regimes and increasing wealth of political actors (Vollmer and Ziegler, 2009).

Another pathway through which democracy fosters human development is promoting civil society. In fact, political and civil rights are highly correlated, indicating that higher levels of political freedom are associated with more developed civil society, and this usually leads to the development of various voluntary associations (Gerring et al., 2012). These associations play a vital role in improving human development by providing goods and services to the poor. Indeed, voluntary and non-governmental organisations have been considered to be critical in empowering poor people to gain controls of their lives, promoting sustainable development, and improving education and healthcare; all of which directly contribute to the general welfare of the poor (Streeten, 1997; Gauri and Khaleghian, 2002; Gerring et al., 2012).

5.2.3.(vi) Political system and human development

A significant body of work in the literature has been devoted to identifying the relationship between the nature of the executive and human development, but ambiguity remains. On the one hand, presidential systems might be associated with lower wealth-redistribution. In these systems, governments tend to be divided as both the president and the assembly compete for power. When the executives are both separate and powerful, it leads to the issue that veto players who are opponents of the progressive legislation could block it for political purposes (Huber et al., 1993). Thus, presidential systems usually produce more divided governments and weak party organisations and voting cohesion (McManus and Ozkan, 2018). These separate-powers systems may benefit interest groups and lobbyists who aim to obstruct legislation regarding social reforms or the expansions of public goods and services to the poor.

On the other hand, the prime minister in the parliamentary systems is elected by winning the majority of votes in the legislature and is directly responsible for that body. This leads to a less fragmented executive structure or a more centralised system of national-level government, which produces more cohesion in terms of economic and social policies. Indeed, some studies find that presidential systems tend to provide lower overall social spending (Persson and

Tabellini, 2003) and higher income inequality (McManus and Ozkan, 2018). Furthermore, existing studies also provide empirical evidence that presidential systems are associated with slower economic growth and greater economic and inflation volatility (McManus and Ozkan, 2018), which might inhibit human development.

However, parliamentary systems might not necessarily be superior to the presidential ones. Systems with separate powers force political groups to achieve consensus on legislation. In this regard, the implementation of a society-wide policy could be a result of deliberate policymaking procedure among rival constituencies and organisations. Once these policies are implemented, they tend to be more effective and successful in the long-term (Gerring et al., 2012). In addition, an independent executive structure may require more transparency in decision-making, government activities, and oversight procedures. In other words, presidential systems might produce better social policies.

5.2.4. Socio-economic factors and human development

5.2.4.(i) Economic environment

Stiglitz (2012) argues that firms are less likely to invest in physical capital when economic conditions deteriorate. In order to maintain the same level of investment, firms might demand higher risk premiums and/or lower wages and benefits. Alternatively, firms are unwilling to invest in short- and medium-term. This is associated with lower tax revenue, which in turn adversely affects human development in the sense that governments have less resources to spend on education, health and social protection. By contrast, a better economic environment indicates the ability to create not only opportunities but also demand for human capital investment (Gyimah-Brempong and De Camacho, 1998). By the same token, growth enhances the welfare of the population by lowering the poverty rate and fostering economic growth as well as development (Martins and Veiga, 2014; Castro and Martins, 2018b).

5.2.4.(ii) Economic openness

The empirical evidence of the impact of economic openness on human development has been controversial, as reflected by the disagreement between the *efficiency hypothesis* and the *compensation hypothesis*. The prior hypothesis indicates that higher levels of globalisation increase the power of capital relative to that of the state and, on this basis, governments tend to promote market efficiency by lowering costs, taxes, and social spending to maintain competitive power (Jahn, 2006; McCashin, 2016; Lobao et al., 2018). In particular, a generous welfare state requires higher public spending, which ultimately results in higher levels of taxes. This erodes the profits of asset holders and the competitiveness of domestic producers (Garrett and Mitchell, 2001; Huber and Stephens, 2001; Brown and Hunter, 2004). By contrast, the compensation hypothesis indicates that welfare state expansion is a mean to offset the social costs of globalisation. Greater international integration creates economic insecurity and hence fuels demands for welfare compensation to vulnerable groups (Burgoon, 2001; Kaufman and Segura-Ubiergo, 2001). For example, the threat of multinational companies to move their operations to another country, where operational costs are lower, would be associated with a substantial increase in unemployment and social insecurity.

5.2.4.(iii) Investment

This study also considers the role of gross capital formation in advancing human development. The relationship can be traced back to the pioneering study of Solow (1957), which indicates that the accumulation of physical capital plays a critical role in promoting domestic production and stimulating economic growth. Other studies also find empirical evidence that investment leads to higher economic growth and development (Anderson, 1990; Martins and Veiga, 2014).

5.2.4.(iv) Financial risk

Financial risk is another important financial factor that can shape the patterns of social policies. To honour external obligations, governments are compelled to cut spending on social programmes (Brown and Hunter, 2004). This is more pronounced in the aftermath of financial

crises as indebtedness forces governments to implement welfare state reforms regarding retrenchment and recommodification (Vis et al., 2011). In fact, fiscal imbalances are the main reason that prevents governments from pursuing welfare state expansion policies, even though those policies are vital to cushion the detrimental impact of financial crises on the overall wellbeing of citizens (Petmesidou and Guillen, 2014; Stoilova, 2016). Thus, it is expected that lower financial risk has a positive impact on human development.

5.2.4.(v) Population growth

Investigating the effects of population growth on human development lies at the core of the current worldwide interest as it involves the human quality of life and wellbeing. The central argument is that higher population growth reduces income per capital and then wellbeing (Aisen and Veiga, 2013). This simply happens because the same capital needs to be spread more when the number of workers increases. Also, an increase in population growth exerts more pressure on the welfare system to provide essential social services and the pressure on the management of resources and related socio-economic issues (Castro and Martins, 2018b).

5.2.5. Contributions to the literature

It is not surprising that there are several studies that attempt to explore the adverse effects of financial crises on several dimensions of human development, such as health and income. Most of them rely on comparative analyses to observe the changes of some important factors that potentially determine human wellbeing such as unemployment, income, and public social spending in the aftermath of the Great Recession (see, for example, Calvo, 2010; Deaton, 2012; OECD, 2014; Chzhen, 2016). Given this recent literature, this study extends the analysis of the topic in several directions. First, this study extends the quantity and types of financial crises analysed, as the Great Recession is not the sole banking crisis in recent decades. Indeed, Laeven and Valencia (2020) report 151 systemic banking crises around the globe over the period 1970-

2017. Moreover, other types of financial crises such as currency, debt, and twin and triple crises may also have a detrimental impact on human development.

The second problem that should be highlighted is that comparative analyses do not show the causal impact of financial crises on human development. The approach ignores important information of factors affecting the magnitude of crisesô effects on human development such as political decisions and the institutional framework. Hence, this study extends previous works in terms of methodology by employing a more appropriate econometric method ï a dynamic panel data model ï that captures not only the short- and long-run dynamics of the process, but also the effects of financial crises and other potential drivers such as political, institutional, and socio-economic factors on human development.

The third major point to be dealt with is the lack of studies that directly examine the impact of financial crises on the overall human wellbeing and social welfare, as proxied by the HDI and its components. Instead, previous studies analyse how financial crises affect public social spending and, consequently, specific elements of human development: education, healthcare and social protections (Deaton, 2012; McManus, 2017; Savage, 2019). However, reducing social spending is not the sole channel through which financial crises deteriorate human development. More specifically, whilst austerity policies or welfare state retrenchments are among consequences of financial crises, they may not fully reflect the real effects of financial crises on human development. For example, along with spending cuts, the deterioration of human development in times of crisis can also be characterised through the lens of unemployment (World Bank, 2006; Stiglitz, 2012). In that sense, by focusing on the direct influence of financial crises, this study may better assess the real effects of financial crises on human development and its components.

The fourth group of issues relates to the limited time and country coverage in recent literature. Specifically, most studies tend to focus on the period between 2007/08 and 2012/13

to capture the effects of the Great Recession or to select several countries that were highly affected by the crisis (Calvo, 2010; Deaton, 2012; Simou and Koutsogeorgou, 2014; Drydakis, 2015; Chzhen, 2016). In contrast, the sample of this study covers hundreds of different types of financial crises from 113 countries over the last four decades (1980-2017).

In sum, our research approach departs from previous studies in terms of types and numbers of financial crises considered, the econometric method used, measures of human development, and country/time coverage. This study, to the best of our knowledge, is the first to examine the effects of various types of financial crises on human development and its components over the last four decades.

5.3. Data and methodology

This section starts by discussing the methods to date financial crises and the variables used in the regressions. Then it provides some preliminary statistical analysis. This is followed by the presentation of the econometric methods to examine the impact of financial crises on human development.

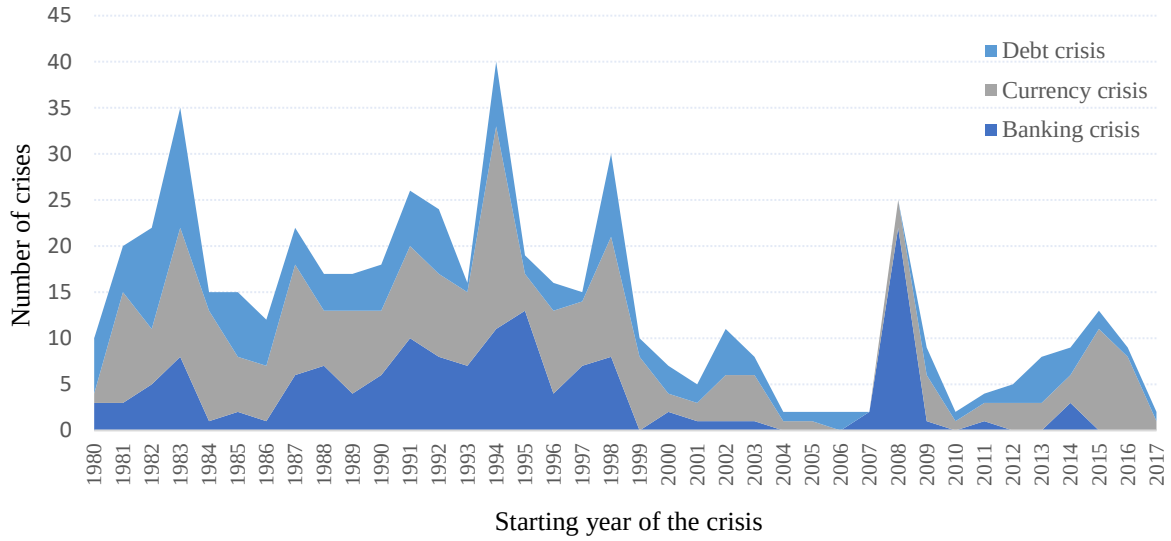
5.3.1. Financial crisis identification

This study follows the same definitions adopted in Chapter 2 to identify different types of financial crises (see also Nguyen et al., 2020). Each type of financial crises is represented by a dummy variable that takes the value of 1 for the initial year and the duration of the examined crisis, and 0 otherwise. This study uses the systemic banking crisis database provided by Laeven and Valencia (2020). They identify systemic banking crises based on the intensity of policy interventions in the banking sector. In terms of currency crisis, we rely on Frankel and Rose (1996) to identify a currency crisis when the nominal depreciation of the domestic currency vis-a-vis US dollar is of at least 30%, and that is also at least of 10% increase in the rate of depreciation observed in the year before. With regards to sovereign debt crises, a crisis is identified when a country is unable to honour its principals or interest payments on the due

date (De Bonis et al., 1999; Detragiache and Spilimbergo, 2001; Reinhart and Rogoff, 2014). To rule out negligible sovereign defaults, Nguyen et al. (2020) particularly date a debt crisis when either (i) total sovereign defaults exceed 1% of GDP in at least three consecutive years; or (ii) total sovereign defaults exceed 7% of GDP (see also Chapter 2). These criteria cover all debt crises identified in the databases of Balteanu and Erce (2018) and Laeven and Valencia (2020). Given the fact that banking, currency and debt crises can coincide, twin and triple crises are dated based on the method of Laeven and Valencia (2020) and the one developed in Chapter 2 (see also Nguyen et al., 2020). In the cases that financial crises last more than 5 years starting from their onsets, this study follows Laeven and Valencia (2020) to truncate their duration at five years in order to avoid capturing the impact of other shocks.

Under these definitions, we identified 148 banking crises, 237 currency crises, 139 sovereign debt crises, 64 twin crises and 15 triple crises around the globe over the period 1980-2017. Figure 5.1 shows the incidence of financial crises by type over the examined period. It is clear that all types of financial crises come in waves such as those of currency and banking crises arising in the mid-1990s due to the influence of the Mexican peso crisis in 1994. As financial crises can coincide, it is necessary to examine the impact of twin and triple crises on human development instead of focusing simply on banking crisis or particularly on the Great Recession, as observed in the recent literature (see, e.g., Stiglitz, 2012; Simou and Koutsogeorgou, 2014; Shahidi, 2015; Chzhen, 2016). Moreover, the decline in output during twin and triple crises tend to be more pronounced than in a single financial crisis (Bordo et al., 2001; Calvo, 2010; Balteanu and Erce, 2018) and, on this basis, this study conjectures that the impact of twin and triple crises on human development might be more intense.

Figure 5.1. Financial crises by type



Sources: Laeven and Valencia (2020) for banking crisis and authors' calculations for currency and debt

5.3.2 Data and variables

This study uses an unbalanced panel data set comprising 113 countries over the period 1980-2017 (see Table A5.1 in Annex for the list of countries). As already mentioned, data for HDI and its components (Life Expectancy Index, Education Index and Income Index) are provided by the United Nations Development Programme for the period 1980-2017.[74]

Apart from the financial crisis dummy variables, data for the control variables are obtained from the World Bank Database of Political Institutions (DPI), the International Country Risk Guide (ICRG), Polity IV Database, and the World Development Indicators (WDI) published by the World Bank. In particular, data for the group of political and institutional variables including electoral cycle, political support and political system are taken from the DPI. The source of another political variable (political risk rating) is the ICRG. The variable is constructed from 12 weighted variables to assess the degree of political stability in a country,

[74] The United Nations Development Programme publishes them in a [0, 1] scale, but for the sack of obtaining more meaningful magnitudes for the estimated coefficients (and respective interpretation), we multiply HDI and the respective components by 100, transforming them in a scale of [0, 100].

where higher values indicate a more stable political environment.[75] Data for the degree of democracy is collected from the Polity2 index ï Polity IV Database. It is worth noting that this study does not confine to the comparison between democratic and nondemocratic regimes, but instead the strength of democracy. This is due to the fact that different nondemocratic regimes may not produce the same patterns of social policies (Huber et al., 2008; Josifidis et al., 2015). The economic environment is controlled for using an economic risk rating proxy, which measures the overall strength of the economy and is constructed from 5 components from the ICRG: GDP per head, real GDP growth, annual inflation rate, budget balance as a percentage of GDP, and current account as a percentage of GDP. The higher values of the rating indicate a better economic environment. Similarly, to account for the financial risk, we use the financial risk rating from the ICRG. Higher values of this variable indicate the better ability of a country to finance its official, commercial, and trade debt obligations.[76] Data for population growth and economic openness are collected from the WDI.

In line with the literature discussed above, the expected effects of our independent variables on human development can be summarised as follows:

All_crisis, *Bank_crisis*, *Currency_crisis*, *Debt_crisis*, and *Twin_triple_crisis*: indicate the dummy variables that take the value of 1 for the episodes of all crises ñin generalò, banking crises, currency crises, sovereign debt crises, and twin and triple crises, respectively; and 0 otherwise. All types of financial crises are expected to have a detrimental impact on human development.[77]

Elect_cycle: a dummy variable that takes the value of 1 in the election year and the year before the election, and 0 otherwise. Human development is expected to be higher during election periods due to the short-term opportunistic effects.

[75] The 12 components of the political risk rating are government stability, socioeconomic conditions, investment profile, internal conflict, external conflict, corruption, military in politics, law and order, ethnic tensions, democratic accountability, and bureaucracy quality.

[76] The components of the financial risk rating variable include the foreign debt as a percentage of GDP, foreign debt service as a percentage of exports of goods and services, current account as a percentage of exports of goods and services, net international liquidity as months of import cover, and exchange rate stability.

[77] All crisis dummy variable (*All_crisis*) that takes the value of 1 for crisis episodes of any type of financial crisis, and 0 otherwise.

Left_gov: a dummy variable that takes the value of 1 when the incumbent government is formed by a left-wing party, and 0 otherwise. This study conjectures that left-wing governmentsô agenda is more favourable to human development than right-wing governments (*Right_gov*) and centre governments (*Centre_gov*).

Pol_risk_rating: the political risk rating variable. Human development is also expected to be higher in a more stable political environment.

Maj_gov: a dummy variable that takes the value of 1 when an incumbent government has more than half of seats in the legislature or parliament, and 0 otherwise. As incumbent governments have a different political agenda, they may pursue different paths of social policies. Thus, it is difficult to anticipate the sign of the coefficient on this variable.

Democracy: the variable that measures the level of democracy in a country. The index ranges from -10 to 10, with higher values indicate stronger democracy. It is expected that democracy may better promote human development than under autocratic regimes.

Pol_system: the political system variable that takes the value of 0 for presidential systems, 1 for assembly-elected presidential systems, and 2 for parliamentary systems. Parliamentary systems tend to have a less fragmented executive structure and produce more cohesion social policies. Thus, it is conjectured that human development is higher under parliamentary systems.[78]

In addition to these political and institutional variables, this study also controls for economic and demographic factors that may contribute to the evolution of human development.

Eco_risk_rating: the economic risk rating variable. A better and stronger economic environment is not only associated with higher investment on physical, but most importantly it may also boost investment on human capital, which ultimately fosters human development.

Eco_open: the economic openness variable is calculated by the sum of imports and exports of goods and services as a percentage of GDP. There is still disagreement about the efficiency hypothesis versus the compensation hypothesis regarding the relationship between economic openness and human development. It is thus difficult to predict the coefficient sign of the variable.

[78] We also treat *Pol_system* as a dummy variable with the value of 1 for parliamentary system, and 0 otherwise. However, its coefficient remains consistent.

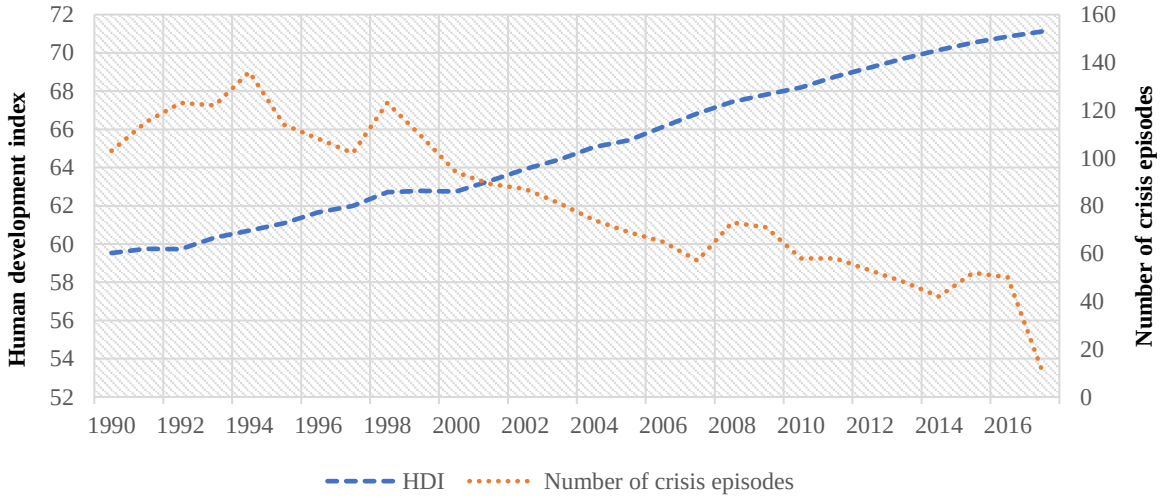
Investment: higher gross capital formation is important to foster the development of domestic production and economic growth. For this reason, a higher level of investment is expected to have a positive impact on human development.

Finan_risk_rating: the financial risk rating variable. Indebted countries may find it difficult to pursue a generous welfare state. In this regard, this study expects a negative association between financial risk and human development.

Pop_growth: the population growth variable. The increase in population is associated with lower income per capita and higher pressure on the social welfare system. This study expects a negative correlation between population growth and human development.

The descriptive statistics for all variables are reported in Table A5.2 in Annex. They show that political, institutional and economic factors vary substantially. In addition, the low number of observations for risk rating variables might pose some constraints to the analysis. As hypothesized from both theoretical and empirical evidence provided in the literature review, the detrimental impact of financial crises on human development can be explained by the fact that financial crises result in significant income losses and cuts in public social spending. Figure 5.2 also seems to give support to this hypothesis as we observe a clear negative relationship between the number of crisis episodes around the globe and the average human development over the period 1990-2017. However, to properly test this hypothesis, we need to rely on a more sophisticated econometric approach. This approach is described below, and the respective empirical results are analysed in Section 4.

Figure 5.2. Average HDI and number of crises episodes by year (1990-2017)



It is worth stressing that human development gradually and persistently increases over time. This might indicate that the human development index is highly correlated with its past value, which calls for the need to use a dynamic panel model. On the contrary, the number of crisis episodes has significantly reduced over the examined period. Some major financial crises add the number of crisis episodes over the world in 1994 (the Mexican peso crisis), 1998 (the Asian financial crisis) and 2008 (the Great Recession).

5.3.3. How episodic financial crises can affect long-term human development?

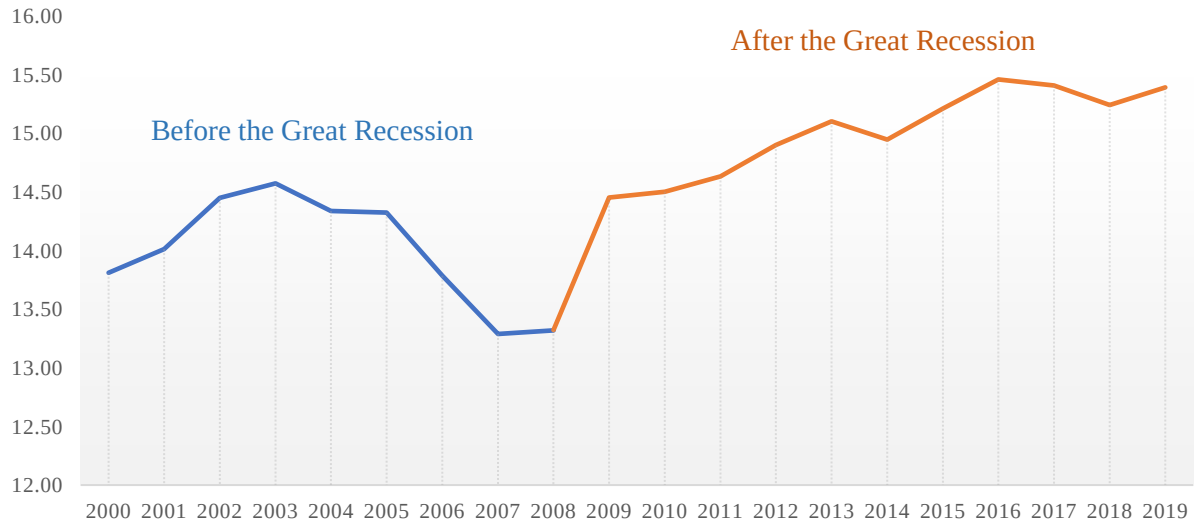
Financial crises are rare events and could be short-lived. Debt crisis is an exception as its average duration in developing countries is 13.42 years for the period 1976-2017 (See Table 4.1). Although many financial crises are short-lived, their permanent effects on the economy and human wellbeing are real and well known in the literature. This explains why financial crisis is episodic in nature but can be an important driver of the long-term evolution of human development. In this Section, we discuss three main channels through which episodic financial crises can affect long-term human development.

First, short-lived financial crises deteriorate long-term human development as they are associated with long-term unemployment. For example, data from the World Bank show that, more than ten years after the Great Recession, the average unemployment rate of the world in

2019 was still higher than in the pre-crisis 2007-08 period. Similarly, the SME employment levels in the manufacturing industry in European countries compared to those before the Great Recession were uneven (European Commission, 2017). Through the lens of unemployment, financial crises ï even short-lived ones ï have been shown to have a permanent impact on human wellbeing and leave a burden for future generations (UNDP, 2020). In particular, extended periods of unemployment could hinder human development permanently as they are associated with higher losses of income and disruptions to education, training, and work-based learning (World Bank, 2006; Stiglitz, 2012). This is in line with the report of the European Commission (2009), which mentions that extended periods of unemployment in the aftermath of financial crises led to an irreversible rise in the structural unemployment rate and further increase losses in the potential output level. This results in permanent destruction of human capital and wellbeing. Moreover, episodic financial crises significantly influence long-term development of children coming from low-income households. This is because unemployed parents face more difficulties to provide their children access to education and healthcare (OECD, 2014).

Young people, especially in low-income countries, have been the most affected by financial crises in the labour market in the long run. In particular, financial crises result in disruption to education and training, which impose long-lasting losses to earnings for young people who are forced to quit their studies (Bell and Blanchflower, 2011; International Labour Organisation, 2020). For example, four months of lost education due to school closures in the United States during the Covid-19 pandemic will lead to a loss of 2.5 trillion dollars in future earnings or 12.7% of GDP (Psacharopoulos et al., 2020). The long-lasting effects of financial crises on young unemployment is evident in Figure 5.3, which shows that the global young unemployment rate remains above the pre-crisis levels, long after the trough of the Great Recession in 2007/08.

Figure 5.3. Young unemployment rate (%) before and after the Great Recession



Source: International Labour Organisation

The second transmission mechanism between episodic financial crises and human development is the long-term cuts in public social spending. To mitigate financial crises, governments tend to adopt various mitigation policies. Indeed, governmentsô support in the aftermath of the Great Recession was unprecedented. However, not all countries have sufficient fiscal space or room to maintain those policies over a long period of time (Calvo, 2010). Instead, many countries had to implement permanent drastic austerity and welfare retrenchment. In fact, long-term austerity policies were adopted in almost all countries in the Euro area after the Great Recession to slow the escalation of the levels of public debt. This severe austerity led to greater output and human capital losses (House et al., 2019).[79] In fact, reducing government spending could have a significant adverse effect on various economic activities, which result in lower tax revenues and longer cuts in social spending.

While cuts in social spending accompanied with episodic financial crises have been argued to inhibit human wellbeing ï as they limit people access to quality education, healthcare systems and generous social protections (Stiglitz, 2012; Mohseni-Cheraghlou, 2016) ï it is

[79] See International Labour Organisation (2011) for the list of fiscal consolidation measures adopted in European countries in the aftermath of the Great Recession.

important to place a strong emphasis on the long-term consequences of public social spending cuts associated with episodic financial crises. Thus, despite the fact that financial crises are episodic in nature, they can affect long-term human development as they are accompanied with permanent cuts in public social spending. One explanation for prolonged cuts is that government debt and budget deficits tend to be substantially higher than before the onset of financial crises (Calvo, 2010; International Monetary Fund, 2018).

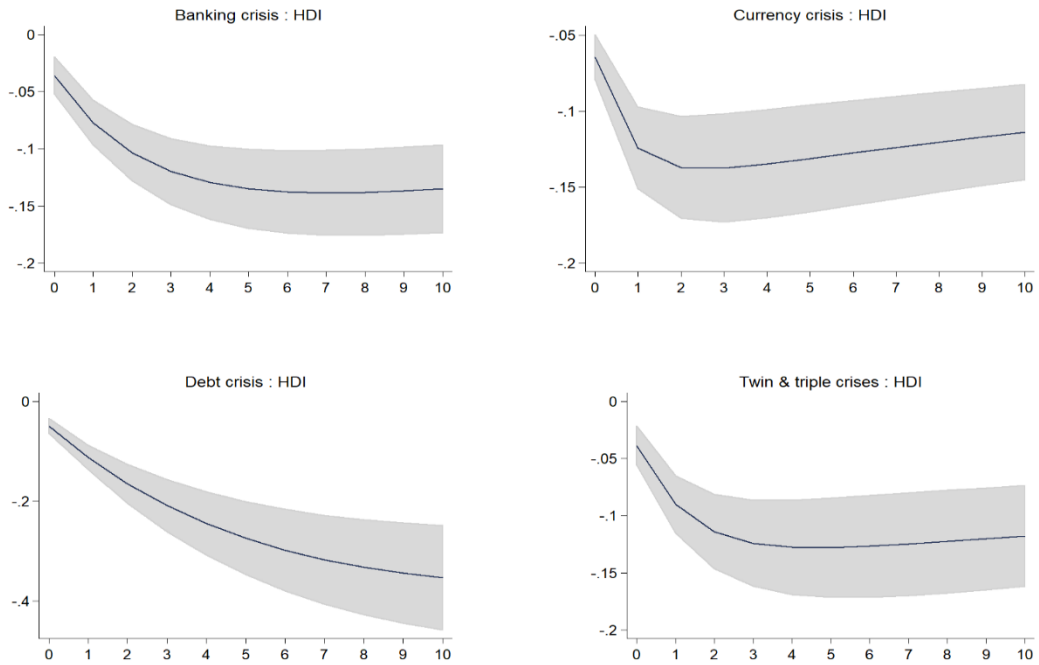
The seriousness of long-term cuts in social spending associated with the financial crises, on human development are evident from the healthcare system in the UK. In the aftermath of the Great Recession the UK Conservative government claimed that more than 30 billion pounds of welfare payments were cut since 2010 (Kingsley, 2018). Consequently, the growth in health spending per person (in real terms) was close to zero over the period 2009-2015 due to budget constraints, despite significant growth in demand for health services in the UK (OBR, 2017). After a decade of underfunding and cuts it is unsurprising that the National Health Service (NHS) is overloaded, and the social and welfare system in the UK has been gutted. The Covid-19 pandemic has recently exposed the seriousness of these problems. In particular, NHS is struggling to cope with rising numbers of patients due to the lack of funds, necessary human resources, hospital supplies, and protective equipment. It is clear that austerity is not an appropriate policy in response to Covid-19. If there were no Great Recession in 2007/08, NHS might not be facing severe funding problems over the last decade, which means that NHS might have more resources to better cope with the demand of assistance and perhaps being able to save more lives.

The third channel through which episodic financial crises impede long-term human development is long-term output and income losses. There is a substantial body of research that examines the intensity of financial crises and points out that economic recessions and/or financial crises leave long-lasting consequences on a country output. Examining GDP trend in

the Euro area after 1999, Fatas and Summers (2018) find that the real GDP in 2018 was about 13% below the potential GDP estimated by the trend before the Great Recession. This figure is expected to increase to 15% below the level implied by its pre-crisis trend. This represents a huge and permanent impact from a five-year crisis episode. Similarly, Rawdanowicz et al. (2014) report a cumulative output loss of approximately 21% of potential GDP for the period 2009-2014 in the Euro area, many of which experienced significant cumulative output losses (as a percentage of potential GDP) such as Greece (48.1%), Ireland (43.7%), Portugal (28.3%), or Estonia (27.6%). It is worth noting that the permanent impact of financial crises on the economy does not confine to banking crises or the Great Recession. In fact, any type of financial crisis has been found to be harmful to long-term economic growth. In particular, examining real output losses in a panel of 190 countries, Cerra and Saxena (2017) find that the permanent loss in output is around 5%, 10%, and 15% for currency, banking, and twin crises, respectively.

These discussions above emphasise that long-term unemployment, public social spending cuts, and output losses associated with financial crises, even short-lived ones, are three main channels through which episodic financial crises can deteriorate long-term human development. This is in line with the latest report of the United Nations mentions that even after a crisis ends and economic growth returns, the adverse effects of a shock can leave lasting and irreversible damage on human development (UNDP, 2020). Calvo (2010) also find that accumulated human development losses during crisis episodes could have a long-lasting impact in places where little progress has been achieved during booms.

Figure 5.4. Impulse responses of HDI to crisis shock



To reinforce the argument that episodic financial crises result in long-term human development loss, we compute the impulse response functions to assess how long-term human development respond to shocks from different types of financial crises. Using a cross-country sample from 1990 to 2017, Figure 5.4 shows how human development responses to shocks from banking, currency, debt and twin and triple crises. It is clear that the impulse response of human development to a shock in any type of financial crisis is negative and highly persistent. This is consistent with the narrative that financial crises, even short-lived ones, have a permanent impact on human development. In particular, while the average duration of banking, currency, and twin and triple crises are only 3.1, 1.69, and 2.3 years, respectively, the magnitude of the persistent loss in human development caused by these types of financial crises is about 0.15 points on average. This persistence suggests that the negative impact of financial crises on human development is maintained over an extended period of time. Thus, short-lived financial crises do have long-term impact on human development.

Moreover, the loss in long-term human development due to debt crises tends to increase persistently over time. This outcome is very noteworthy to our study as it implies that the accumulated loss in human development associated with a debt crisis could be huge. One explanation for this is that the average duration of debt crises is the longer than other types of financial crises (more than 13.4 years) and therefore their consequences on long-term human development are more pronounced. This finding is consistent with the fact that the probability of a debt crisis ending reduces monotonically over time (see Figure 4.3).

5.3.4. Econometric methodology

In order to examine the effects of financial crises on human development, this study employs the following dynamic panel data model:

$$HDI_{i,t} = \alpha_i + \delta HDI_{i,t-1} + \phi FinCrisis_{i,t} + \beta Pol_{i,t} + \gamma Ins_{i,t} + \rho SocEco_{i,t-1} + \tau_t + \varepsilon_{i,t} \quad (5.1)$$

where subscripts *i* and *t* refer to countries and years, respectively; $\boldsymbol{\delta}$ is the coefficient on the lag of the dependent variable; $\boldsymbol{\phi}$ is the coefficient on one of the financial crisis variables described above; $\boldsymbol{Pol}$ represents the vectors of political variables; $\boldsymbol{\beta}$ stands for the coefficients vector of the political factors (electoral cycle, political risk rating, partisanship, and political support); $\boldsymbol{Ins}$ represents the vector of institutional variables; $\boldsymbol{\gamma}$ captures the effects of democracy and political system on human development; $\boldsymbol{SocEco}$ refers to the vectors of socio-economic factors; vector $\boldsymbol{\rho}$ assesses the impact of population growth, economic risk rating, financial risk rating and investment on human development; α_i represents unobserved country-specific effects; τ_t captures time-effects;[80] and $\varepsilon_{i,t}$ is the error term.

This dynamic model is employed to account for the fact that the level of human development is characterised by high within-country inertia, a time-persistent phenomenon clearly observed in Figure 5.2. In other words, the level of human development can be predicted by its past level

[80] In order to avoid the problem of the proliferation of instruments in regression models, time effects are captured by a *trend* variable that begins in 1990 and increases by one in each of the subsequent years.

and, on this basis, the coefficients of the lagged dependent variables can be very close to 1. For this reason, not including the lagged dependent variable would bias the estimates due to the omitted variable bias. Moreover, the typical issue of endogeneity related to the possible reverse causal relationships between human development and its explanatory variables should also be addressed. For example, higher human development, such as income and education, might improve the quality of democracy (Vollmer and Ziegler, 2009).

Another problem in our empirical analysis is the complexity of the relationships among the included variables.[81] In particular, some explanatory variables of interests may not be independent of each other. For instance, political factors such as partisanship, political stability and the electoral cycle could be potential drivers of financial crises (Shimpalee and Breuer, 2006; Bechtel, 2009; De Giorgi et al., 2014). This sheds light to Nguyen et al. (2020) who provide empirical evidence that political stability reduces the probability of any type of financial crisis, while currency and banking crises are more likely to occur within the first year after elections. Similarly, higher economic risk and the outbursts of financial crises may also have an impact on investment (Stiglitz, 2012). To account for the need to include the lagged dependent variables, the problem of endogeneity, and the potential causal relationships between explanatory variables, an appropriate econometric method should be employed in this study, namely a suitable instrumental variables approach.

The presence of the unobserved country-specific effects (α_i) in the equation above can be captured by the fixed-effects or random effects models, especially when the time dimension (T) in this study is not small (1990-2017). However, including a lagged dependent variable may lead to severely biased coefficients in dynamic models (Nickell, 1981), which result in the so-called dynamic panel bias or ñNickell biasò due to the fact that the lagged dependent variable is correlated with the composite error ($\alpha_i + \varepsilon_{i,t}$). There are two groups of econometric methods

[81] See Table A5.4 in Annex for the correlations between variables.

that can account for this bias: (i) the bias-corrected approach; and (ii) the instrumental variables approach.

The first group of estimators, like the Bruno bias-corrected least-squares dummy variable (LSDVC), can correct this dynamic bias (Bruno, 2005). However, it was designed for a small sample with a small number of individuals (N) and finite time dimension (T). This is inappropriate in this study because the number of individuals cannot be considered small (N=113), although the time dimension (1990-2017) is not relatively large.

Based on the panel structure of this study, the latter IV approaches, particularly those relying on the features of the Generalised Method of Moments (GMM) as proposed by Arellano and Bond (1991), are more consistent and efficient to estimate a dynamic panel data model. More importantly, the model is suitable for our sample because the number of cross-sections (N) is much higher than the time periods (T). This method also allows for controlling the typical endogeneity caused by reversal relationships. In the GMM estimator, the lagged values of endogenous explanatory variables are used as instruments. Nevertheless, the difference GMM developed by Arellano and Bond (1991) have been found to have large finite sample biases. Arellano and Bover (1995) and Blundel and Bond (1998) address this problem by using additional moment conditions, which may substantially improve the precision of the estimations.[82] This leads to the so-called System-GMM estimator. In addition, this model is estimated using a two-step approach because its estimation is asymptotically more efficient and strengthens the associated tests (Hwang and Sun, 2018). However, Arellano and Bond (1991) find that the asymptotic standard errors of the two-step GMM model tend to be severely downward biased, especially in small samples. Thus, the Windmeijer corrected standard errors procedure is employed to produce efficient coefficients with much lower bias and quite

[82] In particular, in addition to using instruments in levels for equations in first differences, Arellano and Bover (1995) and Blundel and Bond (1998) use instruments in first differences for equations in levels. However, System-GMM estimator only obtains efficient and consistent estimations when additional condition moments are valid.

accurate standard errors (Windmeijer, 2005). This also makes two-step estimation with his correction appear to be superior to one-step estimation (Roodman, 2009a).

Another problem that often arises in the application of GMM estimators is instrument proliferation. According to Roodman (2009b), instrument proliferation misleads the results of the estimators and their related specification tests. In particular, it leads to the following problem: over-fitting endogenous variables or over-fitting biases; inefficient estimates of the two-step approach; the downward bias in two-step standard errors; and weak Hansen tests of instrument validity. Thus, in order to avoid the proliferation of instruments, this study uses collapsed instruments, as suggested by Roodman (2009b). In addition, to further control the number of instruments, only the lagged dependent variables and economic openness are treated as endogenous.[83] Furthermore, the validity of this two-step System-GMM is tested by means of a range of diagnostic tests: (i) the Arellano-Bond first and second-order autocorrelation in first differences to determine whether autocorrelation presents in the first order but not in the second-order; (ii) the Hansen (*J*) test for the overall validity of all instruments, with the null of exogenous instruments; and (iii) the difference-in-Hansen (or C) tests, which examine the exogeneity of a particular subset of instruments.[84]

5.4. Empirical analysis

This section assesses the impact of financial crises on the overall human development (HDI) and its components: life expectancy index, education index, and income index. To further confirm the main findings, a range of sensitivity analyses and robustness checks are provided in the next section.

[83] The more regressors are treated as endogenous, the greater number of instruments are employed, ceteris paribus. The other economic variables are lagged one period to avoid simultaneity problems.

[84] In the estimations of GMM models, difference-in-Hansen tests are often neglected. However, they play a crucial role in determining the validity of the choices of exogenous and endogenous variables. These choices highly influence the results of the overall *J* test and the coefficients obtained for the explanatory variables, except for the lagged dependent variables. Roodman (2009b) also highlights that the results of different-in-Hansen tests should be reported for System-GMM estimations.

5.4.1. Financial crises and human development

Table 1 reports the main findings of this study on the impact of different types of financial crises on human development using a two-step System-GMM estimator on a sample of 113 countries over the period 1990-2017. Before discussing the main findings, it is important to make sure that the results are meaningful under valid estimates of the System-GMM estimator. First, valid estimates of the approach can be obtained with the assumption that variables are stationary (Bond, 2002; Baltagi, 2013). ADF Fisher-type panel unit root tests were employed and reject the hypothesis that all panels contain unit-roots for all variables considered in this study (see Table A5.3 in Annex). Second, the results of the Arellano-Bond first and second-order autocorrelation confirm that the first-order autocorrelation is present, but the second is not. In particular, the difference of lags and the difference of levels are correlated, whereas the second differences are uncorrelated, which support the validity of the instruments used. Third, the high p-values of Hansen *J* tests mean that the null hypothesis of exogenous instruments cannot be rejected and thus do satisfy the orthogonality conditions for their validity and use.[85] Furthermore, the difference-in-Hansen tests never reject the validity of the subsets of instruments. That is, changes in the instrumenting variables are independent of the individual-specific part of the error term. The results of these diagnostic tests justify the validity of the instruments used and the estimates of the two-step System-GMM presented in this study.

Looking first at the estimated coefficients on the lagged dependent variable, they are always positive and statistically significant at 1% level, which confirms the validity and the necessity of a dynamic estimator. As expected, these coefficients are positive and close to 1, indicating

[85] System-GMM estimator was designed to address the potential problem of endogeneity and the dynamic bias that arises due to the inclusion of the lagged dependent variable. However, the estimator might not completely address the problem as it assumes weak exogeneity of the explanatory variables and, in this regard, they can be correlated with the past and current levels of human development but must be independent of the future realisations of the error term. In particular, the current value of the explanatory variables should be independent of future unanticipated shocks to human development.

that human development is characterised by a high level of persistence in its dynamics. This is consistent with the upward and persistent trend of HDI plotted in Figure 5.2.

Regarding the effects of financial crises on human development, the magnitude and significance of the coefficients of financial crises variables reveal that financial crises are more important than some political, institutional and economic factors for the explanation of human development over the last four decades. The results in all specifications clearly support the proposed hypothesis that financial crises negatively affect overall human development. This is consistent with Calvo (2010), Deaton (2012), Stiglitz (2012) and Chzhen (2016) who find that financial crises deteriorate human wellbeing. Thus, this study contributes to show that financial crises not only have a negative effect on wellbeing but also on human development. However, this study departs from others in terms of the types of financial crises analysed. In particular, not only banking crises but also currency, debt and twin and triple crises are important to explain the evolution of human development.

More importantly, the adverse effects of banking crises on human development have proven to be less severe than other types of financial crises.[86] This finding, again, emphasises the need to dig deeper into the types of financial crises as currency and debt crises have proved to be even more harmful to human development than banking crises. In fact, the results also show that twin and triple crises appear to be the most detrimental to human development. This could be because the severity of twin and triple crises is more pronounced than in a single financial crisis (Bordo et al., 2001; Calvo, 2010). For example, the output loss and fiscal costs of twin crises (banking crises preceding debt crises), on average, are 1.3 and 2 times higher than banking crises alone, respectively (Balteanu and Erce, 2018). In this regard, higher deficits

[86] A banking crisis leads to an average short-run decrease of 0.16 points in the human development index, ceteris paribus. This contrasts with the higher negative effect of currency crises (0.27), debt crises (0.20) and twin and triple crises (0.33). This is even lower than the average effect for All_crises (0.22). Given the persistent dynamics of human development, the long-run effects are substantially higher. In the case of banking crises, they lead to a long-run decline in human development of a whopping 4.36 points (=0.157/(1-0.964)).

might compel governments to implement more drastic social spending cuts. In addition, more output losses associated with twin and triple crises indicate higher unemployment and income loss than in a single financial crisis, which significantly slows down human development. This substantial decline becomes even more evident when we depart form the short-run impact presented in Table 5.1 and look at the respective long-run effects. For the particular case of twin and triple crises, we find a long-run decline in human development of around 8.61 points.[87] This brings about the need of policymakers to act quickly over financial crises, as the long-run detrimental consequences of prolonged crises on human development can be huge.

Existing studies have mentioned two main channels through which financial crises affect human development. First, a surge in unemployment associated with financial crises has a negative impact on income, consumption, and child poverty due to the more difficulties of accessing to quality food, health care and social services (Calvo, 2010; IMF, 2013, OECD, 2014). Extended periods of unemployment also reduce the engagement of people in socio-economic activities, which result in the loss of skills and health (World Bank, 2006; Stiglitz, 2012). Second, costly crisis interventions exacerbate the issues of budget deficits and public debts, which in turn force governments to cut public social spending or implement welfare state retrenchments (Vis et al., 2011; Yang et al., 2015; Lobao et al., 2018).

[87] Note that the scales of HDI and its components vary between 0 and 100.

Table 5.1. Financial crises and human development

	(1)	(2)	(3)	(4)	(5)
L.HDI	0.966***	0.964***	0.968***	0.963***	0.962***
	(0.00597)	(0.00580)	(0.00560)	(0.00598)	(0.00606)
All_crisis	-0.216***				
	(0.0419)				
Banking_crisis		-0.157***			
		(0.0437)			
Currency_crisis			-0.268***		
			(0.0619)		
Debt_crisis				-0.196***	
				(0.0751)	
Twin_triple_crisis					-0.327***
					(0.0674)
Elect_cycle	-0.0409	-0.0644	-0.0594	-0.0398	-0.0681
	(0.0213)	(0.0217)	(0.0216)	(0.0222)	(0.0210)
Left_gov	-0.0470	-0.0462	-0.0465	-0.0437	-0.0497
	(0.0474)	(0.0478)	(0.0476)	(0.0464)	(0.0486)
Pol_risk_rating	0.0122***	0.0122***	0.0114***	0.0120***	0.0126***
	(0.0033)	(0.0034)	(0.0032)	(0.0035)	(0.0036)
Maj_gov	-0.0547	-0.0537	-0.0484	-0.0536	-0.0603
	(0.0493)	(0.0485)	(0.0436)	(0.0486)	(0.0505)
Democracy	0.0164**	0.0182**	0.0146**	0.0187**	0.0198**
	(0.0082)	(0.0082)	(0.0087)	(0.0086)	(0.0086)
Pol_system	0.0507	0.0817	0.0404	0.0469	0.0776
	(0.0816)	(0.0858)	(0.0761)	(0.0846)	(0.0884)
Eco_open	-0.286**	-0.241**	-0.288**	-0.217*	-0.249**
	(0.112)	(0.116)	(0.115)	(0.128)	(0.112)
Pop_growth	-0.190***	-0.188***	-0.173***	-0.204***	-0.195***
	(0.0486)	(0.0502)	(0.0484)	(0.0506)	(0.0529)
Eco_risk_rating	0.0115**	0.0140**	0.0104*	0.0140**	0.0153***
	(0.0057)	(0.0058)	(0.0056)	(0.0056)	(0.0059)
Finan_risk_rating	0.0097**	0.0106**	0.0116***	0.0121***	0.0116**
	(0.0041)	(0.0045)	(0.0043)	(0.0042)	(0.0046)
Investment	0.0185***	0.0187***	0.0190***	0.0188***	0.0186***
	(0.0039)	(0.0040)	(0.0041)	(0.0039)	(0.0041)
Trend	-0.0680	-0.0262	0.0161	0.0107	0.0524
	(0.0313)	(0.0347)	(0.0312)	(0.0337)	(0.0352)
Observations	2448	2458	2411	2443	2458
Countries	113	113	112	113	113
Instruments	96	96	96	96	96
AR(1)	0.000	0.000	0.000	0.000	0.000
AR(2)	0.507	0.622	0.612	0.623	0.631
Hansen *J*	0.188	0.188	0.197	0.175	0.223
Diff-Hansen1	0.494	0.671	0.671	0.400	0.691
Diff-Hansen2	0.411	0.198	0.609	0.399	0.413

Notes: The table reports the impact of financial crises on human development using two-step System-GMM estimator over the period 1990-2017. Robust standard errors are in parentheses. AR(1) and AR(2) are tests for Arellano-Bond first- and second-order serial correlation in the first-differenced residuals, respectively. Diff-Hansen1 tests for the exogeneity of the full set of instruments for the levels equation. Diff-Hansen2 tests for the exogeneity of subset based on the dependent variable. ***, **, * are significant levels at 1%, 5%, and 10%, respectively.

As for the political environment, higher political risk rating emerges as positively related to greater human development, indicating that human development is better in a more stable

political environment.[88] This happens because incumbent governments would be able to produce more programmatic cohesion of social policies (Edwards and Tabellini, 1991; Jens, 2017). This is consistent with Gyimah-Brempong and De Camacho (1998), Gerring et al. (2012) and Aisen and Veiga (2013) who argue that economic agents in a politically unstable environment would have less incentives to invest in human capital formation as they are uncertain about the ability to yield benefits from their investment. Similarly, political instability discourages governments from investing in physical and human capital. Instead, they allocate resources to the military or security sector in order to protect the regime.

Other political factors, however, do not appear to have a statistically significant impact on human development. In particular, the effects of electoral cycles indicate that the opportunistic behaviour of political actors to create short-term expansions before elections are not translated into higher human development. Similarly, human development seems not to be influenced by the ideological spectrums of the ruling governments, which is consistent with Castro and Martins (2018b). This might be because parties tend to have the same commitments on the progress and development of social factors such as healthcare and education to avoid losing voter supports (Huber et al., 2008). Majority governments also have little influence on human development. Perhaps, its effects are already captured by the political risk rating variable.[89]

In terms of the institutional environment, the regression results provide strong evidence that democracy is positively correlated with human development. As democracy is considered to be the representation of the majority of citizens, political actors are better concerned about the citizensôneeds, or particularly the redistribution of public goods and services (Lake and Baum, 2001; Brown and Hunter, 2004; Gerring et al., 2012). In addition, due to the higher levels of

[88] By construction of this variable by the ICRG, a higher political risk rating means lower political risk. This same reasoning applies to the other risk rating variables used in this study.

[89] One of the components of the political risk rating variable is government stability, which covers three subcomponents: government unity, legislative strength and popular support. This component generally assesses governmentôs ability to stay in office and to pursue its declared programmes.

political competition in democratic regimes, voters could choose more competent and honest leaders (Besley and Kudamatsu, 2006). This means that democracies could provide not only more but better public goods and services (Vollmer and Ziegler, 2009). Nevertheless, the effects of the political system on human development are statistically insignificant, despite carrying the expected positive coefficient sign.

With respect to socio-economic controllers, all specifications confirm their significant impact on human development. Economic openness appears to be detrimental to human development, which lends support to the efficiency hypothesis. In particular, in order to promote the competitive power of domestic producers, governments are induced to enhance market efficiency by reducing costs, taxes and social spending (Garrett and Mitchell, 2001; Huber and Stephens, 2001; McCashin, 2016; Amate-Fortes et al., 2017; Lobao et al., 2018). As expected, higher population growth appears to reduce human development. This happens because higher population not only reduces income per capita but also exerts pressure on the welfare system (Aisen and Veiga, 2013; Castro and Martins, 2018b).

As expected, this study shows that a better economic environment *(Eco_risk_rating)* fosters human development, a finding that is consistent with Stiglitz (2012) and Castro and Martins (2018b). As for financial risk, the regression results imply that human development tends to be lower in countries with greater exposure to financial risk. This is not surprising as governments are compelled to reduce public social spending to honour their obligations (Brown and Hunter, 2004; Vis et al., 2011). A higher investment also plays an essential role in promoting human development as it leads to higher economic growth and development (Anderson, 1990; Martins and Veiga, 2014).

The findings presented above indicate consistent and negative effects of any type of financial crisis on the overall human development. But what about its three components? In

the next sub-sections, we provide a deeper analysis of the impact of financial crises on each of those components: health, education and income.

5.4.2. Financial crises and life expectancy

The effects of financial crises on life expectancy over the period 1990-2017 are displayed in Table 5.2. All of the diagnostic tests confirm the validity of the two-step System-GMM estimations. The positive and statistically significant coefficients on the lagged dependent variable also confirm the need to account for its dynamic effects.

As for the main novelty of this study, all types of financial crises exert a negative and statistically significant impact on life expectancy at 1% significant level. This is in line with the conceptual explanations provided by the literature that financial crises inhibit the development of life expectancy due to their negative effects on unemployment, income losses (Calvo, 2010; IMF, 2013; Simou and Koutsogeorgou, 2014; Drydakis, 2015) and public social spending on healthcare services (Huber et al., 2008; Stuckler et al., 2009; Mohseni-Cheraghlou, 2016; Lobao et al., 2018). This finding, however, contrasts with some claims that economic recessions apparently have some positive effects on health. For example, higher economic activities during expansion episodes increase death rates relating to various mechanisms such as atmospheric pollution (Davis et al., 2010; Granados and Ionides, 2017), industrial and commercial traffic (Ruhm, 2000; Gerdtham and Ruhm, 2006), overtime hours, work-related stress, and unintentional injuries due to hiring inexperienced new workers (Eyer, 1977; Bartoll and Mari-Dellôõ Olmo, 2016). Perhaps, to some extent, economic recessions might have a little positive impact on health. However, our study shows that financial crises *per se* are generally harmful for the citizensô health, proxied here by the UN life expectancy index.

Table 5.2. Financial crises and life expectancy

	(1)	(2)	(3)	(4)	(5)
L.EXP	0.976***	0.981***	0.989***	0.968***	0.974***
	(0.0101)	(0.00924)	(0.00754)	(0.00915)	(0.00873)
All_crisis	-0.202***				
	(0.0599)				
Banking_crisis		-0.142**			
		(0.0655)			
Currency_crisis			-0.225***		
			(0.0587)		
Debt_crisis				-0.224***	
				(0.0831)	
Twin_triple_crisis					-0.217***
					(0.0702)
Elect_cycle	-0.0237	-0.0229	-0.0257	-0.0212	-0.0218
	(0.0145)	(0.0156)	(0.0150)	(0.0132)	(0.0140)
Left_gov	-0.0568	-0.0553	-0.0892	-0.0308	-0.0413
	(0.0529)	(0.0537)	(0.0643)	(0.0584)	(0.0589)
Pol_risk_rating	0.0561***	0.0584***	0.0640***	0.0474***	0.0499***
	(0.0139)	(0.0161)	(0.0165)	(0.0136)	(0.0149)
Maj_gov	-0.0918	-0.0811	-0.0480	-0.0992	-0.0849
	(0.0598)	(0.0588)	(0.0460)	(0.0498)	(0.0501)
Democracy	0.0285**	0.0257**	0.0274***	0.0330***	0.0285***
	(0.0119)	(0.0119)	(0.0095)	(0.0106)	(0.0100)
Pol_system	0.136	0.105	0.101	0.141	0.122
	(0.0941)	(0.0934)	(0.0991)	(0.0930)	(0.0956)
Eco_open	-0.655**	-0.657**	-0.784***	-0.435**	-0.522**
	(0.270)	(0.302)	(0.302)	(0.204)	(0.246)
Pop_growth	-0.0200	-0.0494	-0.0407	-0.0313	-0.0453
	(0.0663)	(0.0543)	(0.0599)	(0.0715)	(0.0615)
Eco_risk_rating	-0.0101	-0.0343	-0.0345	-0.0440	-0.0190
	(0.0512)	(0.0632)	(0.0561)	(0.0586)	(0.0528)
Finan_risk_rating	0.0176**	0.0101**	0.0270**	0.0126**	0.0100**
	(0.0044)	(0.0048)	(0.0048)	(0.0058)	(0.0049)
Investment	0.0152***	0.0170***	0.0161***	0.0158***	0.0148***
	(0.0050)	(0.0049)	(0.0051)	(0.0055)	(0.0055)
Trend	0.0144	0.0163	0.0111	0.0148	0.0160
	(0.0484)	(0.0503)	(0.0480)	(0.0533)	(0.0510)
Observations	2448	2458	2411	2443	2458
Countries	113	113	112	113	113
Instruments	96	96	96	96	96
AR(1)	0.000	0.000	0.000	0.000	0.000
AR(2)	0.274	0.316	0.218	0.161	0.144
Hansen *J*	0.342	0.212	0.478	0.236	0.272
Diff-Hansen1	0.652	0.400	0.966	0.392	0.777
Diff-Hansen2	0.211	0.224	0.456	0.281	0.184

Notes: The table reports the impact of financial crises on life expectancy using two-step System-GMM estimator over the period 1990-2017. Robust standard errors are in parentheses. AR(1) and AR(2) are tests for Arellano-Bond first- and second-order serial correlation in the first-differenced residuals, respectively. Diff-Hansen1 tests for the exogeneity of the full set of instruments for the levels equation. Diff-Hansen2 tests for the exogeneity of subset based on the dependent variable. ***, **, * are significant levels at 1%, 5%, and 10%, respectively.

Nevertheless, it is worth stressing that this study differs from previous ones in the following points. First, while they examine the evolution of health indicators during economic recessions through the lens of soaring unemployment, this study provides a direct investigation on how financial crises affect life expectancy. In fact, financial crises can harm life expectancy through not only soaring unemployment but also lower social spending on healthcare services. Second, they focus only on recession episodes followed by a certain event, particularly the Great Recession of 2007/08, whereas this study provides a more comprehensive view by accounting for different types of financial crises over a long period of time (1990-2017). Third, their findings might suffer from the problem of omitted variable bias as they ignore the persistency of the variable, i.e. the potential influence of the lagged value of life expectancy. Indeed, as observed in our estimations, life expectancy is highly persistent.

Regarding the political, institutional and economic control variables, their effects on life expectancy are consistent with those observed for the overall human development (HDI). Specifically, life expectancy appears to be higher in countries with a more politically stable environment, a higher level of democracy, investment and lower levels of political risk as well as economic openness.

5.4.3. Financial crises and education

Concerning the second component of the HDI, Table 5.3 reports the effects of different types of financial crises on education over the period 1980-2017. Again, the magnitude and significance level, at more than 99% confidence level, of the lagged dependent variable indicate its high level of persistency. The results of diagnostic tests also justify the validity of the estimations of the two-step System-GMM estimator.

Table 5.3. Financial crises and education

	(1)	(2)	(3)	(4)	(5)
L.EDU	0.948***	0.966***	0.951***	0.949***	0.957***
	(0.00738)	(0.00865)	(0.00673)	(0.00748)	(0.00862)
All_crisis	-0.135**				
	(0.0548)				
Banking_crisis		-0.113*			
		(0.0661)			
Currency_crisis			-0.0720		
			(0.0958)		
Debt_crisis				-0.168*	
				(0.0917)	
Twin_triple_crisis					-0.0340
					(0.110)
Elect_cycle	0.00962	0.0264	0.0103	0.0088	0.0139
	(0.0409)	(0.0408)	(0.0412)	(0.0412)	(0.0414)
Left_gov	-0.0686	-0.0837	-0.0759	-0.0597	-0.0686
	(0.0755)	(0.0704)	(0.0728)	(0.0740)	(0.0756)
Pol_risk_rating	0.0319**	0.0167***	0.0304**	0.0331**	0.0312**
	(0.0161)	(0.0101)	(0.0168)	(0.0164)	(0.0150)
Maj_gov	-0.110	-0.0715	-0.0982	-0.114	-0.0776
	(0.0940)	(0.0824)	(0.0945)	(0.0971)	(0.0938)
Democracy	0.0324***	0.0096***	0.0308***	0.0320***	0.0299***
	(0.0100)	(0.0102)	(0.0096)	(0.0100)	(0.0109)
Pol_system	0.206	0.117	0.190	0.203	0.252
	(0.134)	(0.116)	(0.116)	(0.135)	(0.124)
Eco_open	-0.0193	-0.0491	-0.0200	-0.0184	-0.0440
	(0.0257)	(0.256)	(0.0268)	(0.0260)	(0.269)
Pop_growth	-0.411***	-0.224***	-0.398***	-0.411***	-0.330***
	(0.0766)	(0.0705)	(0.0703)	(0.0739)	(0.0797)
Eco_risk_rating	0.0349***	0.0302***	0.0312***	0.0350***	0.0329***
	(0.0091)	(0.0099)	(0.0090)	(0.0093)	(0.0094)
Finan_risk_rating	0.0203***	0.0184**	0.0209***	0.0201***	0.0167**
	(0.0076)	(0.0073)	(0.0071)	(0.0077)	(0.0076)
Investment	0.0701	0.0786	0.0623	0.0822	0.0693
	(0.0652)	(0.0693)	(0.0639)	(0.0675)	(0.0744)
Trend	0.0144	0.0205	0.0192	0.0211	0.0219
	(0.0619)	(0.0512)	(0.0603)	(0.0600)	(0.0553)
Observations	2448	2458	2411	2443	2458
Countries	113	113	112	113	113
Instruments	96	96	96	96	96
AR(1)	0.000	0.000	0.000	0.000	0.000
AR(2)	0.404	0.453	0.417	0.389	0.436
Hansen *J*	0.310	0.211	0.289	0.286	0.250
Diff-Hansen1	0.129	0.171	0.194	0.133	0.173
Diff-Hansen2	0.182	0.312	0.245	0.125	0.236

Notes: The table reports the impact of financial crises on education using two-step System-GMM estimator over the period 1990-2017. Robust standard errors are in parentheses. AR(1) and AR(2) are tests for Arellano-Bond first- and second-order serial correlation in the first-differenced residuals, respectively. Diff-Hansen1 tests for the exogeneity of the full set of instruments for the levels equation. Diff-Hansen2 tests for the exogeneity of subset based on the dependent variable. ***, **, * are significant levels at 1%, 5%, and 10%, respectively.

Regression results indicate that banking, sovereign debt and all crisis ónn generalô have a negative impact on education. The effects of currency and twin and triple crises appear to be insignificant, despite carrying the same negative coefficient sign. These findings generally imply that financial crises are harmful to the education level of a country. This is in line with preceding literature that mentions two main channels through which financial crises deteriorate education. First, financial crises adversely affect the education prospect of children from low-income families where their parents are unemployed and economically inactive. This is evident from the soaring child poverty in the aftermath of the 2007-08 financial crises (see, e.g., Matsaganis, 2013; Chzhen, 2016). Second, due to the pressure of budget deficits, governments are compelled to implement welfare retrenchment, including cuts in public spending on education (Huber et al., 2008; Stiglitz, 2012; Mohseni-Cheraghlou, 2016). As a consequence, fewer resources may hurt current plans to expand education opportunities like infrastructure projects meant to increase access to education. This effect could be permanent as delays in long-term education development plans result in lower new schools built and accommodation capacity for additional years (UNESCO, 2009a).

However, it is worth noting that the effects of financial crises on education are less severe than those on life expectancy, income (presented in the next sub-section) and the overall human development (HDI). In other words, among the components of HDI, education is the least affected by financial crises. This seems to be in accordance with the reasoning that despite the real effects of financial crises on the budget deficit, education budgets are often more protected than those of other sectors (UNESCO, 2009a, ECB, 2019). Indeed, many countries successfully maintained the same level of education budgets in the mists of the Great Recession such as Singapore, Mexico, Mongolia, Kenya and Namibia (UNESCO, 2009b). For example, public expenditure on education in Singapore increased by approximately 15.4% over the period 2008-2009. This could be because reducing spending on education has been considered to be

a challenging task due to the constraints of growing long-run demand for these services and the political implications like the fear of losing voter support (Lobao et al., 2018). Moreover, education has been demonstrated to be conducive to long-term economic growth (ECB, 2019).

The effects of other controllers on education are also consistent with those on the human development index. The regression results show that education index is higher in an environment with more political stability, higher levels of democracy, better economic conditions, and less financial risk. By contrast, higher population growth is found to shrink the development of education, which is in agreeing with other authors such as Aisen and Veiga (2013) and Castro and Martins (2018b).

5.4.4. Financial crises and income

In addition to longevity and knowledge, a decent living standard is another important dimension of human development. Table 5.4 reports the implications of financial crises on income over the period 1980-2017. The coefficients of the lagged dependent variable again indicate the importance of its persistent dynamics.

Regarding the impact of financial crises, as expected, any type of financial crisis is found to have a negative and statistically significant effect on income. This evidence is in line with the conceptual explanations and empirical findings provided in the related literature. In particular, financial crises result in output collapses and, in this regard, firms close or shrink their operations on a large scale, leading to soaring unemployment and subsequently greater income losses (Calvo, 2010; Deaton, 2012; IMF, 2013). During financial crises, householdsô income is also adversely influenced by drastic welfare state retrenchment or austerity policies including cuts in various social protection programmes such as minimum incomes, unemployment benefits, and general income supports (Deaton, 2012; Jenkins et al., 2013; Boyce et al., 2016; De Neve et al., 2017).

Table 5.4. Financial crises and income

	(1)	(2)	(3)	(4)	(5)
L.Income	0.969***	0.967***	0.971***	0.963***	0.962***
	(0.00818)	(0.00812)	(0.00728)	(0.00861)	(0.00869)
All_crisis	-0.380***				
	(0.0495)				
Banking_crisis		-0.302***			
		(0.0577)			
Currency_crisis			-0.532***		
			(0.106)		
Debt_crisis				-0.316***	
				(0.0820)	
Twin_triple_crisis					-0.704***
					(0.172)
Elect_cycle	0.0164	0.0240	0.0194	0.0213	0.0217
	(0.0300)	(0.0310)	(0.0283)	(0.0328)	(0.0316)
Left_gov	-0.0598	-0.0659	-0.0481	-0.0552	-0.0821
	(0.0551)	(0.0564)	(0.0546)	(0.0578)	(0.0636)
Pol_risk_rating	0.0126***	0.0131***	0.0115***	0.0134***	0.0154***
	(0.0043)	(0.0043)	(0.0044)	(0.0046)	(0.0048)
Maj_gov	-0.0397	-0.0467	-0.0211	-0.0491	-0.0599
	(0.0473)	(0.0496)	(0.0449)	(0.0519)	(0.0536)
Democracy	0.0154**	0.0159**	0.0116*	0.0166**	0.0164**
	(0.0085)	(0.0085)	(0.0079)	(0.0086)	(0.0092)
Pol_system	0.0268	0.0357	0.0208	0.0392	0.0429
	(0.0838)	(0.0840)	(0.0835)	(0.0928)	(0.0943)
Eco_open	-0.313**	-0.254**	-0.312**	-0.180*	-0.295**
	(0.156)	(0.152)	(0.151)	(0.149)	(0.149)
Pop_growth	-0.211***	-0.216***	-0.195***	-0.236***	-0.241***
	(0.0551)	(0.0547)	(0.0481)	(0.0576)	(0.0582)
Eco_risk_rating	0.0130**	0.0160**	0.0125**	0.0188**	0.0204***
	(0.0076)	(0.0074)	(0.0080)	(0.0076)	(0.0077)
Finan_risk_rating	0.0257	0.0406	0.0597	0.0717	0.0657
	(0.0574)	(0.0570)	(0.0545)	(0.0614)	(0.0604)
Investment	0.0326***	0.0331***	0.0321***	0.0319***	0.0326***
	(0.0047)	(0.0047)	(0.0045)	(0.0048)	(0.0049)
Trend	0.0148	0.0167	0.0193	0.0106	0.0119
	(0.0357)	(0.0341)	(0.0347)	(0.0337)	(0.0375)
Observations	2480	2490	2443	2475	2490
Countries	113	113	112	113	113
Instruments	96	96	96	96	96
AR(1)	0.000	0.000	0.000	0.000	0.000
AR(2)	0.571	0.434	0.717	0.314	0.437
Hansen *J*	0.268	0.273	0.272	0.256	0.268
Diff-Hansen1	0.622	0.608	0.700	0.691	0.686
Diff-Hansen2	0.550	0.418	0.849	0.630	0.730

Notes: The table reports the impact of financial crises on the income index using two-step System-GMM estimator over the period 1990-2017. Robust standard errors are in parentheses. AR(1) and AR(2) are tests for Arellano-Bond first- and second-order serial correlation in the first-differenced residuals, respectively. Diff-Hansen1 tests for the exogeneity of the full set of instruments for the levels equation. Diff-Hansen2 tests for the exogeneity of subset based on the dependent variable. ***, **, * are significant levels at 1%, 5%, and 10%, respectively.

Although some studies emphasise the critical role of government interventions in relieving households' financial burden of a number of risks and basic needs through expansions of social

protections (Huber et al., 2008; Shahidi, 2015), all specifications indicate that any type of financial crisis significantly reduces income per capita. In fact, these interventions might not effectively cope with the consequences of financial crises due to several reasons. First, they can be inadequate to meet the substantially increased demand for unemployment benefits. Looking at the case of Greece in the midst of the Great Recession, while the number of unemployed workers rapidly increased by more than 45% in 2010, the number of people receiving unemployment benefits and social assistance rose by only 9.6% in the same year (Matsaganis, 2011). Second, expansion programmes can be terminated within a short period of time due to the soaring budget deficits and borrowing costs (Vis et al., 2011; Stoilova, 2016). For example, Iceland, Ireland and Spain initially increased social spending over the period 2008-2009 to meet the demand for unemployment benefits. However, they were unable to finance these programmes and, in this sense, painful cuts coming afterwards were inevitable.

The coefficients on financial crises also reveal that, among the three main dimensions of human development, income per capita appears to be the most affected by financial crises. This could be due to the fact that governments might prioritise cutting social protections. In fact, social protection makes up the largest share of social spending and total government expenditure in many countries. For example, social spending accounts for, on average, around 42% of total government spending and 20% of GDP in EU countries. To be more specific, pensions are by far the largest component of social protections and are also the main burden for the government budgets. For this reason, to deal with a high budget deficit, pensions are also the first to be cut. In contrast, many countries have successfully contained government spending on health and education during financial crises as they are essential for long-term growth (ECB, 2019).

The effects of political, institutional, and economic factors on income are again consistent with the results presented so far. Specifically, higher levels of political stability, democracy,

economic performance, investment and lower financial risk are important in enhancing income per capita. Contrarily, economic openness and population growth are found to have a negative impact on income.

In sum, by decomposing human development index into three components, this study provides a more comprehensive view of the detrimental impact that different types of financial crises have on human development. In particular, financial crises are harmful to the dynamics of human development and its components, i.e. life expectancy, education and income. As a check for the robustness of the results obtained, a number of robustness tests and sensitivity analyses are provided next.

5.5. Sensitivity analyses and robustness checks

To check for the robustness of the main findings, we start by assessing whether the effects of different types of financial crises on human development are sensitive to alternative measures of political, institutional and economic variables.

Table 5.5 shows the results of the sensitivity analysis to the alternative measures of controllers. First, as opportunistic effects might only happen in the election year, *Elect_cycle* is replaced by *Elec_year* dummy variable, which takes the value of 1 in election years, and 0 otherwise. Nevertheless, all specifications corroborate the main findings that electoral cycle has a statistically insignificant impact on human development. Next, right-wing governments (*Right_gov*) and centre governments (*Centre_gov*) are included to provide a comparison with left-wing governments. It has been implied in the literature that left-wing and right-wing governments tend to produce opposite effects on human development (Potrafke, 2010; Castro and Martins, 2018b). The results, however, again confirm the conclusion that political ideology is insignificant in explaining human development.

The political risk rating variable (*Pol_risk_rating*) is replaced by government stability index (*Gov_stab*), which measures the degree of regime/government stability. The index is combined

by three indicators (regime durability, current incumbent chief executiveôs years in office, and the total number of coup events) from the State Fragility Database with lower values indicate more a stable government and regime.[90] The results confirm the main findings that a stable political environment is important to promoting human development. Moreover, majority governments (*Maj_gov*) is split into the dummy variables of single majority governments (*Single_maj*) and coalition majority governments (*Coali_gov*). Estimations of the models with the inclusion of these variables reveal an important finding that coalition majority governments appear to have a positive and statistically significant impact on human development, while the effects of single majority governments are insignificant. This could be because majority governments formed by coalition governments tend to produce more stable policies (Bawn and Rosenbluth, 2006). For example, Colomer (2012) find that two-party coalitions reduce policy instability by half compared to single-party governments. In this regard, coalition majority governments might produce better and more stable policies that foster human development.

The degree of democracy is also replaced by democratic regimes (*Demo_regime*), which, according to Wimmer and Min (2006), can be classified into four different types of regimes: autocracy, closed anocracy, opened anocracy, and democracy.[91] Although this analysis confines to democratic regimes rather than levels of democracy, no relevant change is found: a more democratic regime appears to have a positive effect on human development. Finally, regarding the economic factors, the *Investment* variable, which is limited to the gross capital formation, was replaced by total investment (*Total_invest*). Nevertheless, the results remain unchanged and total investment also shows to play an important role in improving human development.

[90] The time coverage for *Gov_stab* is, however, only available from 1995 and, thus, this sensitivity analysis loses several observations.

[91] Wimmer and Min (2006) classify democratic regimes based on the level of democracy based upon Polity IV Database: autocracy (-10 to -6), closed anocracy (-5 to 0), opened anocracy (1 to 5), and democracy (6 to 10). In this study, the *demo_regime* variable takes the values of 1 for autocracy, 2 for closed anocracy, 3 for opened anocracy, and 4 for democracy.

Table 5.5. Sensitivity analysis I: Alternative measures of political, institutional and economic factors

	(1)	(2)	(3)	(4)	(5)
L.HDI	0.963***	0.962***	0.964***	0.961***	0.961***
	(0.00689)	(0.00660)	(0.00668)	(0.00698)	(0.00709)
All_crisis	-0.179***				
	(0.0440)				
Banking_crisis		-0.168***			
		(0.0485)			
Currency_crisis			-0.263***		
			(0.0741)		
Debt_crisis				-0.152**	
				(0.0757)	
Twin_triple_crisis					-0.323***
					(0.0661)
Elec_year	0.0050	0.0084	0.0061	0.0054	0.0072
	(0.0209)	(0.0203)	(0.0218)	(0.0220)	(0.0212)
Right_gov	-0.0199	-0.0184	0.0123	-0.0117	0.00419
	(0.0494)	(0.0473)	(0.0492)	(0.0499)	(0.0499)
Centre_gov	0.143	0.145	0.124	0.122	0.136
	(0.0858)	(0.0905)	(0.0897)	(0.0953)	(0.0945)
Gov_stab	-0.103**	-0.103**	-0.103**	-0.102**	-0.103**
	(0.0443)	(0.0413)	(0.0428)	(0.0451)	(0.0436)
Single_maj	-0.0735	-0.0805	-0.0603	-0.0722	-0.0713
	(0.0725)	(0.0694)	(0.0707)	(0.0716)	(0.0712)
Coali_maj	0.109**	0.108**	0.114**	0.109**	0.117**
	(0.0522)	(0.0503)	(0.0510)	(0.0518)	(0.0518)
Demo_regime	0.100**	0.103**	0.0856*	0.105**	0.101**
	(0.0474)	(0.0430)	(0.0485)	(0.0470)	(0.0462)
System	0.193	0.193	0.169	0.182	0.196
	(0.104)	(0.105)	(0.0916)	(0.105)	(0.108)
Eco_open	-0.435***	-0.374***	-0.394***	-0.432***	-0.435***
	(0.150)	(0.137)	(0.143)	(0.139)	(0.140)
Pop_growth	-0.214***	-0.222***	-0.206***	-0.220***	-0.230***
	(0.0519)	(0.0504)	(0.0501)	(0.0530)	(0.0542)
Eco_risk_rating	0.0195**	0.0210***	0.0196**	0.0215***	0.0224***
	(0.0077)	(0.0074)	(0.0083)	(0.0080)	(0.0080)
Finan_risk_rating	0.0049	0.0045	0.0106**	0.0053	0.0060
	(0.0055)	(0.0054)	(0.0051)	(0.0055)	(0.0058)
Total_invest	0.0206***	0.0209***	0.0198***	0.0212***	0.0217***
	(0.0046)	(0.0046)	(0.0045)	(0.0044)	(0.0049)
Trend	-0.0274	-0.0238	-0.0050	-0.0192	-0.0136
	(0.0404)	(0.0403)	(0.0398)	(0.0412)	(0.0409)
Observations	2040	2049	2016	2035	2049
Countries	112	112	111	112	112
Instruments	98	98	98	98	98
AR(1)	0.002	0.002	0.002	0.002	0.002
AR(2)	0.228	0.246	0.263	0.259	0.251
Hansen *J*	0.357	0.364	0.283	0.293	0.377
Diff-Hansen1	0.861	0.786	0.858	0.882	0.851
Diff-Hansen2	0.209	0.192	0.258	0.186	0.288

Notes: Robust standard errors are in parentheses. AR(1) and AR(2) are tests for Arellano-Bond first- and second-order serial correlation in the first-differenced residuals, respectively. Diff-Hansen1 tests for the exogeneity of the full set of instruments for the levels equation. Diff-Hansen2 tests for the exogeneity of subset based on the dependent variable. ***, **, * are significant levels at 1%, 5%, and 10%, respectively.

Table 5.6. Sensitivity analysis II: Linear interpolation of HDI

	(1)	(2)	(3)	(4)	(5)
L.HDI	0.954***	0.952***	0.956***	0.951***	0.950***
	(0.00741)	(0.00764)	(0.00676)	(0.00710)	(0.00759)
All_crisis	-0.179***				
	(0.0346)				
Banking_crisis		-0.128***			
		(0.0396)			
Currency_crisis			-0.214***		
			(0.0559)		
Debt_crisis				-0.149***	
				(0.0633)	
Twin_triple_crisis					-0.297***
					(0.0644)
Elect_cycle	0.0098	0.0088	0.0126	0.0102	0.0106
	(0.0186)	(0.0183)	(0.0177)	(0.0194)	(0.0178)
Left_gov	-0.0625	-0.0458	-0.0584	-0.0450	-0.0425
	(0.0515)	(0.0494)	(0.0498)	(0.0492)	(0.0495)
Pol_risk_rating	0.0133***	0.0141***	0.0126***	0.0138***	0.0154***
	(0.0038)	(0.0039)	(0.0034)	(0.0042)	(0.0040)
Maj_gov	-0.0231	-0.0281	-0.0288	-0.0327	-0.0350
	(0.0498)	(0.0494)	(0.0459)	(0.0517)	(0.0502)
Democracy	0.0247***	0.0252***	0.0270***	0.0244***	0.0239***
	(0.0080)	(0.0077)	(0.0075)	(0.0082)	(0.0082)
Pol_system	0.0356	0.0481	0.0307	0.0295	0.0470
	(0.101)	(0.101)	(0.0966)	(0.108)	(0.111)
Eco_open	-0.163	-0.124	-0.204	-0.0964	-0.135
	(0.134)	(0.130)	(0.131)	(0.135)	(0.123)
Pop_growth	-0.255***	-0.263***	-0.229***	-0.276***	-0.273***
	(0.0555)	(0.0527)	(0.0498)	(0.0539)	(0.0529)
Eco_risk_rating	0.0207***	0.0215***	0.0211***	0.0208***	0.0216***
	(0.0061)	(0.0063)	(0.0063)	(0.0060)	(0.0062)
Finan_risk_rating	0.0122**	0.0142***	0.0135***	0.0149***	0.0152***
	(0.0051)	(0.0049)	(0.0045)	(0.0048)	(0.0051)
Investment	0.0173**	0.0193**	0.0116***	0.0191**	0.0189**
	(0.0042)	(0.0043)	(0.0041)	(0.0044)	(0.0044)
Trend	0.0354	0.0495	0.0428	0.0460	0.0609
	(0.0428)	(0.0450)	(0.0472)	(0.0427)	(0.0463)
Observations	2843	2863	2800	2848	2863
Countries	113	113	112	113	113
Instruments	106	106	106	106	106
AR(1)	0.000	0.000	0.000	0.000	0.000
AR(2)	0.779	0.779	0.685	0.733	0.747
Hansen *J*	0.341	0.399	0.385	0.354	0.451
Diff-Hansen1	0.383	0.189	0.374	0.210	0.144
Diff-Hansen2	0.839	0.726	0.750	0.899	0.749

Notes: The table reports the impact of financial crises on human development over the period 1985-2017. The dependent variable is interpolated human development index. Robust standard errors are in parentheses. AR(1) and AR(2) are tests for Arellano-Bond first- and second-order serial correlation in the first-differenced residuals, respectively. Diff-Hansen1 tests for the exogeneity of the full set of instruments for the levels equation. Diff-Hansen2 tests for the exogeneity of subset based on the dependent variable. ***, **, * are significant levels at 1%, 5%, and 10%, respectively.

Despite the use of all these alternative measures, the detrimental impact of financial crises on human development remains present and strong, supporting the robustness to our analysis.

In the next experiment, HDI is extended to the period between 1980 and 1990, for which data are only available for the periods of five years. To fill in the missing observations, we use a linear interpolation approach. Nevertheless, due to the data available for some controllers (*Pol_risk_rating*, *Eco_risk_rating*, and *Finan_risk_rating*), the time coverage for this test is only from 1985 to 2017. Table 5.6 shows the results of the second sensitivity analysis with interpolated HDI. All estimations confirm again the negative effect of any type of financial crisis on human development, which corroborates the main findings presented above. The results for the political, institutional and economic controllers are also robust, yielding very similar coefficients and significant levels. As this analysis remains limited to the period 1985-2017, this study also develops an experiment where these risk rating variables are excluded from the regressions. Those results are reported in Table A5.5 in Annex and confirm the findings obtained so far. That is, even during the period 1980-2017, we observe that any type of financial crisis is harmful to the evolution of human development.

While the empirical evidence provided above indicates that the main findings are less sensitive to alternative measures of controllers and alternative time-periods, several robustness tests were also performed in order to check if the detrimental effects of financial crises on human development remain consistent. To begin with, this study re-estimated all models by fixed-effects and Bruno bias-corrected least-squares dummy variable (LSDVC) estimators. It is worth noting the importance of accounting for the dynamic effects as the level of human development is characterised by high within-country inertia, and the results of System-GMM estimators presented so far have confirmed the necessity for the inclusion of the lagged dependent variable. Thus, the lagged dependent variable is also included in the FE and LSDVC models. This, however, might bias the estimates in the FE model due to the dynamic panel bias.

Nevertheless, as the time dimension in this study is not small, FE estimators might produce reasonably efficient outcomes. Table 5.7 displays the results for the estimations using FE and LSDVC models.[92] The coefficients of any crisis variables are negative and significant (at a more than 99% confidence level), which further confirms the adverse effects of any type of financial crisis on human development.

The main findings obtained so far could be influenced by the presence of heterogeneity across the income level between countries. As argued by Ferreira and Schady (2009), economic recessions improve human development regarding health and education in developed countries, whereas low-income countries witnessed counter-cyclical effects on human development. To check for this possibility, our sample is divided into the sub-sample of developed and developing/emerging countries. The results presented in Table 5.8 further confirm the robustness of the main findings. However, the effects of currency and debt crises on human development in advanced countries are statistically insignificant, despite carrying the consistent negative coefficient sign. This is not surprising as very few currency and debt crises occurred in high-income economies. Moreover, the findings reveal that the adverse effects of any type of financial crisis - except for twin and triple crises - are higher in developing countries. Despite the fact that developed countries experienced deeper banking crises (Laeven and Valencia, 2020), the losses of human development in developed countries are less severe than in developing countries. This is consistent with Conceição and Kim (2014) who conclude that developing countries pay a higher price for recessions regarding human development. One possible reason is that higher indebtedness and fiscal deficit are constraints for developing countries to finance necessary social policies in the aftermath of financial crises.

[92] Blundell and Bond (1998) estimator is chosen as the initial estimator in the LSDVC procedure, with the lagged dependent variable is treated as endogenous. As the analytical variance estimator performs poorly for large coefficients of the lagged dependent variable (Bruno, 2005), 100 repetitions of the procedure to bootstrap the estimated standard errors were undertaken. The results remain similar when the Arellano and Bond (1991) and the Anderson and Hsiao (1982) are employed as initial estimators and when different number of bootstrap replications are undertaken, such as 50, 200, and 500.

Table 5.7. Robustness check I: Fixed-effects and LSDVC estimations

	FEM	FEM	FEM	FEM	FEM	LSDVC	LSDVC	LSDVC	LSDVC	LSDVC
L.HDI	0.919***	0.919***	0.926***	0.922***	0.917***	0.987***	0.987***	0.984***	0.987***	0.987***
	(0.00986)	(0.0100)	(0.00913)	(0.00991)	(0.0104)	(0.00442)	(0.00497)	(0.00382)	(0.00415)	(0.00493)
All_crisis	-0.196***					-0.220***				
	(0.0342)					(0.0268)				
Banking_crisis		-0.146***					-0.184***			
		(0.0344)					(0.0378)			
Currency_crisis			-0.217***					-0.229***		
			(0.0500)					(0.0440)		
Debt_crisis				-0.217***					-0.190***	
				(0.0754)					(0.0588)	
Twin_triple_crisis					-0.164***					-0.214***
					(0.0570)					(0.0713)
Elect_cycle	0.0086	0.0089	0.0103	0.0091	0.0080	0.0111	0.0112	0.0128	0.0096	0.0101
	(0.0169)	(0.0172)	(0.0165)	(0.0176)	(0.0173)	(0.0172)	(0.0216)	(0.0179)	(0.0195)	(0.0217)
Left_gov	-0.0632**	-0.0649**	-0.0540**	-0.0558*	-0.0649**	-0.0574**	-0.0607**	-0.0487*	-0.0576**	-0.0605**
	(0.0275)	(0.0274)	(0.0248)	(0.0285)	(0.0279)	(0.0278)	(0.0268)	(0.0296)	(0.0271)	(0.0269)
Pol_risk_rating	0.0193**	0.0195**	0.0162**	0.0199**	0.0202**	0.0267***	0.0267***	0.0228***	0.0287***	0.0279***
	(0.0078)	(0.0081)	(0.0077)	(0.0078)	(0.0082)	(0.0064)	(0.0058)	(0.0057)	(0.0063)	(0.0058)
Maj_gov	-0.0605	-0.0562	-0.0376	-0.0571	-0.0550	-0.0824***	-0.0786***	-0.0539**	-0.0803***	-0.0777***
	(0.0346)	(0.0350)	(0.0284)	(0.0366)	(0.0350)	(0.0283)	(0.0296)	(0.0261)	(0.0273)	(0.0296)
Democracy	0.0271***	0.0291***	0.0218**	0.0285***	0.0291***	0.0279***	0.0300***	0.0216***	0.0300***	0.0302***
	(0.0085)	(0.0089)	(0.0083)	(0.0090)	(0.0093)	(0.0055)	(0.0059)	(0.0050)	(0.0050)	(0.0059)
Pol_system	-0.0346	-0.0354	-0.0598	-0.0992	-0.0394	-0.0411	-0.0387	-0.0643	-0.0490	-0.0455
	(0.167)	(0.170)	(0.159)	(0.167)	(0.172)	(0.0874)	(0.0839)	(0.0896)	(0.0862)	(0.0842)
Eco_open	-0.0724*	-0.0843**	-0.0544*	-0.0466**	-0.0851**	-0.101**	-0.114**	-0.0772*	-0.102***	-0.114**
	(0.0411)	(0.0411)	(0.0425)	(0.0517)	(0.0409)	(0.0402)	(0.0470)	(0.0404)	(0.0392)	(0.0471)
Pop_growth	-0.0493	-0.0482	-0.0492	-0.0340	-0.0495	-0.0652***	-0.0634***	-0.0637***	-0.0702***	-0.0655***
	(0.0415)	(0.0427)	(0.0415)	(0.0454)	(0.0439)	(0.0234)	(0.0231)	(0.0245)	(0.0250)	(0.0233)
Eco_risk_rating	0.0334	0.0487	0.0290	0.0666	0.0636	0.0126	0.0465	0.0111	0.0107	0.0233
	(0.0519)	(0.0516)	(0.0519)	(0.0505)	(0.0500)	(0.0305)	(0.0303)	(0.0318)	(0.0344)	(0.0303)
Finan_risk_rating	0.0105***	0.0108***	0.0129***	0.0127***	0.0117***	0.0756***	0.0788***	0.0606***	0.0866***	0.0889***
	(0.0036)	(0.0036)	(0.0034)	(0.0035)	(0.00035)	(0.0222)	(0.0260)	(0.0239)	(0.0242)	(0.0261)
Investment	0.0191***	0.0199***	0.0181***	0.0221***	0.0201***	0.0161***	0.0169***	0.0155***	0.0170***	0.0171***
	(0.0034)	(0.0036)	(0.0032)	(0.0036)	(0.0036)	(0.0024)	(0.0020)	(0.0023)	(0.0022)	(0.0020)
Trend	0.0341***	0.0343***	0.0294***	0.0324***	0.0350***	-0.0244**	-0.0271**	-0.0193*	-0.0285**	-0.0257**
	(0.0057)	(0.0058)	(0.0052)	(0.0056)	(0.0060)	(0.0123)	(0.0122)	(0.0111)	(0.0144)	(0.0122)
Observations	2448	2458	2411	2443	2458	2448	2458	2411	2443	2458
Countries	113	113	112	113	113	113	113	112	113	113
Hausman test	188.00***	199.07***	153.88***	188.50***	206.83***					
FE test	112.56***	206.99***	164.41***	205.34***	222.94***					

Notes: The table reports the effects of financial crises on human development during the period 1990-2017 using the fixed-effects (FE) and Bruno bias-corrected least-squares dummy variable (LSDVC) estimators. FE test reports the Hausman statistic for the comparison between pooled Ordinary Least Squares and FE models. Hausman test reports the Hausman statistic for the comparison between random effects and FE models. The Blundell-Bond (1998) procedure is used as the initial estimator in the LSDVC estimations; 100 repetitions of the procedure to bootstrap the estimated standard errors were undertaken. Robust standard errors are in parentheses. ***, **, * are significant levels at 1%, 5%, and 10%, respectively.

Table 5.8. Robustness check II: Developed and developing countries

	Developed countries	Developed countries	Developed countries	Developed countries	Developed countries	Developing countries	Developing countries	Developing countries	Developing countries	Developing countries
L.HDI	0.885***	0.886***	0.879***	0.880***	0.880***	0.976***	0.977***	0.976***	0.977***	0.977***
	(0.0137)	(0.0137)	(0.0146)	(0.0143)	(0.0144)	(0.00458)	(0.00472)	(0.00429)	(0.00485)	(0.00471)
All_crisis	-0.140***					-0.239***				
	(0.0408)					(0.0462)				
Banking_crisis		-0.155***					-0.169***			
		(0.0404)					(0.0498)			
Currency_crisis			-0.0989					-0.256***		
			(0.576)					(0.0506)		
Debt_crisis				-0.260					-0.226***	
				(0.154)					(0.0812)	
Twin_triple_crisis					-0.393***					-0.234***
					(0.0352)					(0.0587)
Elect_cycle	0.0062	0.0080	0.0057	0.0066	0.0062	0.0108	0.0098	0.0139	0.0103	0.0107
	(0.0258)	(0.0256)	(0.0250)	(0.0252)	(0.0257)	(0.0218)	(0.0224)	(0.0204)	(0.0226)	(0.0224)
Left_gov	0.0083	0.0088	0.0116	0.0153	0.0130	-0.0745*	-0.0842**	-0.0657*	-0.0779*	-0.0844**
	(0.0338)	(0.0337)	(0.0342)	(0.0348)	(0.0347)	(0.0411)	(0.0406)	(0.0338)	(0.0411)	(0.0405)
Pol_risk_rating	0.0578	0.0574	0.0421	0.0439	0.0482	0.0327***	0.0330***	0.0264***	0.0366***	0.0348***
	(0.0923)	(0.0924)	(0.0913)	(0.0903)	(0.0909)	(0.0095)	(0.0100)	(0.0101)	(0.0098)	(0.0102)
Maj_gov	-0.0204	-0.0212	-0.0111	-0.0097	-0.0147	-0.0813	-0.0748	-0.0403	-0.0835	-0.0783
	(0.0448)	(0.0447)	(0.0421)	(0.0441)	(0.0441)	(0.0533)	(0.0543)	(0.0369)	(0.0561)	(0.0547)
Democracy	0.111***	0.103***	0.127***	0.119***	0.112***	0.0279***	0.0303***	0.0218**	0.0298***	0.0301***
	(0.0240)	(0.0192)	(0.0262)	(0.0213)	(0.0231)	(0.0101)	(0.0107)	(0.0096)	(0.0111)	(0.0111)
Pol_system	-0.148***	-0.147***	-0.155***	-0.154***	-0.154***	-0.0671	-0.0661	-0.0913	-0.0785	-0.0737
	(0.0246)	(0.0246)	(0.0246)	(0.0247)	(0.0246)	(0.135)	(0.138)	(0.132)	(0.142)	(0.139)
Eco_open	0.513***	0.503***	0.549***	0.548***	0.550***	-0.0536	-0.0451	-0.0524	-0.0232	-0.0482
	(0.160)	(0.158)	(0.157)	(0.154)	(0.156)	(0.0543)	(0.0558)	(0.0499)	(0.0621)	(0.0545)
Pop_growth	-0.135***	-0.131***	-0.143***	-0.139***	-0.141***	-0.0108	-0.0091	-0.0212	-0.0133	-0.0068
	(0.0423)	(0.0420)	(0.0451)	(0.0457)	(0.0446)	(0.0464)	(0.0483)	(0.0497)	(0.0493)	(0.0504)
Eco_risk_rating	-0.0201	-0.0175	0.0331	0.0481	0.0351	0.0166	0.0343	0.0113	0.0284	0.0424
	(0.0463)	(0.0451)	(0.0458)	(0.0536)	(0.0474)	(0.0634)	(0.0619)	(0.0645)	(0.0630)	(0.0611)
Finan_risk_rating	0.0220	0.0185	0.0338	0.0373	0.0354	0.0817*	0.0858*	0.115**	0.0880*	0.0927*
	(0.0466)	(0.0457)	(0.0474)	(0.0467)	(0.0465)	(0.0470)	(0.0481)	(0.0459)	(0.0468)	(0.0473)
Investment	0.0206***	0.0200***	0.0227***	0.0232***	0.0219***	0.0160***	0.0166***	0.0149***	0.0164***	0.0164***
	(0.0067)	(0.0066)	(0.0064)	(0.0070)	(0.0068)	(0.0379)	(0.0401)	(0.0351)	(0.0386)	(0.0403)
Trend	0.0280***	0.0276***	0.0299***	0.0295***	0.0292***	-0.00752	-0.00946	-0.00413	-0.0100	-0.00754
	(0.0062)	(0.0061)	(0.0066)	(0.0064)	(0.0064)	(0.0205)	(0.0200)	(0.0191)	(0.0223)	(0.0195)
Observations	693	694	692	694	694	1749	1758	1713	1743	1758
Countries	29	29	29	29	29	84	84	83	84	84
Hausman test	72.87***	66.98***	59.33***	58.53***	59.66***	54.93***	54.95***	40.27***	52.89***	54.05***
FE test	77.75***	76.91***	101.16***	100.96***	96.26***	61.12***	59.23***	54.48***	56.81***	58.43***

Notes: The table reports the impact of financial crises on human development in developed and developing countries using fixed-effects (FE) models over the period 1990-2017. FE test reports the Hausman statistic for the comparison between pooled Ordinary Least Squares and FE models. Hausman test reports the Hausman statistic for the comparison between random effects and FE models. Robust standard errors are in parentheses. ***, **, * are significant levels at 1%, 5%, and 10%, respectively.

Recall that several studies pointed out that the adverse effects of financial crises on human development and its components are permanent (Calvo, 2010; Stiglitz, 2012). By using the dependent variable in levels, the findings of this study strongly confirm these long-lasting effects. Other studies, however, are more concerned about the short-term fluctuations of human development (see, e.g., Martins and Veiga, 2014; Castro and Martins, 2018b). Moreover, using growth rates instead of levels of human development allows addressing any potentially remaining spurious inference problem in case the time-series of human development are non-stationary,[93] and eliminating time-invariant and country-specific effects in levels.

In doing so, the next robustness check presented in Table 5.9 uses the annual growth rate of the human development index to assess the short-run relationship of financial crises and human development. The results further confirm the adverse effects of financial crises on human development. More specifically, the coefficients of banking, currency, twin and triple crises and all crises óin generalô are negative and statistically significant at 1% level. This, along with the findings presented so far, indicates that financial crises do exert both short- and long-term adverse effects on human development and its growth rate.

[93] However, note the panel unit root tests reported in Table A5.3 in Appendix A5 show that HDI and its components are (panel) stationary in our sample.

Table 5.9. Robustness check III: HDI growth

	(1)	(2)	(3)	(4)	(5)
L.HDIgr	0.278***	0.289***	0.254***	0.286***	0.287***
	(0.0899)	(0.0886)	(0.0895)	(0.0902)	(0.0876)
All_crisis	-0.299***				
	(0.0901)				
Banking_crisis		-0.239***			
		(0.0756)			
Currency_crisis			-0.569***		
			(0.142)		
Debt_crisis				-0.128	
				(0.174)	
Twin_triple_crisis					-0.479***
					(0.143)
Elect_cycle	-0.0240	-0.0257	-0.0242	-0.0242	-0.0220
	(0.0348)	(0.0357)	(0.0389)	(0.0369)	(0.0363)
Left_gov	-0.102	-0.0882	-0.0918	-0.0836	-0.0985
	(0.0798)	(0.0770)	(0.0878)	(0.0787)	(0.0810)
Pol_risk_rating	0.0654***	0.0641***	0.0698***	0.0643***	0.0682***
	(0.0200)	(0.0190)	(0.0202)	(0.0200)	(0.0196)
Maj_gov	-0.0612	-0.0534	-0.0315	-0.0645	-0.0571
	(0.0759)	(0.0758)	(0.0755)	(0.0770)	(0.0791)
Democracy	0.0150	0.0138	0.00792	0.0146	0.0150
	(0.0149)	(0.0151)	(0.0153)	(0.0144)	(0.0156)
Pol_system	0.0652	0.0736	0.153	0.0870	0.0687
	(0.165)	(0.165)	(0.172)	(0.165)	(0.174)
Eco_open	-0.0135***	-0.0133***	-0.0152***	-0.0131***	-0.0143***
	(0.0407)	(0.0399)	(0.0439)	(0.0400)	(0.0428)
Pop_growth	0.0513	0.0543	0.0518	0.0709	0.0592
	(0.0668)	(0.0654)	(0.0740)	(0.0657)	(0.0676)
Eco_risk_rating	-0.0160	-0.0125	-0.0125	-0.0119	-0.0103
	(0.00892)	(0.00885)	(0.00985)	(0.00973)	(0.00927)
Finan_risk_rating	-0.0105	-0.0104	-0.00801	-0.00979	-0.0104
	(0.00852)	(0.00849)	(0.00921)	(0.00824)	(0.00866)
Investment	0.0299***	0.0295***	0.0289***	0.0291***	0.0301***
	(0.00868)	(0.00853)	(0.00964)	(0.00859)	(0.00916)
Trend	-0.0994	-0.106	-0.146	-0.117	-0.112
	(0.0993)	(0.104)	(0.109)	(0.102)	(0.108)
Observations	2360	2370	2326	2355	2370
Countries	111	111	110	111	111
Instruments	95	95	95	95	95
AR(1)	0.008	0.008	0.009	0.008	0.007
AR(2)	0.174	0.168	0.182	0.175	0.163
Hansen *J*	0.266	0.240	0.168	0.204	0.262
Diff-Hansen1	0.977	0.966	0.919	0.755	0.891
Diff-Hansen2	0.869	0.950	0.776	0.496	0.938

Notes: The table reports the impact of financial crises on human development growth using two-step System-GMM estimator over the period 1990-2017. Robust standard errors are in parentheses. AR(1) and AR(2) are tests for Arellano-Bond first- and second-order serial correlation in the first-differenced residuals, respectively. Diff-Hansen1 tests for the exogeneity of the full set of instruments for the levels equation. Diff-Hansen2 tests for the exogeneity of subset based on the dependent variable. ***, **, * are significant levels at 1%, 5%, and 10%, respectively.

Finally, using social expenditure to GDP as the dependent variable, this study also assesses how governments respond to financial crises in order to cushion their immediate effects on citizens.[94] In fact, the recent Great Recession witnessed unprecedentedly responses of governments around the globe. While welfare state expansion policies such as income transfers and healthcare are necessary to make economic shocks less damaging to human wellbeing, many countries implemented drastic welfare retrenchments such as Ireland, Portugal and Spain due to the pressure of fiscal deficits, albeit surges in demand for unemployment benefits and social protections. Table 5.10 shows the implications of financial crises on public social spending over the period 1985-2017.

The results show mixed findings across the different types of financial crises. In particular, banking crises and financial crises óin generalô appear to increase public social spending. It is not surprising as governments might increase social spending to reduce the negative impact of banking crises on human wellbeing. This could also explain why the detrimental impact of banking crises on human development is less severe than other types of financial crises. In contrast, governments tend to cut social spending when facing currency crises. This was evident in the Korean currency crisis in 1998, where the government, as demanded by the IMF, had to implement various retrenchment policies to build-up adequate foreign reserves and to stabilise the exchange rate (Yung, 2003). The effects of debt and twin and triple crises on public social spending, however, are statistically insignificant. Nevertheless, the negative coefficients might indicate that governments tend to reduce social spending in times of debt and twin and triple crises.

[94] Data for public social expenditure are available from the Government Finance Statistics ï IMF.

Table 5.10. Financial crises and government social spending

	(1)	(2)	(3)	(4)	(5)
L.SS	0.959***	0.951***	0.972***	0.970***	0.964***
	(0.0372)	(0.0336)	(0.0362)	(0.0359)	(0.0341)
All_crisis	0.262*				
	(0.134)				
Banking_crisis		0.445***			
		(0.154)			
Currency_crisis			-0.399**		
			(0.191)		
Debt_crisis				-0.0365	
				(0.153)	
Twin_triple_crisis					-0.144
					(0.241)
Elect_cycle	-0.00827	-0.0206	-0.0131	-0.00487	-0.00726
	(0.0561)	(0.0535)	(0.0514)	(0.0536)	(0.0538)
Left_gov	0.0334	0.0511	0.0188	-0.0132	-0.00419
	(0.110)	(0.116)	(0.0970)	(0.111)	(0.114)
Pol_risk_rating	0.0221**	0.0250**	0.0202**	0.0218**	0.0230*
	(0.0111)	(0.0117)	(0.0103)	(0.0103)	(0.0118)
Maj_gov	0.0681	0.0526	0.0336	0.0610	0.0527
	(0.0777)	(0.0856)	(0.0698)	(0.0769)	(0.0802)
Democracy	0.00838	0.00230	0.00785	0.00473	0.00515
	(0.0160)	(0.0151)	(0.0168)	(0.0143)	(0.0170)
Pol_system	0.0909	0.0722	0.00581	-0.0369	0.0141
	(0.261)	(0.258)	(0.217)	(0.241)	(0.246)
Eco_open	-0.0014***	-0.0015***	-0.0011**	-0.0014***	-0.0015***
	(0.00454)	(0.00463)	(0.00498)	(0.00475)	(0.00468)
Pop_growth	-0.0955	-0.152	-0.0390	-0.0903	-0.123
	(0.145)	(0.133)	(0.130)	(0.139)	(0.143)
Eco_risk_rating	0.0198	0.0227	0.0138	0.0163	0.0160
	(0.0143)	(0.0144)	(0.0122)	(0.0135)	(0.0131)
Finan_risk_rating	-0.0234*	-0.0214*	-0.0182*	-0.0243**	-0.0241**
	(0.0122)	(0.0113)	(0.0103)	(0.0117)	(0.0119)
Investment	0.0379**	0.0356**	0.0397***	0.0387***	0.0384**
	(0.0163)	(0.0156)	(0.0137)	(0.0146)	(0.0152)
Trend	-0.0948	-0.120	-0.0236	-0.0896	-0.0965
	(0.129)	(0.133)	(0.140)	(0.131)	(0.140)
Observations	1758	1764	1741	1758	1764
Countries	98	98	97	98	98
Instruments	94	94	94	94	94
AR(1)	0.000	0.000	0.000	0.000	0.000
AR(2)	0.239	0.233	0.167	0.172	0.161
Hansen *J*	0.673	0.665	0.786	0.631	0.615
Diff-Hansen1	0.621	0.793	0.859	0.122	0.613
Diff-Hansen2	0.824	0.816	0.942	0.898	0.897

Notes: The table reports the impact of financial crises on social spending using two-step System-GMM estimator over the period 1985-2017. Robust standard errors are in parentheses. AR(1) and AR(2) are tests for Arellano-Bond first- and second-order serial correlation in the first-differenced residuals, respectively. Diff-Hansen1 tests for the exogeneity of the full set of instruments for the levels equation. Diff-Hansen2 tests for the exogeneity of subset based on the dependent variable. ***, **, * are significant levels at 1%, 5%, and 10%, respectively.

As for control variables, a more stable political environment appears to enhance public social spending. This can be explained by the fact that instable governments are less likely to

invest in human capital as they are uncertain about the capabilities to benefit from such investment (Gyimah-Brempong and De Camacho, 1998; Aisen and Veiga, 2013). We also find that higher levels of economic openness are associated with lower public social spending, which is consistent with the *compensation hypothesis* (see McCashin, 2016; Lobao et al., 2018). The results obtained for *Finan_risk_rating* is highly surprising as countries at higher levels of financial risk seem to increase social spending. This is consistent with Mahdavi (2004) who find that while higher levels of debt burden reduce the overall public spending, governments tend to allocate larger shares to social buffer against increased financial risk. Similarly, Lora and Olivera (2007) find that default countries tend to reallocate expenditures in favour of the social sectors to protect vulnerable groups. The results of investment also corroborate the main findings and indicate that investment is important to enhance both public social spending and human development.

In Section 5.4 we provide empirical evidence that any type of financial crisis directly has a negative impact on overall human development and its components. As a check for the robustness of these findings, we examine how different types of financial crises affect changes in unemployment and public social spending. This is because soaring unemployment and drastic social spending cuts in the aftermath of financial crises are two main channels through which crises deteriorate human development. To capture the effects of these channels, we examine how different types of financial crises affect changes in the unemployment rate and public social spending.[95]

Table 5.11 reports how different types of financial crises affect the annual growth in unemployment. The findings indicate that unemployment growth significantly increases in the aftermath of banking, currency, twin and triple, and financial crises in general. Soaring

[95] We use growth rates instead of levels of unemployment and public social spending to address any potentially remaining spurious inference problem in case the time-series of unemployment and public social spending are non-stationary and eliminate time-invariant and country-specific effects in levels.

unemployment growth is more pronounced during twin and triple crises, which can explain why twin and triple crises are more harmful to human development than other types. In particular, an outbreak of twin/triple crisis, on average, leads to an increase of 10.46 percentage points in change in unemployment, ceteris paribus. The findings also show that better economic environment and higher investment reduce unemployment growth rate. However, a more open market seems to raise more unemployment. This lends support to the compensation hypothesis that greater international integration is associated with higher economic insecurity and unemployment (Burgoon, 2001; Kaufman and Segura-Ubiergo, 2001). These findings corroborate the those presented in Table 5.1 that higher levels of economic rating and investment and lower economic openness are associated with a higher degree of human development.

Another channel through which financial crises affect human development is public social spending cuts. Table 5.12 reports the impact of different types of financial crises on the change in public social spending. Currency and debt crises enter negatively significant, indicating that public social spending cuts tend to be adopted as a response to these crises. However, the effects of banking, twin and triple, and all crises on the change in social spending are insignificant. Nevertheless, two caveats attach to these results. First, the significant coefficients of currency and debt crises could only be valid for emerging and developing countries because advanced countries are less likely to experience a currency or debt crisis. Second, the insignificant results for banking, twin and triple, and all crises could be driven by the heterogeneous effects of different income groups of countries. In particular, advanced countries could have more room to take actions that mitigate the immediate effect of crises on social welfare, while emerging countries, especially those that are indebted, tend to implement drastic cuts during financial crises due to the high levels of pre-crisis deficits and debts (Calvo, 2010).

Table 5.11. Financial crises and unemployment change

	(1)	(2)	(3)	(4)	(5)
L.Unemploymentchange	0.289***	0.275***	0.282***	0.295***	0.289***
	(0.0456)	(0.0462)	(0.0483)	(0.0465)	(0.0475)
All_crisis	3.876***				
	(1.338)				
Banking_crisis		7.430***			
		(1.841)			
Currency_crisis			4.698*		
			(2.495)		
Debt_crisis				-2.833	
				(1.727)	
Twin_triple_crisis					10.46***
					(5.642)
Elect_cycle	0.258	0.0571	0.378	0.383	0.339
	(0.628)	(0.668)	(0.628)	(0.627)	(0.695)
Left_gov	1.180	1.086	1.093	1.000	1.469
	(1.316)	(1.248)	(1.216)	(1.270)	(1.338)
Pol_risk_rating	0.0737	0.0798	0.0907	0.0800	0.0643
	(0.102)	(0.0982)	(0.0978)	(0.101)	(0.101)
Maj_gov	0.247	0.267	0.258	-0.0399	0.294
	(1.093)	(1.037)	(1.043)	(1.067)	(1.033)
Democracy	-0.0385	-0.0423	-0.0567	-0.0521	-0.0563
	(0.161)	(0.159)	(0.163)	(0.164)	(0.167)
Pol_system	0.220	-0.0662	0.483	0.142	0.201
	(2.068)	(1.971)	(2.128)	(2.036)	(2.056)
Eco_open	9.549**	8.740*	9.690**	10.06*	10.30*
	(5.467)	(5.478)	(5.911)	(5.548)	(5.581)
Pop_growth	0.946	1.027	0.872	0.816	0.865
	(0.770)	(0.734)	(0.775)	(0.753)	(0.766)
Eco_risk_rating	-0.582***	-0.585***	-0.633***	-0.665***	-0.609***
	(0.153)	(0.147)	(0.161)	(0.151)	(0.154)
Finan_risk_rating	0.182	0.158	0.182	0.145	0.169
	(0.127)	(0.124)	(0.122)	(0.121)	(0.125)
Investment	-0.342***	-0.320***	-0.363***	-0.354***	-0.345***
	(0.0959)	(0.100)	(0.0903)	(0.0972)	(0.0960)
Trend	0.525	0.580	0.435	0.600	0.683
	(0.866)	(0.819)	(0.885)	(0.859)	(0.914)
Observations	2237	2238	2199	2238	2238
Countries	112	112	111	112	112
Instruments	93	93	93	93	93
AR(1)	0.000	0.000	0.000	0.000	0.000
AR(2)	0.300	0.267	0.331	0.322	0.278
Hansen *J*	0.049	0.063	0.056	0.051	0.044
Diff-Hansen1	0.780	0.912	0.329	0.713	0.741
Diff-Hansen2	0.541	0.598	0.560	0.374	0.567

Notes: The table reports the impact of financial crises on the annual change in unemployment rate using two-step System-GMM estimator over the period 1993-2017. Robust standard errors are in parentheses. AR(1) and AR(2) are tests for Arellano-Bond first- and second-order serial correlation in the first-differenced residuals, respectively. Diff-Hansen1 tests for the exogeneity of the full set of instruments for the levels equation. Diff-Hansen2 tests for the exogeneity of subset based on the dependent variable. ***, **, * are significant levels at 1%, 5%, and 10%, respectively.

Table 5.12. Financial crises and change in public social spending

	(1)	(2)	(3)	(4)	(5)
All_crisis	-0.181				
	(1.141)				
Banking_crisis		-1.991			
		(1.500)			
Currency_crisis			-5.824**		
			(2.539)		
Debt_crisis				-4.666**	
				(2.232)	
Twin_triple_crisis					-2.669
					(2.934)
Elect_cycle	-0.323	-0.283	-0.350	-0.318	-0.294
	(0.733)	(0.670)	(0.692)	(0.691)	(0.684)
Left_gov	-0.394	-0.407	-0.395	-0.412	-0.396
	(0.957)	(1.364)	(1.340)	(1.346)	(1.347)
Pol_risk_rating	0.450*	0.454**	0.431**	0.458**	0.462**
	(0.252)	(0.183)	(0.182)	(0.184)	(0.183)
Maj_gov	-0.248	-0.283	-0.216	-0.338	-0.251
	(1.015)	(0.599)	(0.587)	(0.609)	(0.581)
Democracy	-0.0188	-0.0311	-0.0372	-0.0395	-0.0303
	(0.310)	(0.184)	(0.193)	(0.179)	(0.190)
Pol_system	-3.678	-3.425	-2.734	-3.918	-3.769
	(4.712)	(2.186)	(1.831)	(2.481)	(2.389)
Eco_open	-0.632**	-0.375**	-0.865*	-0.286***	-0.574**
	(2.588)	(4.298)	(4.438)	(4.375)	(4.428)
Pop_growth	4.926***	5.045**	5.253**	4.801**	4.949**
	(1.065)	(2.261)	(2.237)	(2.139)	(2.192)
Eco_risk_rating	-0.264*	-0.327***	-0.298***	-0.276**	-0.271**
	(0.144)	(0.111)	(0.110)	(0.107)	(0.105)
Finan_risk_rating	0.119	0.104	0.115	0.112	0.110
	(0.110)	(0.0878)	(0.0951)	(0.0880)	(0.0878)
Investment	-0.0554	-0.0791	-0.0963	-0.0673	-0.0637
	(0.118)	(0.118)	(0.108)	(0.116)	(0.111)
Trend	0.0569	0.0615	0.0634	0.0523	0.0545
	(0.0619)	(0.139)	(0.139)	(0.136)	(0.137)
Observations	1703	1703	1681	1703	1703
Countries	98	98	97	98	98
Hausman test	25.71***	25.86***	32.10***	32.32***	25.99**
FE test	15.33***	19.40***	32.14***	32.78***	22.73**

Notes: The table reports the impact of financial crises on the change in public social spending using a fixed-effects estimator over the period 1985-2017. Robust standard errors are in parentheses. FE test reports the Hausman statistic for the comparison between pooled Ordinary Least Squares and FE models. Hausman test reports the Hausman statistic for the comparison between random effects and FE models. ***, **, * are significant levels at 1%, 5%, and 10%, respectively.

As a check on this possibility, we re-estimated our models, dividing the sample into advanced and developing countries. To provide a deeper analysis of welfare state change in the aftermath of financial crises, a group of 15 countries with the most generous welfare state in the world is considered separately as to compare with the groups of advanced and developing

countries. These countries include Luxembourg, Norway, Denmark, Austria, Belgium, Finland, France, Sweden, Germany, United States, Ireland, Italy, Japan, and the United Kingdom.[96]

Table 5.13 shows the effects of financial crises in advanced, top welfare, and developing countries on the change in public social spending over the periods 1985-2017. As expected, advanced countries appear to increase their social spending in responses to banking, twin and triple crisis, and financial crises in general. This is due to the fact that advanced countries with higher fiscal space and lower levels of public debt before crises can afford welfare state expansion programmes during financial crises (Calvo, 2010; OECD, 2015). Similarly, top welfare countries also enhance their social spending to tackle the real impact of banking and financial crises, in general, on human wellbeing. The magnitude of welfare state responses between advanced and top welfare countries is relatively the same, at more than 2.2 percentage points increase in change of social spending to GDP, on average. It is not surprising that the coefficients of currency and debt crises are insignificant in advanced and top welfare countries because these crises are not common in those countries. This ï along with the evidence presented in specifications (12) and (13) ï confirms that the results for currency and debt crises presented in Table 5.12 hold for emerging and developing countries only.

Governmentsô reactions to financial crises in terms of social spending in developing countries are completely opposite to those in advanced and top welfare state countries. We find that public social spending is lower for any type of financial crisis in emerging countries, indicating that those countries tend to implement welfare state retrenchment in times of crisis (see, for example, Mohseni-Cheraghlou, 2016). In particular, with all else held constant, a financial crisis leads to a decrease in change of public social spending in emerging countries

[96] The regression results report only for 14 countries because political data are not available for Switzerland. 15 countries with the most generous welfare state are those paying highest public social spending per head on average over period 2015-2019. Data are available at https://data.oecd.org/socialexp/social-spending.htm

by around 5.5 percentage points of GDP. This finding also corroborates the conclusion made earlier that while financial crises hit advanced countries deeper in terms of output losses (Laeven and Valencia, 2020), developing countries are those paying a higher price for financial crises in terms of human development (see Table 5.8). Therefore, welfare state expansions are vital to alleviate the adverse effects of financial crises on human development.

With respect to control variables, the findings are in line with those reported in Table 5.12 that public social spending is higher in countries with a better political environment and lower levels of openness. Moreover, the positive association between population growth and public social spending indicates that governments spend more on the social sector to meet rising demand with higher populations. The analysis also offers some interesting results that a better economic environment and a higher degree of investment in advanced and top welfare countries promotes a reduction in public social spending. This could imply the role of the private sector in enhancing private social expenditure, which reduces the burden for government budget for welfare state. For example, according to the OECD Social Expenditure Database, private social expenditure makes up approximately 12.5% of GDP in the United States in 2017.[97]

[97] OECD Social Expenditure Database is available at: https://www.oecd.org/social/expenditure.htm

Table 5.13. Financial crises and change in social spending in different income groups

	Advanced countries	Advanced countries	Advanced countries	Advanced countries	Advanced countries	Top welfare countries	Top welfare countries	Top welfare countries	Top welfare countries	Developing countries	Developing countries	Developing countries	Developing countries	Developing countries
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
All_crisis	2.242***					2.127***				-5.880***				
	(0.590)					(0.690)				(2.116)				
Banking_crisis		2.430***					2.239***				-5.649***			
		(0.643)					(0.728)				(2.018)			
Currency_crisis			9.662					-1.648				-6.517**		
			(8.779)					(2.222)				(2.616)		
Debt_crisis				-2.576					-4.084				-5.131*	
				(1.709)					(0.796)				(2.744)	
Twin_triple_crisis					16.14***									-5.274**
					(0.942)									(2.569)
Elect_cycle	-0.219	-0.235	-0.257	-0.231	-0.227	-0.321	-0.327	-0.335	-0.364	-0.340	-0.313	-0.599	-0.527	-0.509
	(0.332)	(0.330)	(0.333)	(0.329)	(0.330)	(0.492)	(0.494)	(0.471)	(0.488)	(1.304)	(1.237)	(1.302)	(1.282)	(1.304)
Left_gov	0.204	0.194	0.239	0.154	0.177	-0.180	-0.181	-0.236	-0.216	-1.211	-1.475	-1.259	-1.300	-1.151
	(0.497)	(0.500)	(0.511)	(0.506)	(0.504)	(0.594)	(0.592)	(0.650)	(0.641)	(2.044)	(3.382)	(3.241)	(3.236)	(3.318)
Pol_risk_rating	0.312*	0.308*	0.323*	0.326**	0.298*	0.432*	0.427*	0.420*	0.414*	0.773*	0.790**	0.730**	0.784**	0.786**
	(0.155)	(0.153)	(0.158)	(0.155)	(0.159)	(0.251)	(0.248)	(0.246)	(0.243)	(0.449)	(0.350)	(0.362)	(0.364)	(0.346)
Maj_gov	0.0891	0.108	0.0670	-0.0420	0.110	0.318	0.334	0.285	0.321	-0.217	-0.0996	-0.188	-0.492	-0.190
	(0.438)	(0.440)	(0.482)	(0.457)	(0.481)	(0.533)	(0.539)	(0.533)	(0.536)	(1.931)	(1.232)	(1.313)	(1.344)	(1.283)
Democracy	-0.304	-0.298	-0.586	-0.572	-0.336	-1.777	-1.758	-2.059	-2.042	-0.195	-0.210	-0.208	-0.201	-0.210
	(1.107)	(1.101)	(1.038)	(1.087)	(1.222)	(2.203)	(2.208)	(2.110)	(2.113)	(0.419)	(0.237)	(0.256)	(0.229)	(0.237)
Pol_system	0.376	0.330	0.361	0.402	0.352					-5.755**	-7.154***	-4.782*	-7.077***	-6.927***
	(0.624)	(0.621)	(0.656)	(0.672)	(0.653)					(7.987)	(2.129)	(2.442)	(2.112)	(2.167)
Eco_open	-6.216***	-6.188***	-6.105***	-5.978***	-6.243***	-7.769**	-7.787**	-7.234**	-7.195**	1.817	1.802	0.677	1.166	1.542
	(2.058)	(2.061)	(1.915)	(1.998)	(1.922)	(3.377)	(3.382)	(3.301)	(3.295)	(4.094)	(5.242)	(5.414)	(5.329)	(5.599)
Pop_growth	2.635***	2.585***	2.613***	2.723***	2.673***	3.633***	3.590***	4.100***	4.022***	9.399***	9.394*	9.599*	8.844*	9.049*
	(0.783)	(0.779)	(0.817)	(0.813)	(0.807)	(1.197)	(1.169)	(1.220)	(1.184)	(2.016)	(5.391)	(5.453)	(5.155)	(5.216)
Eco_risk_rating	-0.280**	-0.274**	-0.371***	-0.399***	-0.366***	-0.327**	-0.323**	-0.422**	-0.424**	-0.176	-0.117	-0.0965	-0.0538	-0.0864
	(0.117)	(0.115)	(0.114)	(0.122)	(0.114)	(0.150)	(0.148)	(0.146)	(0.146)	(0.250)	(0.173)	(0.190)	(0.183)	(0.181)
Finan_risk_rating	0.0385	0.0391	0.0263	0.0330	0.0233	-0.0678	-0.0696	-0.0912	-0.0956	-0.0930	-0.0929	-0.0548	-0.0504	-0.0715
	(0.0712)	(0.0707)	(0.0766)	(0.0775)	(0.0765)	(0.0774)	(0.0756)	(0.0815)	(0.0786)	(0.220)	(0.147)	(0.140)	(0.138)	(0.128)
Investment	-0.215***	-0.216***	-0.220***	-0.257***	-0.234***	-0.297***	-0.295***	-0.366***	-0.359***	0.0168	0.0240	0.0238	0.0808	0.0590
	(0.0686)	(0.0677)	(0.0654)	(0.0721)	(0.0660)	(0.0659)	(0.0656)	(0.0667)	(0.0629)	(0.199)	(0.158)	(0.151)	(0.161)	(0.159)
Trend	0.0340	0.0336	0.0545	0.0505	0.0526	0.00510	0.00528	-0.00140	0.000248	0.203	0.204	0.253	0.203	0.219
	(0.0460)	(0.0459)	(0.0446)	(0.0461)	(0.0449)	(0.0897)	(0.0900)	(0.0863)	(0.0870)	(0.126)	(0.339)	(0.348)	(0.334)	(0.336)
Observations	773	773	773	773	773	416	416	416	416	930	930	908	930	930
Countries	29	29	29	29	29	14	14	14	14	69	69	68	69	69
Hausman test	119.60***	126.90***	109.18***	112.73***	70.17***	27.04***	26.91***	14.33	19.96**	29.80***	14.50***	22.36**	20.58***	39.82***
FE test	265.91***	305.59***	140.81***	238.81***	71.09***	27.04***	26.91***	14.33	19.96**	39.48***	29.75***	33.93***	32.52***	29.55***

Notes: The table reports the impact of financial crises on the change in public social spending using a fixed-effects estimator over the period 1985-2017. Robust standard errors are in parentheses. FE test reports the Hausman statistic for the comparison between pooled Ordinary Least Squares and FE models. Hausman test reports the Hausman statistic for the comparison between random effects and FE models. ***, **, * are significant levels at 1%, 5%, and 10%, respectively. *Pol_system* is omitted in the analysis of top welfare countries due to collinearity problem. Twin and triple crises are not reported for top welfare countries because they have not experienced these types of crises.

5.6. Conclusion

The existing literature on the relationship between financial crises and human development has mainly assessed the detrimental impact of financial crises through the lens of unemployment and income losses. No prior studies, however, have attempted to provide a complete picture for the implications of financial crises on broad dimensions of human development regarding not only income but also other essential elements of human life, namely education and health. Moreover, previous studies have focused on the adverse effects of banking crises, especially the Great Recession of 2007/08, on human wellbeing, while those of other types of financial crises such as currency and sovereign debt crises are virtually ignored. The current study fills these important gaps in the literature by providing a systemic account of how different types of financial crises influence the evolution of human development and its components over the last four decades. Using a two-step System-GMM estimator over a sample of 113 countries during the period 1980-2017, the findings of this study survive various sensitivity analyses and robustness checks and can be summarised into four main points.

First, the effects of financial crises on the evolution of human development are, in general, more pronounced than those of political, institutional and economic factors, which emphasises the main novelty of this study. That is, special attention should be paid to financial crises for a better insight into the human development dynamics. This fills an important gap in the literature regarding the relationship between financial crises and human development. Note that the literature has mainly focused on the detrimental impact of unemployment and income losses. Digging deeper into types of financial crises, it is striking that banking crises are less harmful to human development than any other types of financial crises. This means that the focus of previous studies only on banking crises or a particular banking crisis event produces an incomplete picture of the human development dynamics in times of crisis. In fact, as far as we

are concerned, no previous study has attempted to assess the detrimental impact of currency, debt, and twin and triple crises on human development.

Second, all types of financial crises are found to have negative effects on overall human development and its components, including health, education and income. It is worth stressing that these effects are detrimental to both short- and long-term human development. For this reason, having an insight into human development in the aftermath of financial crises is vital to avoid creating an additional burden on the current and future generations. By examining human development by components, the findings of financial crises and health contrast with several existing studies that suggest that financial crises benefit peopleôs health. Perhaps, financial crises might bring some short-run benefits to health such as reducing atmospheric pollution, work-related stress and commercial traffic, but the overall health appears to be negatively and significantly affected by any type of financial crisis.

Third, banking and debt crises are associated with lower development of education. Among components of human development, education is the least affected by financial crises. This is because education has been considered vital for long-term economic growth. For this reason, education budgets are more protected than those of other sectors. For example, many countries have successfully maintained the same levels of public spending on education during the recent Great Recession.

Fourth, the adverse effects of any type of financial crisis on income are more severe than on education and health. This is not surprising as there has been a substantial body of work that confirm the adverse effects of financial crises on human wellbeing through the lens of soaring unemployment and drastic cuts in public social spending on social protection.

The findings of this study contribute to the discussion around the adverse effects of financial crises on human development and its components. The main policy implication that can be derived from our findings is that policymakers should pay special attention to the adverse

effects of financial crises on the evolution of human development because their effects are more severe than any other factors such as political, institutional, and socio-economic ones. Financial crises potentially erode human development gains accumulated over the years and increase the burden for future generations. Thus, appropriate and timely social policies should be implemented to cushion the negative effects of financial crises on human development. Maintaining a fiscal balance during normal times might be key for governments to pursue welfare expansion programmes during a financial crisis.

Moreover, low-income groups could be extremely vulnerable to economic hardship and need greater support. In this regard, priority should be given to those who were already falling behind before financial crises. In addition, appropriate policies with a long-run perspective are needed to reduce inequalities in human development and to boost the capabilities of a large part of the population.

Furthermore, governments in developing countries should also be aware of the real effects of financial crises on human development as, even though they might be less damaging in terms of income losses for them than for developed countries, they appear to pay a higher price regarding overall human development. For this reason, policymakers in developing countries should better allocate fiscal resources to finance policies that improve (or reassure) access to social protection, healthcare, and education during financial crises.

While the results of this study provide a relatively complete picture of the detrimental impact of financial crises on human development, the on-going Covid-19 pandemic raises some concerns regarding the deterioration of human development due to non-financial unanticipated shocks. In fact, the annual growth rate of HDI index around the world, on average, was always positive since 1990, even during and aftermath of the Great Recession of 2007/08. However, according to the recent report of the United Nations Development Programme, it has unprecedentedly turned into negative growth in 2020 due to the influence of the Covid-19

(UNDP, 2020). This implies that non-financial shocks might result in more severe consequences on human development than financial and political shocks.[98] For this reason, it is important that future researches explore the effects of non-financial shocks to better understand the drivers of human development.

[98] Nevertheless, the results of this study are less likely influenced by non-financial shocks as, unlike the Covid-19 pandemic, there was no human development crisis caused by non-financial shocks over the examined period. In fact, some major diseases over the last three decades such as H1N1, SARS, MERS and Ebola were only limited to a number of countries and did not affect the economies and societies in unprecedently ways as we have observed during this Covid-19 pandemic.

APPENDIX A5

Table A5.1. List of countries (1980-2017)

Albania	Cuba	India	Morocco	Slovenia
Algeria	Cyprus	Indonesia	Mozambique	South Africa
Angola	Czech Rep	Iran	Myanmar	Spain
Argentina	C¹ te dõIvoire	Ireland	Namibia	Sri Lanka
Australia	Denmark	Israel	Netherlands	Sudan
Austria	Dominican Rep	Italy	New Zealand	Suriname
Bangladesh	Ecuador	Jamaica	Nicaragua	Sweden
Belarus	Egypt	Japan	Niger	Tanzania
Belgium	El Salvador	Kazakhstan	Nigeria	Thailand
Bolivia	Estonia	Kenya	Norway	Togo
Botswana	Ethiopia	Korea Rep	Pakistan	Tunisia
Brazil	Finland	Latvia	Panama	Turkey
Bulgaria	France	Lebanon	Papua New Guinea	Uganda
Burkina Faso	Gabon	Liberia	Paraguay	Ukraine
Cameroon	Gambia, The	Libya	Peru	United Kingdom
Canada	Germany	Luxembourg	Philippines	United States
Chile	Ghana	Madagascar	Poland	Uruguay
China	Greece	Malawi	Portugal	Venezuela
Colombia	Guatemala	Malaysia	Romania	Vietnam
Congo Dem Rep	Guyana	Mali	Russia Fed	Zambia
Congo Rep	Haiti	Mexico	Senegal	Zimbabwe
Costa Rica	Honduras	Moldova	Sierra Leone	
Croatia	Hungary	Mongolia	Slovak Rep	

Notes: 1, 2, 3, 4, 5 indicate the countries that are, respectively, in the samples of systemic banking, currency, sovereign debt, twin and triple, and all crises. See also Table A2.2 for crises dates by country and type of crisis.

Table A5.2. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
HDI	4,715	65.43	16.65	18.90	95.30
Life_exp_index	5,236	73.84	14.94	9.50	99.20
Edu_index	4,715	57.72	18.83	8.10	94.60
Income_index	5,226	65.43	18.32	14.50	100.00
All_crisis	7,445	0.159	0.366	0	1
Banking_crisis	7,562	0.061	0.239	0	1
Currency_crisis	7,010	0.057	0.233	0	1
Debt_crisis	7,232	0.075	0.264	0	1
Twin_triple_crisis	7,891	0.023	0.151	0	1
Elect_cycle	5,703	0.403	0.491	0	1
Left_gov	4,777	0.476	0.499	0	1
Pol_risk_rating	4,311	64.132	15.025	9.583	97
Maj_gov	5,795	0.835	0.371	0	1
Democracy	5,817	2.343	6.937	-10	10
Pol_system	6,232	0.773	0.918	0	2
Eco_open	6,175	82.756	50.565	0.021	442.62
Pop_growth	7,750	1.593	1.529	-10.955	17.511
Eco_risk_rating	4,310	33.995	6.867	1.375	50
Finan_risk_rating	4,311	34.888	8.445	3.5	50
Investment	5,760	23.594	8.295	-2.424	89.381

Notes: *HDI* human development index, *Life_exp_index* life expectancy index, *Edu_index* education index, *Income_index* income index, *All_crisis* all crises ónin generalô, *Banking_crisis* banking crisis, *Currency_crisis* currency crisis, *Debt_crisis* debt crisis, *Twin_triple_crisis* twin and triple crises, *Elect_cycle* electoral cycle, *Left_gov* left-wing government, *Pol_risk_rating* political risk rating, *Maj_gov* majority government, *Democracy* democracy, *Pol_system* political system, *Eco_open* economic openness, *Pop_growth* population growth, *Eco_risk_rating* economic risk rating, *Finan_risk_rating* financial risk rating, *Investment* investment.

Table A5.3. Panel unit root test

Variable	P	Z	L*	Pm
HDI	927.9443***	-14.0662***	-15.3412***	20.5104***
Life_exp_index	2368.7620***	-26.9808***	-43.8637***	73.7491***
Edu_index	913.0300***	-14.6168***	-15.4454***	19.9622***
Income_index	957.5388***	-14.6138***	-16.2267***	21.4669***
Pol_risk_rating	1150.3847***	-24.4044***	-26.7440***	37.2163***
Democracy	891.4540***	-17.8785***	-20.1156***	26.9291***
Pol_system	437.1047***	-14.0375***	-15.7739***	21.7220***
Eco_open	1314.1532***	-23.3036***	-25.4307***	34.2109***
Pop_growth	3899.3078***	-49.5512***	-74.8453***	121.8519***
Eco_risk_rating	1185.8966***	-25.2197***	-27.6456***	38.7278***
Finan_risk_rating	914.3308***	-20.0730***	-20.9496***	27.1692***
Investment	1628.6085***	-29.1593***	-33.1212***	47.4849***

Notes: The table reports the results of the Fisher-type unit-root test based on augmented Dickey-Fuller (ADF) tests for continuous variables only. Four different types of ADF tests are reported with their statistics and significant levels: P (Inverse chi-squared), Z (Inverse normal), L* (Inverse logit t), and Pm (Modified inverse chi-squared). *** indicate significant level at 1%.

Table A5.4. Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
HDI (1)	1																			
Life_exp_index (2)	0.916	1																		
Edu_index (3)	0.960	0.806	1																	
Income_index (4)	0.955	0.843	0.871	1																
All_crisis (5)	-0.082	-0.092	-0.069	-0.077	1															
Banking_crisis (6)	0.051	0.038	0.045	0.059	0.744	1														
Currency_crisis (7)	-0.129	-0.127	-0.115	-0.124	0.525	0.142	1													
Debt_crisis (8)	-0.127	-0.120	-0.107	-0.138	0.456	0.078	0.126	1												
Twin_triple_crisis (9)	-0.043	-0.034	-0.041	-0.047	0.326	0.357	0.360	0.255	1											
Elect_cycle (10)	0.087	0.089	0.090	0.070	0.009	0.025	-0.024	0.021	0.030	1										
Left_gov (11)	-0.036	-0.041	-0.018	-0.057	-0.024	-0.044	0.001	-0.015	-0.060	-0.007	1									
Pol_risk_rating (12)	0.653	0.561	0.617	0.652	-0.131	0.011	-0.188	-0.125	-0.055	0.070	-0.009	1								
Maj_gov (13)	-0.100	-0.128	-0.106	-0.054	-0.011	-0.008	-0.001	-0.034	-0.039	-0.048	-0.009	-0.047	1							
Democracy (14)	0.560	0.521	0.547	0.518	-0.055	0.052	-0.118	-0.081	-0.021	0.096	-0.106	0.556	-0.213	1						
Pol_system (15)	0.542	0.499	0.497	0.555	-0.056	0.051	-0.109	-0.140	-0.057	0.074	-0.049	0.561	0.061	0.429	1					
Eco_open (16)	0.197	0.150	0.216	0.180	-0.015	0.020	-0.056	-0.024	-0.016	-0.023	-0.036	0.257	0.051	0.104	0.216	1				
Pop_growth (17)	-0.651	-0.597	-0.659	-0.579	-0.046	-0.103	0.030	0.015	-0.017	-0.073	-0.066	-0.492	0.090	-0.391	-0.453	-0.108	1			
Eco_risk_rating (18)	0.593	0.508	0.541	0.635	-0.329	-0.163	-0.312	-0.195	-0.142	0.046	-0.096	0.613	-0.034	0.301	0.360	0.171	-0.222	1		
Finan_risk_rating (19)	0.515	0.466	0.465	0.527	-0.286	-0.168	-0.246	-0.171	-0.165	0.050	-0.032	0.483	-0.056	0.276	0.275	0.084	-0.247	0.650	1	
Investment (20)	0.145	0.197	0.112	0.120	-0.141	-0.109	-0.082	-0.094	-0.064	0.039	0.155	0.107	0.001	-0.058	0.128	0.155	-0.096	0.175	0.288	1

Notes: The table shows the correlations for the entire sample period.

Table A5.5. Financial crises and human development without risk rating variables

	(1)	(2)	(3)	(4)	(5)
L.HDI	0.953***	0.954***	0.955***	0.946***	0.953***
	(0.00929)	(0.00896)	(0.00857)	(0.0109)	(0.00928)
All_crisis	-0.256***				
	(0.0427)				
Banking_crisis		-0.165***			
		(0.0472)			
Currency_crisis			-0.208***		
			(0.0573)		
Debt_crisis				-0.311***	
				(0.0926)	
Twin_triple_crisis					-0.334***
					(0.123)
Elect_cycle	0.0162	0.0207	0.0252	0.0281	0.0225
	(0.0172)	(0.0181)	(0.0157)	(0.0175)	(0.0173)
Left_gov	-0.116	-0.0920	-0.111	-0.113	-0.0952
	(0.0715)	(0.0694)	(0.0665)	(0.0833)	(0.0720)
Maj_gov	-0.0260	-0.0311	-0.0439	-0.0140	-0.0386
	(0.0613)	(0.0628)	(0.0541)	(0.0698)	(0.0646)
Democracy	0.0423***	0.0416***	0.0443***	0.0461***	0.0434***
	(0.0116)	(0.0117)	(0.0122)	(0.0127)	(0.0121)
Pol_system	0.149	0.166	0.118	0.148	0.156
	(0.118)	(0.120)	(0.106)	(0.126)	(0.121)
Eco_open	0.0715	0.213	0.0762	0.361*	0.163
	(0.182)	(0.191)	(0.169)	(0.211)	(0.193)
Pop_growth	-0.283***	-0.272***	-0.285***	-0.327***	-0.281***
	(0.0808)	(0.0763)	(0.0780)	(0.0931)	(0.0792)
Investment	0.0161***	0.0129**	0.0173***	0.0128**	0.0141**
	(0.0055)	(0.0060)	(0.0055)	(0.0064)	(0.0060)
Trend	-0.0081	-0.0037	-0.0135	0.0073	-0.0033
	(0.0556)	(0.0590)	(0.0535)	(0.0700)	(0.0623)
Observations	3390	3428	3322	3410	3421
Countries	136	137	134	137	136
Instruments	103	103	103	103	103
AR(1)	0.000	0.000	0.000	0.000	0.000
AR(2)	0.502	0.754	0.690	0.724	0.989
Hansen *J*	0.307	0.242	0.333	0.379	0.236
Diff-Hansen1	0.209	0.158	0.501	0.320	0.364
Diff-Hansen2	0.963	0.833	0.981	0.728	0.836

Notes: The table reports the impact of financial crises on income index using two-step System-GMM estimator over the period 1990-2017. Robust standard errors are in parentheses. AR(1) and AR(2) are tests for Arellano-Bond first- and second-order serial correlation in the first-differenced residuals, respectively. Diff-Hansen1 tests for the exogeneity of the full set of instruments for the levels equation. Diff-Hansen2 tests for the exogeneity of subset based on the dependent variable. ***, **, * are significant levels at 1%, 5%, and 10%, respectively.

CHAPTER 6. OVERALL CONCLUSIONS

6.1. Overview

In the context that the world economy is fragile due to unprecedented challenges from increased public debt, protectionism, political instability, trade wars, and the rise of the Covid-19 pandemic, the world faces an immediate threat of another global financial crisis. Nevertheless, lessons from the Great Recession of 2007/08 and unprecedented responses in its aftermath seem to imply that market participants and policymakers were unprepared and underestimated the real effects of the consequent crisis. This thesis provides insights into how to prevent potential financial crises, how to reduce their length, and their consequences. For these reasons, the primary purpose of this thesis is to examine the causes, timing, and consequences of financial crises. Taking into account the existing gaps in the literature, this thesis answers the following questions: How does the political environment influence the probability of different types of financial crises? How does the political and institutional environment increase/decrease the duration of different types of financial crises? What are the effects of different types of financial crises on human development and its components?

Each of these questions is addressed in each of the three empirical chapters corresponding to Chapters 3, 4, and 5. More specifically, Chapter 3 examines the effects of the political environment on financial crises. Chapter 4 assesses the effects of political and institutional factors on the duration of financial crises. Chapter 5 investigates the impact of financial crises on human development and its components.

6.2. Summary of findings

The first empirical chapter (Chapter 3) examines the determinants of financial crises with a special attention given to the overlooked role of political environment. It conjectures that along with economic fundamentals, political factors (in particular, election cycle, political ideology, political stability, and government support) may also influence the likelihood of financial

crises. Indeed, using fixed-effects logit models, we conclude that political environment has significant effects on financial crises. However, as those effects are heterogeneous across the different types of financial crises, the important insight here is that we need to dig deeper into the analysis of the different types of financial crises.

Our results suggest that banking and currency crises are more prone to occur shortly after elections, which can be attributable to honeymoon effects and/or the presence of political opportunism. We also find that a longer tenure of chief executives is important to reduce the likelihood of any type of financial crisis, which remains well evident in Argentina and Greece. This means that promoting political stability to produce persistent policies has been key to prevent potential crises. Moreover, our results indicate that right-wing governments are associated with a higher probability of currency crises. The evidence implies the presence of partisan effects in the unfolding of currency crises. Another key finding is the vital role of political support in preventing twin and triple crises. This indicates that favourable political positions are necessary conditions for the implementation of necessary and timely macro-prudential policies.

Given the fact that political effects have been proven to be significant for financial crises anticipation, the second empirical chapter (Chapter 4) suggests the political environment is also critical for the duration of financial crises. This is because decisions regarding crisis response policies ultimately involve political choices. However, such policies have been argued to be more efficient in a stronger institutional environment. For these reasons, the main objective of this chapter is to examine the implications of political and institutional factors on the duration of financial crises. Employing a discrete-time duration analysis, political and institutional variables were found to be important to the understanding of the duration of financial crises. Similar to Chapter 3, the important message here is that we need to focus on types of financial

crises to have a better insight into the political and institutional effects on financial crisis duration.

Our results show that banking and twin and triple crises are more likely to end within the first year after elections. This confirms the presence of electoral effects when politicians tend to postpone necessary crisis interventions before elections to avoid losing votersô support. In this regard, crisis measures are more likely to be implemented in the immediate aftermath of elections, leading to a higher probability of a crisis ending. In addition, left-wing governments are found to be associated with longer banking and debt crises. We stress the idea of the twin deficits strategy caused by right-wing governments as an explanation for those partisan effects. Furthermore, the analysis shows that majority governments tend to shorten the duration of debt and twin and triple crises. Our evidence indicates that adequate political support helps a country to emerge faster from a financial crisis by preventing policy gridlock. Nevertheless, political stability does not reveal itself as important as other political factors to explain the duration dynamics of financial crises. Finally, currency, debt, and twin and triple crises are shorter in a stronger institutional environment. The finding corroborates our conjecture that institutional quality is essential to promote the credibility and efficiency of crisis measures. However, banking crises are found to be longer in developed countries, where the institutional environment is normally stronger and sounder. This is not surprising as our further analysis has identified the heterogeneous effects of the institutional environment across countriesô income levels.

This chapter proceeds with the analysis of duration dependence. Our results contrast with those of previous studies, in particular those reported by Mecagni et al. (2007) and Claessens et al. (2012), who simply use linear duration dependence and conclude that the probability of a financial crisis and economic recession ending increases over time. By using a more flexible polynomial baseline hazard function, which we regard preferable in some respects, we reach a

broader conclusion for the duration dependence dynamics of financial crises, hence showing that their evidence cannot be considered as conclusive. In particular, the duration patterns of systemic banking and twin and triple crises exhibit non-monotonic cubic behaviour, while the probability of a debt crisis ending tends to decrease monotonically over time. Nevertheless, we find no evidence of duration dependence for currency crises.

By combining the first and second empirical chapters, we provide robust evidence that the political and institutional environment is important to understand the escalation and duration of financial crises. In order to further comprehend the financial crises dynamics, the third empirical chapter (Chapter 5) investigates the consequences of financial crises in what concerns to the level of human development of a country. Although the literature on the consequences of financial crises is extensive, especially in the aftermath of the Great Recession, the research on the impact of financial crises on overall social and human wellbeing is relatively scarce. As a way of filling that gap in the literature, this chapter examines the effects of different types of financial crises on human development and its components.

Our findings show that all types of financial crises have a statistically negative impact on human development and its components. It is worth stressing that the deterioration of human development during twin and triple crises is more pronounced than during other types of financial crises. This is an important contribution to the literature as existing studies only focus on the consequences of banking crises. Moreover, we find that financial crises exert both short- and long-run effects on human development. While this is in line with the existing body of theories (see, e.g., Calvo, 2010; UNDP, 2020), on the empirical side, this study represents the first attempt to investigate the short- and long-run impact of different types of financial crises on human development. For example, twin and triple crises are associated with a decline in human development by 0.327 points, compared to around 0.157 points due to banking crises.

Nevertheless, we find that twin and triple crises lead to a substantial long-run decline in human development of 8.61 points.

Examining how financial crises affect the main components of human development allows us to uncover some important effects. Our results indicate that education is the least affected by financial crises. This is because education is considered to be one of the main dynamics for long-term prosperity and, on this basis, it is more protected than other sectors. For example, the UNESCO investigated 13 Asian countries during the period 2007-2009, and 11 countries were found to significantly increase their spending on education, especially Singapore, Mongolia, and Cambodia (UNESCO, 2009b). Similarly, most countries in the Arab States region, Latin America and the Caribbean, and Sub-Saharan Africa also increased their spending on education during the same period. In contrast, the adverse effects of any type of financial crisis on income are more severe than on education and health, reflecting the consequences of soaring unemployment and drastic cuts in public social spending on social protection.

In sum, this thesis provides evidence that ï along with the well-known and relevant economic factors ï political and institutional environment are important to understand the escalation of financial crises, their duration and consequences. It departs from the existing studies in the sense that it focuses on the neglected role of political and institutional factors. Moreover, it differs from those of existing studies in that it draws attention to the different types of financial crises. In this sense, the results of our three empirical chapters significantly contribute to the literature on the causes, timing, and consequences of financial crises.

6.3. Policy implications

Suggestions for policy implications were already mentioned at the end of each empirical chapter. Nevertheless, it is important to provide a broader discussion and derive some suggestions for market participants and policymakers.

Our findings suggest that macro-prudential policies and crisis measures should be implemented as early as possible. In particular, timely macro-prudential policies may prevent economic shocks from turning into financial crises. Those policies also help to prevent single financial crises from evolving into twin and triple crises, which end up being the most harmful. Similarly, in the context of financial crises, timely crisis measures are vital to avoid prolonged crises. It is worth noting that financial crises have been proven to have profound economic and human costs. For example, Chapter 5 clearly shows how financial crises affect human development in the long term. For this reason, any delay of those policies and crisis measures, especially at the moments of critical junctures, will increase the likelihood, duration, and consequences of financial crises.

A potential concern with this suggestion is why many countries did not implement timely macro-prudential policies and/or crisis measures. In fact, there are two issues that prevent governments from promptly responding to economic shocks or financial crises: (i) inadequate political support and (ii) inadequate ñfiscal spaceò.

Regarding the first issue, the evidence presented in Chapters 3 and 4 shows that majority governments are associated with a lower probability and shorter financial crises. This is because they can rapidly react to economic shocks and financial crises without facing a policy gridlock. Thus, minority governments should strengthen their political positions by attracting defectors from opposition parties or, if necessary, holding an election to form a new majority government. This suggestion is also useful to put an end to a political shock. For example, the main constraint for the United Kingdom to ñget Brexit doneò was inadequate political support. In the context that the government of the former Prime Minister Theresa May did not hold an absolute majority of seats in the parliament, it is not surprising that her deal was voted down. Brexit was stuck until the new Prime Minister Boris Johnson successfully formed a majority government after the 2019 anticipated election.

Regarding fiscal space, we suggest that maintaining a strong fiscal balance during tranquil periods is vital for governments to have scope for costly macro-prudential and crisis mitigation policies and sustained social expenditure. In fact, while the origins of the Great Recession of 2007/08 lie outside emerging and developing countries, some were seriously affected. This happens because poor pre-crisis fundamentals may expose a country to a deeper crisis. Indeed, emerging countries with more fiscal space were able to react with more aggressive fiscal and monetary stimuli (IMF, 2010). The IMF provides evidence that high-income countries with stronger fiscal balance at the start of the crisis achieved higher recovery rates (IMF, 2009). In particular, the recovery rate in advanced countries is around 51% on average, compared to only 13% in emerging and developing countries. Inadequate fiscal space can also explain inconsistent crisis measures observed in the aftermath of the Great Recessions. Some countries such as Greece, Spain, Ireland, and Portugal initially increased their public social spending to alleviate the real effects of the crisis on their citizens. However, due to the rapid widening of budget deficit and debt, packages of austerity measures started to be implemented.

6.4. Suggestions for future research

The purpose of this thesis is to provide an insight into the causes, timing and consequences of financial crises. Its three empirical chapters provide robust evidence that political, institutional, and socio-economic factors matter for the understanding of financial crises, their duration, and consequences. Our findings significantly contribute to the literature on financial crises and provide guidance on ways to prevent undesirable events from repeating themselves. However, the unexpected rise of the Covid-19 pandemic and its consequences imply that, in the worst-case scenario, there might be severe macroeconomic ñdisastersò that do not involve a financial crash. In fact, a few studies have started to compare the depth of financial recessions followed by financial crises to normal recessions with non-financial origins (see, e.g., Barro and Ursua, 2008; Funke et al., 2016). They conclude that financial recessions are deeper than normal ones.

This is somewhat in contrast to the evidence mentioned in the recent report of the United Nations (UNDP, 2020). That is, the impact of this ongoing Covid-19 pandemic on human development is unprecedented, even compared to the Great Recession of 2007/08. This dichotomy implies that we know little about the consequences as well as the likelihood and duration of non-financial recessions. This leaves room for future research to explore these dimensions. For example, how to appropriately prevent, manage and/or shorten non-financial crises (like the ongoing health crises caused by the Covid-19) and how those crises affect the economy, the society, and human wellbeing. They are open questions that will for sure attract much research in the future.

REFERENCES

Abiad, A., and Mody, A. (2005),ôFinancial reform: What shakes it? What shapes it?ô, *American Economic Review*, Vol. 95, pp. 66-88.

Abiad, A., Balakrishnan, R., Brooks, P. K., Leigh, D., and Tytell, I. (2009),*'What's the damage? Medium-term output dynamics after banking crises*ô, IMF Working Paper No. WP/09/245.

Acharya, V., Drechsler, I., and Schnabl, P. (2014),ôA pyrrhic victor? Bank bailouts and sovereign credit riskô, *Journal of Finance*, Vol. 69(6), pp. 2689-2739.

Agnello, L., Castro, V., and Sousa, R. M. (2013),õWhat determines the duration of a fiscal consolidation program?ô, *Journal of International Money and Finance*, Vol. 37, pp. 113-134.

Agnello, L., Castro, V., and Sousa, R. M. (2019),ôOn the duration of sovereign ratings cycle phasesô, *Journal of Economic Behavior & Organization.* Available at: https://doi.org/10.1016/j.jebo.2019.01.016

Agnello, L., Castro, V., Jalles, J. T., and Sousa, R. M. (2017),ôIncome inequality, fiscal stimuli and political (in)stabilityô, *International Tax and Public Finance*, Vol. 24, pp. 484-511.

Agnello, L., and Sousa, R. (2012),ôHow do banking crises impact on income inequality?ô, *Applied Economics Letters*, Vol. 19, pp. 1425-1429.

Aidt, T., Castro, V., and Martins, R. (2018). óShades of red and blue: Political ideology and sustainable developmentô, *Public Choice*, Vol. 175, pp. 303-323.

Aisen, A., and Veiga, F. J. (2013),ôHow does political instability affect economic growth?ô, *European Journal of Political Economy*, Vol. 29, pp. 151-167.

Aisen, A., and Veiga, F. J. (2013),ôHow does political instability affect economic growth?ô, *European Journal of Political Economy*, Vol. 29, pp. 151-167.

Alandejani, M., Kutan, A., and Samargandi, N. (2017),ôDo Islamic banks fail more than conventional banks?ô, *Journal of International Financial Markets, Institutions & Money*, Vol. 50, pp. 135-155.

Alesina, A. (1987),ôMacroeconomic policy in a two-party system as a repeated gameô, *Quarterly Journal of Economics*, Vol. 102, pp. 651-678.

Alesina, A., and Drazen, A. (1991),ôWhy are stabilizations delayed?ô*American Economic Review*, Vol. 81, pp. 1170-1188.

Alesina, A., and Perotti, R. (1996),ôIncome distribution, political instability, and investmentô, *European Economic Review*, Vol. 40, pp. 1203-1228.

Alesina, A., and Perotti, R. (1997),ôFiscal adjustments in OECD countries: Composition and macroeconomic effectsô, *IMF Staff Papers*, Vol. 44, pp. 210-248.

Alesina, A., Grilli, V., and Milesi-Ferretti, G. M. (1993),ôThe political economy of capital controlsô, in Leiderman, L., and Razin, A. *Capital Mobility: New Perspectives*. Cambridge, UK: Cambridge University Press.

Alesina, A., Roubini, N., and Cohen, G. (1997), *'Political cycles and the macroeconomy'*. Cambridge: MIT Press.

Alessi, L., and Detken, C. (2011),ôQuasi real time early warning indicators for costly asset price boom/bust cycles: A role for global liquidityô, *European Journal of Political Economy*, Vol. 27, pp. 520-533.

Allison, P. D. (1982),ôDiscrete-Time methods for the analysis of event historiesô, *Sociological Methodology*, Vol. 13, pp. 61-98.

Allison, P. D. (2014), *'Quantitative applications in the social sciences: Event history and survival analysis*ô SAGE Publications: Thousand Oaks.

Amaglobeli, D., End, N., Jarmuzek, M., and Palomba, G. (2017),ôThe fiscal costs of systemic banking crisesô, *International Finance*, Vol. 20(1), pp. 2-25.

Amate-Fortes, I., Guarnido-Rueda, A., and Molina-Morales, A. (2017),ôEconomic and social determinants of human development: A new perspectiveô, *Social Indicators Research*, Vol. 133, pp. 561-577.

Anderson, T. W., and Hsiao, C. (1982),ôFormulation and estimation of dynamic models using panel dataô, *Journal of Econometrics*, Vol. 18, pp. 47-82.

Anderson, D. (1990),ôInvestment and economic growthô, *World Development*, Vol. 18, pp. 1057-1079.

Anginer, D., Demirguc-Kunt, A., and Zhu, M. (2014),ôHow does deposit insurance affect bank risk? Evidence from the recent crisisô, *Journal of Banking & Finance*, Vol. 48, pp. 312-321.

Antoshin, S., Arena, M., Gueorguiev, N., Lybek, T., Ralyea, J., and Yehoue, E. (2017), *'Credit growth and economic recovery in Europe after the global financial crisis'*, IMF Working Paper No. WP/17/256. International Monetary Fund.

Arellano, C. (2008),ôDefault risk and income fluctuations in emerging economiesô, *American Economic Review*, Vol. 98, pp. 690-712.

Arellano, M., and Bond, S. (1991),ôSome tests of specification for panel data: Monte Carlo evidence and an application to employment equationsô, *The Review of Economic Studies*, Vol. 58, pp. 277-297.

Arrellano, M., and Bover, O. (1995),ôAnother look at the instrumental variable estimation of error-components modelsô, *Journal of Econometrics*, Vol. 68, pp. 29-51.

Azzimonti, M. (2019), *'Partisan conflict, news, and investors' expectations'*, Working Paper No. 2019-07. Stony Brook University.

Babecky, J., Havranek, T., MatGu, J., Rusnak, M., Smidkova, K., and Vasicek, B. (2014),ôBanking, debt, and currency crises in developed countries: Stylized facts and early warning indicatorsô, *Journal of Financial Stability*, Vol. 15, pp. 1-17.

Baldacci, E., de Mello, L., and Inchauste, G. (2002), *'Financial crises, poverty, and income distribution'*, IMF Working Paper No. WP/02/4.

Baltagi, B. (2013), *'Econometric analysis of panel data'*, 5th ed. Chichester, UK: John Wiley & Sons.

Baltas, N. C. (2013),ôThe Greek financial crisis and the outlook of the Greek economyô, *The Journal of Economic Asymmetries*, Vol. 10(1), pp. 32-37.

Balteanu, I., and Erce, A. (2018),ôLinking bank crises and sovereign defaults: Evidence from emerging marketsô, *IMF Economic Review*, Vol. 66(4), pp. 617-664.

Bambaci, J., Saront, T., and Tommasi, M. (2002),ôThe political economy of economic reforms in Argentinaô, *Economic Policy Reform*, Vol. 5(2), pp. 75-88.

Bartels, L. M. (2013),ôEffects of the great recessionô, *The Annals of the American Academy of Political and Social Science*, Vol. 65, pp. 47-75.

Bartoll, X., and Mari-DellôOlmo, M. (2016),ôPatterns of life expectancy before and during economic recession, 2003-12: A European regions panel approachô, *The European Journal of Public Health*, Vol. 26, pp. 783-768.

Barth, J. R., Caprio, G., and Levine, R. (2004),ôBank regulation and supervision: What works best?ô, *Journal of Financial Intermediation*, Vol. 13(2), pp. 205-248.

Barro, R. J., and Ursua, J. F. (2008), *'Macroeconomic crises since 1870'*, Brookings Papers on Economic Activity, Vol 39, pp. 255-350.

Batuo, M., Mlambo, K., and Asongu, S. (2018),ôLinkages between financial development, financial instability, financial liberalization and economic growth in Africaô, *Research in International Business and Finance*, Vol. 45, pp. 168-179

Bawn, K., and Rosenbluth, F. (2006),ôShort versus long coalitions: Electoral accountability and the size of the public sectorô, *American Journal of Political Science*, Vol. 50(2), pp. 251-265.

Bechtel, M. M. (2009),ôThe political sources of systematic investment risk: Lessons from a consensus democracyô, *The Journal of Politics*, Vol. 71(2), pp. 661-677.

Beck, T., Clarke, G., Groff, A., Keefer, P., and Walsh, P. (2001),ôNew tools in comparative political economy: The database of political institutionsô, *World Bank Economic Review*, Vol. 15, pp. 165-176.

Beck, T., and Demirguc-Kunt, A. (2006),ôSmall and medium-size enterprises: Access to finance as a growth constraintô, *Journal of Banking and Finance*, Vol. 30, pp. 2931-2943.

Beers, D., and Mavalwalla, J. (2018), *'The BoC-BoE sovereign default database revisited: What's new in 2018*?ô, Staff Working Paper No. 739. Bank of England.

Bell, D. N. F., and Blanchflower, D. G. (2011),ôYoung people and the Great Recessionô, *Oxford Review of Economic Policy*, Vol. 27, pp. 241-267.

Berg, A., and Pattillo, C. (1999),ôAre currency crises predictable? A testô, *IMF Staff Papers*, Vol. 46(2), pp. 107-138.

Bergoeing, R., Kehoe, P. J., Kehoe, T. J., and Soto, R. (2002),ôA decade lost and found: Mexico and Chile in the 1980sô, *Review of Economic Dynamics*, Vol. 5, pp. 166-205.

Bermpei, T., Kalyvas, A., and Nguyen, T. C. (2018),ôDoes institutional quality condition the effect of bank regulations and supervision on bank stability? Evidence from emerging and developing economiesô, *International Review of Financial Analysis*, Vol. 59, pp. 255-275.

Bernhard, W., Broz, J. L., and Clark, W. R. (2002),ôThe political economy of monetary institutionsô, *International Organization*, Vol. 56(4), pp. 693-723.

Besley, T., and Kudamatsu, M. (2006),ôHealth and democracyô, *American Economic Review*, Vol. 96, pp. 313-318.

Bialkowski, J., Gottschalk, K., and Wisniewski, T. P. (2008),ôStock market volatility around national electionsô, *Journal of Banking & Finance*, Vol. 32(9), pp. 1941-1953.

Bjßrnskov, C. (2016),ôEconomic freedom and economic crisesô, *European Journal of Political Economy*, Vol. 45, pp. 11-23.

Bjßrnskov, C., and Rode, M. (2018),ôCrisis, ideology, and interventionist policy ratchetsô, *Political Studies*, Vol. 67, pp. 815-833.

Blinder, A. S., and Zandi, M. (2015), *'The Financial Crisis: Lessons for the next one'*, Centre on Budget and Policy Priorities Report. Available at: https://www.cbpp.org/research/economy/the-financial-crisis-lessons-for-the-next-one.

Block, S. A. (2002),ôPolitical business cycles, democratisation, and economic reform: The case of Africaô, *Journal of Development Economics*, Vol. 67, pp. 205-228.

Blundell, R., and Bond, S. (1998),ôInitial conditions and moment restrictions in dynamic panel data modelsô, *Journal of Econometrics*, Vol. 87, pp. 115-143.

Bodie, Z., Kane, A., and Marcus, A. J. (2014),ô*Investments*ô, 10th ed. New York: McGraw-Hill Education.

Bohn, F. (2018),ôPolitical budget cycles, incumbency advantage, and propagandaô, *Economics & Politics*, Vol. 31, pp. 43-70.

Bond, S. R. (2002),ôDynamic panel data models: A guide to micro data methods and practiceô, *Portuguese Economic Journal*, Vol. 1, pp. 141-162.

Bordo, M. Eichengreen, B., Klingebiel., and Martinez-Peria, S. (2001),ôIs the crisis problem growing more severe?ô, *Economic Policy*, Vol. 16(32), pp. 51-82.

Boutchkova, M., Doshi, H., Durnev, A., and Molchanov, A. (2012),ôPrecarious politics and return volatilityô, *The Review of Financial Studies*, Vol. 25(4), pp. 1111-1154.

Bouvatier, V. (2017),ôThe frequency of banking crises in a dynamic setting: A discrete-time duration approachô, *Oxford Economic Papers*, Vol. 69, pp. 1078-1100.

Boyce, C. J., Wood, A. M., and Ferguson, E. (2016),ôIndividual differences in loss aversion: Conscientiousness predicts how life satisfaction responds to losses versus gains in incomeô, *Personality and Social Psychology Bulletin*, Vol. 42, pp. 471-484.

Brauninger, T., and Bernhagen, P. (2005),ôStructural power and public policy: A signaling model of business lobbying in democratic capitalismô, *Political Studies*, Vol. 53(1), pp. 43-64.

Breiman, L., Friedman, J. H., Olshen, R. A., and Stone, C. J. (1984),*'Classification and regression trees'*. London: Chapman & Hall.

Brender, A., and Drazen, A. (2005),ôPolitical budget cycles in new versus established democraciesô, *Journal of Monetary Economics*, Vol. 52, pp. 1271-1295.

Bridges, J., Green, G., and Joy, M. (2018),*'Credit, crises and inequality'*, Bank of England Staff Working Paper.

Brown, C. O., and Dinc, I. S. (2005),ôThe politics of bank failures: Evidence from emerging marketsô, *The Quarterly Journal of Economics*, Vol. 120(4), pp. 1413-1444.

Brown, D., and Hunter, W. (2004),ôDemocracy and human capital formation: Education spending in Latin America, 1980 to 1997ô, *Comparative Political Studies*, Vol. 37, pp. 842-864.

Broz, J. L. (2013),ôPartisan financial cyclesô. In Kahler, M., and Lake, D. A.,ô*Politics in the new hard times: The Great Recession in comparative perspective*ô. Ithaca, NY: Cornell University Press.

Bruno, G. F. (2005),ôEstimation and inference in dynamic unbalanced panel-data models with a small number of individualsô, *The Stata Journal*, Vol. 5, pp. 473-500.

Bucevska, V. (2011),ôAn analysis of financial crisis by an early warning system model: The case of the EU candidate countriesô, *BEH – Business and Economic Horizons*, Vol. 4(1), pp. 13-26.

Burgoon, B. (2001),ôGlobalization and welfare compensation: Disentangling the ties and bindô, *International Organization*, Vol. 55, pp. 509-551.

Burgoon, B., Demetriades, P., and Underhill, G. R. D. (2012),ôSources and legitimacy of financial liberalizationô, *European Journal of Political Economy*, Vol. 28, pp. 147-161.

Burstein, P. (2003),ôThe impact of public opinion on public policy: A review and an agendaô, *Political Research Quarterly*, Vol. 56, pp. 29-40.

Bussi¯re, M., and Mulder, C. (2000),ôPolitical instability and economic vulnerabilityô *International Journal of Finance and Economics*, Vol. 5, pp. 309-330.

Cairo, I., and Sim, J. (2018),*'Income inequality, financial crises, and monetary policy'*, Finance and Economics Discussion Series. Federal Reserve Board, Washington, D.C.

Caliendo, M., Tatsiramos, K., and Uhlendorff, A. A. (2012),ôBenefit duration, unemployment duration and job match quality: A regression-discontinuity approachô, *Journal of Applied Econometrics*, Vol. 28, pp. 604-627.

Calvo, G. A., Izquierdo, A., and Mejia, L-S. (2004),*'On the empirics of sudden stops: The relevance of balance-sheet effects'*, Working Paper Series No. 10520. National Bureau of Economic Research.

Calvo, G. A., Izquierdo, A., and Mejia, L-S. (2008),*'Systemic sudden stops: The relevance of balance-sheet effects and financial integration'*, NBER Working Paper Series Working Paper No. 15026.

Calvo, S. G. (2010),*'The global financial crisis of 2008-10: A view from the social sectors'*, UNDP Human Development Research Paper 2010/18. United Nations Development Programme.

Cameron, A. C., and Trivedi, P. K. (2005),*'Microeconometrics methods and applications'*, New York: Cambridge University Press.

Candelon, B., and Palm, F. C. (2010),ôBanking and debt crises in Europe: The dangerous liaisons?ô, *De Economist*, Vol. 158(1), pp. 81-99.

Capoccia, G., and Kelemen, R. D. (2007),ôThe study of critical junctures: Theory, narrative, and counterfactuals in historical institutionalismô, *World Politics*, Vol. 59(3), pp. 341-369.

Caprio, G. Jr., and Klingebiel, D. (1996), *'Bank insolvencies. Cross-country experience'*, World Bank Policy Research Working Paper No. 1620.

Caprio, G. Jr., Klingebiel, D., Laeven, L., and Noguera, G. (2005),ôAppendix: Banking crisis databaseô, In Honoda, P., and Laeven, L. (eds), *Systemic financial crises: Containment and resolution*, Cambridge: Cambridge University Press.

Caprio, G. Jr., DôApice, V., Ferri, G., and Puopolo, G. W. (2014),ôMacro-financial determinants of the grate financial crisis: Implications for financial regulationô, *Journal of Banking & Finance*, Vol. 44, pp. 114-129.

Carling, K., Edin, P-A., Harkman, A., and Holmlund, B. (1996),ôUnemployment duration, unemployment benefits, and labor market programs in Swedenô, *Journal of Public Economics*, Vol. 59, pp. 313-334.

Castro, V. (2010),ôThe duration of economic expansions and recessions: More than duration dependenceô, *Journal of Macroeconomics*, Vol. 32, pp. 347-365.

Castro, V., and Martins, R. (2015),ôAre there political cycles hidden inside government expenditure?ô, *Applied Economics Letters*, Vol. 23, pp. 34-37.

Castro, V., and Martins, R. (2018a),ôPolitical and institutional determinants of credit boomsô, *Oxford Bulletin of Economics and Statistics*, Vol. 81, pp. 1144-1178.

Castro, V., and Martins, R. (2018b),ôThe electoral dynamics of human developmentô, *Journal of Development Studies*, Vol. 54, pp. 191-211.

Castro, V., and Martins, R. (2019a),ôRiding the wave of credit: Are longer expansions really a bad omen?ô, *Open Economies Review*, pp. 1-23.

Castro, V., and Martins, R. (2019b),ôPolitical and institutional determinants of credit boomsô, *Oxford Bulletin of Economics and Statistics*, Vol. 85(1), pp. 1144-1178.

Castro, V., and Martins, R. (2020),ôGovernment Ideology and Economic Freedomô, *Journal of Comparative Economics* (forthcoming).

Catalano, R. (2009),ôHealth, medical care, and economic crisisô, *New England Journal of Medicine*, Vol. 360, pp. 749-751.

Cavallo, A. F., and Cavallo, E. A. (2010),ôAre crises good for long-term growth? The role of political institutionsô, *Journal of Macroeconomics*, Vol. 32, pp. 838-857.

Cerra, V., and Saxena, S. C. (2008),ôGrowth dynamics: The myth of economic recoveryô, *American Economic Review*, Vol. 98(1), pp. 439-457.

Cerra, V., and Saxena, S. C. (2017), *'Booms, crises, and recoveries: A new paradigm of the business cycle and its policy implications'*, International Monetary Fund Working Paper WP/17/250.

Chamon, M., and Garcia, M. (2016),ôCapital controls in Brazil: Effective?ô, *Journal of International Money and Finance*, Vol. 61, pp. 163-187.

Chang, R. (2007),ôFinancial crises and political crisesô, *Journal of Monetary Economics*, Vol. 54(8), pp. 2409-2420.

Chaudron, R., and de Haan, J. (2014), *'Identifying and dating systemic banking crises using incidence and size of bank failure'*, DNB Working Papers No. 406. Netherlands Central Bank.

Ilzetzki, E., Reinhart, C. M., and Rogoff, K. S. (2017),ôExchange Rate Regime Ilzetzki, Reinhart, and Rogoff Classificationô, Available at: http://www.carmenreinhart.com/data/browse-by-topic/topics/11/

Chzhen, Y. (2016),ôUnemployment, social protection spending and child poverty in the European Union during the Great Recessionô, *Journal of European Social Policy*, Vol. 27(2), pp. 1-15.

Claessens, S., Kose, M. A., and Terrones, M. E. (2012),ôHow do business and financial cycles interact?ô, *Journal of International Economics*, Vol. 87, pp. 178-190.

Claessens, S., and Kose, M. A. (2013), *'Financial crises: Explanations, types, and implications*ô, Working Paper No. WP/13/28. International Monetary Fund.

Claessens, S., DellôAriccia, G., Igan, D., and Laeven, L. (2010),ôCross-country experiences and policy implications from the global financial crisisô, *Economic Policy*, Vol. 25(62), pp. 267-293.

Claessens, S., Klingebiel, D., and Laeven, L. (2001), *'Financial restructuring in banking and corporate sector crises: What policies to pursue?*ô, National Bureau of Economic Research Working Paper Series 8386.

Claessens, S., Pazarbasioglu, C., Laeven, L., Dobler, M., Valencia, F., Nedelescu, O., and Seal, K. (2011), *'Crisis management and resolution: Early lessons from the financial crisis'*, IMF Staff Discussion Note No. 11/05.

Clinton, K., Kumhof, M., Laxton, D., and Mursula, S. (2011),ôDeficit reduction: Short-term pain for long-term gainô, *European Economic Review*, Vol. 55, pp. 118-139.

Cole, S., Healy, A., and Werker, E. (2012),ôDo voters demand responsive governments? Evidence from Indian disaster reliefô, *Journal of Development Economics*, Vol. 97(2), pp. 167-181.

Colomer, J. M. (2012),ôThe more parties, the greater policy stabilityô, *European Political Science*, Vol. 11(2), pp. 229-243.

Conceição, P., and Kim, N. (2014),ôThe asymmetric impact of growth fluctuation on human development: Evidence from correlates of growth decelerations and accelerationsô, *Journal of Developing Areas*, Vol. 48, pp. 31-45.

Corsetti, G., Muller, G. J., and Sibert, A. (2006),ôTwin deficits: Squaring theory, evidence and common senseô, *Economic Policy*, Vol. 21, pp. 597-638.

Coudert, V., and Gex, M. (2008),ôDoes risk aversion drive financial crises? Testing the predictive power of empirical indicatorsô, *Journal of Empirical Finance*, Vol. 15, pp. 167-184.

Cox, D. R. (1972),ôRegression models and life tablesô, *Journal of the Royal Statistical Society: Series B*, Vol. 34, pp. 187-202.

Craigwell, R., Lorde, T., and Moore, W. (2013),ôFiscal policy and the duration of financial crisesô, *Applied Economics*, Vol. 45, pp. 793-801.

CRS (2020), *'Argentina's economic crisis and default'*. Congressional Research Service In Focus. Available at: https://fas.org/sgp/crs/row/IF10991.pdf

Davis, M. E., Laden, F., Hart, J. E., Garshick, E., and Smith, T. J. (2010),ôEconomic activity and trends in ambient air pollutionô, *Environmental Health Perspectives*, Vol. 118, pp. 614-619.

Deaton, A. (2012),ôThe financial crisis and the well-being of Americansô, *Oxford Economic Papers*, Vol. 64(1), pp. 1-26.

De Bonis, R., Giustiniani, A., and Gomel, G. (1999),ôCrises and bail-outs of banks and countries: Linkages, analogies, and differencesô, *The World Economy*. Vol. 22(1), pp. 55-86.

De Giorgi, E., Moury, C., and Ruivo, J. P. (2014),ôIncumbents, opposition and international lenders: Governing Portugal in times of crisisô, *Journal of Legislative Studies*, Vol. 21(1), pp. 54-74.

Del Negro, M., Giannone, D., Giannoni, M. P., and Tambalotti, A. (2019),ôGlobal trends in interest ratesô, *Journal of International Economics*, Vol. 118, pp. 248-262.

De Neve, J-E., Ward, G., De Keulenaer, F., Van Landeghem, B., Kavetsos, G., and Norton, M. I. (2017),ôThe asymmetric experience of positive and negative economic growth: Global evidence using subjective well-being dataô, *Review of Economics and Statistics*, Vol. 100, pp. 362-375.

Demirguc-Kunt, A., and Detragiache, E. (1998),ôThe determinants of banking crises in developing and developed countiesô, *IMF Staff Papers*, Vol. 45(1), pp. 81-109.

Demirguc-Kunt, A., and Detragiache, E. (2002),ôDoes deposit insurance increase banking system stability? An empirical investigationô, *Journal of Monetary Economics*, Vol. 49(7), pp. 1373-1406.

Demirguc-Kunt, A., and Detragiache, E. (2005),ôCross-country empirical studies of systemic bank distress: A surveyô, *National Institute Economic Review*, Vol. 192(1), pp. 68-83.

Detken, C., Weeken, O., Alessi, L., Bonfim, D., Boucinha, M. M., Castro, C., Frontczak, S., Giordana, G., Giese, J., Jahn, N., Kakes, J., Klaus, B., Lang, J. H., Puzanova, N., and Welz, P. (2014),*'Operationalising the countercyclical capital buffer: Indicator selection, threshold identification and calibration options*ô, ESRB Occasional Papers, No 5. European Systemic Risk Board.

Detragiache, E., and Ho, G. (2010),*'Responding to banking crises: Lessons from cross-country evidence*ô, International Monetary Fund Working Paper WP/10/18.

Detragiache, E., and Spilimbergo, A. (2001),*'Crises and liquidity: Evidence and interpretation*ô, International Monetary Fund Working Paper No. WP/01/2.

Devereux, J., and Dwyer, G. P. (2016),ôWhat determines output losses after banking crises?ô, *Journal of International Money and Finance*, Vol. 69, pp. 69-94.

Devereux, M. B., and Yu, C. (2018),ôEvaluating the role of capital controls and monetary policy in emerging market crisesô, *Journal of International Money and Finance*, Vol. 95, pp. 189-211.

Di Tella, R., New, J. H-D., and MacCulloch, R. (2010),ôHappiness adaptation to income and to status in an individual panelô, *Journal of Economic Behavior & Organization*, Vol. 76, pp. 834-852.

Diamond, P., and Lodge, G. (2013),ôEuropean welfare states after the crisisô. Policy Network Paper. Available at: https://www.ippr.org/research/publications/european-welfare-states-after-the-crisis

Ding, C. G., Wu, C-H., and Chang, P-L. (2013),ôThe influence of government intervention on the trajectory of bank performance during the global financial crisis: A comparative study among Asian economiesô, *Journal of Financial Stability*, Vol. 9(4), pp. 556-564.

Dixit, A., and Londregan, J. (2000),ôPolitical power and the credibility of government debtô, *Journal of Economic Theory*, Vol. 94, pp. 80-105.

Donald, B., Glasmeier, A., Gray, M., and Lobao, L. (2014),ôAusterity in the city: Economic crisis and urban service decline?ô *Cambridge Journal of Regions, Economy and Society*, Vol. 7, pp. 3-15.

DPI. (2017),*'Database of Political Institutions*ô, World Bank. Available at : https://datacatalog.worldbank.org/dataset/wps2283-database-political-institutions

Drazen, A. (2000),*'Political economy in macroeconomics'*. Princeton: Princeton University Press.

Drazen, A., and Grilli, V. (1993),ôThe benefit of crises for economic reformsô, *The American Economic Review*, Vol. 83(3), pp. 598-607.

Dreher, A., Herz, B., and Karb, V. (2006),ôIs there a causal link between currency and debt crises?ô, *International Journal of Finance and Economics*, Vol. 11, pp. 305-325.

Drehman, M., and Juselius, M. (2014),ôEvaluating early warning indicators of banking crises: Satisfying policy requirementsô, *International Journal of Forecasting*, Vol. 30, pp. 759-780.

Drydakis, N. (2015),ôThe effect of unemployment on self-reported health and mental health in Greece from 2008 to 2013: A longitudinal study before and during the financial crisisô, *Social Science & Medicine*, Vol. 128, pp. 43-51.

Duca, M. L., Koban, A., Basten, M., Bengtsson, E., Klaus, B., Kusmierczyk, P., Lang, J. H., Detken, C., and Peltonen, T. (2017),*'A new database for financial crises in European countries*ô, European Central Bank Occasional Paper Series No. 194/July 2017.

Duprey, T. Klaus, B., and Peltonen, T. (2017),ôDating systemic financial stress episodes in the EU countriesô, *Journal of Financial Stability*, Vol. 32, pp. 30-56.

ECB (2019),*'Economic bulletin'*. Issue 5/2019. European Central Bank. Available at: https://www.ecb.europa.eu/pub/pdf/ecbu/eb201905.en.pdf

Edwards, S., and Tabellini, G. (1991),ôExplaining fiscal policies and inflation in developing countriesô, *Journal of International Money and Finance*, Vol. 10, pp. 16-48.

Edwards, S. (1989),*'Real exchange rates, devaluation and adjustment'*. Cambridge: The MIT Press.

Edwards, S. (1999),ôHow effective are capital controls?ô, *Journal of Economic Perspectives*, Vol. 13(4), pp. 65-84.

Edwards, S., and Tabellini, G. (1991a),*'Political instability, political weakness and inflation: An empirical analysis*ô, NBER Working Paper No. 3721.

Edwards, S., and Tabellini, G. (1991b),ôExplaining fiscal policies and inflation in developing countriesô, *Journal of International Money and Finance*, Vol. 10, pp. 16-48.

Eichengreen, B., and Rose, A. (2014),ôCapital controls in the 21st centuryô, *Journal of International Money and Finance*, Vol. 48, pp. 1-16.

Eichengreen, B., Rose, A. K., and Wyplosz, C. (1995),ôThe antecedents and aftermath of speculative attacksô, *Economic Policy*, Vol. 10(21), pp. 249-312.

Eichengreen, B., Rose, A. K., and Wyplosz, C. (1996),ôContagious currency crises: First testsô, *The Scandinavian Journal of Economics*, Vol. 98, pp. 463-484.

Eichengreen, B., and Rose, A. K. (1998),*'Staying afloat when the wind shifts: External factors and emerging-market banking crises*ô, NBER Working Papers No. 6370.

Eichhorst, W., Escudero, V., Marx, P., and Tobin, S. (2010),*'The impact of the crisis on employment and the role of labour market institutions'*, ILO Discussion Paper Series. International Labour Organisation.

Elekdag, S., and Wu, Y. (2013),ôRapid credit growth in emerging markets: Boon or boom-bust?ô, *Emerging Markets Finance and Trade*, Vol. 49(5), pp. 45-62.

European Commission (2009),*'European Economy – Impact of the current economic and financial crisis on potential output'*, Economic and Financial Affairs Occasional Papers 49/June 2009.

European Commission (2015),*'Annual report on European SMEs 2014/2015'*. Available at https://op.europa.eu/en/publication-detail/-/publication/7c9fbfe0-e044-11e5-8fea- 01aa75ed71a1

European Commission (2017),*'Annual report on European SMEs 2017/2018'*. Available at: https://op.europa.eu/en/publication-detail/-/publication/a435b6ed-e888-11e8-b690-01aa75ed71a1

Eyer, J. (1977),ôDoes unemployment cause the death rate peak in each business cycle? A multifactor model of death rate changeô, *International Journal of Health Services*, Vol. 7, pp. 625-662.

Falcetti, E., and Tudela, M. (2006),ôModelling currency crises in emerging markets: A dynamic probit model with unobserved heterogeneity and autocorrelated errorsô, *Oxford Bulletin of Economics and Statistics*, Vol. 68, pp. 445-470.

Farhi, E., and Werning, I. (2014),ôDilemma not trilemma? Capital controls and exchange rates with volatile capital flowsô, *IMF Economic Review*, Vol. 62, pp. 569-605.

Fatas, A., and Summers, L. H. (2018),ôThe permanent effects of fiscal consolidationsô, *Journal of International Economics*, Vol. 112, pp. 238-250.

Ferreira, F. H. G., and Schady, N. (2009),ôAggregate economic shocks, child schooling, and child healthô, *World Bank Research Observer*, Vol. 24, pp. 147-181.

Fielding, D., and Rewilak, J. (2015),ôCredit booms, financial fragility and banking crisesô, *Economics Letters*, Vol. 136, pp. 233-236.

Finer, S. E. (1982),ôAdversary politics and the eightiesô, *Electoral Studies*, Vol. 1(2), pp. 221-230.

Fleurbaey, M. (2009),ôBeyond GDP: The quest for a measure of social welfareô, *Journal of Economic Literature*, Vol. 47, pp. 1029-1075.

Forbes, K., Fratzscher, M., and Straub, R. (2015),ôCapital-flow management measures: What are they good for?ô, *Journal of International Economics*, Vol. 96(1), pp. 76-97.

Francesco, M., and Beniamino, P. (2017),*'Banking regulation, institutional quality, and financial crises'*, Kelley School of Business Research Paper No. 17-15.

Frankel, J. A., and Rose, A. K. (1996),ôCurrency crashes in emerging markets: An empirical treatmentô, *Journal of International Economics*, Vol. 41, pp. 351-366.

Friedman, M., and Schwartz, A. J. (1963),*'A monetary history of the United States 1867-1960'* National Bureau of Economic Research, Boston.

Funke, M., Schularick, M., and Trebesch, C. (2016),ôGoing to extremes: Politics after financial crises, 1870-2014ô, *European Economic Review*, Vol. 88, pp. 227-260.

Galasso, V. (2014),ôThe role of political partisanship during economic crisesô, *Public Choice*, Vol. 158, pp. 143-165.

Gallo, A., Stegmann, J. P., and Steagall, J. W. (2006),ôThe role of political institutions in the resolution of economic crises: The case of Argentina 2001-05ô, *Oxford Development Studies*, Vol. 34, pp. 193-217.

Garrett, G., and Mitchell, D. (2001),ôGlobalization, government spending and taxation in the OECDô, *European Journal of Political Research*, Vol. 39, pp. 145-177.

Gauri, V., and Khaleghian, P. (2002),ôImmunisation in developing countries: Its political and organisational determinantsô, *World Development*, Vol. 30, pp. 2109-2132.

GDD. (2018),ôGlobal Debt Databaseô, International Monetary Fund. Available at: https://www.imf.org/external/datamapper/datasets/GDD

Gerdtham, U-G., and Ruhm, C. J. (2006),ôDeaths rise in good economic times: Evidence from the OECDô, *Economics & Human Biology*, Vol. 4, pp. 298-316.

Gerring, J., Thacker, S. C., and Alfaro, R. (2012),ôDemocracy and human developmentô, *The Journal of Politics*, Vol. 74(1), pp. 1-17.

GFD. (2017),ôGlobal Financial Developmentô, World Bank. Available at https://databank.worldbank.org/source/global-financial-development

Ghosh, A. R., Chamon, M., Crowe, C., Kim, J. I., and Ostry, J. D. (2009),*'Coping with the crisis: Policy options for emerging market countries'*, IMF Staff Position Note, April, SPN/09/08.

Ghulam, Y., and Derber, J. (2018),ôDeterminants of sovereign defaultsô, *The Quarterly Review of Economics and Finance*, Vol. 69, pp. 43-55.

Girton, L., and Roper, D. (1977),ôA monetary model of exchange market pressure applied to postwar Canadian experienceô, *American Economic Review*, Vol. 67, pp. 537-548.

Glaeser, E. L., Tella, R. D., Llach, L. (2018),ôIntroduction to Argentine exceptionalismô, *Latin American Economic Review*, Vol. 27, pp. 1-22.

Glick, R. and Hutchison, M. M. (2001),õBanking and currency crises: How common are twins?ô, in Glick, R., Moreno, R., and Spiegel, M. M. (eds.), *Financial crises in emerging markets*, chapter. Cambridge, Cambridge University Press, pp. 35-69.

Goldstein, I. (2013),õEmpirical literature on financial crises: Fundamentals vs. Panicô in Caprio, G., Beck, T., Claessens, S., and Schmukler, S. L. 1st ed. *The evidence and impact of financial globalization*. San Diego: Elsevier Inc.

Gokmen, G., and Morin, A. (2019),õInequality in the aftermath of financial crises: Some empirical evidenceô, *Applied Economics Letters*, Vol. 26, pp. 1558-1562.

Goodhart, C. A. E. (2011),õThe macro-prudential authority: Powers, scope and accountabilityô, *OECD Journal: Financial Market Trends*, Vol. 2011(2), pp. 1-26.

Grabka, M. M. (2015),õIncome and wealth inequality after the financial crisis: The case of Germanyô, *Empirica*, Vol. 42, pp. 371-390.

Granados, J. A. T., and Ionides, E. L. (2017),õPopulation health and the economy: Mortality and the Great Recession in Europeô, *Health Economics*, Vol. 26, pp. 1-17.

Greene, K. F. (2010),õThe political economy of authoritarian single-party dominanceô, *Comparative Political Studies*, Vol. 43(7), pp. 807-834.

Greene, W. H. (2012), *'Econometric analysis'*, 7th edn. Harlow; New York: Pearson Education Limited.

Greenwald, B., Stiglitz, J. E., and Weiss, A. (1984),õInformation imperfections in the capital market and macroeconomic fluctuationsô, *American Economic Review*, Vol. 74. Papers and Proceedings of the Ninety-Sixth Annual Meeting of the American Economic Association (May, 1984), pp. 194-199.

Gyimah-Brempong, K., and De Camacho, S. M. (1998),õPolitical instability, human capital, and economic growth in Latin Americaô, *Journal of Developing Areas*, Vol. 32, pp. 449-466.

Harding, R., and Wantchekon, L. (2010), *'The political economy of human development'*, UNDP Human Development Research Paper 2010/29. United Nations Development Programme.

Hensher, D. A., and Mannering, F. L. (1994),õHazard-based duration models and their application to transport analysisô, *Transport Reviews*, Vol, 14, pp. 63-82.

Herwartz, H. and Theilen, B. (2014),õPartisan influence on social spending under market integration, fiscal pressure and institutional changeô, *European Journal of Political Economy*, Vol. 34, pp. 409-424.

Hess, W., and Persson, M. (2012),õThe duration of trade revisitedô, *Empirical Economics*, Vol. 43, pp. 1083-1107.

Hibbs Jr, D. A. (1977),ôPolitical parties and macroeconomic policyô, *The American Political Science Review*, Vol. 71(4), pp. 1467-1487.

Hibbs, D. A. (1987),ô*The American political economy: Macroeconomics and electoral politics in the United States',* Cambridge, MA: Harvard University Press.

Honohan, P., and Klingebiel, D. (2000),*'Controlling the fiscal costs of banking crises'*, World Bank Policy Research Working Paper No. 2441.

Honohan, P., and Klingebiel, D. (2003),ôThe fiscal cost implications of an accommodating approach to banking crisesô, *Journal of Banking & Finance*, Vol. 27(8), pp. 1539-1560.

Honohan, P., and Laeven, L. (2005),*'Systemic financial crises: Containment and resolution'*, Cambridge, UK: Cambridge University Press.

House, C. L., Proebsting, C., Tesar, L. L. (2019),ôAusterity in the aftermath of the great recessionô, *Journal of Monetary Economics*, Vol. 115, pp. 37-63.

Huber, E., Mustillo, T., and Stephens, J. D. (2008),ôPolitics and social spending in Latin Americaô, *The Journal of Politics*, Vol. 70, pp. 420-436.

Huber, E., Ragin, C., and Stephens, J. D. (1993),ôSocial democracy, Christian democracy, constitutional structure, and the welfare stateô, *American Journal of Sociology*, Vol. 99, pp. 711-749.

Huber, E., and Stephens, J. (2001),*'Development and crisis of the welfare state: Parties and policies in global markets*ô. Chicago: University of Chicago Press.

Hwang, J., and Sun, Y. (2018),ôShould we go one step further? An accurate comparison of one-step and two-step procedures in a generalised method of moments frameworkô, *Journal of Econometrics*, Vol. 207, pp. 381-405.

Ilzetzki, E., Reinhart, C. M., and Rogoff, K. S. (2017),ôExchange Rate Regime Ilzetzki, Reinhart, and Rogoff Classificationô, Available at http://www.carmenreinhart.com/data/browse-by-topic/topics/11/

Ilzetzki, E., Reinhart, C. M., and Rogoff, K. S. (2019),ôExchange arrangements entering the Twenty-first Century: Which anchor will hold?ô, *The Quarterly Journal of Economics*, Vol. 134(2), pp. 599-646.

International Labour Organisation (2011),*'A review of global fiscal stimulus'*, EC-IILS Joint Discussion Paper Series No.5. European Union-International Institute for Labour Studies.

International Monetary Fund (2013),*'Greece: Ex post evaluation of exceptional access under the 2010 stand-by arrangement'*, IMF Country Report No. 13/156.

IFS. (2019),ôInternational Financial Statisticsô, International Monetary Fund. Available at: http://data.imf.org/?sk=4C514D48-B6BA-49ED-8AB9-52B0C1A0179B

IMF (2009),ôFiscal implications of the global economic and financial crisisô, IMF Staff Position Note SPN/09/13. International Monetary Fund

IMF (2010),*'How did emerging markets cope in the crisis?'*, Policy Papers No. 2010/064. International Monetary Fund.

IMF (2020),*'A crisis like no other, an uncertain recovery'*, World Economic Outlook Update, June 2020. International Monetary Fund.

International Monetary Fund (2018),*'Challenges to steady growth'*, World Economic Outlook October 2018.

International Labour Organisation (2020),*'Preventing exclusion from the labour market: Tackling the COVID-19 youth employment crisis'*, ILO Policy Brief May 2020.

Ishihara, Y. (2005),*'Quantitative analysis of crisis: Crisis identification and causality'*, World Bank Policy Research Working Paper No. 3598.

Ivaldi, G. (2015),ôTowards the median economic crisis voter? The new leftist economic agenda of the Front National in Franceô, *French Politics*, Vol. 13(4), pp. 346-369.

Ivanov, A. (2009),*'The financial crisis as a human development challenge'*, Human Development Working Paper 2009/1. United Nations Development Programme.

Jacome, L. I. (2015),*'Central banking in Latin America: From the gold standard to the golden years'*, Working Paper No. WP/15/60. International Monetary Fund.

Jahn, D. (2006),ôGlobalization as óGaltonôs Problemô: The missing link in the analysis of diffusion patterns in welfare state developmentô, *International Organization*, Vol. 60, pp. 401-431.

Jenkins, S. P. (1995),ôEasy estimation methods for discrete-time duration modelsô, *Oxford Bulletin of Economics and Statistics*, Vol. 57, pp. 129-138.

Jenkins, S. P., Brandolini, A., Micklewright, J., and Nolan, B. (2013),*'The Great Recession and the distribution of household income'*, Oxford: Oxford University Press.

Jens, C. E. (2017),ôPolitical uncertainty and investment: Casual evidence from U.S. gubernatorial electionsô, *Journal of Financial Economics*, Vol. 124(3), pp. 563-579.

Jing, Z., de Haan, J., Jacobds, J., and Yang, H. (2015),ôIdentifying banking crises using money market pressure: New evidence for a large set of countriesô, *Journal of Macroeconomics*, Vol. 43, pp. 1-20.

Josifidis, K., Hall, J. B., Supic, N., and Pucar, E. B. (2015),õThe European welfare state regimes: Questioning the typology during the crisisô, *Technological and Economic Development of Economy*, Vol. 21, pp. 577-595.

Joy, M., Rusn§k, M., Ġm²dkov§, K., and Vag²ļ ek, B. (2015),õBanking and currency crises: Differential diagnostics for developed countriesô, *International Journal of Finance & Economics*, Vol. 22(1), pp. 44-67

Julio, B., and Yook, Y. (2012),õPolitical uncertainty and corporate investment cyclesô, *Journal of Finance*, Vol. 67(1), pp. 45-83.

Kakwani, N., and Son, H. H. (2016),õIncome inequality and social well-beingô In: *Social Welfare Functions and Development*. London: Palgrave Macmillan.

Kaminsky, G. L. (2006),õCurrency crises: Are they all the same?ô, *Journal of International Money and Finance*, Vol. 25, pp. 503-527.

Kaminsky, G. L., Lizondo, S., and Reinhart, C. M. (1998),õLeading indicators of currency crisesô, *IMF Staff Papers*, Vol. 45(1), pp. 1-48.

Kaminsky, G. L., and Reinhart, C. M. (1999),õThe twin crises: The causes of banking and balance-of-payments problemsô, *The American Economic Review*, Vol. 89(3), pp. 473-500.

Kaufman, R. R., and Segura-Ubiergo, A. (2001),õGlobalization, domestic politics, and social spending in Latin America: A time-series cross-section analysis, 1973-97ô, *World Politics*, Vol. 53, pp. 553-587.

Keefer, P. (2007a),õElections, special interests, and financial crisisô, *International Organization*, Vol. 61(3), pp. 607-641.

Keefer, P. (2007b),õClientelism, credibility, and the policy choices of young democraciesô, *American Journal of Political Science*, Vol. 51, pp. 804-821.

Kelly, B., P§stor, L., and Veronesi, P. (2016),õThe price of political uncertainty: Theory and evidence from the option marketô, *Journal of Finance*, Vol. 71(5), pp. 2417-2480.

Kemme, D. M., and Roy, S. (2012),õDid the recent housing boom signal the global financial crisis?ô, *Southern Economic Journal*, Vol. 78(3), pp. 999-1018.

Kemp, G., and Silva, J. S. (2016), *'Partial effects in fixed-effects models'*, United Kingdom Stata Usersô Group Meeting 2016, Stata Users Group.

Keynes, J. M. (1936), *'The general theory of employment, interest and money'*. New York: Harcourt, Brace & World.

Kiefer, N. M. (1988),ôEconomic duration data and hazard functionsô, *Journal of Economic Literature*, Vol. 27, pp. 646-679.

Kiguel, M. A. (1991),ôInflation in Argentina: Stop and go since the Austral planô, *World Development*, Vol. 19(8), pp. 969-986.

Kiguel, M. A. (2002),ôStructural reforms in Argentina: Success or Failure?ô, *Comparative Economic Studies*, Vol. 44, pp. 83-102.

Kim, T., Koo, B., and Park, M. (2013),ôRole of financial regulation and innovation in the financial crisisô, *Journal of Financial Stability*, Vol. 9, pp. 662-672.

Kingsley, P. (2018),ôBritish austerity is óinflicting unnecessary miseryô U.N. poverty expert saysô, The New York Times. https://www.nytimes.com/2018/11/16/world/europe/uk-un-poverty-austerity.html

Kirschenmann, K., Malinen, T., and Nyberg, H. (2016),ôThe risk of financial crises: Is there a role for income inequality?ô, *Journal of International Money and Finance*, Vol. 68, pp. 161-180.

Kitazawa, Y. (2012),ôHyperbolic transformation and average elasticity in the framework of the fixed effects logit modelô, *Theoretical Economic Letters*, Vol. 2, pp. 192-199.

Kliesen, K. L. (2010), *'Low interest rates have benefits … and costs'*, The Regional Economist (October 2010). Federal Reserve Bank of St. Louis.

Klomp, J. (2013),ôGovernment interventions and default risk: Does one size fit all?ô, *Journal of Financial Stability*, Vol. 9(4), pp. 641-653.

Klomp, J., and de Haan, J. (2013),ôPolitical budget cycles and election outcomesô, *Public Choice*, Vol. 157, pp. 245-267.

Kohlscheen, E. (2010),ôSovereign risk: Constitutions ruleô, *Oxford Economic Papers*, Vol. 62, pp. 62-85.

Kohlscheen, E., Avalos, F., and Schrimpf, A. (2017),ôWhen the walk is not random: Commodity prices and exchange ratesô, *International Journal of Central Banking*, Vol. 13(2), pp. 121-158.

Kollmann, R., Ratto, M., Roeger, W., and Inôt Veld, J. (2013),ôFiscal policy, banks and the financial crisisô, *Journal of Economic Dynamics & Control*, Vol. 37, pp. 387-403.

Komulainen, T., and Lukkarila, J. (2003),ôWhat drives financial crises in emerging markets?ô, *Emerging Markets Review*, Vol. 4, pp. 248-272.

Kose, M. A., Nagle, P., Ohnsorge, F., and Sugawara, N. (2020), *'Global waves of debt: Causes and consequences'*. Washington: World Bank Publications.

Kraay, A. (2003),ôDo high interest rates defend currencies during speculative attacks?ô, *Journal of International Economics*, Vol. 59, pp. 297-321.

Krehbiel, K. (1998), *'Pivotal politics. A theory of U.S. law-making'*. Chicago: University of Chicago Press.

Krueger, A. O. (1993), *'Political economy of policy reform in developing countries'*. Cambridge: MIT Press.

Krugman, P. (1979),ôA model of balance-of-payments crisesô, *Journal of Money, Credit and Banking*, Vol. 11(3), pp. 311-325.

Kumhof, M., Ranciere, R., and Winant, P. (2015),ôInequality, leverage, and crisesô, *American Economic Revie*w, Vol. 105, pp. 1217-1245.

Lauridsen, L. S. (1998),ôThe financial crisis in Thailand: Causes, conduct and consequences?ô, *World Development*, Vol. 26(8), pp. 1575-1591.

Laeven, L., and Valencia, F. (2008), *'Systemic banking crises: A new database'*, International Monetary Fund Working Paper No. WP/08/224.

Laeven, L., and Valencia, F. (2013),ôSystemic banking crises databaseô, *IMF Economic Review*, Vol. 61, pp. 225-270.

Laeven, L., and Valencia, F. (2020),ôSystemic banking crises database IIô, *IMF Economic Review*, Vol. 68, pp. 307-361.

Lake, D. A., and Baum, M. A. (2001),ôThe invisible hand of democracy: Political control and the provision of public servicesô, *Comparative Political Studies*, Vol. 34, pp. 587-621.

Lane, P. R., and Milesi-Ferretti, G. M. (2011),ôThe cross-country incidence of the Global Crisisô, *IMF Economic Review*, Vol. 59(1), pp. 77-110.

Leblang, D., and Satyanath, S. (2006),ôInstitutions, expectations, and currency crisesô, *International Organization*, Vol. 60(1), pp. 245-262.

Levchenko, A. A., Lewis, L. T., and Tesar, L. L. (2010),ôThe collapse of international trade during the 2008-09 crisis: In search of the smoking gunô, *IMF Economic Review*, Vol. 58(2), pp. 214-253.

Lindvall, J. (2014),ôThe electoral consequences of two great crisesô, *European Journal of Political Research*, Vol. 53, pp. 747-765.

Lischinsky, B. (2003),ôThe puzzle of Argentinaôs debt problem: Virtual dollar creation?ô. In: Teunissen, J. J., and Akkerman, A. *The crisis that was not prevented: Lessons for Argentina, the IMF, and globalisation*. The Netherlands: The Hague.

Lobao, L., Gray, M., Cox, K., and Kitson, M. (2018),õThe shrinking state? Understanding the assault on the public sectorô, *Cambridge Journal of Regions, Economy and Society*, Vol. 11, pp. 389-408.

Lora, E., and Olivera, M. (2007),õPublic debt and social expenditure: Friends or foes?ô, *Emerging Market Review*, Vol. 8, pp. 299-310.

Lyrintzis, C. (2011),*'Greek politics in the era of economic crisis: Reassessing causes and effects*ô, GreeSE Working Paper No. 45. The European Institute.

Magud, N. E., Reinhart, C. M., and Rogoff, K. S. (2018),õCapital controls: Myth and Realityô, *Annals of Economics and Finance*, Vol. 19(1), pp. 1-47.

Mahdavi, S. (2004),õShifts in the composition of government spending in response to external debt burdenô, *World Development*, Vol. 32, pp. 1139-1157.

Makin, A. J. (2019),õLessons for macroeconomic policy from the Global Financial Crisisô, *Economic Analysis and Policy*, Vol. 64, pp. 13-25.

Manasse, P., and Roubini, N. (2009),õRules of thumb for sovereign debt crisesô, *Journal of International Economics*, Vol. 78, pp. 192-205.

Martins, S., and Veiga, F. J. (2014),õGovernment size, composition of public expenditure and economic developmentô, *International Tax and Public Finance*, Vol. 21, pp. 578-597.

Matsaganis, M. (2011),õThe welfare state and the crisis: The case of Greeceô, *Journal of European Social Policy*, Vol. 21, pp. 501-512.

Matsaganis, M. (2013),*'The Greek Crisis: Social impact and policy responses'*. Berlin: Friedrich Ebert Stiftung.

McCashin, A. (2016),õHow much change? Pierson and the welfare state revisitedô, *Policy & Politics*, Vol. 44, pp. 313-329.

McManus, R., and Ozkan, F. G. (2018),õWho does better for the economy? Presidents versus parliamentary democraciesô, *Public Choice*, Vol. 176, pp. 361-387.

McManus, I. P. (2017),õPolitical parties as drivers of post-crisis social spending in liberal welfare statesô, *Comparative European Politics*, Vol. 16, pp. 843-870.

McManus, I. P. (2018),õPolitical parties as drivers of post-crisis social spending in liberal welfare statesô, *Comparative European Politics*, Vol. 16, pp. 843-870.

McManus, I. P. (2019),õThe re-emergence of partisan effects on social spending after the global financial crisisô, *Journal of Common Market Studies*, Vol. 57, pp. 1274-1291.

Mecagni, M., Atoyan, R., Hofman, D., and Tzanninis, D. (2007), *'The duration of capital account crises – An empirical analysis'*, IMF Working Paper No. WP/07/258.

Merriam, I. C. (1978), 'Social security and social welfare indicators', *The ANNALS of the American Academy of Political and Social Science*, Vol. 435, pp. 117-129.

Meyer, B. D. (1990), 'Unemployment insurance and unemployment spells', *Econometrica*, Vol. 58, pp. 757-782.

Mian, A., Sufi, A., and Trebbi, F. (2014), 'Resolving debt overhang: Political constraints in the aftermath of financial crises', *American Economic Journal: Macroeconomics*, Vol. 6(2), pp. 1-28.

Mink, M., and de Haan, J. (2013), 'Contagion during the Greek sovereign debt crisis', *Journal of International Money and Finance*, Vol. 34, pp. 102-113.

Mitchener, K. J., and Wandschneider, K. (2015), 'Capital controls and recovery from the financial crisis of the 1930s', *Journal of International Economics*, Vol. 95, pp. 188-201.

Mladovsky, P., Srivastava, D., Cylus, J., Karanikolos, Evetovits, T., Thomson, S., and McKee, M. (2012), *'Health policy responses to the financial crisis in Europe'*, Policy Summary 5. World Health Organization.

Mohseni-Cheraghlou, A. (2016), 'The aftermath of financial crises: A look on human and social wellbeing', *World Development*, Vol. 87, pp. 88-106.

Montinola, G. R. (2003), 'Who recovers first? Banking crises resolution in developing countries', *Comparative Political Studies*, Vol. 36, pp. 541-574.

Nafziger, E. W. (2012), *'Economic development'* 5th ed. New York: Cambridge University Press.

Nelson, W. (1982), *'Applied life data analysis'*. New York: John Wiley & Sons.

Nguyen, T. C., Castro, V., and Wood, J. A. (2020), 'Political environment and financial crises', *International Journal of Finance & Economics*. Available at: https://doi.org/10.1002/ijfe.2160

Nickell, S. (1981), 'Biases in dynamic models with fixed effects', *Econometrica*, Vol. 49, pp. 1417-1426.

Nordhaus, W. (1975), 'The Political Business Cycle', *Review of Economic Studies*, Vol. 42, pp. 169-190.

OBR (2017), *'Fiscal sustainability report'*, Presented to Parliament pursuant to Section 8 of the Budget Responsibility and National Audit Act 2011. Office for Budget Responsibility.

Obstfeld, M. (1994), *'The logic of currency crises'*, Working Paper Series Working Paper No. 4640. National Bureau of Economic Research.

Obstfeld, M., Shambaugh, J. C., and Taylor, A. M. (2009),ôFinancial instability, reserves, and central bank swap lines in the panic of 2008ô, *American Economic Review*, Vol. 99(2), pp. 480-486.

Ocampo, J. A. (2003),ôThe Mistaken assumptions of the IMFô. In: Teunissen, J. J., and Akkerman, A. *The crisis that was not prevented: Lessons for Argentina, the IMF, and globalisation*. The Netherlands: The Hague.

OECD (2014), *'Society at a glance 2014: OECD social indicators'*. Paris: OECD Publishing.

OECD (2015),ôThe effect of the global financial crisis on OECD potential outputô, *OECD Journal: Economic Studies*, Vol. 2014, pp. 41-60.

OECD (2019), *'OECD SME and entrepreneurship outlook 2019'*. Available at: https://doi.org/10.1787/34907e9c-en

Ohanian, L. E. (2009),ôWhat ï or who ï started the great depression?ô, *Journal of Economic Theory*, Vol. 144, pp. 2310-2335.

OôKeeffe, M., and Terzi, A. (2015),ôThe political economy of financial crisis policyô, Bruegel Working Paper 2015/06.

Pastor, L., and Veronesi, P. (2012),ôUncertainty about government policy and stock pricesô, *Journal of Finance*, Vol. 67, pp. 1219-1264

Paulus, A., Figari, F., and Sutherland, H. (2017),ôThe design of fiscal consolidation measures in the European Union: Distributional effects and implications for macro-economic recoveryô, *Oxford Economic Papers*, Vol. 69, pp. 632-654.

P®rez, J. (2005),ôEmpirical identification of currency crises: Differences and similarities between indicatorsô, *Applied Financial Economics Letters*, Vol. 1, pp. 41-46.

Persons, C. E. (1930),ôCredit expansion, 1920 to 1929, and its lessonsô, *The Quarterly Journal of Economics*, Vol. 45(1), pp. 94-130.

Persson, T., and Svensson, L. E. O. (1989),ôWhy a stubborn conservative would run a deficit: Policy with time-inconsistent preferencesô, *The Quarterly Journal of Economics*, Vol. 104(2), pp. 325-345.

Perugini, C., Holscher, J., and Collie, S. (2016),ôInequality, credit and financial crisesô, *Cambridge Journal of Economics*, Vol. 40, pp. 227-257.

Persson, T., and Tabellini, G. (2003), *'The economic effects of constitutions'*. Cambridge: MIT press.

Petmesidou, M., and Guillen, A. M. (2014),ôCan the welfare state as we know it survive? A view from the crisis-ridden South European peripheryô, *South European Society and Politics*, Vol. 19, pp. 295-307.

Phillips, P. C. B., and Shi, S. (2019),ôDetecting financial collapse and ballooning sovereign riskô, *Oxford Bulletin of Economics and Statistics*, Vol 81, pp. 1336-1361.

Pickering, A., and Rockey, J. (2011),ôIdeology and the growth of governmentô, *Review of Economics and Statistics*, Vol. 93, pp. 907-919.

Pickering, A. C., and Rockey, J. (2013),ôIdeology and the size of US state governmentô, *Public Choice*, 156, pp. 443-465.

Popov, A., and Rocholl, J. (2018),ôDo credit shocks affect labor demand? Evidence for employment and wages during the financial crisisô, *Journal of Financial Intermediation*, Vol. 36, pp. 16-27.

Potrafke, N. (2010),ôThe growth of public health expenditures in OECD countries: Do government ideology and electoral motives matter?ô, *Journal of Health Economics*, Vol. 29, pp. 797-810.

Prentice, R. L., and Gloeckler, L. A. (1978),ôRegression analysis of grouped survival data with application to breast cancer dataô, *Biometrics*, Vol. 34, pp. 57-67.

Psacharopoulos, G. (1995),*'Building human capital for better lives'*. Direction in Development. Washington, DC. The World Bank.

Psacharopoulos, G., Patrinos, H., Collis, V., and Vegas, E. (2020),*'The Covid-19 cost of school closures, Education plus development'*, Brookings Institution, April 29, 2020. https://www.brookings.edu/blog/education-plus-development/2020/04/29/the-covid-19-cost-of-school-closures/

Rawdanowicz, L., Bouis, R., Inaba, K-I., and Christensen, K. (2014),*'Secular stagnation: Evidence and implications for economic policy'*, OECD Economics Department Working Papers No. 1169.

Redl, C. (2020),ôUncertainty matters: Evidence from close electionsô, *Journal of International Economics*, Vol. 124, pp. 1-16.

Reinhart, C. M., and Reinhart, V. R. (1998),ôSome lessons for policy makers who deal with the mixed blessing of capital inflowsô, in Kahler, M. *Capital flows and financial crises*. Ithaca: Cornell University Press.

Reinhart, C. M., and Rogoff, K. S. (2009),*'This time is different: Eight centuries of financial folly*ô, Princeton University Press.

Reinhart, C. M., and Rogoff, K. S. (2011),õFrom financial crash to debt crisisô, *American Economic Review*, Vol. 101, pp. 1676-1706.

Reinhart, C. M., and Rogoff, K. S. (2014),õThis time is different: A panoramic view of eight centuries of financial crisesô, *Annals of Economics and Finance Society for AEF*, Vol. 15, pp. 1065-1188.

Reinhart, C. M., and Rogoff, K. S. (2015),õFinancial and sovereign debt crises: Some lessons learned and those forgottenô, *Journal of Banking and Financial Economics*, Vol. 2(4), pp. 5-17.

Reinhart, C. M., and Sbrancia, M. B. (2015),õThe liquidation of government debtô, *Economic Policy*, Vol. 30(82), pp. 291-333.

Reinhart, C. M., and Trebesch, C. (2016),õSovereign debt relief and its aftermathô, *Journal of European Economic Association*, Vol. 14(1), pp. 215-251.

Rivoli, P., and Brewer, T. L. (1997),õPolitical instability and country riskô, *Global Finance Journal*, Vol. 8(2), pp. 309-321.

Robinson, J. A., and Acemoglu, D. (2006),*'Economic origins of dictatorship and democracy'*. Cambridge, UK: Cambridge University Press.

Rockoff, H. (2003),*'Deflation, silent runs, and bank holidays, in the great contraction'*, Working Paper No. 9522. National Bureau of Economic Research.

Rogoff, K. and Sibert, A. (1988), Elections and Macroeconomic Policy Cycles, *Review of Economic Studies*, Vol. 55, pp. 1-16.

Rogoff, K. (1990),õEquilibrium political budget cyclesô, *American Economic Review*, Vol. 80, pp. 21-36.

Roodman, D. (2009a),õHow to do xtabond2: An introduction to difference and system GMM in Stataô, *Stata Journal*, Vol. 9, pp. 86-136.

Roodman, D. (2009b),ôA note on the theme of too many instrumentsô, *Oxford Bulletin of Economics and Statistics*, Vol. 71, pp. 135-158.

Rosas, G. (2006),õBagehot or bailout? An analysis of government responses to banking crisesô, *American Journal of Political Science*, Vol. 50(1), pp. 175-191.

Ruhm, C. J. (2000),ôAre recessions good for your health?ô, *The Quarterly Journal of Economics*, Vol. 115, pp. 617-650.

Ryu, K. (1995),ôAnalysis of a continuous-time proportional hazard model using discrete duration dataô, *Econometric Reviews*, Vol. 14, pp. 299-313.

Sacchi, S., and Roh, J. (2016),õConditionality, austerity and welfare: Financial crisis and its impact on welfare in Italy and Koreaô, *Journal of European Social Policy*, Vol. 26, pp. 358-373.

Savage, L. (2019),õThe politics of social spending after the Great Recession: The return of partisan policy makingô, *Governance*, Vol. 32, pp. 123-141.

Sengupta, M. (2008),õUnemployment duration and the measurement of unemploymentô, *The Journal of Economic Inequality*, Vol. 7, pp. 273-294.

Shahidi, F. V. (2015),õWelfare capitalism in crisis: A qualitative comparative analysis of labour market policy responses to the Great Recessionô, *Journal of Social Policy*, Vol. 44, pp. 659-686.

Shi, M., and Svensson, J. (2006),õPolitical budget cycles: Do they differ across countries and why?ô, *Journal of Public Economics*, Vol. 90, pp. 1367-1389.

Shimpalee, P. L., and Breuer, J. B. (2006),õCurrency crises and institutionsô, *Journal of International Money and Finance*, Vol. 25, pp. 125-145.

Simou, E., and Koutsogeorgou, E. (2014),õEffects of the economic crisis on health and healthcare in Greece in the literature from 2009 to 2013: A systematic reviewô, *Health Policy*, Vol. 115, pp. 111-119.

Snowberg, E., Wolfers, J., and Zitzewitz, E. (2007),õPartisan impacts on the economy: Evidence from prediction markets and close electionsô, *Quarterly Journal of Economics*, Vol. 122(2), pp. 807-829.

Solow, R. M. (1957),õTechnical change and the aggregate production functionô, *The Review of Economics and Statistics*, Vol. 39, pp. 312-320.

Sowell, T. (2009), *'The housing boom and bust'*, New York: Basic Books.

Starke, P. (2006),õThe politics of welfare state retrenchment: A literature reviewô, *Social Policy & Administration*, Vol. 40, pp. 104-120.

Starke, P., Kaasch, A., and van Hooren, F. (2013), *'The welfare state as crisis manager: Explaining the diversity of policy responses to economic crisis'*. Basingstoke, UK: Palgrave Macmillan.

Stoilova, R. (2016),õThe welfare state in the context of the Global Financial Crisis: Bulgaria ï Between financial stability and political uncertaintyô in Schubert, K., de Villota, P., and Kuhlmann, K. (2016) *Challenges to European welfare systems.* Springer Publishing, pp. 59-78.

Stone, C. (2020), *'Fiscal stimulus needed to fight recessions. Lessons from the Great Recession'*. Centre on Budget and Policy Priorities Report. Available at: https://www.cbpp.org/research/economy/fiscal-stimulus-needed-to-fight-recessions

Stevenson, B., and Wolfers, J. (2008), *'Economic growth and subjective well-being reassessing the Easterlin Paradox*ô, NBER Working Paper No. 14282. National Bureau of Economic Research.

Stiglitz, J. E. (2012),ôMacroeconomic fluctuations, inequality, and human developmentô, *Journal of Human Development and Capabilities: A Multi-Disciplinary Journal for People-Centered Development*, Vol. 13, pp. 31-58.

Streeten, P. (1997),ôNongovernment organisations and developmentô, *Annals of the American Academy of Political and Social Science*, Vol. 554, pp. 193-210.

Stuckler, D., Basu, S., Suhrcke, M., and Coutts, A. (2009),ôThe public health effect of economic crises and alternative policy responses in European: An empirical analysisô, *Lancet*, Vol. 374, pp. 315-323.

Stuckler, D., Reeves, A., Loopstra, R., Karanikolos, M., and McKee, M. (2017),ôAusterity and health: The impact in the UK and Europeô, *European Journal of Public Health*, Vol. 27, pp. 18-21.

Talving, L. (2017),ôThe electoral consequences of austerity: Economic policy voting in Europe in times of crisisô, *West European Politics*, Vol. 40, pp. 560-583.

Thompson, K., van Ophem, J., and Wagemakers, A. (2019),ôStudying the impact of the Eurozoneôs Great Recession on health: Methodological choices and challengesô, *Economics & Human Biology*, Vol. 35, pp. 162-184.

Thompson, W. A. (1977),ôOn the treatment grouped observations in life studiesô, *Biometrics*, Vol. 33, pp. 463-470.

UNDP (1990), *'Human development report 1990'*, Technical Report UNDP.

UNDP (2010), *'The political economy of human development'*, Human Development Research Paper 2010/29.

UNDP (2018), *'Human Development Indices and Indicators – 2018 Statistical Update'* Technical Notes. http://hdr.undp.org/sites/default/files/hdr2018_technical_notes.pdf

UNDP (2019), *'Exploring dynamics of inequality in human development'*, UNDP Human Development Report ï Background Paper No. 3-2019.

UNDP (2020), *'Covid-19 and human development: Assessing the crisis, envisioning the recoveryô*, 20202 Human Development Perspectives. http://hdr.undp.org/en/hdp-covid

UNESCO (2009a), *'Early impact assessment of the global financial crisis on education financing: Country case studies'*. UNESCO Institute for Statistics Report. Available at: http://uis.unesco.org/sites/default/files/documents/early-impact-assessment-of-the-global-financial-crisis-on-education-financing-country-case-studies-en_0.pdf

UNESCO (2009b), *'The impact of the crisis on public expenditure on education: Findings from the UNESCO quick survey'*. Paris: The Education Sector.

Vaugirard, V. (2007),ôBank bailouts and political instabilityô, *European Journal of Political Economy*, Vol. 23, pp. 821-837.

Veiga, F. J., and Veiga, L. G. (2004),ôPopularity functions, partisan effects, and support in parliamentô, *Economics & Politics*, Vol. 16(1), pp. 101-115.

Velasco, A. (1987),ôFinancial crises and balance of payment crises: A simple model of the southern cone experienceô, *Journal of Development Economics*, Vol. 27, pp. 263-283.

Vis, B., Van Kersbergen, K., and Hylands, T. (2011),ôTo what extent did the financial crisis intensify the pressure to reform the welfare state?ô, *Social Policy & Administration*, Vol. 45, pp. 338-353.

Vollmer, S., and Ziegler, M. (2009),*'Political institutions and human development. Does democracy fulfil its 'constructive' and 'instrumental' role?*ô, Policy Research Working Paper No. 4818. The World Bank.

Von Hagen, J., and Ho, T-K. (2007),ôMoney market pressure and the determinants of banking crisesô, *Journal of Money, Credit and Banking*, Vol. 39(5), pp. 1037-1066.

WDI. (2019),ôWorld Development Indicatorsô, World Bank. Available at: https://databank.worldbank.org/source/world-development-indicators

Weatherford, M. S. (1978),ôEconomic conditions and electoral outcomes: Class differences in the political response to recessionô, *American Journal of Political Science*, Vol. 22(4), pp. 917-938.

Wei, S-J., and Zhang, Z. (2007),ôCollateral damage: Exchange controls and international tradeô, *Journal of International Money and Finance*, Vol. 26(5), pp. 841-863.

WEO. (2019),ôWorld Economic Outlookô, International Monetary Fund. Available at: https://www.imf.org/external/pubs/ft/weo/2019/01/weodata/download.aspx

Wilkinson, R., and Pickett, K. (2011),*'The spirit level: Why greater equality makes societies stronger*ô, London: Penguin Books.

Willett, T. D., and Wihlborg, C. (2013),ôVarieties of European crisesô, in Caprio, G. (1st ed.) *Handbook of safeguarding global financial stability*. London: Elsevier, pp. 309-322.

Wilms, P., Swank, J., and de Haan, J. (2018),ôDeterminants of the real impact of banking crises: A review and new evidenceô, *North American Journal of Economics and Finance*, Vol. 43, pp. 54-70.

Wimmer, A., and Min, B. (2006),ôFrom empire to nation-state: Explaining wars in the modern world, 1816-2001ô, *American Sociological Review*, Vol. 71, pp. 867-897.

Windmeijer, F. (2005),ôA finite sample correction for the variance of linear efficient two-step GMM estimatorsô, *Journal of Econometrics*, Vol. 126, pp. 25-51.

Wooldridge, J. M. (2010), *'Econometric analysis of cross section and panel data'*, 2nd ed. Cambridge, Mass: The MIT Press.

World Bank (2006), *'Equity and development'*, World Development Report 2006. Washington, DC. The World Bank.

World Bank (2018), *'Piecing together poverty puzzle'*. Poverty and Shared Prosperity 2018. Washington, DC. The World Bank.

World Bank (2020), *'June 2020 Global Economic Prospects'*. World Bank Group Flagship Report.

Yang, W., Fidrmuc, J., and Ghosh, S. (2015),ôMacroeconomic effects of fiscal adjustment: A tale of two approachesô, *Journal of International Money and Finance*, Vol. 57, pp. 31-60.

Yonce, A. (2015),ôUS corporate investment over the political cycleô, *Quarterly Journal of Finance*, Vol. 5(1), pp. 1-37.

Yu, S. (2016),ôThe effect of political factors on sovereign defaultô, *Review of Political Economy*, Vol. 28(3), pp. 397-416.

Yung, C. K. (2003),ôThe fiscal response to the currency crisis and the challenges ahead ï Koreaôs experienceô, BIS Papers chapters, in: Bank for International Settlements (ed.), *'Fiscal issues and central banking in emerging economies'*, Vol. 20, pp. 167-172.

Zhao, Y., de Haan, J., Scholtens, B., and Yang, H. (2014),ôSudden stops and currency crashesô, *Review of International Economics*, Vol. 22(4), pp. 660-685.