



Impact of Financial Crisis on GDP Growth: The Case of Developed and Emerging Countries

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ABSTRACT

The purpose of this paper is to examine the effect of banking, monetary, and twin crises on the economic growth of a sample of 28 emerging and developed countries over the period 1980-2011. By considering a comparative analysis of the impact of the three types of crises, we found that the effect of banking crises is more expensive and deep than monetary crises on GDP growth. As for the twin crisis, with a simultaneous occurrence of a monetary and a banking crisis, the effect seems to be more serious and more persistent than the other types of crises. This negative effect is more pronounced when we take into account variables related to the status of the financial system, liberalization, and the level of institutional development.

Keywords: Financial Crisis, Economic Growth, Financial Liberalization, Generalized Method of Moments

JEL Classifications: C32, G01, O40

1. INTRODUCTION

For several decades, the global economy has repeatedly faced international financial crises that hit both industrialized and developing economies. These crises, whether they broke out directly or through a contagion effect, are known by their number, size and their different forms (banking, monetary and twin). In 1997, a financial crisis of an exceptional seriousness shook all the emerging countries of the Asian region undermining thus their development. After ten years, there was the subprime crisis. Financial markets collapsed and real economies went bankrupt raising the depression spectrum to high levels. With many bank failures, currency depreciation, and market fallout, this crisis is seen as the most serious crisis that the world has ever known.

Review of past financial crises shows that they affect negatively and sustainably economic growth. Although there was a methodological controversy on how to assess the consequences of financial crises. There was an agreement that the magnitude and the duration of the crises effects on savings potential is enormous. The resulting losses in economic activity were on average sustainable

and consequent. These losses came along a decline in stock capital, an increase in unemployment and a decline in activity rate.

The aim of this paper is to examine the impact of the financial crisis on the real economy. Specifically, we seek to evaluate the impact of the monetary, banking, and twin crises on growth in a sample of emerging and developed countries over the 1980-2011 period. The contribution of this study lies in using a comparative approach to assess the respective effects of three types of crises (monetary, banking and twin crises). The rest of the paper is organized as follows: In the second section, we develop literature review. In the third section, we present the methodology, the variables and the hypotheses to be tested. The empirical validation will be presented in the fourth and fifth sections. The last section concludes the paper.

2. LITERATURE REVIEW

A monetary crisis denotes an attack against the national currency significantly reducing the national foreign currency reserves and leading to a sharp depreciation or a nominal devaluation of a country's currency. The consequences are translated into a deterioration of

economic conditions and a weakening of supply and demand. Accordingly, panic risk grows and investment and credit capacity are diminished. Under these circumstances, a decline in consumption as a result of the crisis, invariably leads to a decline in demand for goods and services, which generates in the case of a competitive economy, a decrease in prices and thereby income and production. The fall in income only weakens the financial sector since solvency of banks is affected by a decline in the overall savings. The failure of some banks has very serious consequences on both households and businesses. Therefore, a decrease in purchasing power will result, curbing thus growth of companies, as they sell and produce less. Consequently, a vicious circle prevails and the situation deteriorates.

One of the reasons leading to a banking crisis is financial turbulence generated by a drop in assets value that most often leads to an erosion of the entire banking system. Accordingly, an atmosphere of skepticism and uncertainty prevails the market, intensifying the problem of moral hazard and adverse selection. Indeed, decrease in firm assets value with a decrease in stock prices encourages firms to invest in the riskiest projects. These factors are likely to negatively affect banks' balance sheets and gradually decrease stock prices. Therefore, uncertainty about the soundness of banking systems may develop a bank-fleeing phenomenon. Obviously, if a deterioration of banks' balance sheets is sufficiently serious and that the doubts about the solvency of the system spread, depositors massively withdraw their deposits in a sufficient proportion to cause bank failure. Bankruptcy of a bank may cause the failure of other banks through a contagion effect to a point where even healthy and strong banks face difficulties through that effect. The entire system is contaminated and the crisis turns into an economic recession that intensifies in turn financial instability. These systemic crises will spread from the banking sector to the real sector like most widespread forms of banking crises during the last decades.

Empirically, several studies focused on assessing the costs of financial crises. Their findings are relatively consistent as to the negative impact of both crises on growth than on investment. In a study of 23 emerging countries over the 1975-1997 period, Hutchison (2001) showed that a currency crisis after controlling for macroeconomic and institutional factors reduced production by 5 to 8% during the first three years. In addition, production regains its trend after these three years. The author also showed that currency crises are four times higher in emerging countries than in developing countries.

Like Hutchison and Barro (2001) sought to empirically assess the impact of the monetary and banking crises that shook Asia in 1997 on growth and investment. Their study focuses on a sample of 67 developed and emerging countries over the 1960-2000 period. The authors conducted an analysis using a dynamic panel, divided into eight periods of five years. The results indicated that the currency crisis led to a loss of 1.3% in real GDP growth and 0.4% in investment. A banking crisis reduces GDP growth per capita by 0.6% per year and investment by 0.9%.

The potentially differential impact of financial crises on economic growth has been raised by Gupta et al. (2007). In addition to looking for a tangible effect of the crisis on the real economy, these

authors sought to identify the factors that are likely to amplify their consequences. To this end, they focused on studying currency crises episodes in 91 developing countries over the 1970-2000 period. Their results indicate that 60% of the detected 195 currency crises episodes are recessive. Comparing these crises, they found that the currency crises of the 1990s episodes are more severe than those of the 1970s and 80s. To explain the severity of crises, they tried to test several factors. They found that economies which received a massive capital input are the most affected. These results, which are robust across several specifications, confirm the importance of the 'sudden stop' hypothesis in slowing down the economy. Their results also indicate that the level of foreign debt is likely to amplify the consequences of crises, since strong devaluations that follow will add to the burden of debt, thus threatening the economy stability.

Ito (2004) sought to determine whether the different crises effects vary across countries having an open capital account and those imposing restrictions on capital mobility. His study examines a sample of 62 countries consisting of 22 industrialized countries, 40 less developed countries and 29 emerging countries. The author found that liberalization reduces, on the one hand, crisis probability in developed countries and increases this probability for the less developed and emerging countries, on the other hand. He found also that financial liberalization tends to mitigate the negative impact of the crisis in developed countries. Moreover, a further opening of the financial markets allows these countries to stream up quickly their growth path and therefore regain an initial growth level before the crisis. For emerging countries, the results appear to be less optimistic as financial liberalization only aggravates the recessionary effect of the crisis. In this regard, the crisis lasts longer and its impact is deeper.

Furthermore, Boyd et al. (2005) showed rather an interest in banking crises. In their study, the authors detected 23 of banking crisis episodes over the 1970-2000 period. They showed that banking crises reduce real GDP per capita by 63 to 302%. They also stipulate that previous studies have underestimated the losses. Explaining the severity of crises, they found that budgetary costs, liquidity and recapitalization support are key factors that determine crises costs.

In another study, Angkinand (2008) sought to evaluate the role of regulation and banking supervision in explaining the severity of banking crises. His study focused on a sample of 35 developed and emerging countries over the 1970-2003 period. By detecting 47 banking crises episodes, they showed that loss in production - calculated as the difference between current GDP level and potential GDP level - is relatively low in countries that provide deposit insurance coverage and which apply strict quality assets and capital adequacy requirements. However, banking supervision does not significantly explain the severity of the crisis.

The study of Cecchetti et al. (2009), which uses a different method, confirms the above results. Examining a sample of 35 countries, the authors detected 40 systemic banking crisis episodes. First, they looked for studying the duration, depth as well as production cost associated with these crises. The authors concluded to a strong shrinkage in output because of systemic crises. Second, they examined the determinants of production losses. To this end, initial conditions,

financial structure, growth rate, policy responses as well as external conditions were taken into account. Their results indicate that costs are higher when banking crises are accompanied by a monetary crisis, and when growth is low before the outbreak of crises. They also showed that systemic crises are less intense when they are accompanied by a sovereign debt default. Sheida, and Taggert. (2015) show that currency crises are accompanied by a drastic loss of foreign exchange reserves and a significant long-term production decline. The results indicate that the resumption of production after the currency crises takes, on average, a U-shaped production curve that entirely recovers its pre-crises level in three years.

3. DATA AND METHODOLOGY

In order to determine the severity of crises, and in addition to looking for a tangible effect of financial crises on economic growth, we try to identify the factors likely to amplify or reduce their severity. From theoretical and empirical point of views, there is a consensus on the negative impact of financial crises on the real economy, but several structural, institutional and economic factors can amplify their impact. Our interest here is to examine these issues in detail.

3.1. The Sample

Our study examines a panel of 17 emerging markets and 11 developed countries over a period of 31 years (1980-2011). A detailed presentation of the countries in our sample is provided in the Appendix. The observations are annual and are taken from the World Bank's database, "World Development Indicators" (2013), except data on the institutional variables, which are taken from the ICRG's database. In each of the to-be-estimated models (1), (2), real GDP growth per capita will be used to measure economic growth. The next section presents the different macroeconomic, financial, and institutional variables chosen and formulates our research hypotheses.

3.2. The choice of variables and research hypotheses

The econometric specification of endogenous growth models operationalizes GDP growth by a number of variables.

The dependent variable: GDP Growth rate is dependent variable. According to OECD, GDP is measured as "an aggregate measure of production equal to the sum of the gross values added of all resident and institutional units engaged in production" the growth rate of this variable measures how fast the economy is growing. Considered as the economic output of the nation, GDP growth rate is the most important indicator of economic health. It varies during the most phases of the business cycle. When the economy is rising the GDP growth rate is positive. However, this ratio turns negative when the country's economy is in recession.

The explanatory variables

Growth-1: Represents lagged real GDP growth per capita. This variable is introduced to measure the return speed of economies to stationary equilibrium. According to Solow's absolute convergence theory, poor countries tend to grow faster than rich countries. Less developing countries tend to

slowly return to equilibrium.

Population is Population growth rate. The interaction between population pressure and economic growth was raised in the economic literature, in particular in Solow's neoclassical model. These models assume that a reduction in population growth will eventually raise growth. Their findings point out that if the population grows, a part of the national investment is used to provide capital to new workers rather than to increase the amount of capital per worker.

Trade openness rate (Trade ext): Like Berthélemy and Varoudakis (1998), we introduce trade openness rate calculated by the ratio of export + import to GDP. The expected sign is positive to the extent that a more open economy to international trade will reach a growth rate higher than a relatively closed economy.

We introduce Government consumption (Size of the Govern) rate as a percentage of GDP and as a proxy of Country size. The expected sign is negative.

Inflation rate (Inflation) is introduced as an indicator of macroeconomic stability. The advanced economic theory and empirical research point out that controlling inflation is an indispensable prerequisite to ensure a certain level of economic growth. High inflation halts long-term investments and has a harmful effect to growth. The sign for this variable is negative.

Financial crises indicators (Crisis)

Given the time lapse between the banking crises, the twin crises and the currency crises, we refined our database (Reinhart, Camen M. and Kenneth S. Rogoff, (2009), and Laeven and Valencia (2012). Moreover, a currency crisis is identified when there is a speculative crisis on currency, resulting in a devaluation or a sharp depreciation of the economic sphere of one or several countries. Banking crises manifest themselves in a depletion of capital of all the banking system. For the twin crises, they manifest themselves when banking and currency crises simultaneously occur. The dates of monetary, banking crises and twin crises are reported in the Appendix 1. Crises variables take zero in times of peace and 1 in times of crises.

Other variables

To identify the factors that explain the severity of crises, we chose to include institutional variables, financial sector development, budget deficit and financial liberalization.

- Financial development variables: We chose to include Credit to private sector/GDP and M2 reported to GDP ratio.
- Institutional variables representing institutions quality, we chose three variables; (1) Corruption Control (Corruption): This indicator is assessed on a scale of 0 to 6. A low score reflects a strong corruption of public administration. (2) Rule of law (E.right): This indicator assesses the level of compliance with the law by the population as well as the interdependence of the judiciary. It ranges between 0 and 6. Low scores indicate that the justice system is not predictable. (3) Government stability (Stab.pl): Reflecting political violence and instability in the country. It ranges from 0 to 12. A high score reflects good stability of the Government.

We also included a financial liberalization variable to test whether the impact of the crisis on growth depends on liberalization degree. To this end, we selected an indicator that measures degree of restriction on the capital account. This is Chinn's Kaopen indicator. In addition to the existence or absence of regulatory capital account restrictions, Chinn's Kaopen indicator has the advantage of reflecting also the intensity with which these restrictions are implemented. This indicator ranges between -1.7 and 2.6. High values of this indicator indicate the absence of restrictions and vice versa. We also introduced the deficit of current account/GDP to assess to what extent this dimension can amplify crises effects.

3.3. The Model and econometric specification

To assess the impact of the financial crisis on economic growth, we proceed by a two-stage approach.

(i) We begin by estimating a standard growth model to which we add a hint of financial crisis. The basic idea is to regress the real GDP growth rate on the crisis indicator. This model is of course complemented by a set of variables that are usually used in the econometric specification of conventional growth patterns. In this step, we carry out a comparative approach to assess the respective effects of the three types of crises; the currency, banking and twin crises. The model is as follows:

$$Y_{i,t} = \alpha_i + \beta X_{i,t} + \gamma \text{CRISE}_{i,t} + \varepsilon_{i,t} \quad (1)$$

For $i = 1, N$ and $t = 1, T$, with Y means real GDP growth rate per capita. X represents the vector of economic control variables and $\text{CRISE}_{i,t}$ refers to the indicator of the monetary, banking and twin crises. α_i fixed effect of a country, β and the coefficients to be estimated, and $\varepsilon_{i,t}$ is error term. i and t indexing respectively countries and years. We further complete this analysis to account for the consequences of the crisis on the real economy, by exploring the factors that explain their severities. In this perspective, of the independent variables, we privileged the institutional, financial sector development, the budget deficit and financial liberalization variables, considered by a majority of economists and politicians, as factors aggravating crises costs.

(ii) Therefore, we interact these variables with the crisis indicator ($W * \text{Crisis}$) in the first model. The model to estimate is the following:

$$Y_{i,t} = \alpha_i + \beta X_{i,t} + \gamma \text{CRISE}_{i,t} + \phi (W_{i,t} * \text{crisis}) + \varepsilon_{i,t} \quad (2)$$

The estimation technique chosen is the generalized method of moments (GMM) in dynamic panel. Dynamic models are characterized by the existence of one or more lags of the dependent variable vis-a-vis the independent variables. Econometric standard techniques like MCO cannot have efficient estimates of such a model, because of the simultaneity and endogeneity bias that may result. The GMM efficiency depends on the validity of the assumption that error terms are not auto-correlated and the validity of the used instrumental variables. To ensure the absence of autocorrelation of error terms and the validity of the used instruments, Blundell and Bond (1998) offer two key tests: The

Sargan test that allows for determining the over-identification of the model and the validity of the used instruments for the estimation and the usual absence of autocorrelation of error terms.

The major drawback of this approach is that it eliminates both the fixed and temporal individual specific effects. Version 10.0 of the STATA software allows us to use a new command 'xtabond2' advocated by Baum (2006) in the estimation of the dynamic panel. Roodman (2009) showed that the use of this command allows us to take into account endogeneity and exogeneity problems. This command allows us to permanently avoid the problem of correlation between the specific effects and the lagged dependent variables. Ahoué (2008) indicated that the GMM estimation in system of Blundell and Bond (1998), using the command 'xtabond2' is more efficient. This command is an extension of the «xtabond». According to Windmeijer (2005), therefore, the estimation of the effect of the financial crisis on economic growth and investment is made with the new 'xtabond2' command of STATA, allowing for improving the use of the Blundell and Bond method (1998).

4. THE EMPIRICAL RESULTS

4.1. The stylized facts

Since the collapse of the Bretton Woods exchange rate regime, monetary and banking crises have grown in number. They reflected the fragility of the international financial system. The current context explains in part this continuous trend. The intensification of financial exchanges without regulation, abundance of international liquidity, meteoric technological advances, deregulation waves, and interdependencies between economies are all elements that explain this trend.

To study the frequency of crises, we examine a sample of emerging and industrialized countries over the 1980-2011 period in order to determine the number of banking and monetary crises. The results of this survey, outlined in Figure 1, show that currency crises have been relatively more frequent and more common than banking crises in the 80s and 90s decades. The 2000 decade is known by a resurgence of banking crises and a small number of monetary crises.

Indeed, between 1980 and 2011 the number of banking crisis rose, on average by 1.4 crisis per year, with peaks during the 1990s and at the beginning of the 1980s. This could be related to the liberalization of the financial sector undertaken by many countries during this period. However, the number of monetary crises amounts on average to more than 3.3 crises per year. Their frequencies have been particularly high during the 80s and 90s decades, and much lower during the 2000 decade. Figure 2 shows some regional disparity in crises frequency. The latter is defined by the number of crisis divided by the number of years multiplied by the number of countries in each period. It shows that currency crises are particularly common in emerging countries with a probability of 30% for monetary crises against 18% for industrialized countries. The frequency of banking crises remains important in Latin America and developed countries with a probability of 5% and less for Asian countries with 13% probability. Twin crises

Figure 1: Crises frequency

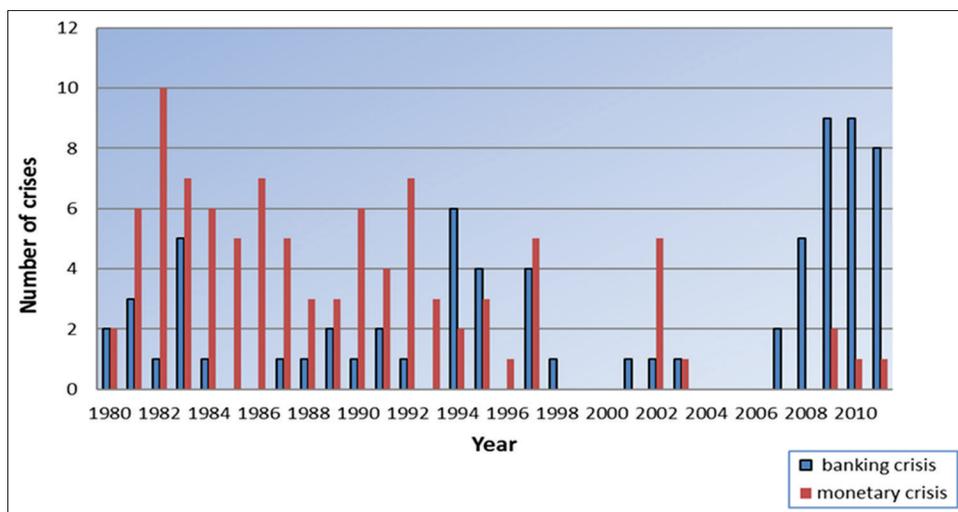
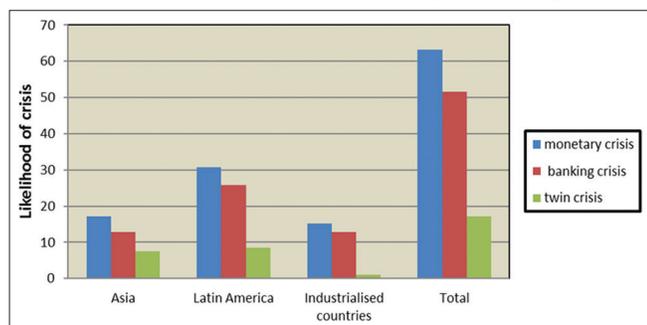


Figure 2: Frequency of crises according to country group



are, however, less frequent with a probability of 6% for emerging countries and 1% for developed countries.

4.2. Empirical tests

This section reports the results of the econometric regressions performed to assess the impact of financial crises on growth and investment. Regressions are carried out with the GMM system in dynamic panel. To specify the model, we used the Hausman test.

The results of the impact of monetary, banking and twin crises regressions are reported in Table 1, and this for the different specifications. In each of the 1st, 2nd and 3rd specifications, we include respectively the variables banking crisis, currency crisis, and twin crisis in the basic equation, then we regress them on real GDP growth per capita. Columns 1, 2 and 3 relate to the estimation of equation (1). Overall, the three specifications provide significant results. Furthermore, diagnostic statistics are favorable and confirm the right specification of our model. The Sargan/Hansen over-identification test shows the validity of the used instruments in all the specifications. Moreover, the Arellano and Bond’s residuals autocorrelation test in order 2 is conducted and indicates absence of autocorrelation.

The results displayed in the three columns are all consistent. The hypothesis according to which financial crisis led to a decline in economic growth seems valid. No matter what type of crisis

Table 1: Impact of banking , monetary and twin crises on economic growth

	Banking crisis	Currency crisis	Twin crisis
Growth-1	0.0810 (0.71)	0.131 (0.98)	-1.644** (-2.22)
Population	-3.685 (-0.67)	-3,000 (-0.27)	-97.86* (-1.72)
Trade ext	0.00690 (0.26)	0.00836 (0.38)	0.0415 (0.40)
Size of the govern	-0.0784* (-1.72)	-0.0540 (-1.00)	0.0610 (0.46)
Inflation	-0.00138** (-4.90)	-0.00149** (-2.71)	0.000233 (0.47)
Crisis	-0.0264** (-12.43)	-0.0143** (-5.17)	-0.0284** (-3.71)
	-0.0181** (-3.71)	-0.0125** (-2.91)	-0.0691** (-2.52)
	0.0296** (9.55)	0.0101** (2.56)	0.0165** (2.00)
	0.00254 (0.58)	0.00942** (4.11)	0.0452** (2.57)
_cons	0.0741 (1.09)	0.0588 (0.46)	-1.435 (-1.69)
N	832	832	403
AR (1)	0.0105	0.0125	0.1336
AR (2)	0.0523	0.0234	0.4976
Sargan test	1	1	1

Estimation in dynamic Panel: Method of GMM (Arellano-Bond), Values in brackets are for t-student. (*): Significance at the 1% threshold. (**): Significance at the 5% threshold and (**): Significance at the 10% threshold. The Sargan test is the test of the validity of the instruments. If the probability of the test is >5%, there is no problem of overidentification. AR (1): First-order autocorrelation test, AR (2): Second order autocorrelation test

(monetary crisis, banking crisis and twin crisis), the coefficients for the crisis indicator is negative, at a 1% of significance level. The coefficients associated with the control variables, namely lagged GDP growth rate, population growth rate, government spending, openness rate, and inflation, have signs consistent with the theoretical and empirical growth models. In particular, convergence captured by an offset growth is checked. Its sign is negative and significant. Inflation, government spending and population growth negatively and significantly affect growth. However, openness

degree has a positive and a non-significant sign, allowing us to conclude to the non pertinence of trade openness on economic growth.

The results of our regressions show that the banking and monetary crises lower economic growth respectively by 2.64%(Reg 1) and 1.43% (Reg 2) annually and this effect continues two years in a row. The impact on GDP is more important, when a recession coincides with banking crises. These results confirm the findings of Furceri and Mourougane (2009). In their study, loss of growth because of banking crises is estimated at 2.4%.(Cabannes et al., 2010). This loss extends to 3.2%. As for currency crises, their impact is certainly important but remains much lower than that of banking crises. For the twin crises, their coefficient is negative and significant. Real GDP growth losses are estimated at about 4.9% for at least two successive years. The impact seems more important compared to that of the monetary and banking crises. This effect was also observed during the 1997 Asian crisis when the countries of the zone have been hit simultaneously by banking and currency crises.

Overall, the results confirm the negative impact of financial crises on economic growth. These results are consistent with the theoretical insights that stipulate that whatever the nature of the crises the cost is always profound and negative, at least in the short term. Long-term financial crisis can be beneficial for the concerned economies in the sense that it will allow for a consolidation and restructuring of their financial systems, on the one hand, and will implement appropriate preventive policies to avoid a possible future crisis, on the other hand.

5. CRISIS SEVERITY TEST

After having highlighted the significant and negative impact of banking crises and monetary growth, in what follows we seek to identify what factors can explain their severity. Accordingly, we also chose to introduce indicators on the status of the financial system, liberalization, financial as well as the level of institutional development, considered by many economists and politicians as factors determining the costs of financial crises.

Table 2: Impact of financial crisis on economic growth: Role of financial development

	Banking crisis		Currency crisis	
Growth-1	0.109 (0.55)	0.229 (1.78)	0.177 (1.34)	0.303** (3.52)
Population	-5.293 (-0.26)	4.682 (0.53)	-7.392 (-0.97)	1.585 (0.22)
Open rate	-0.0109 (-0.29)	0.0126 (0.28)	-0.00236 (-0.07)	0.00809 (0.27)
Size of government	-0.0572 (-0.84)	-0.0545 (-1.12)	-0.0286 (-0.49)	-0.0630 (-0.85)
Inflation	-0.00114* (-2.56)	-0.00108* (-2.00)	-0.00160** (-4.34)	-0.00160** (-2.59)
Crisis	-0.0235** (-2.25)	-0.0295** (-4.32)	-0.0278** (-5.27)	-0.0237** (-4.48)
Crisis-1	0.00129 (0.17)	0.00662 (1.41)	-0.0178 (-1.74)	-0.00152 (-0.21)
Crisis-2	0.0104 (1.13)	0.00236 (0.32)	0.00811 (1.12)	0.00733 (1.41)
Crisis-3	0.0154** (2.60)	0.00861* (1.73)	0.0102** (2.27)	0.00880** (2.54)
Crisis*M2/GDP	-0.00174 (-0.23)		0.0210** (4.11)	
Crisis*M2/GDP-1	-0.0259** (-2.92)		0.00700 (0.40)	
Crisis*M2/GDP-2	0.0381** (4.01)		0.00740 (0.77)	
Crisis*M2/GDP-3	-0.0247** (-3.65)		-0.00141 (-0.20)	
Crisis*credit dom		-0.00156 (-0.26)		0.0136* (1.84)
Crisis*dom-1 credit		-0.0233** (-4.22)		-0.0174* (-1.87)
Crisis*credit dom-2		0.0439** (4.41)		0.00763 (1.11)
Crisis*dom-3 credit		-0.0220** (-4.32)		-0.00572** (-1.97)
Constant	0,103 (0.42)	-0.0313 (-0.32)	0.115 (1.28)	0.00483 (0.06)
N	755	832	755	832
AR (1)	0.0556	0.0052	0.0089	0.0001
AR (2)	0.2212	0.1705	0.0568	0.1124
Sargan test	1	1	1	1

The values in parentheses are t-student. (*): Significance at the 1% threshold. (*): Significance at the 5% threshold and (*): Significance at the 10% threshold

5.1. The Role of Financial Development

The dominant point of view suggests that the effect of the crisis remains largely dependent on a developed financial system because it is likely to contain most malfunctions and to mitigate the negative effects of the crisis. To test this assumption, we cross-plotted indicators of banking and monetary crisis with those of financial development. We chose for two indicators previously defined; the ratio M2/GDP and the ratio of private Credit/GDP. The results reported in Table 2, indicate that financial development measured by the ratio of private credit/GDP cut off the effect of the banking crisis on growth by about 1%. This effect grows slightly and significantly when we consider the M2/GDP variable. Then, a banking crisis is especially high when its financial system is sufficiently developed. These results feed into two different points of view: The first suggests a positive role of financial development in reducing growth loss. The second suggests an amplifying effect.

Since the work of Schumpeter, financial development has been seen as an engine of economic growth. In case of a crash, only a sound financial system is able to absorb the worst internal and external shocks and mitigate losses. In fact, one of the major lessons from past financial crises is the need to consolidate and preserve financial systems. Our regressions partly support this point of view insofar as financial development variables, of which the ratio of private credit/GDP, except when interacting with banking crises, significantly mitigate a drop in growth. As for the ratio M2/GDP, it seems that the impact of banking crises is slightly more severe at the 1% significance level. This result certainly recovers the role of financial development, but join the conclusions of Guillaumont and Kpodar(2006). These authors showed - through a survey on a sample of countries over the 1966-2000 period and using a variety of measures of financial development - a strong correlation between financial crises and financial development. Far from being a growth factor, the latter increases the financial fragility and instability of financial markets. This effect is greater when the macroeconomic policy is inadequate.

As for currency crises, the results indicate that when we regress financial development indicators on crises, the negative effect fades and becomes significantly positive. Financial development is considered in this case not only as a means of mitigating losses but as a recovery condition.

5.2. The Role of Institutional Development

In this section, we empirically test the role of institutional development in explaining the severity of the banking and monetary crises. The results of the regressions are reported respectively in Tables 3 and 4

Table 3 reports the results of banking crises. We cross-examine banking crises to the different institutional quality indicators. There are, corruption, rule of law and political stability. The regression results are all consistent and corroborate the theoretical assumptions and emphasize the importance of good governance to ensure financial systems stability and thus to offset the likely negative effects on economic growth in the case of a distrust of the institutional system.

Table 3: Impact of banking crises on growth: Role of institutional development

	1	2	3
Growth-1	0.233 (1.59)	0.180 (1.83)	-0.0385 (-0.20)
Population	-2.780 (-0.29)	-4.998 (-0.67)	14.312 (1.34)
Open rate	-0.0120 (-0.32)	0.0294 (0.93)	0.0001 (0.01)
Size of government	-0.128 (-1.60)	-0.0858 (-1.37)	-0.0368 (-0.53)
Inflation	-0.001** (-3.59)	-0.00116** (-2.16)	-0.011* (-2.52)
Banking crisis	-0.0245** (-2.32)	-0.0268 (-1.76)	-0.051** (-5.47)
Crisis Bank-1	0.013 (1.76)	0.0309** (2.68)	-0.013 (-1.29)
Crisis Bank-2	-0.0028 (-0.29)	0.000487 (0.05)	0.013 (1.36)
Crisis Bank-3	0.0125 (1.05)	0.0360** (3.66)	0.0089 (0.55)
Banking crisis* E.right	-0.00014 (-0.06)		
Banking crisis* E.right - 1	-0.0069** (-4.81)		
Banking crisis* E.right - 2	0.0093** (3.60)		
Banking crisis* E.right - 3	-0.0038 (-1.24)		
Banking crisis* stab.pol		0.0004 (0.27)	
Banking crisis* stab.pol - 1		-0.006** (-4.61)	
Banking crisis* stab.pol - 2		0.004** (3.57)	
Banking crisis* stab.pol - 3		-0.004** (-3.81)	
Banking crisis* corruption			0.0052** (2.69)
Banking crisis* corruption-1			-0.00033 (-0.15)
Banking crisis* corruption - 2			0.004 (1.58)
Banking crisis* corruption - 3			-0.001 (-0.44)
Constant	0.0810 (0.75)	0.0746 (0.85)	-0.131 (-1.16)
N	832	832	832
AR (1)	-2.8181	-3.0577	-0.67252
AR (2)	-1.2414	-1.2151	-1.6578
Sargan test	1	1	1

The values in parentheses are t-student. (*): Significance at the 1% threshold.

(*): Significance at the 5% threshold and (*): Significance at the 10% threshold.

For corruption variable (Table 3 Reg 3), the results indicate that when it coincides with a banking crisis, the negative crises effect on growth increases to - 5.1%. at the 1% significance level. As for the control variables, we notice that inflation is negative and significant. The other variables lose their significance and this for all the regressions that follow.

The results on the rule of law (Table 3, Reg 8) the effect of this variable is not the same for the current and decaled values. It seems that the respect of the law is not immediate and the delayed values have significant effects on GDP growth.

Table 4: Impact of the monetary crisis on growth: Role of institutional development

	1	2	3
Growth-1	-0.0380 (-0.23)	0.145 (1.39)	0.237** (2.30)
Population	0.543 (0.07)	-7.234 (-0.89)	-8.895 (-1.15)
Open rate	0.0185 (0.66)	0.0193 (0.64)	0.044 (1.39)
Size of government	-0.0435 (-0.56)	-0.0649 (-0.94)	-0.126* (-1.74)
Inflation	-0.00119** (-1.96)	-0.00162** (-2.76)	-0.001* (-1.87)
Currency crisis	-0.0129** (-2.38)	-0.0411** (-5.93)	-0.156* (-2.04)
1-monetary crisis	-0.0316** (-3.50)	-0.0114 (-1.15)	-0.031** (-3.07)
Crisis monetary-3	0.0141** (4.09)	0.0245** (2.94)	0.015 (3.35)
Crisis my*E.right	-0.00962 (-0.68)		
Crisis my*E.right - 1	0.00462** (2.25)		
Crisis my*E.right - 2	0.00380** (2.11)		
Crisis my*E.right - 3	-0.00145 (-1.08)		
Crisis my*stabi.pol		0.0034** (3.56)	
Crisis my*stabi.pol - 1		-0.0003 (-0.35)	
Crisis my*stabi.pol - 2		0.00186 (1.32)	
Crisis my*stabi.pol - 3		-0.002** (-2.38)	
Crisis my*corruption			-0.00006 (-0.04)
Crisis my*corruption-1			0.0061** (0.008)
Crisis my*corruption-2			-0.00003 (-0.02)
Crisis my*corruption-3			-0.0028 (-2.15)
Constant	0.0139 (0.15)	0.102 (1.11)	0.115 (1.36)
N	832	832	832
AR (1)	-1.4364	-2.5979	-2.9152
AR (2)	-2.7379	-2.0343	-0.3288
Sargan test	1	1	1

The values in parentheses are t-student. (*): Significance at the 1% threshold. ("): Significance at the 5% threshold and ("): Significance at the 10% threshold

Similarly, our results indicate that political stability (Table 3, Reg 9) significantly increases the negative effect of banking crises on GDP growth. A crisis is even more severe when instability in the country is important.

As for the currency crises, the results, presented in Table 4, are consistent with those of banking crises suggesting that good governance, represented by a low corruption level, political stability and impartial institutions, reduces the negative effects of financial crises.

5.3. Financial Liberalization and the Role of Deficit

In what follows, we empirically assess the role of current account deficit in the severity of financial crises. The results, reported in Table 5, indicate that current account deficit increases significantly losses in terms of real GDP growth. However, this effect seems insignificant when it comes to currency crises.

6. CONCLUSION

In this study, we sought to empirically assess the impact of financial crises on economic growth. An overview of past financial crises shows that they have been particularly frequent

Table 5: Impact of the monetary crisis on growth: The role of current deficit

	Banking crisis	Currency crisis
Growth-1	0.0756 (0.52)	0.223 (1.01)
Population	-9.530 (-1.04)	-17.26 (-1.03)
Open rate	0.0411 (0.91)	0.0102 (0.35)
Size of the government	-0.0897 (-1.38)	-0.0709 (-1.02)
Inflation	-0.0017** (-2.84)	-0.00172** (-2.37)
Crisis	-0.0256** (-6.17)	-0.0141** (-2.59)
Crisis-1	-0.0124** (-2.04)	-0.00744 (-0.64)
Crisis-2	0.0280** (7.09)	0.00411 (0.28)
Crisis-3	-0.00266 (-0.64)	0.00446 (0.88)
Crisis*deficit	-0.165* (-1.99)	-0.277 (-1.35)
Crisis*deficit-1	0.355** (5.05)	-0.0658 (-0.19)
Crisis*deficit-2	0.200** (2.32)	-0.414 (-0.72)
Crisis*deficit-3	-0.129** (-3.34)	-0.329 (-1.20)
Constant	0.122 (1.10)	0.220 (1.14)
N	832	832
AR (1)	-2.1017	-1.97
AR (2)	-1.3495	-0.403
Sargan test	1	1

The values in parentheses are relative student's t. (*): Significance at the 1% threshold. ("): Significance to the threshold of 5% and ("): Significance at the 10% threshold.

and threatening. These crises have always had important economic and social costs taking the form of a rise in unemployment, a fall in production, as well as a deterioration of purchasing power.

Studying a sample of 17 emerging markets and 11 developed countries over a period of 31 years (1980-2011), we found that financial crises have negative and significant effects on economic growth. The results show that banking crises are costlier and deeper than currency crises for GDP growth and investment. With regard to twin crises, the effect seems more serious and more persistent than the other types of crises.

To determine the severity of crises, we chose to introduce indicators on the status of the financial system, level of financial liberalization and level of institutional development. Our results indicate that a developed financial system significantly reduces the severity of monetary and banking crises. Good governance, in terms of a low corruption level, political stability and impartial legal standards, reduces the negative effects of financial crises. Moreover, current account deficit significantly increases the severity of banking crises but has no effect on currency crises.

In summary, financial crises are specific phenomena. They are repetitive but not identical. Their economic, social and political consequences have been disastrous. Their origins lie in a deep financial and institutional failure. Deregulation of financial systems and the substantial increase in cross-border capital flows needed a new regulation mode that calls for a reinforcement of prudential regulatory and supervisory frameworks.

REFERENCES

- Ahoure, E. (2008), Remittances: Governance and Growth in Sub-Saharan Africa Countries: A Dynamic Panel data Analysis. Baltimore, London: Mimeo, Faculty of Economics and Management, University of Cocody-Abidjan, Republic of Coted'Ivoire.
- Angkinand, A.P. (2008), Output Loss and Recovery from Banking and Currency Crises: Estimation Issues. Available from: <http://www.ssrn.com/abstract=1320730>.
- Arellano and Bond. (1991), Some tests of specification for panel data: Monte carlo evidence and an application to employment equations. *Review of Economic Studies*, 58(2), 277-297.
- Barro, R. (2001), Economic Growth in East Asia Before and After the Financial Crisis. NBER Working Paper. 8330.
- Baum, C. (2006), An Introduction to Modern Econometrics Using Stata. College Station, TX: Stata Press Berthélemy and Varoudakis.
- Blundell, R., Bond, S. (1998), Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87, 115-143.
- Boyd, J.H., Kwak, S., Smith, B. (2005), The real output losses associated with modern banking crises. *Journal of Money Credit, and Banking*, 37(6), 977-966.
- Cabannes, P., Lapègue, V., Pouliquen, E., Beffy, M., Gaini, M. (2010), Quelle croissance de moyen terme après la crise ? *L'Économie Française. France: Holmes & Meier*.
- Cecchetti, S.G., Kohler, M., Upper, C. (2009), Financial crises and economic activity. In: *Financial Stability and Macroeconomic Policy: A Symposium*. Kansas City: Federal Reserve Bank of Kansas City. p89-135.
- Furceri, D., Mourougane, A. (2009), The Effect of Financial Crises on Potential Output: New Empirical Evidence, OECD Economics Department Working Paper, No. 699. May Hiro Ito. Paris: OECD.
- Hutchison, M.A. (2001), Cure Worse than the Disease? Currency Crises and the Output Costs of IMF-Supported Stabilization Programs. NBER Working Paper, No. W8305.
- Ito, H. (2004), Is Financial Openness a Bad Thing? An Analysis on the Correlation between Financial Liberalization and the Output Performance of Crisis-hit Economies. Santa Cruz Center for International Economics Working Paper Series No. 4-23.
- Laeven, L., Valencia, F. (2012), Systemic Banking Crises Database: An Update, IMF Working Paper. 12/163.
- Guillaumont, J.S., Kpodar, K. (2006), Développement financier, instabilité financière et croissance économique. *Economie et Prévision*, 3(174), 87-111.
- Gupta, P., Mishra, D., Sahay, R. (2007), Behavior of output during currency crisis. *Journal of International Economics*, 72(2), 428-450.
- Reinhart, C.M., Reinhart, V.R., Rogoff, K.S. (2009), This Time is Different: Eight Centuries of Financial Folly. Princeton, New Jersey: Princeton University Press.
- Roodman, D. (2009), A note on the theme of too many instruments. *Oxford Bulletin of Economics and Statistics*, 71(1), 135-158.
- Sheida, T., Taggart, J.B. (2015), Output Recovery after currency crises. *Comparative Economic Studies*, 57(1), 75-102.
- Windmeijer, F. (2005), A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics*, 126, 25-51.

APPENDIX

History of crises in developed and emerging countries

Country	Banking crisis	Monetary crisis	Twin crisis
Argentina	1984-1989-1991-1995-2001	1975-1982-1984-1987-1989-1991 1995	1984-1989-1995
Austria	2008	-	
Brazil	1990-1994	1982-1987-1992-1999	
Canada	1983	2008	
Chile	1981	1982-1984-2008	
Colombia	1982-1998-1987	1985	
South Korea	1980-1997-1998	1997-1998	1997-1998
Costa Rica	1987-1995	1981-1987-1991-1995	1987-1995
Denmark	1987-2008	2010	
Spain	1980-2008	1983-1993	
United States of America	1988-2007		
Finland	1991	1993	
France	1993-2008	2005	
Greece	1991-2008	1983-1985-1990-2005	
Indonesia	1994-1997	1983-1986-1997	
Jamaica	1996	1983-1991	
Japan	1992-1997	-	
Malaysia	1985-1998	1997-1998	
Mexico	1981-1994	1982-1983	1994
		1985-1990-1994	
		1995	
Peru	1983-1985-1984	1983-1988-1990-1992	1983
	1989		
Philippine	1981-1998	1982-1983-1986	
		1997	
Paraguay		1984-1989-1998-2001	
Dominican Republic	1996-2003	1985-1987-2002	
Sweden	1982-1992-2005-2008	1991-2008	2008
Switzerland	1984-1999	2008	
Thailand	1983-1987-1997	1981-1984-1997	1997
Uruguay	1983, 1990, 2002	1981, 2002	2002
Venezuela	1986-1994	1984-1986-1994	1994