INTERNATIONAL CONFERENCE

OPENING AND INNOVATION ON FINANCIAL EMERGING MARKETS

March 27th and 28th 2007

Beijing, CHINA

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FINANCIAL LIBERALIZATION, BANKING CRISIS AND ECONOMIC GROWTH: AN EMPIRICAL INVESTIGATION FOR DEVELOPING AND EMERGING COUNTRIES

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February 2007

Abstract

In this study, we have tried to appreciate the effects of financial liberalization on economic growth in the presence of banking crises. For this purpose, we estimate a dynamic panel model for a sample of 81 developing countries during the period 1980-2003. The results suggest that external financial liberalization have a positive effect on economic growth in the developing and emerging countries, though the effect of equity market liberalization seems to be more marked than capital account liberalization. The banking crises exert a negative effect on economic growth especially in the presence of capital account openness. We have concluded that high level of institutional structure and financial development are both crucial conditions to appreciate the effect of financial liberalization on economic growth.

JEL Classification : C23, F02, G15, O11.
Keywords: Financial Liberalization, Banking Crisis, Economic Growth, Dynamic Panel Data.

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INTRODUCTION AND OVERVIEW

After the great crash, the authority's intervention in the economic and financial activities has become crucial. The classical theories, such as the invisible hand of Smith (1776) and the Say's Law of Markets (1803), were deprived of any importance. It was a new era of the Welfare state and Keynesianism. In fact, state intervention in the economic process became more considerable especially after the independence of developing countries: the long run economic growth could not be supported with a primitive private sector and a short horizon market targets. In 1973, McKinnon and Shaw have presented their thesis in which they criticized this situation characterized, according to them, by discouragement of saving and non-optimal resources allocation. Alternatively, they proposed financial liberalization as a best solution to stimulate financial development and long term economic growth.

This new economic outlook receives worldwidely a great deal of attention including states and international financial institutions. Hence, a significant wave of financial liberalization took place in developed countries (USA, United Kingdom…) and propagated therefore in the emergent and developing countries. At the end of 1970, several Latin America countries (Argentina, Chile, Uruguay…) liberalized their financial sectors. At the beginning of 1980, South-East Asia Countries (South Korea, Taiwan …) started to liberalize their financial systems. Particularly, international capital flows mobility was considered as a solution for developing countries to stimulate their long run economic growth.

From the theoretical point of view, capital movements liberalization can support economic growth through several channels such as the accumulation of saving and the national investment (Levine (2001), Achy (2005)), the reduction of the cost of capital (Henry (2000)), or the stimulation of domestic financial systems (Levine (1997)). However, the variety of empirical studies covering this subject was characterized primarily by divergent results. Some works give a support to a positive and a significant effect of financial liberalization on economic growth (Quinn (1997), Bekaert, Harvey and Lundblad (2001), etc), whereas others did not reach any conclusion concerning this link (Grilli and Milesi-Ferretti (1995), Kraay (1998), etc). Moreover, other studies found that financial liberalization can sometimes slow down the economic growth (Edwards (2001), Daniel and Jones (2005)). Kose, Prasad, Rogoff and Wei (2006) surveyed 20 articles written between 1994 and 2005 that have empirically appreciated the effect of international capital flows on economic growth. The majority of these papers (16 out of 20) do not conclude a significant effect or, at least, mixed effects (Wei [2006], p. 6, 7).

The ambiguous effect of capital flows mobility on economic growth was especially amplified when many developing and emerging countries were influenced by very harmful banking and financial crises. Consequently, it is argued that a successful financial liberalization mechanism can be considered as a result of an adequate institutional environment and a more efficient financial system. In addition, several empirical studies have established a significant causality relationship between financial liberalization and banking crises (Kaminsky and Reinhart [1999], Demirgüç-Kunt and Detragiache [1998], etc). In the same way, the International Monetary Funds, in its 1998 report, suggested that « the great frequency of banking crises since the beginning of the Eighties is, "perhaps", in connection with the financial sector liberalization movements which have occurred in many developing countries for this period…" (IMF, Report 1998, p. 84).

The objective of this paper aims at providing theoretically and empirically the effects of financial liberalization in developing and emerging economies, regarding the existence of banking crisis. In fact, as we have already mentioned, the effects of financial liberalization on economic growth have been considered among the most controversial issues, above all in developing and emerging countries.

Notwithstanding, with regard to the previous studies, the advantages of our empirical study lie in the following points. First, we do not employ binary codes to measure the degree of capital account and stock market liberalization. Second, we take into consideration the interaction that can occur between the external financial liberalization and the banking crises. Third, we use the Generalized Method of Moments estimation

technique. In fact, for our estimation procedures, we refer to the Generalized Method of Moments suggested by Arellano and Bond (1991) in order to avoid the endogeneity problem due to the presence of the lagged dependent variable among the explanatory variables of the standard growth regression.
The remainder of this paper proceeds as follows. Section I focuses on the theoretical overview. Section II deals with the empirical findings in case of financial liberalization could affect economic growth. Section III describes both data and the econometric framework. Section IV presents the econometric analysis and economic implications. Finally section V stands for concluding remarks.

1. THE THEORETICAL OVERVIEW

1.1 Financial Liberalization and Economic Growth: The literature

One of the most significant changes in the international economy over the last three decades has been the growing importance of international financial transactions and international capital flows between countries. In fact, capital flows has witnessed a considerable evolution and were at the origin of the financial globalisation phenomenon, which excluded the concept of national financial markets to substitute them by only one global financial market.
Indeed, cross-border capital flows have raised substantially over the last three decades, from 1.2 trillion dollars in 1980 to 5.8 trillion dollars in 2004. The pace of the growth (at an average annual rate of 6.6%) highly exceeds both the world Gross Domestic Product (at 1.7 per cent per annum) and the world exports (at 3.1 per cent per annum). Developed economies are the most important source countries, accounting for 92% of the outward capital flows in 2004. These economies represent also the most important recipients, accounting for 91% of the inward capital flows in 2004 (Wei [2006].p.2). Five emerging economies (China, Brazil, Mexico, Thailand and Indonesia) absorbed alone more than half of the total entries of capital in destination of developing countries, and 75 % of the total was distributed between a dozen countries. However, more than 130 other developing economies, whose represents the three quarters of the member states of the IMF, are more or less bypassed by the surge in the capital flows. The surge was primarily concentrated on Asia and the Latin America countries (López-Mejía, [1999].p. 28).
Theoretically, the concept of financial liberalization was developed at the beginning of the seventies in the writings of McKinnon and Shaw (1973). Financial liberalization has come as a response to the situation of "financial repression", a principal characteristic of the majority of the economies for this period. According to McKinnon and Shaw (1973), financial repression refers to a set of policies, laws and informal controls, imposed by governments on the financial sector, which distort financial prices and inhibit the operation of financial intermediaries at their full potential. Particularly, considering the significant role that played the banks in the financing of the developing economies (which are, in majority, bank-based economies), the governments consider it as a strategic sector. Thus, they seek to exert a direct or indirect control on it, which can take a variety of forms, such as minimum deposit requirements that serve to finance government deficit, credit crunch, restrictive access into financial services and the regulation of interest rates.
Roubini and Sala-I-Martin (1992) showed theoretically and empirically that a liberalized economy develops more quickly than a repressed one. They affirm that the weak growth rate which the Latin America countries knew compared to the rest of the world between 1960 and 1985 is mainly due to the policies of financial repression adapted in these countries. As noted by several empirical works, they concluded that in a strongly repressed economy, financial repression may be at the origin of 1 % decrease of the per capita GDP growth (Creane, Goyal, Mobarak and Sab [2004]. p. 4-5). In this respect, liberalizing the financial sector can stimulate saving accumulation and, thus, allows the investment rise. In minimizing the intervention of authorities in the economic and financial activities, the low output investments would disappear, and the total efficiency would increase. Moreover, financial sector liberalization would enhance the banking

intermediation. This increase in banking activities would reduce the intermediation expenses between lenders and borrowers thanks to the economics of scale effect, the accessibility of the borrowers to funds and, the diversification of risk.

With respect to neo-classic theory, liberalizing cross-border capital movement should increase growth by enhancing the potential of risk diversification and pushing the cost of capital to the fall. In the same way, external financial liberalization makes it possible to increase the national saving and, thereafter, the investment volume. According to Galindo, Micco and Ordoñez (2002), financial liberalization may affect growth through three mechanisms. First, it may affect the development of the domestic financial system in terms of size and efficiency. Second, it may affect the access of domestic firms to foreign funds and, finally, it may reduce agency problems improving corporate governance. Prasad, Rogoff, Wei and Kose (2003) noted that international capital flows have the potential to bring a variety of benefits to recipient countries. According to these authors, financial liberalization could improve a country's economic growth through a number of direct channels (augmentation of domestic savings, reduction in the cost of capital, transfer of technological and managerial know-how and stimulate the development of domestic financial sector) and indirect channels (promotion of specialization, commitment to better economic policies and signalling).

Cooper (1999) mentioned that North-South capital flows are interesting for both groups. They allow for increased investment in capital-poor countries while they provide a higher return on capital than which is available in capital-rich countries. The possibility of external financing for the developing countries allows them to avoid the constraint of liquidity, which stimulates investments in these countries. In other words, the access to the foreign capital markets allows for the exploitation of the growth potential while investing in profitable projects financed by external funds.

Another strong argument for financial liberalization is based on the principles of the new international finance theory, which stresses the element *"risk"* in international financial markets. The idea is that the access to the international capital markets allows for the distinction between the national saving and investment. Stulz (1999) and Henry (2000, 2003) mentioned that the increased risk sharing opportunities between foreign and domestic investors might lead to the risk diversification. Such operation stimulates the investment in several projects, thereby enhancing growth. Moreover, as international capital flows increase, the domestic stock market becomes more liquid, which could reduce the equity risk premium. Thus, it could lower investments cost capital.

Likewise, financial liberalization may have a positive effect on economic growth through financial development. Nowadays a large survey reveals how financial intermediation enhances growth (see, for example, Levine and Zervos [1996] and Bailliu [2000]). Indeed, open capital markets may also signify more efficient markets and may generally increase financial development. Moreover, the establishment of foreign banks (generally coming from the developed countries) in the developing countries (or the increase in their shares in domestic banks) and the increase in competition may affect positively the domestic financial sector, and thereby the economic growth thereafter. Levine and Zervos (1998) and Caprio and Honohan (1999) argued that the greatest foreign property of domestic banks can have several advantages. First, the participation of foreign banks may facilitate the access of domestic companies to international financial markets. Second, it can help to improve the pattern of domestic banking sector. Third, foreign banks exert spillovers effect via new instruments and techniques adapted in domestic markets.

The last direct channel through which financial liberalization may enhance economic growth is the technological and managerial know-how transfer. As mentioned by FINDLY (1978) and WANG (1990), international capital flows, and especially foreign direct investment (henceforth FDI) is considered as a potential catalyst for raising productivity in developing host countries through technology and managerial know-how transferring. Since Borensztein, De Gregorio and Lee paper (1998), it has been increasingly conceive that technical progress contributes effectively to the economic growth, especially with regard to three major mechanisms; Human capital acquisition, importation of innovating products, and acquisition of new production techniques, etc... . In the same way, FDI attraction plays a crucial role in improving managerial practices. Thus, the developing countries would benefit from the modern management methods. Recently, some proponents have further argue that, by increasing the rewards for good policies and the penalties for bad policies, the free capital flow across national borders has strongly affect the promotion of more disciplined macroeconomic policies and the reduction of policy frequency errors (Bartolini and Drazen [1997], Kose and Prasard [2004]).

1.2 Financial Liberalization and Banking Crisis: Assessing the links

As we have mentioned above, in a repressed economy, banking sector has been considered as a strategic sector. One of the controlling measures of the government is to block new banks access into financial services. The access of new domestic banks is not free, but so regulated. Moreover, foreign banks, which may introduce some financial dynamism, are deprived of any participation in domestic bank capital, because of a complicated licensing requirement or outright prohibition on foreign ownership of banks. At the same time, interest rate is fixed by governments so that there is usually a ceiling on the interest rate that banks are allowed to offer to their depositors. All this practices (and some others) will engender a concentrated and very regulated banking system. Once the banking sector is liberalized, domestic banks will be in a situation characterized primarily by free entry of new banks in the industry. Interest rates will also be determined by the demand and supply of deposits and loans. Thus, financial liberalization implies a radical change in rules according to which banks operate. This change in the activity framework of financial institutions combined with the lack of banking supervision would induce new practices on behaviour of banks.

While there is a little theoretical literature that explains the role of financial liberalization in the emergence of fragility in banking sector, it is almost allowed that practices appearing in the post-liberalization period have played a significant role in the embrittlement of national banking system and the appearance of banking crisis. The two leading hypotheses used in academic circles to explain the relationship between financial liberalization and banking crises are qualified as the “monopoly power” and the “lax supervision” (Noy [2004]).

Before financial liberalization, domestic banks usually exert significant monopoly power. Competition is limited to a small number of banks and they are not allowed to compete on the interest rates. In the post-liberalization period, the installation of new financial markets characterised by a significant innovating dynamics and the entry of new banks result primarily in a greater competition (Grondin and Bernou [2000]). In this new environment, financial institutions, especially domestic banks, which use their resources less efficiently, face large losses and, eventually, bankruptcy (BOYD and AL., 2003). Thereafter, systemic problems in banking sector would be almost an inevitable result of financial liberalization (Noy [2005]). This process was described in the literature as “monopoly power” effect.

In this new environment characterised essentially by high competition, banks shareholders and leaders are more and more incited to take risks. This behaviour is explained by the fall of their profits related to the rise of competition, which reduces the economic value of the bank (Plihon and Miotti [2001]). Samuelson (1999) affirms that, by increasing microeconomic efficiency, the financial liberalization may increase paradoxically the macroeconomic risks, especially if supervisors are also unfamiliar with the new “supervision rules”. Particularly, the moral hazard seems to have played an important role in this kind of behaviour on behalf of supervisors. González-Hermosillo (1999) advances that the moral hazard can occur when banks take excessive risks by granting loans to conditions which can be very lucrative in the short-term, but for which prospects for long-term refunding are reduced. This behaviour is also motivated by the fact that bank supervisors expect that possible losses will be absorbed by a third party, like the government through rescue operations or the international financial organizations. However, unfinished financial liberalization is regarded as one of the explanatory factors of banking fragility, because the maintenance of public interventions under various forms may induce moral hazard preventing the market discipline from playing its role. Plihon and Miotti (2001) advance that bank speculative behaviour may also provoke fragility in

banking system. They argue this by the fact that the intensification of competition and the development of financial market will induce the reduction of bank profit. Banks, confronted to such situation, will seek new sources of liquidity while being interested in high outputs operations, but of speculative behaviour.
However, several economists had noted that the embrittlement of Asian banking systems comes primarily from the high degree of dependence of domestic banks to external capital flows and the structure of borrowed capital (Bird and Rajan [2001], McCauley [2003]). According to Grondin and Bernou (2000), in addition to the swelling of their liabilities, the Asian banks also suffered from structural deformation of their debts. These institutions had strongly moved in the beginning of the Nineties towards a structure of loans primarily libelled in dollars on the one hand, and contracted for short maturities, on the other hand. Thus, the strong capital outflows in the beginning of 1997 has plunged the region in banking and financial crises which costs too expensive for countries that hoped to support their economic growth through financial liberalization.
To recapitulate, we can say that:

i. The domestic financial sector liberalization, in particular banking activities, had facilitated the financing of low profitability and high risky activities, and even doubtful operations (as political loans). Therefore, financial sector liberalization had weakened economies in the interior, by authorizing the existence of behaviours which embrittle the banking structure and making local banks "the weak link" of developing economies;

ii. The external financial liberalization had widened the possibilities of collecting short run resources, borrowed in foreign currencies, used to finance loans in national currency to use them for long-term operations. Thus, financial liberalization intervenes by exposing emergent economies to external disturbances.

The Bank of International Settlements (BIS) affirms in its quarterly report of June 2003 that: “Retrospectively, the Asian crisis can be regarded as the result of brutal withdrawal of foreign capital because of the multiplication of the signs of credit prices contraction and financial tensions within companies and banks”.

2. THE EMPIRICAL OVERVIEW

Based on the background theory, one can note that financial liberalization effects are multiple and its positive impact is obvious. Large number of empirical studies has attempted to assess the links between financial liberalization and economic growth. Their conclusions are very controversial and in some cases contradictory. Differences may be explained by a number of disparities throughout studies: first the choice of the sample which covers, in some studies, industrial countries, in others, developing countries, and in some works both of them. Second the sample period differs through studies, particularly for developing countries. Indeed, the liberalization process does not occur at the same period; (iii) The econometric approach (cross-section, time series, or panel) and the estimation technique (ordinary least squares, instrumental variables, or generalized method of moments) differ across studies; and (iv) The financial liberalization indicators, used to appreciate the degree of restrictions on the capital account or the equity market, vary according to authors and studies.
In this section, we will classify empirical studies into two categories. First, we survey studies confirming positive effects of financial liberalization on economic growth. Second, we deal with the ambiguity of this relationship in some survey studies.

2.1. Studies confirming sustaining Financial Liberalization effects on growth

Quinn (1997) was one of the first to establish the positive link between capital account liberalization and growth. Given a standard growth regression, the author includes a financial liberalization indicator in order to measure its effect on the economic growth. In fact, Quinn has constructed his own proxy of capital account restrictions. This indicator is essentially based on that which is published by the IMF in the "ANNUAL Report on Exchange Arrangements and Exchange Restrictions ". Its main advantage is that it takes account of the restrictions intensity rather than checking its existence (as it is the case for the IMF indicator). As a result, Quinn finds a significant effect of capital account liberalization on the growth in real GDP per capita. His empirical investigation was conducted on a sample covering 58 countries during the period 1960-1989. However, Quinn's study has been criticized by Edison, Klein, Ricci and Sløk (2002). These authors claimed that Quinn's study is limited since it did not distinguish between financial liberalization effects and those of global liberalization.

In their study, Klein and Olivei (1999) used different approaches to look for the effects of financial liberalization on growth: in fact, they made the distinction between industrialized and developing countries and they tried to establish, first, the effect of capital flows on financial development and, second, the impact of financial development on growth. Thus, they add the variable "financial depth" (as a measure of financial development) to the set of variables used in the standard economic growth regression. The empirical investigation is based on a sample of 82 industrialized and non industrialized countries during the period 1986-1995. Their results were unexpected since they found a positive effect of liberalization on growth for industrialized countries. Whereas, for non industrialized countries, their conclusions were not general.

Later, Bekaert, Harvey and Lundblad (2001) demonstrate that equity market liberalization increase economic growth. They add new indicator of equity market liberalization[1] to the set of variables used in economic development research. The authors find that equity market liberalization leads to a one percent increase in annual real per capita GDP growth over a five year period, and find this increase to be statistically significant. This finding is crucial to a wide variety of experiments including: an alternative set of liberalization dates, different groupings of countries, regional indicator variables and four different time-horizons for measuring economic growth… In a sample covering 95 countries, these authors found that rather dramatic changes in the classic regression variables add 1.9% to real economic growth. The liberalization indicator adds 1.1%. Hence, the liberalization contributed to 40% of the total growth increment (Bekaert et al. 2001, p. 34-35). In more recent study, Bekaert, Harvey and Lundbald (2006) examine the effects of both equity market liberalization and capital account openness on real consumption growth variability. Thereafter, they founded that financial liberalization has been mostly associated with lower consumption growth volatility and a decline in the ratio of consumption growth volatility to GDP growth volatility, suggesting improved risk sharing. The maximum decrease in consumption growth volatility has been found in countries that liberalize their equity markets at a time when their capital account was relatively open.

In his paper, Dhingra (2004) considered the relative merits of alternate liberalization strategies that developing countries can adopt to improve their economic performance. The author start first by assessing the impact of different categories of capital flows on output growth to verify if equity flows are better for a country than debt flows. Then, he emphasized his argument by comparing the growth effects of equity market liberalization with capital account liberalization. The empirical investigation was leaded on a dataset covering 58 developing countries during the period 1975-2000. The author adopted dynamic panel data approach using GMM procedure. Concerning financial liberalization measures, he has used the Bekaert and Harvey (1995, 2000) dummy variable for stock market liberalization and the Wyplosz (2001) dummy variable for the capital account liberalization. Dhingra's results go hand to hand with major previous studies. He shown that, while stock market liberalization improves growth by about 3.8%, capital account liberalization has no significant effect on economic growth. These growth effects are more significant for countries with a larger stock market and with better financial systems. With regard to the effects of different types of capital flows on growth, Dhingra (2004) concludes that equity flows, which included FDI and

[1] This binary indicator (noted often BHL indicator) is based primarily on official liberalization dates, the date of introduction of American Depository Receipts (ADR), the date of the introduction of country funds…etc.

portfolio equity flows, had positive effects on output growth (1.4% yearly) compared to debt flows which were not only more volatile, but also had negative effect on country's economic performance (reduction of growth by about 0.6%) (Dhingra [2004], p. 24).

In a more recent paper, Klein (2005) estimated a standard growth model for a sample of 71 countries covering the period 1976-1995. He used the real income per capital as an exogenous variable, whereas the variable "Share" has been employed as measure of capital account liberalization. Also, he introduced a composed variable measuring the institutional quality consisting of indicators as the bureaucratic quality, rules of laws, corruption, etc. Klein's results are similar to those obtained on 2000. He suggested that institutional quality can significantly affect the relationship between financial liberalization and economic growth. In fact, the author concluded that capital account liberalization had a positive and significant effect on economic growth only for countries that seek to have better (though not the best) institutions.

2.2. Studies non confirming growth effects of Financial Liberalization

There are many contributions in the empirical literature confirming no growth effects of financial liberalization. One of the earliest studies in this area by Alesina, Grilli and Milesi-Ferretti (1993), finds no significant effect of openness on growth. Their results are based on a study of 20 industrial countries from 1950s to 1990s. They find that the effect on growth was small. Their study was followed by another study by Grilli and Milesi-Ferretti (1995), in which they analysed average growth of per capita income for a sample covering 61 countries, and this between 1966 and 1989. Their results show that there's no growth effect of capital account liberalization. Rodrik (1998) presents evidence supporting the hypothesis that capital account openness has no effect on economic growth. His empirical investigation was conducted on a sample covering 100 developed and developing countries for the period 1975-1989. The growth regression includes the usual control variables (initial GDP, secondary school attainment, population growth, government spending and investments over GDP) and also an index of the quality of governmental institutions. This study claims that capital account liberalization have no significant impact on economic growth. Also, the author provides evidence of no relationship between capital account restrictions and investment. While using a various capital account liberalization measures, Kraay (1998) put also in doubt the effect of capital account liberalization on growth. In fact, the author has used three indicators of capital account openness: (i) Share measure [2], (ii) Quinn's measure and (iii) Real net capital flows. He estimated a neoclassical standard growth model using the cross section method for the period 1985-1997. Thus, Kraay found no significant relationship between the first two measures and economic growth. He affirms that institutions are considered as primary determinant of economic performance. Thereafter, the anticipated positive effect of capital account liberalization is not obvious for all countries.

More again, some economists even accused the financial liberalization to be behind the apparition and succession of banking crises in some emerging countries. In their paper, Demirgüç-Kunt and Detragiache (1998) led an empirical investigation covering 53 countries during the period 1981-1994. The authors found that financial liberalization increases the banking crisis probability in developing countries. This conclusion was approved by Kaminsky and Reinhart (1999). Their sample includes 20 countries for the period between 1960 and 1985. They conclude that, on the 26 banking crises that they studied, 18 have been preceded by financial liberalization policies. In line with theses findings, the IMF suggested that "the big frequency of banking crises since the beginning of the eighties may be in report with financial sector liberalization movements occurred in a large number of developing countries during this period", (IMF, Report 1998, p. 84). In a more recent study, Daniel and Jones (2006) have found that countries that choose to have more financial liberalized sector may experience an initial period characterized by fast growth rate and low risk, to

[2] A standard way to use the information from line E.2 of the International Monetary Fund's Annual Report on Exchange Arrangements and Exchange Restrictions is to construct, for each country, a variable reflecting the proportion of years in which countries had liberalized capital accounts. We call this variable Share.

enter then in a second period with very high risk of banking crisis. According to these authors, the transition from one state to another is explained by the intensification of foreign competition and the excessive risk-taking by domestic banks.

The empirical literature reviewed in the previous section offers a diverse set of results concerning the effect of financial liberalization on economic growth. Moreover, the earlier discussion also suggests that a direct comparison of these studies is difficult since they vary along at least six dimensions, including (i) Indicators of capital account openness (ii) Indicators of stock market liberalization, (iii) Countries sample (iv) Period of study (v) Econometric approach employed (cross section data, dynamic panel data) and (vi) Estimation technique used (OLS, GMM, instrumental variables...). For all these considerations, it seems to be interesting to know if financial liberalization affects positively economic growth in developing countries. In our study, we attempt to reconcile some differences in the literature by presenting regressions via a dynamic panel data approach that capture the essential components of the previous empirical studies. To do this, a first part of this section will be reserved to model presentation and variable specifications. The econometric framework and empirical results will be exposed in the second part.

3. DATA AND EMPIRICAL STRATEGIES

In our empirical study, we have assessed empirically the effects of capital account or stock market liberalization and banking crises on economic growth in developing and emerging countries. We have taken into account the possibility that banking crises may be induced by financial liberalization, as shown by previous empirical researches (see Aizenman [2002] for a survey). However, in relation to the previous studies, the advantage of our empirical study resides in the following points. First, we do not employ binary codes to measure the degree of capital account and stock market liberalization. Second, we take into consideration the interaction that can occur between the external financial liberalization and the banking crises.

3.1. The model

Our empirical analysis is performed on a panel dataset that covers 81 countries over the period 1980-2003. The detailed description of the sample is provided in appendix A. The choice of the sample period has been dictated by data availability. We test growth effects of financial liberalization and banking crisis by estimating a dynamic version of the standard growth regression. Thus, we adopt a dynamic panel data approach suggested by Arellano and Bond (1991). We formulate the standard neoclassical growth model in a dynamic panel data as follows:

$$y_{i,t} = \alpha y_{i,t-1} + \beta x_{i,t} + \delta Lib_{i,t} + \gamma Cb_{i,t} + \eta_i + v_t + \varepsilon_{i,t} \qquad (1)$$

Where $y_{i,t}$ is the real per-capita GDP growth for year (t), $x_{i,t}$ is a set of control variables standard in the growth literature, $Lib_{i,t}$ is the financial liberalization variable, and $Cb_{i,t}$ is the banking crisis variable. Lastly, η_i, v_t *et* $\varepsilon_{i,t}$ are respectively specific effect, time effect and error term variables.

3.2. Data description

A. Control variables

When assessing the effects of financial liberalization and banking crises on economic growth, we also control for a number of variables, used usually to explain the economic growth:

- Trade openness (TO): As in Berthélemy and Varoudakis (1998), we use the sum of exports and imports of goods and services measured as a share of gross domestic product to estimate the degree of trade openness. Trade openness would have a positive effect on economic growth. Components of this variable have been extracted from the World Bank database (WORLD DEVELOPMENT INDICATORS, 2005).

- Government consumption as a share of GDP (GC): General government consumption includes all current expenditures for purchases of goods and services by all levels of government, excluding most government enterprises. It also includes capital expenditure on national defence and security. The current government expenditure divided by GDP is used here as a proxy of the size of the State. However, its sign should be negative. In fact, more the government consumption is high, more it should need resources to finance its deficit. Vis-à-vis the risk of budget deficit, investments will decrease and the GDP per capita will decline too. This variable has been extracted from the World Bank database (WORLD DEVELOPMENT INDICATORS, 2005).

- Population growth (TPOP): Growth rate of total population which counts all residents regardless of legal status or citizenship. According to Barro (1997), economic growth is negatively related to the fertility rate. Thus, having more children in the same family will generate higher population growth rate. Consequently, this increase of the population growth rate can be behind the decrease of the GDP per capita. This variable has been extracted from the World Bank Database (WORLD DEVELOPMENT INDICATORS, 2005).

- Investment expenditure as a share of GDP (CI): Gross domestic investment consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. The expected coefficient sign is positive. This variable has been extracted from the database PENN WORLD TABLES 6.1.

B. Financial liberalization variables

Financial liberalization literature proposed several types of indicators[3]. Generally, the empirical studies relative to external financial liberalization employ dummy variables that take the value 1 when there are no restrictions and 0 otherwise. In our empirical study, we will have recourse to two types of financial liberalization indicators: the first to measure the degree of capital account liberalization, whereas the second one is used to quantify the degree of equity market liberalization.

- Concerning the capital account liberalization indicator, the IMF dummy one remains the first reference. This indicator is yearly published by the IMF in its "ANNUAL REPORT ON EXCHANGE ARRANGEMENTS AND EXCHANGE RESTRICTIONS". This indicator is available for 212 countries and covers the period 1967-1996. The IMF-Restriction measure equals one in years where there are restrictions on capital account transactions and zero in years where the are no restrictions on these external transactions. However, its main inconvenience is that it doesn't take into account the restrictions intensity. To remedy this insufficiency, we employ the *Kaopen* indicator suggested by Chinn and Ito (2002, 2005). In fact, the last updating database published in 2005 has provided indicators for 163 countries over the period 1970-2004. Estimated by the principal component analysis method, the *Kaopen* indicator ranges between -1.7 and 2.6. A higher value of *Kaopen* represents weaker capital account restrictions[4].

[3] See Edison and Warnock (2001), Edwards (2001), and Edison et al. (2002) for discussions and comparisons of various measures on financial liberalization.

- Indicators of the degree of equity market liberalization, and contrary to those of capital account, were not sufficiently approached in the empirical literature. The majority of empirical studies uses dummy indicators. In theirs paper, Bekaert and Harvey (2000) suggested a binary indicator founded on official equity market liberalization dates. This indicator takes the value 1 after liberalization date and 0 before this date. Also, Edison and Warnock (2003) have provided a measure of restrictions on foreign possession of domestic equities, which shows the intensity of controls at a point in time. Though, exploitation of these two indicators in the development of our survey isn't possible, and this for data availability reasons. This is why we constructed an indicator measuring the degree of equity market liberalization and this while calculating the ratio "[Portfolio equity flows + Portfolio bond flows] / GDP". The idea is that actual international capital flows are a good proxy for measuring the degree of financial openness. Portfolio equity flows are defined as net and include non-debt-creating portfolio equity flows (the sum of country funds, depository receipts, and direct purchases of shares by foreign investors). Portfolio bond flows consist of bond issues purchased by foreign investors[5]. These two variables as well as GDP have been extracted from the World Bank database (WORLD DEVELOPMENT INDICATORS; 2005).

C. Banking crisis variable

Generally, the banking crisis literature attempts to identify and describe crises after their advents. Thus, the majority of empirical studies employs binary indicators which take the value 0 in quiet periods and the value 1 during banking distress episodes. By employing this type of indicators, Caprio and Klingebiel (2003) identified 117 systemic and 51 non-systemic crisis occurred in 93 and 45 countries respectively, from the late Seventies on

However, the principal limit of this type of indicators is that it doesn't cover a great number of countries. It would be thus useful to build a banking fragility index which can cover the totality of the sample. Though, it is usually argued that, contrary to the case of currency crisis, construction of a time series index to identify banking crisis episodes is highly difficult, particularly because of the lack of reliable data on banking sector variables, such as the level of non-performing loans (Kibritcioglu [2002]). Actually, a banking fragility index is an aggregation of several variables which reflect the symptoms of a banking crisis. In fact, it's usually argued that a banking crisis may arise under various aspects and that only one variable doesn't make it possible to detect the various forms of the crisis, from where the interest to combine several variables in only one index.

Kibritcioglu (2002) has constructed a monthly index in order to detect the banking sector fragility periods (hereafter BSF). This index is similar to the exchange market pressure index which is usually used to detect the currency crisis episodes. Particularly, the BSF index is composed of the combination of three variables: (i) Bank's real foreign liabilities; (ii) Banking system total real claims on private sector; and (iii) Total real deposits on banks. According to the same author, the fluctuations which can affect these three variables are supposed to generate changes in the degree of banking sector fragility. Otherwise, crisis which can touch the banking sector are often caused by significant falls of these variables. The variables were extracted from the International Monetary Fund's database (INTERNATIONAL FINANCIAL STATISTICS, CD-ROM 2004). However, since this database doesn't include 2003 data, we had recourse to the monthly report of June 2005 of the "INTERNATIONAL FINANCIAL STATISTICS". The variable "Bank's real foreign liabilities" were taken from line 26C..ZF, while the variable "Banking system total real claims on private sector" were extracted from line 22D…ZF. Finally, "Total real deposits on banks" is obtained while adding line 24…ZF and line 25…ZF. Nominal series are deflated by using the GDP deflator extracted from the World Bank "WORLD DEVELOPMENT INDICATORS" database (CD-ROM 2005). Once the series deflated, we can construct the B*SF index* while basing ourselves on the following formula:

[5] Definitions extracted from the original database, namely "The World Development Indicators [2005]".

$$BSF_t = \frac{\left(\frac{FL_t - \mu_{fl}}{\sigma_{fl}}\right) + \left(\frac{CPS_t - \mu_{cps}}{\sigma_{cps}}\right) + \left(\frac{DEP_t - \mu_{dep}}{\sigma_{dep}}\right)}{3} \quad (2)$$

Where *FL*, *CPS* and *DEP* are, respectively, the annual changes in bank's real foreign liabilities, banking system total real claims on private sector and total real deposits on banks. Whereas (μ) and (σ) represent the arithmetic average and the standard deviation of the previous variables, respectively. Thus, *BSF* index was constructed for the totality of the sample during the period 1980-2003. However, it is useful to note that if:

- $-0.5 < BSF_t < 0$, banking sector is considered to be in a medium fragility period;
- $BSF_t < -0.5$, then the banking sector is considered very fragile (systemic banking crisis).

In our database, BSF takes the value 1 if it is negative (in the case of banking crisis) and 0 otherwise (no banking crisis).

D. Other variables

Background theory as well as empirical studies, insist on the fact that the effect of financial liberalization on the economic growth remains dependent on several financial, macro-economic and institutional conditions. That's why we decided to include other variables measuring the degree of financial development, the macro-economic stability and finally, the level of institutional quality.

- Liquid liabilities as a share of GDP (M3/GDP): There are several indicators of the degree of financial development which were used in the literature relative to the link between financial deepening and economic growth. However, and as Demirgüç-Kunt, Beck and Levine (1999) note it, the ratio M3/GDP is considered as *"a typical measurement"* of the degree of financial deepening and the financial sector size. This indicator was extracted from the database "THE WORLD DEVELOPMENT INDICATORS [2005]". Its sign should be obviously positive.

- Inflation (INF): Macro-economic stability is primarily represented by the stability of price level and the moderation of the budget deficit. Thus, in our study, inflation is selected like a proxy in order to seize the level of macro-economic stability. Indeed, a high rate of inflation characterizes the economies where financial repression is strong, so that the real interest rate becomes negative, thus reducing the weight of governmental debt. However, a strong inflation disadvantages the long-term investments and exerts harmful effects on economic growth. Consequently, the sign awaited for this variable is negative. This variable is extracted from the World Bank database (THE WORLD DEVELOPMENT INDICATORS [2005]).

- Legal structure and security of property rights (QI): As noted by Kaminsky and Schmukler (2003) and Ranciere, Tornell and Westermann (2006), the level of institutional quality exerts a significant role on the financial liberalization and economic growth relationship. In the same way, Klein (2005) showed empirically that financial liberalization exerts a positive effect on economic growth only in countries which tend to have a good institutional quality. Several indicators were constructed in order to measure the degree of institutional quality such as bureaucratic quality, rules of law or corruption… Thus, in the present study, we employ the indicator "Legal structure and security of property rights" as a proxy of institutional quality level. This indicator is the composite of five variables: (i) Judicial independence; (ii) Impartial courts; (iii) The protection of intellectual property;

(iv) The military interference in rule of law and the political process; and (v) The integrity of the legal system. We anticipate that the existence of legal systems and the protection of the intellectual property increase the productivity and thereafter economic growth by inciting economic agents to innovate. Thus, the sign of this variable should be positive. This variable was extracted from '*The International Country Risk Guide'* database' (DATASET 2005). However, since these variables are available only for 5 years frequencies between 1980 and 2000, we applied the method suggested by Chinn and Ito (2005), which consists in considering the value of the year (t) as constant between (t-4) and (t). The authors justify this by the fact that the characteristics of these variables are not likely to change on the short run. It's also necessary to note this variable vary between 0 and 10, more its value is significant, more the country institutional environment is more robust, and vice versa. In our database, QI takes the value 0 if it varies between 0 and 5. Between 5 and 10, it takes the value 1.

3.3. The Sample

The sample covers 81 countries during the period 1980-2003. In appendix 1A we show a detailed presentation of the sample and sub-samples used in our analysis. Sub-samples are chosen: First, with respect to the IMF classification: the whole sample is subdivided into two sub-groups. The first contains 17 emerging countries and the second covers 64 developing countries. This classification is in line with Clark, Tamirisa and Wei (2004). Second, according to the geographical distribution: (1) Sub-Saharan African countries (34 countries); The Latin America and the Caribbean countries (25 countries), Asia countries (13 countries) and Middle East and North Africa countries (8 countries). Concerning our estimations and as it will appear later, our models specifications are a dynamic panel data models. For such group of models, the within group estimator (for fixed effects models) and the GLS estimator (for random effects models) conduct to biased estimators. For this reason, we use the GMM (Arellano and Bond 1991) technique, as it will be briefly discussed later, in order to deal with the correlation between the error term and lagged dependent variables.

3.4. The Econometric Methodology

During the last decade, the concept of GMM has received a great deal of attention. If the explicit maximum likelihood function is so complicated and presents some difficulties to derive, the concept of GMM is often a simple way to conduct estimations. The main feature of the GMM technique is the use of orthogonality conditions. Theses conditions are generally used for determining the instrumental variables matrix which is chosen to be orthogonal with the explanatory variable matrix and the error term vector. Arellano and Bond (1991) suggested estimating a dynamic panel data model using GMM estimation procedure. Their estimator is similar to Anderson and Hsiao (1982) one but exploits additional moment restrictions, in order to enlarge the set of instruments. The idea of the GMM estimator is to estimate the differenced model:

$$\Delta y_{i,t} = \alpha_1 \Delta y_{i,t-1} + \alpha_2 \Delta y_{i,t-2} + ... + \alpha_p \Delta y_{i,t-p} + x'_{i,t}\beta + \Delta\varepsilon_{i,t} \qquad (3)$$

By using the instruments: $y_{i,t-2}, y_{i,t-3},..., Y_{i,1}, \Delta x_t$.
Using extensive matrix algebra[6], Arellano and Bond (1991) construct two GMM estimators: One-step and two-step Arellano-Bond estimator. These two estimators differ in the specification of the weighting matrix: the two-step GMM estimator uses residuals from the one-step estimator, and replace the weighting matrix with one estimated as in White (1980) (white period covariance estimation). Lastly, we note that an alternative method of transforming the original equation to eliminate the individual effects involves computing orthogonal deviations (Arellano and Bover [1995]). The Arellano and Bover method is so called

[6] For more details concerning the GMM estimator conception, one can refer to Arellano and Bond (1991) and Baltagi (2003).

the GMM estimator with orthogonal deviations. This method considers the deviation of each data with respect to the average of its leads observations weighted by a specific time length[7]. In our empirical estimation we refer, especially, to this approach.

The consistency of the GMM estimator essentially depends on the validity of the instrumental variables. A Sargan test of overidentifying restrictions is performed to test the validity of the instruments. Under the null hypothesis of orthogonality of the instruments, the test statistic is asymptotically distributed as a χ^2 with the degree of freedom equal to the difference between the number of moment conditions and number of parameters.

Another essential assumption for the consistency of the GMM estimator is the hypothesis of no serial correlation in the indiosyncratic error terms: if the level residuals are serially uncorrelated, then, by construction, the first-differenced residuals would follow an MA (1) process which implies first-order autocorrelation, but no higher order autocorrelation. Based on the first-differenced residuals, the Arellano-Bond m_1 and m_2 statistics test the null hypotheses of zero first- and second-order autocorrelation, respectively (see Arellano and Bond (1991) for further details). These tests are asymptotically distributed as standard normal variables under the null of no serial correlation. An insignificant m1 or significant m2 will issue warnings against the likely presence of invalid moment conditions due to serial correlation in the level residuals.

4. THE EMPIRICAL RESULTS

First, we test the hypothesis of financial liberalisation effect on economic growth in the presence of banking crisis for the global and sub-samples. Then, we test whether financial liberalisation affects positively economic growth under financial, macroeconomic and institutional preconditions. Note that the lack of researches integrating banking crisis variable in the relationship between financial liberalization and economic growth in developing countries do not lead to have strong affirmations. Indeed, related works have been interested on the relationship between financial liberalization and banking crisis, or the one between financial liberalization and economic growth.

4.1. Financial liberalization, banking crisis and economic growth

First of all, in our GMM estimations, we conduct diagnostic tests for the validity of estimators and find that the estimations generally perform well. m_2 statistic reject the null of second-order serial correlation in the differenced residuals. In addition, the Sargan J test, a test of the overidentifying restrictions on the GMM estimators, does not reject the validity of the instruments used. The results of these tests are satisfactory in all cases.

Table 2 contains estimations of several specifications for the whole sample. First, we only include control variables, namely, logarithm of lagged dependent variable, trade openness rate, government consumption, domestic investment and population growth rate. Our main objective is to check whether our results are consistent with the previous endogenous-growth studies. The specifications 2, 3 and 4 focus on capital account liberalization and banking crisis. Whereas, in the 5th, 6th and 7th specifications, we introduce the equity market liberalization and banking crisis variables in order to examine their effects on economic growth.

The first column of table 2 presents the standard growth regression without inclusion of financial liberalization and banking crisis variables. Results are consistent with empirical studies. In fact, control

[7] Data are transformed as follows: $X_{it}^{*} = \left(X_{it} - \frac{X_{it+1} + \dots\dots\dots X_{i1}}{T-t} \right) \left(\frac{T-t}{T-t+1} \right)^{\frac{1}{2}}$ Avec t = 1,2,...,T-1.

variables coefficients have expected signs and are significant at 1% level. Indeed, the logarithm of trade openness rate is significant and has a positive sign leading to a positive relationship between the degree of trade openness and economic growth. Concerning domestic investment, it has a positive and significant effect on economic growth at 1% level. Whereas, government consumption has a negative and significant effect on economic growth at 1% level. These results are consistent with the predictions of Barro, Mankiw and Sala-I-Martin (1995), who suggest that several non productive public dispenses and political corruption may delay economic growth. As suggested by Bekaert, Harvey and Lundblad (2001), the logarithm of population growth rate has a negative and significant effect on economic growth. An increase in population growth rate may be at the origin of per-capita GDP decrease.

In the second specification, we introduced the *Kaopen* variable as a proxy for capital account liberalization degree, in order to test its effect on GDP growth rate for the global sample. Results suggest that the introduction of the *Kaopen* variable does not affect the estimated relationship between control variables and the GDP growth rate (except the logarithm of population growth rate). However, the capital account liberalization has a significant and positive effect on economic growth at 5% level. Indeed, the liberalization coefficient is equal to 0.0048. On average, the capital account liberalization in developing and emerging countries leads to an increase of GDP growth rate by about 0.48%.

This result is not coherent with Dhingra (2004) which concludes that capital account liberalization has no significant effect on economic growth. This divergence could be explained by the exploit of different capital account liberalization indicators: Dhingra (2004) employs the dummy variable of Wyplosz (2001), whereas, in our study, we use the Chinn-Ito capital account liberalization indicator (*Kaopen*). As mentioned in the economic literature (Kaminsky and Reinhart [1999], Demirguc-Kunt and Detragiache [1998])[8], the removal of capital flows restrictions may expose the liberalized economies to disturbances and even to expensive banking crisis. To test this hypothesis, we introduce in the third specification the FSB variable as a proxy for banking crisis.

For the global sample, the banking crisis coefficient is negative (-0.0194) and statistically significant at 1 % level. Indeed, the emergence of banking crisis in developing and emerging countries during the two last decades has reduced the per capita GPP growth by about 2%. However, the capital account liberalization coefficient seems to be stable (0.0045).

In order to define better the interaction between the capital account liberalization and banking crisis, we have introduced an interactive term between FSB and *Kaopen* variables in the 4th specification. The sign of this variable is negative and statistically significant at 1% level, suggesting that a more opened capital account, the more important are the negative effects of banking crisis. This may be explained by the fact that the appearance probability of banking crisis is more important in an open capital account economy.

The banking crisis coefficient remains negative but becomes more important relative to the earlier specification. As a result, the *Kaopen* coefficient has been doubled (0.0089) after the introduction of the two variables in the 4th specification. This result contradicts the Bonfiglioli and Mendicino (2004) findings. These authors suggest that countries without capital account restrictions are less exposed to the negative effects of banking crises than financially closed economies. They consider that in the banking crisis periods, the economic agents may be financed by international capital markets. However, it is important to note that the inconstancy of results may be due to the differences in the indicators of capital account liberalization and the sample. In the 5th specification, the equity market liberalization indicator is introduced. This indicator is affected by a positive and significant coefficient at 1% level (0.0085). Consequently, we can conclude that the equity market liberalization leads to an annual growth of 0.85% in real per capita GDP for the global sample. Our result is similar to the one obtained by Bekaert, Harvey and Lundblad (2001) that indicates that equity market liberalization leads to an increase of about 1% of the annual real per capita GDP growth over a five year period.

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[8] See Aizenman (2002) for a detailed presentation of these works.

In the 6th and 7th specifications, we add the banking crisis variable and the interactive term between the banking crisis (FSB) and the equity market liberalization indicator (EML). The banking crisis variable has a significant and negative effect (0.0171), whereas the EML indicator sign remains positive and significant (0.0071). The interactive term has a negative but weak coefficient. After equity market liberalization, banking crisis can disprove economic growth by 0.68% per year. This resulting, may be, from high volatility of capital placed in equity markets which are in majority short term flows or *"hot money"*. In addition, external and internal factors, such as real exchange rates volatility, changes in international interest rates, can induce sudden and massive outflows and thus, banking sector problems. However, one must note that the inclusion of interactive term did not affect the equity market liberalization coefficient which varied from 0.0085 to 0.0088. Indeed, contrary to the capital account liberalization, the emergence of banking crisis is not affected by equity market liberalization. Therefore, our finding is consistent with Bonfiglioli and Mendicino (2004) results. These authors suggest that there is no interaction between equity market liberalization and banking crisis.

To conclude, capital account and equity market liberalization exert favourable effects on economic growth in the developing and emerging markets. Once we introduce banking crisis variable, the capital account liberalization effect becomes more important, whereas the equity market liberalization effect seems to be stable.

To better underline the financial liberalization effects on economic growth, we decompose the global sample into two sub-samples: the developing and emerging countries. In table 3, we will compare capital account and equity market liberalization effects on economic growth in the two sub-samples.

The first report concerns the control variables. The majority of these variables is significant and has the anticipated signs, except the domestic investment variable whose coefficient become negative. This can appear surprising if we look for related empirical works results. However, in a study on a dataset covering 138 countries during the period 1965-1995, Easterly (2001) insists that the general perception according to which a larger accumulation of capital enhances economic growth is not always checked. The author concludes that the increase of investment is not a necessary and sufficient condition to support the short run economic growth.

The 2nd, 3rd, 7th and 8th specifications of table 3 contain control variables, capital account liberalization indicator and also banking crisis variable. According to the 2nd and 7th specifications, we find that capital account liberalization coefficient is significant and have a positive sign. In fact, the *Kaopen* coefficient varies from 0.0053 for developing countries and 0.0025 for emerging countries. As a result, the capital account openness seems to have more improved economic growth in developing countries than in emerging ones. This can be explained by the harmful financial crisis that took place in these countries during the nineties. Consequently, our results do not confirm the findings of several empirical studies suggesting positive capital account liberalization effect on economic growth only in the developed countries. By using heterogeneous sample which contain developed and developing countries, Edwards (2001) concluded that capital account liberalization slows down the economic growth in low income countries, and has a positive effect in the industrialized economies. However, the pertinence of Quinn's indicator, used as a proxy of capital account liberalization degree in Edwards's study, has been questioned by Arteta, Eichengreen and Wyplosz (2001).

In the 3rd and 8th specifications, we introduce the banking crisis variable and an interactive term between banking crisis and the capital account liberalization indicator, respectively for developing and emerging countries. Once we introduce these two variables, the *Kaopen* coefficient changes from 0.0053 to 0.0086 and become more significant for developing countries. Nevertheless, for emerging economies, the *Kaopen* coefficient varies from 0.0025 to 0.0002 and becomes non significant. This may suggest that the recurrence of banking crisis in developing countries has lead to a decrease in the positive effect of capital account liberalization on economic growth. The non significance of *Kaopen* coefficient in emerging countries can be considered as another argument for the ambiguous relationship between capital account liberalization and the economic growth in these countries. The interactive variables have a negative sign and are statistically significant. We find that this coefficient is equal to -0.0092 for the developing countries and is about -0.0045 for the emerging economies.

Concerning the equity market liberalization (4th, 5th, 9th and 10th specifications), once again, the developing countries seem to have profited more from the openness of their equity markets to foreign investors. In fact, the equity market liberalization is at the origin of the increase of the real per capita GDP by about 0.56% for developing countries and by 0.16% for emerging economies. Then, we introduce the banking crisis variable and the interactive term between banking crisis and equity market liberalization variables. The equity market liberalization coefficient becomes more important for developing countries and it decreases in emerging ones. In the first group of countries, this coefficient becomes 0.0086 and it is significant at 1% level. Whereas, for the second group, the equity market liberalization coefficient is not significant and is about 0.0007. The banking crisis effects on the economic growth remain almost the same (-2.27% of GDP for developing countries and -2.16% GDP for emerging countries). As for the interactive variables, it remains negative but not very significant, compared to that found for capital account liberalization. This finding is consistent with the results suggesting that equity market liberalization has no effect on the recurrence of banking crisis in developing and emerging countries, and when there is any effect, it still not important.

To conclude, we can say that capital account, as well as equity market liberalizations, effectively stimulate economic growth in developing countries. Whereas, the identification of this relationship in emerging countries of Asia and Latin America is ambiguous: the financial liberalization has no strong positive and significant effect on economic growth in these countries. However, the capital account openness in the two groups of countries seems to make banking sector more fragile.

In the rest of the paper, we decompose the global sample into four sub-samples according to their geographic distribution: Asia, Latin America and the Caribbean, Sub-Saharan Africa and finally the Middle East and North Africa (MENA). The results of this estimation are shown in the 4th and 5th tables. Thus, we conclude that capital account liberalization has a positive and significant effect in all sub-samples, except those of Sub-Saharan Africa. The most important effect of capital account liberalization on economic growth is especially appreciated for the case of Asian and MENA countries: capital account openness improve growth by about 1%. In Latin America and Caribbean countries, the coefficient found is 0.0046, whereas for Sub-Saharan Africa countries, it is equal to -0.0024 but non significant.

Once we introduce the banking crisis variable and that interactive term banking crisis/capital account liberalization, *Kaopen* coefficient undergoes some changes. For Asian and MENA countries, the coefficient become respectively 0.0045 and 0.0056 and stays significant at 1% level. The capital account liberalization effect on the economic growth of Sub-Saharan Africa is equal to 0.0063 and stills non significant. This can be explained by the careless and slowly financial liberalization process undertaken in these countries. The banking crisis coefficients are negative and vary from -0.0101 in Latin American and the Caribbean countries to -0.0321 in Asian countries. In the same way, the interactive terms are negative in Sub-Saharan Africa (-0.0208), in Latin America and the Caribbean (-0.0035) and in the Asian countries (-0.0090). Thus, we note that capital account liberalization in Sub-Saharan Africa countries do not have a positive effect on economic growth, but it has, rather, led to harmful banking crisis because of financial system fragility, the lack of financial liberalization preconditions and the incompletion of this process in these countries. Moreover, the advantages taken from capital account liberalization in the Asian countries (an increase of about 1% in the per capita GDP per year) was accompanied by banking crisis (slowing down of the economic growth by 3%). As for MENA countries, the interactive term coefficient is positive and significant (0.0037) although that of banking crises is negative (-0.0200). We can conclude that banking crisis has exerted a negative effect of about 2% on the GDP growth in these countries. This negative effect may be mitigated by the capital account openness.

The equity market liberalization coefficient has a positive and significant sign for the whole sample except those of Sub-Saharan Africa. Latin American and the Caribbean, as well as MENA countries profited more from the openness of their equity market liberalization to foreign investors. The coefficient is equal to 0.0073 for Latin American and the Caribbean countries, and is equal to 0.0078 for the MENA countries. The coefficient for Sub-Saharan Africa region is positive but not significant. In addition, the EML coefficient associated to Sub-Saharan Africa is affected by a negative and non significant sign.

The same methodology adopted previously will be taken again and this by introducing a banking crisis variable and an interactive banking crisis/ equity market liberalization. The EML coefficient associated to Sub-Saharan Africa countries is affected by a negative and non significant sign. Whereas, those of other regions keep the same signs: positive and significant. Coefficients associated to MENA and Latin American and the Caribbean countries are the most important (respectively 0.0114 and 0.0080). The banking crisis indicators are negative and significant at 1% level for all countries. As for the interaction term, it is not significant for Latin American and the Caribbean countries and for Sub-Saharan Africa. The coefficients observed in MENA countries is negative and is about 0.0270, while that observed in Asian countries are positive and equal to 0.0017.

4.2. Financial liberalization, institutional, financial and economic pre-conditions

Theoretical overview, as well as empirical studies, have revealed that the relationship between financial liberalization and economic growth depend crucially on some pre-conditions: level of financial development (King and Levine [1993], Klein and Olivei [1999]); macroeconomic stability (McKinnon [1993]); and finally, institutional environment (Chinn and Ito [2002], Klein [2005]). In this chapter, we will be interested in each of these conditions, in order to more specify the effect of financial liberalization on economic growth in emerging and developing countries. For this reason, we used referring the ratio M3/GDP (in logarithm) which is a proxy of the degree of financial development *(LLL)*. We suppose, based on theoretical works, that the financial development is considered as a crucial condition for the success of financial liberalization. The macroeconomic stability is represented by inflation *(INF)*. An important inflation rate characterizes primarily repressed economies. As a consequence, a strong inflation rate may break long-term investments and possible harmful effects on economic growth may occur. To finish, the indicator "Legal structure and security of property rights" was selected to reflect institutional quality *(QI)*. We anticipate that the existence of legal systems and a serious protection of property rights encourage innovation, increase productivity and thereafter economic growth. Thus, interactive variables were constructed between the capital account liberalization or the equity market liberalization and one of three variables cited previously. Therefore, in addition to control variables and financial liberalization variables, our regression equation will contain one of the listed interaction terms.

The new equation to be estimated is:

$$y_{i,t} = \alpha\, y_{i,t-1} + \beta\, x_{i,t} + \delta\, Lib_{i,t} + \xi\,(Lib_{i,t} \times k) + \eta_i + v_t + \varepsilon_{i,t} \tag{4}$$

k will be replaced by *LLL*, then by *QI*, and finally by *INF*. If, for example, k represents inflation rate, the presence of such variable leads us to test empirically if the effect of financial liberalization changes with respect to the country level of inflation. The differentiation of equation (2) gives:

$$\frac{\partial y_{i,t}}{\partial Lib_{i,t}} = \delta + \xi \times k \tag{5}$$

Thus, if ξ is positive, this implies that financial liberalization have more significant effects on economic growth in countries characterized by a high level of k.

At the beginning, analysis will be conducted for the whole sample (table 6), then for developing countries (table 7) and finally for emergent countries (table 8). In the first four columns of table 6, the capital account liberalization will be studied, whereas equity market liberalization is treated thereafter. The first column of

table 6 contains the control variables and an indicator of the degree of capital account liberalization. Its sign is positive (0.0048) and statistically significant.
The impact of the interactive term between capital account liberalization and the indicator of institutional quality *(Kaopen* $\times$*QI)* on economic growth is positive. In fact, the effect of capital account liberalization on economic growth increases as the level of institutional quality is more significant. A 1% increase in institutional quality variable leads to a 0.0168 % increase in growth rate of output. This result is coherent with the theoretical foundation which stipulates that the reinforcement of institutional quality is a primitive condition to reap larger benefits from capital account liberalization. Demirgüç-Kunt and Detragiache (1998) conduct an empirical study on 53 countries (1980-1995). Their results indicate that financial liberalization must be mixed by an appropriate institutional structure, in particular, the respect of law and order, the absence of corruption and the good application of contracts. In the same way, Klein (2005), in his study, choose a sample of 71 countries over the period 1976 to 1995 and he concludes that the capital account liberalization exert a positive effects on economic growth only in countries which tend to have good institutional quality. In addition, when we introduce the institutional quality variable, the *Kaopen* coefficient becomes negative. This may gives an idea about the important role played by institutional quality in the determination of the effects of capital account liberalization on economic growth.
Then, an interactive term between capital account liberalization and financial development *(Kaopen* $\times$*LLL)* was introduced into the third column in order to capture the effect of financial development in the effectiveness of financial liberalization. The coefficient on this term is positive (0.0073) and significant at the 1% level, it reflect a positive and strong correlation between the degree of financial development and the economic growth. This result is conform with Klein and Olivei (1999) conclusions. These authors estimate a growth model which incorporates the capital market deepening as an explanatory variable for a sample of 82 developed and developing countries. They conclude that financial development participates significantly in per capita GDP growth.
Column 4 shows specification results related to the impact of inflation on the capital account liberalization and economic growth relationship. According to these results, it is clear that the interactive term, *Kaopen-inflation*, is positively correlated with economic growth for the totality of the sample. This result is irreconcilable with the theoretical framework which stipulates that the stability of prices index is an important condition for the success of financial liberalization mechanism. However, it should be noted that the coefficient of the interactive term is very low (2.8×10^{-06}) which means that the stability of prices index does not represent a significant condition to success the capital account liberalization (as it is the case, for example, for financial development and institutional quality).
In the sixth column of table 6, an interactive variable between the institutional quality and the equity market liberalization indicator was introduced. This variable is positively related to economic growth. In fact, a 1% increase in the institutional quality leads to an additional growth of 0.0017%.
The following column contains other then control variables and the equity market liberalization indicator, an interaction term between the equity market liberalization indicator and the level of financial development (EML $\times$ M3/GDP). This variable, which reveals the importance of financial development in the relationship between equity market liberalization and economic growth, shows a negative and significant sign. The effect of the stock market liberalization on the growth decreases as well as the ratio M3/GDP is significant. Thus, we can conclude that stock markets liberalization in the developing countries was carried out without having built a solid financial system able to manage external capital inflows. Finally, the last column contains an interactive variable between the stock market liberalization indicator and inflation. The coefficient of this variable is positive but not significant. To recapitulate, we can say that liberalization of capital account or of equity market, was accomplished within an adequate institutional environment. However, the level of financial development do not allow to developing countries to fully benefit from financial liberalization. In the same way, we do not conclude clearly the positive effects of financial liberalization on economic growth in countries with better macroeconomic policies.

These results can sometimes hide disparities that can exist between the groups of countries. For this reason, we will divide the global sample into two sub-samples: developing countries (Table 7) and emerging countries (Table 8). The first column of tables 7 and 8 highlight the interaction between the capital account liberalization and the institutional quality, respectively, for developing and emergent countries. The interactive term is positively correlated with the economic growth for developing countries, whereas it presents a negative sign of 0.0081 for emergent countries. Thus, we can say that the first group of countries has reinforced their institutional environment, which has stimulated the positive effects of capital account liberalization on the economic growth. However, emergent countries, on the contrary, carried out their openness in an inadequate institutional context, characterized primarily by the lack of prudential regulation and banking supervision and, also, underdeveloped institutions. This may explain, in some kinds, the result, already obtained, which stipulates that the capital account liberalization has engendered banking fragility in emerging countries. The weakness of supervision and regulation policies, the high risk-taking by domestic banks and the problems of adverse selection and moral hazard, already analyzed in the theoretical part, has caused serious problems in banking systems of emergent countries.

The coefficient of the interaction variable between financial development and capital account liberalization is already positive and statistically significant for developing countries, whereas it is negative but non statistically significant for emerging countries. For a 1% increase in the quasi- money, there is an additional growth effect of 0.01%. Consequently, we can conclude that developing countries have showed more appropriate preparation to the capital account openness.

To capture the effects of macroeconomic stability in the relationship between capital account liberalization and economic growth, we construct an interactive term namely ($Kaopen \times INF$). This variable has a negative sign, but not significant for developing countries, and positive and sign significant in the case of emerging countries. However, one must note that its value is very weak and even negligible (respectively -1.36×10^{-06} and 8.2×10^{-06}). This may reinforce the idea that the success of capital account liberalization is not necessarily conditioned by the existence of good macroeconomic policies.

We are interested now to equity market liberalization. The interaction term between the variable "Legal structure and security of property rights" and the equity market liberalization indicator provided a significant and positive coefficient for developing countries, and a negative and significant coefficient for emerging countries. This can support the idea, already advanced, which stipulates that emerging countries have liberalized their financial systems without however having reinforced their institutional structures, which has engender expensive costs in term of banking bankruptcy and foreign capital outflows. Column 6 of table 7 and 8 report the effects of having a better developed stock market. For emerging countries, the coefficient on EML is still positive and statistically significant, but the interaction term is negative and statistically significant. This implies that with such financial systems, equity market liberalization couldn't exert a positive effect on the economic growth. However, this coefficient is positive and significant for developing countries, which implies that there is an additional growth effect of having a larger stock market. These countries have reinforced their financial structures before opening their stock markets to foreign investors. Finally, the interactive term relative to inflation, which is always not significant, is characterized by weak values, which is coherent with already advanced judgement which involve that good macroeconomic policies don't represent a crucial condition before liberalizing financial systems (as it is the case for institutional quality and financial development).

CONCLUDING REMARKS

In this paper, we have assessed empirically the effects of financial liberalization and banking crisis on economic growth. We have admitted the possibility that banking crisis comes along with financial liberalization, and we have allowed for unequal effects across countries with different degrees on institutional quality and financial development. The overall conclusion we have drawn from the background theory is that financial liberalization has a positive impact on economic growth. Yet, the difficulties which many liberalized countries suffered from remind us that the reality is more complex than theory. In fact, the empirical overview in this paper offers a diverse set of results concerning the effect of financial liberalization on growth, and suggests that a direct comparison of the empirical investigations is difficult due to its change according to, at least, six dimensions, including, respectively, indicators of capital account liberalization, indicators of equity market liberalization, countries sample, period of study, econometric approach (cross section data, dynamic panel data) and estimation technique (OLS, GMM, instrumental variables...). For all these considerations, it seems to be interesting to know if financial liberalization and banking crisis can affect economic growth in developing and emerging countries. In this respect, we have tried to reconcile some differences in the empirical overview by revealing regressions via a dynamic panel data approach. Our empirical investigation is based on a sample of 81 developing and emerging countries during the period 1980-2003. In our estimations, we employed the GMM instrumental panel estimator suggested by Arellano and Bond (1991) in order to deal with the endogeneity problem caused by the presence of lagged dependent variable among the explanatory variables of the standard growth regression. Our empirical results have shown a positive relationship between equity markets liberalization and economic growth in developing and emerging countries. Equity market liberalization improves growth by about 1%. This result is consistent with Bekeart et al. (2001). Furthermore, the results have suggested that capital account liberalization has a positive impact on economic growth. Whereas, this impact seems to be more important for equity market liberalization case. In the same way, the capital account openness can cause banking sectors fragility for newly liberalized countries since the banking crisis intensification raised once the capital account is opened. This result is persistent to a wide variety of experiments including different grouping of countries. In another hand, our study attempt to assess the growth effect of financial liberalization with respect to some preconditions which are financial sector development, institutional quality and macroeconomic environment. Thus, we have shown that the first two preconditions represent the fundamental preparations for the success of financial liberalization process in developing and emerging countries. These conditions have existed in developing countries, whereas financial liberalization in emerging countries has been badly prepared. This can be related the appearance of banking crises in these countries. In fact, the cost of banking crises is higher in economies with bad institutions as well as in the closed ones, while they have less impact in liberalized economies with higher institutional quality. This conclusion is consistent with Bonfiglioli and Mendicino (2004). Even though, we have not found any strong evidence of growth effects of financial liberalization in healthy economies. On the whole, our results suggest that a necessary condition for developing and emerging countries, to be able to extract maximum benefits from international capital flows, is a well-developed financial sector. They can develop a strong internal financial sector before external financial liberalization. Also, financial liberalization should be gradual in time with respect to high quality institutional environment. Particularly, an efficient banking sector with regard to prudential rules constitutes a bridge to establish a strong link between financial liberalization and economic growth.

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APPENDIX A: DEFINITIONS AND VARIABLES SOURCES

Variable	Definition and Construction	Source
Real GDP per capita	Log of the ratio of real gross domestic product over total population	World Development Indicators 2005
Capital Account Liberalization	Kaopen	Chinn et Ito (2002, 2005)
Equity Market Liberalization	The ratio (Portfolio equity flows + Portfolio bond flows) to GDP	World Development Indicators 2005
Banking Crisis	Banking Sector Fragility	International Financial Statictics 2004 Monthly report June 2005 World Development Indicators 2005
Trade Openness	Log of the ratio (exports + imports) to GDP	World Development Indicators 2005
Government Size	Log of the ratio of government consumption to GDP.	World Development Indicators 2005
Domestic Investment	Log of the ratio Gross Domestic Investment to GDP	Penn World Tables 6.1
Population Growth	Log of growth rate of total population	World Development Indicators 2005
Financial Development	Log of the ratio (M3/GDP)	World Development Indicators 2005
Macroeconomic Stability	Inflation	World Development Indicators 2005
Institutional Quality	Legal structure and security of property rights	International Country Risk Guide, Dataset 2005.

APPENDIX B: THE SAMPLE

Our sample includes the following 81 countries:

- EMERGING COUNTRIES (17)

Argentina (ARG), Brazil (BRA), Chile (CHL), China (CHN), Colombia (COL), Ecuador (ECU), Indonesia (IDN), Mexico (MEX), Malaysia (MYS), Panama (PAN), Peru (PER), Philippines (PHL), South Africa (ZAF), Thailand (THA), Turkey (TUR), Uruguay (URY), Venezuela (VEN).

- DEVELOPING COUNTRIES (63)

Algeria (DZA), Bangladesh (BGD), Barbados (BRB), Benin (BEN), Bolivia (BOL), Botswana (BWA), Burkina Faso (BFA), Burundi (BDI), Cameroon (CMR), Central African Rep. (CAF), Chad (TCD), Comoros (COM), Congo, Republic of (COG), Congo, Dem. Rep. of (ZAR), Costa Rica (CRI), Cote d'Ivoire (CIV), Dominica (DMA), Dominican Republic (DOM), Egypt (EGY), El Salvador (SLV), Ethiopia (ETH), Fiji (FJI), Gabon (GAB), Gambia, The (GMB), Ghana (GHA), Guatemala (GTM), Guyana (GUY), Haiti (HTI), Honduras (HND), India (IND), Iran, I.R. of (IRN), Jamaica (JAM), Jordan (JOR), Kenya (KEN), Lesotho (LSO), Liberia (LBR), Madagascar (MDG), Malawi (MWI), Mali (MLI), Mauritius (MUS), Morocco (MAR), Mauritania (MRT), Nepal (NPL), Nicaragua (NIC), Niger (NER), Nigeria (NGA), Oman (OMN), Pakistan (PAK), Papua New Guinea (PNG), Paraguay (PRY), Rwanda (RWA), Senegal (SEN), Seychelles (SYC), Sierra Leone (SLE), Sri Lanka (LKA), Sudan (SDN), Swaziland (SWZ), Syrian Arab Republic (SYR), Togo (TGO), Trinidad and Tobago (TTO), Tunisia (TUN), Zimbabwe (ZWE), Zambia (ZMB).

GEOGRAPHIC DISTRIBUTION

- ASIA

Bangladesh (BGD), China (CHN), Fiji (FJI), India (IND), Indonesia (IDN), Malaysia (MYS), Nepal (NPL), Pakistan (PAK), Papua New Guinea (PNG), Philippines (PHL), Sri Lanka (LKA), Thailand (THA), Turkey (TUR)

- LATIN AMERICA AND CARIBBEAN

Argentina (ARG), Barbados (BRB), Bolivia (BOL), Brazil (BRA), Chile (CHL), Colombia (CHL), Costa Rica (CRI), Dominica (DMA), Dominican Republic (DOM), Ecuador (ECU), El Salvador (SLV), Guatemala (GTM), Guyana (GUY), Haiti (HTI), Honduras (HND), Jamaica (JAM), Mauritius (MUS), Mexico (MEX), Nicaragua (NIC), Panama (PAN), Paraguay (PRY), Peru (PER), Trinidad and Tobago (TTO), Uruguay (URY), Venezuela (VEN).

- MIDDLE EAST AND NORTH AFRICA (MENA)

Algeria (DZA), Egypt (EGY), Iran, I.R. of (IRN), Jordan (JOR), Morocco (MAR), Oman (OMN), Syrian Arab Republic (SYR), Tunisia (TUN)

- SUB-SAHARAN AFRICA

Benin (BEN), Botswana (BWA), Burkina Faso (BFA), Burundi (BDI), Cameroon (CMR), Central African Rep. (CAF), Chad (TCD), Comoros (COM), Congo, Republic of (COG), Congo, Dem. Rep. of (ZAR), Cote d'Ivore (CIV), Ethiopia (ETH), Gabon (GAB), Gambia, The (GMB), Ghana (GHA), Kenya (KEN), Lesotho (LSO), Liberea (LBR), Madagascar (MDG), Malawi (MWI), , Mali (MLI), Mauritania (MRT), Niger (NER), Nigeria (NGA), Rwanda (RWA), Senegal (SEN), Seychelles (SYC), Sierra Leone (SLE), South Africa (ZAF), Sudan (SDN), Swaziland (SWZ), Togo (TGO), Zambia (ZWE), Zimbabwe (ZMB).

TABLE 1- OVERVIEW OF EMPIRICAL STUDIES OF THE IMPACT OF FINANCIAL LIBERALIZATION ON ECONOMIC GROWTH

Study	Countries	Period	Liberalization Indicator	Estimation Method	Liberalization Effect
Grilli and Milesi-Ferretti, 1995	61	1966-1989	Share	IV Estimation	No effect
Quinn, 1997	58	1960-1989	Quinn	Cross Section, OLS.	Positive effect
Kraay, 1998	117	1985-1997	Share, Quinn, ou Volume	Cross Section, OLS and IV	No effect
Rodrik, 1998	About 100	1975-1989	Share	Cross Section and OLS.	No effect
Klein et Olivei, 2000	67	1986-1995	Share	Cross Section and IV.	Positive effect
Arteta, Eichengreen and Wyplosz, 2001	51 to 59	1973-1992	Quinn	OLS, WLS and IV	Mixed effect
Bekaert, Harvey and Lundblad, 2001	30	1981-1997	Official dates of equity markets liberalization (BHL)	Moving Average	Positive effect
Edwards, 2001	55 to 62	1980-1989	Quinn	Cross Section and WLS	Positive effect
Edison, Klein, Ricci and Sløk, 2002	89	1976-1995	Share, Quinn et BHL	Cross Section and IV	Mixed effect
Edison, Klein, Ricci and Sløk, 2002	57	1980-2000	IMF	Cross Section and IV	No effect
Bonfiglioli and Mendicino, 2004	90	1975-1999	IMF and BHL	Dynamic Panel, G.M.M	Positive effect
Klein, 2005	71	1976-1995	Share,	IV	Positive effect

Source: Prasad, Rogoff, Wei and Kose, (2003) and Authors.

TABLE 2 – FINANCIAL LIBERALIZATION, BANKING CRISIS AND ECONOMIC GROWTH: WHOLE SAMPLE

Variable	S 1	S 2	S 3	S 4	S 5	S 6	S 7
$LGDP_{t-1}$	0.8931***	0.8942***	0.8742***	0.8741***	0.8896***	0.8743***	0.8662***
	(460.0858)	(180.7906)	(380.3232)	(259.4871)	(548.5335)	(343.4257)	(131.1264)
LTO	0.0712***	0.0640***	0.0686***	0.0659***	0.0643***	0.0672***	0.0696***
	(201.3227)	(55.1977)	(172.0901)	(72.5004)	(166.9656)	(62.7902)	(79.5614)
LGC	-0.0409***	-0.0405***	-0.0205***	-0.0195***	-0.0378***	-0.0219***	-0.0188***
	(-31.1695)	(-21.5001)	(-25.6692)	(-15.2120)	(-63.1313)	(-17.5464)	(-14.1789)
LCI	0.0060***	0.0069***	-0.0014***	-0.0029***	0.0034***	-0.0038***	-0.0053***
	(15.5874)	(7.2078)	(-3.1509)	(-5.3759)	(18.5291)	(-5.41087)	(-7.3474)
LPOP	-0.0030***	0.0002	0.0084***	0.0069***	0.0017***	0.0085***	0.0081***
	(-24.3060)	(0.9601)	(23.545)	(27.7438)	(5.2693)	(24.0802)	(11.4453)
KAOPEN		0.0048**	0.0045***	0.0089***			
		(3.6946)	(7.2028)	(6.4226)			
EML					0.0085***	0.0071***	0.0088***
					(52.8114)	(50.9344)	(14.9814)
FSB			-0.0194***	-0.0252***		-0.0171***	-0.0164***
			(-94.3404)	(-18.9244)		(-48.2476)	(-21.6111)
KAOPEN*FSB				-0.0131***			
				(-11.0388)			
EML*FSB							-0.0068***
							(-8.6499)
m 2 (p-value) ♠	0.1120	0.1233	0.1435	0.1906	0.1491	0.1688	0.1689
Sargan J. Stat	73.60	70.24	74.45	71.35	67.25	66.20	68.24

(***), (**) and (*) significance at 1%, 5% and 10% level respectively. ♠ If p-value >5%, m 2 statistic fail to reject the null hypothesis of second order autocorrelation at 5 % significance level. (.) Values between brackets are the t statistics.

TABLE 3- FINANCIAL LIBERALIZATION, BANKING CRISIS AND ECONOMIC GROWTH: SAMPLE WITH RESPECT TO IMF CLASSIFICATION

Variable	DEVELOPING COUNTRIES					EMERGING COUNTRIES				
	S 1	S 2	S 3	S 4	S 5	S 6	S 7	S 8	S 9	S 10
$LGDP_{t-1}$	0.8584*** (286.7996)	0.8527*** (416.0347)	0.8228*** (304.2121)	0.8529*** (259.6513)	0.8188*** (141.5706)	0.8895*** (192.2114)	0.8804*** (181.1120)	0.8632*** (82.3862)	0.8929*** (253.3159)	0.8738 *** (81.9592)
LTO	0.0694*** (76.7082)	0.0653*** (159.531)	0.0645*** (54.1315)	0.0694*** (62.9509)	0.0650*** (42.6204)	0.0581*** (15.6221)	0.0558** (14.8296)	0.0467*** (6.6469)	0.0509*** (17.4643)	0.0448*** (6.3703)
LGC	-0.0272*** (-7.8583)	-0.0219*** (-13.8457)	-0.0037 (-1.5618)	-0.0233*** (-6.6285)	-0.0070*** (-2.8080)	-0.0018*** (-3.03967)	-0.0015** (-2.4030)	-0.0017*** (-3.1081)	-0.0016** (-2.0984)	-0.0019*** (-3.1757)
LCI	-0.0086*** (-17.3649)	-0.0065*** (-13.2530)	-0.0114*** (-17.9104)	-0.0091*** (-9.2118)	-0.0140*** (-2.8080)	0.0869*** (35.1941)	0.0853*** (33.5005)	0.0705*** (13.8834)	0.0871*** (38.9798)	0.0639*** (12.1265)
LPOP	-0.0029*** (-12.0507)	-0.0012*** (-5.8633)	0.0035*** (12.1483)	-0.0019*** (-5.7173)	0.0041*** (4.8943)	-0.0401*** (-10.1963)	-0.0440*** (-9.8542)	-0.0609*** (-5.5137)	-0.0387** (-14.4715)	-0.05056*** (-5.0362)
KAOPEN		0.0053** (2.3375)	0.0085*** (2.9898)				0.0025*** (3.3235)	0.0002 (0.1209)		
EML				0.0056*** (21.5400)	0.0086*** (11.1785)				0.0016*** (3.5490)	0.0007 (1.2764)
FSB			-0.0282*** (-10.0629)		-0.0227*** (-32.2460)			-0.0219*** (-10.4144)		-0.0248*** (-9.1917)
KAOPEN*FSB			-0.0092*** (-3.8074)					-0.0045*** (-3.7194)		
EML*FSB					-0.0063*** (-10.1245)					0.0030** (2.5464)
Number of countries	63	63	63	63	63	17	17	17	17	17
m 2 (p-value)♠	0.3768	0.4312	0.5149	0.4873	0.4131	0.5886	0.2995	0.5009	0.3885	0.5230
Sargan J Stat	52.57	48.41	53.51	47.26	50.53	186.93	187.43	164.63	184.15	161.68

(***), (**) and (*) significance at 1%, 5% and 10% level respectively. ♠ If p-value >5%, m 2 statistic fail to reject the null hypothesis of second order autocorrelation at 5 % significance level. (.) Values between brackets are the t statistics.

TABLE 4- FINANCIAL LIBERALIZATION, BANKING CRISIS AND ECONOMIC GROWTH: SAMPLE WITH RESPECT TO GEOGRAPHIC DISTRIBUTION (1)

Variable	ASIA					LATIN AMERICA AND CARIBBEAN				
	S 1	S 2	S 3	S 4	S 5	S 6	S 7	S 8	S 9	S 10
$LGDP_{t-1}$	0.9531*** (11339.50)	0.9388*** (1680.128)	0.9205*** (498.5567)	0.9518*** (2292.245)	0.9333*** (7579.958)	0.8775*** (50.6442)	0.8537*** (39.3097)	0.8519*** (37.6903)	0.8464 *** (46.5667)	0.8439*** (43.4757)
LTO	0.0406*** (117.3286)	0.0452*** (75.5123)	0.0336*** (22.9065)	0.0394*** (67.2875)	0.0266*** (76.3354)	0.0750*** (7.4584)	0.0579*** (5.1757)	0.0540*** (4.7737)	0.0752*** (7.9397)	0.0670*** (6.5468)
LGC	0.0344*** (44.1679)	0.0128*** (3.9003)	0.0363*** (10.0035)	0.0224*** (19.7369)	0.0287*** (10.2058)	-0.0212*** (-2.6702)	-0.0211** (-2.4832)	-0.0190** (-2.2656)	-0.0282*** (-4.1001)	-0.0228*** (-3.2608)
LCI	0.0284*** (257.0175)	0.0290*** (31.4577)	0.0049*** (4.8216)	0.0204*** (86.9792)	0.0042*** (27.5203)	0.0243*** (3.5343)	0.0235*** (3.2340)	0.0183** (2.4363)	0.0227*** (3.7127)	0.0186*** (2.8846)
LPOP	-0.0133*** (-55.8180)	-0.0179*** (-36.4431)	-0.0197*** (-16.5769)	-0.0060*** (-18.1367)	-0.0154*** (-21.9854)	0.0022 (0.3532)	0.0026 (0.4398)	0.0025 (0.4479)	0.0085 (1.4309)	0.0082 (1.4406)
KAOPEN		0.0098*** (21.2322)	0.0045*** (8.3179)				0.0046*** (2.6960)	0.0056*** (3.2241)		
EML				0.0034*** (116.1185)	0.0018 *** (43.7118)				0.0073*** (6.2596)	0.0080*** (5.7145)
FSB			-0.0321*** (-35.3680)		-0.0297*** (-198.64)			-0.0101*** (-3.5137)		-0.0110*** (-3.4479)
KAOPEN*FSB			-0.0090*** (-16.6643)					-0.0035* (-1.8992)		
EML*FSB					0.0017*** (59.7080)					-0.0017 (-0.7016)
Number of countries	13	13	13	13	13	25	25	25	25	25
m 2(p-value)♠	0.0248	0.0165	0.5797	0.0134	0.0682	0.0079	0.0253	0.0336	0.0125	0.0255
Sargan J. Stat	129.36	128.08	126.80	130.98	133.79	188.11	182.77	178.64	184.05	176.49

(***), (**) and (*) significance at 1%, 5% and 10% level respectively. ♠ If p-value >5%, m 2 statistic fail to reject the null hypothesis of second order autocorrelation at 5 % significance level. (.) Values between brackets are the t statistics.

TABLE 5- FINANCIAL LIBERALIZATION, BANKING CRISIS AND ECONOMIC GROWTH: SAMPLE WITH RESPECT TO GEOGRAPHICAL DISTRIBUTION (2)

Variable	SUB-SAHARAN AFRICA					MENA				
	S 1	S 2	S 3	S 4	S 5	S 6	S 7	S 8	S 9	S 10
$LGDP_{t-1}$	0.8179*** (31.1622)	0.8177*** (30.6757)	0.7727*** (27.2196)	0.8151*** (30.84025)	0.7802*** (27.4367)	0.8227*** (1118.808)	0.7937*** (258.1287)	0.7598*** (201.6037)	0.8259*** (0.0009)	0.8082*** (298.8851)
LTO	0.0621*** (4.5582)	0.0625*** (4.5482)	0.0575*** (4.2108)	0.0619*** (4.5005)	0.0538*** (3.8177)	0.0101*** (21.8960)	0.0153*** (30.3788)	0.0183*** (13.2570)	0.0119*** (16.4967)	0.0108*** (9.5369)
LGC	-0.0239** (-2.4583)	-0.0226** (-2.3457)	-0.0116 (-1.1578)	-0.0245** (-2.5031)	-0.0208** (-2.0432)	-0.1199*** (-110.3619)	-0.1188*** (-100.0035)	-0.1053*** (-63.4269)	-0.1200*** (-82.3507)	-0.1157*** (-61.5854)
LCI	0.0291*** (3.6061)	0.0314*** (3.8470)	0.0315*** (4.0910)	0.0302*** (3.7009)	0.0321*** (3.9660)	0.0717*** (119.6998)	0.0680*** (83.6542)	0.0577*** (28.2674)	0.0731*** (66.2332)	0.0718*** (44.3536)
LPOP	-0.0254*** (-2.8792)	0.0081*** (-2.7623)	-0.0246*** (-3.0469)	-0.0259*** (-2.9171)	-0.0270*** (-3.1284)	-0.0480*** (-76.2333)	-0.0331*** (-20.9704)	-0.0304*** (-15.3646)	-0.0464*** (-51.5838)	-0.0431*** (-44.3909)
KAOPEN		-0.0024 (-0.5632)	0.0063 (1.4854)				0.0096*** (12.2603)	0.0056*** (6.6813)		
EML				0.0017 (-0.4546)	-0.0069 (-1.4152)				0.0078*** (16.8739)	0.0114*** (15.1678)
FSB			-0.0273*** (-4.9065)		-0.0149*** (-3.4411)			-0.0200*** (-42.4738)		-0.0211*** (-110.4261)
KAOPEN*FSB			-0.0208*** (-4.0570)					0.0037*** (9.9191)		
EML*FSB					0.0065 (1.2325)					-0.0270*** (0.0005)
Nomber of Countries	34	34	34	34	34	8	8	8	8	8
m 2 (p-value)	0.1627	0.1749	0.1823	0.1700	0.1979	0.7158	0.9704	0.5836	0.5661	0.6698
Sargan J. Test	193.47	192.97	181.91	192.95	188.01	31.31	30.96	28.239	29.34	25.66

(***), (**) and (*) significance at 1%, 5% and 10% level respectively. ♠ If p-value >5%, m 2 statistic fail to reject the null hypothesis of second order autocorrelation at 5 % significance level. (.) Values between brackets are the t statistics.

TABLE 6- FINANCIAL LIBERALIZATION, PRECONDITIONS AND ECONOMIC GROWTH: THE GLOBAL SAMPLE

Variable	S 1	S 2	S 3	S 4	S 5	S 6	S 7	S 8
$LGDP_{t-1}$	0.8942*** (180.7906)	0.8808*** (351.9902)	0.8942*** (469.6566)	0.8806*** (976.5805)	0.8896*** (548.5335)	0.8784*** (503.1580)	0.8797*** (249.7611)	0.8777*** (1000.702)
LTO	0.0640*** (55.1977)	0.0580*** (22.6153)	0.0550*** (79.8630)	0.0683*** (137.3443)	0.0643*** (166.9656)	0.0607*** (49.0820)	0.0604*** (44.7243)	0.0636*** (52.4691)
LGC	-0.0405*** (-21.5001)	-0.0389*** (-18.2322)	-0.0324*** (-24.3017)	-0.0262*** (-30.3423)	-0.0378*** (-63.1313)	-0.0363*** (-12.4187)	-0.0367*** (-30.0163)	-0.0263*** (-26.2884)
LCI	0.0069*** (7.2078)	-2.E-05 (-0.0633)	0.0040*** (20.1362)	-0.0008* (-1.8642)	0.0034*** (18.5291)	-0.0032*** (-4.5665)	-0.0032*** (-5.9884)	-0.0041*** (-14.1776)
LPOP	0.0002 (0.9601)	0.0006 (1.3325)	-0.0076*** (-26.7501)	-0.0114*** (-87.3480)	0.0017*** (5.2693)	0.0041*** (14.6732)	-0.0064*** (-20.0672)	-0.0063*** (-46.9428)
KAOPEN	0.0048*** (3.6946)	-0.0024** (-2.2272)	-0.0202*** (-11.7406)	0.0024*** (3.7851)				
KAOPEN*QI		0.0168*** (23.4457)						
KAOPEN*LLL			0.0073*** (17.4306)					
KAOPEN*INF				2.8×10^{-06}*** (7.9616)				
EML					0.0085*** (52.8114)	0.0058*** (13.3800)	0.0385*** (10.7914)	0.0087*** (83.0398)
EML*QI						0.0017*** (4.6691)		
EML*LLL							-0.0071*** (-8.4695)	
EML*INF								6.7×10^{-06} (1.1464)
m 2 (p-value) ♠	0.1120	0.1740	0.1506	0.1571	0.1491	0.1490	0.1485	0.1507
Sargan J. Stat	70.24	62.19	73.02	71.39	67.25	63.61	70.92	71.91

(***), (**) and (*) significance at 1%, 5% and 10% level respectively. ♠ If p-value >5%, m 2 statistic fail to reject the null hypothesis of second order autocorrelation at 5 % significance level. (.) Values between brackets are the t statistics.

TABLE 7 - FINANCIAL LIBERALIZATION, PRECONDITIONS AND ECONOMIC GROWTH: DEVELOPING COUNTRIES

Variable	S 1	S 2	S 3	S 4	S 5	S 6
$LGDP_{t-1}$	0.8594*** (395.8485)	0.8476*** (338.002)	0.8583*** (491.2830)	0.8426*** (348.3463)	0.8522*** (270.4063)	0.8611*** (295.7290)
LTO	0.0683*** (62.2400)	0.0435*** (52.2581)	0.0599*** (45.0200)	0.0647*** (165.2870)	0.0547*** (51.2825)	0.0587*** (63.3294)
LGC	-0.0329*** (-17.1091)	-0.0203*** (-9.64239)	-0.0148*** (-8.7751)	-0.0246*** (-36.2105)	-0.0302*** (-17.1009)	-0.0201*** (-8.3546)
LCI	-0.0068*** (-11.0593)	-0.0021*** (-4.3290)	-0.0136** (-27.4799)	-0.0103 (-23.3163)	-0.0055*** (-9.3416)	-0.0143*** (-37.1034)
LPOP	0.0017*** (5.2699)	-0.0077*** (-15.5588)	-0.0119*** (-39.3436)	0.0059*** (37.3231)	-0.0096* (-14.8715)	-0.0125 (-42.358)
KAOPEN	-0.0088*** (-5.7419)	-0.0284*** (-6.8262)	0.0034*** (4.67192)			
KAOPEN*QI	0.0267*** (27.6998)					
KAOPEN*LLL		0.0100*** (10.3239)				
KAOPEN*INF			-1.36×10^{-06} (-0.5586)			
EML				-0.0059*** (-11.3920)	-0.0442* (-1.7587)	0.0055*** (17.4569)
EML*QI				0.0102*** (16.9154)		
EML*LLL					0.0131** (2.0635)	
EML*INF						-6.39×10^{-05} (-0.8048)
m 2 (p-value)♠	0.5869	0.5347	0.5400	0.4868	0.4592	0.4877
Sargan J. Stat	45.61	48.89	51.51	46.13	47.05	54.56

(***), (**) and (*) significance at 1%, 5% and 10% level respectively. ♠ If p-value >5%, m 2 statistic fail to reject the null hypothesis of second order autocorrelation at 5 % significance level. (.) Values between brackets are the t statistics.

TABLE 8- FINANCIAL LIBERALIZATION, PRECONDITIONS AND ECONOMIC GROWTH: EMERGING COUNTRIES

Variable	S 1	S 2	S 3	S 4	S 5	S 6
$LGDP_{t-1}$	0.8891*** (138.2240)	0.8780*** (77.0442)	0.8755*** (181.0356)	0.8938*** (208.4157)	0.8707*** (75.4516)	0.8822*** (119.9883)
LTO	0.0497*** (12.1496)	0.0574*** (6.9007)	0.0526*** (12.4760)	0.0480*** (13.1399)	0.0557*** (6.8657)	0.0422*** (7.8747)
LGC	-0.0014** (-2.15543)	-0.0013* (-1.7232)	-0.0015*** (-2.7890)	-0.0016** (-2.0842)	-0.0013 (-1.5764)	-0.0020*** (-3.9072)
LCI	0.0922*** (30.1230)	0.0906*** (15.0940)	0.0821*** (29.0039)	0.0879*** (33.5242)	0.0882*** (13.6643)	0.0881*** (24.8732)
LPOP	-0.0505*** (-10.0913)	-0.0495*** (-4.5613)	-0.0523*** (-10.5742)	-0.0391*** (-11.1216)	-0.0529*** (-5.1982)	-0.0551*** (-7.9277)
KAOPEN	0.0052*** (5.4988)	0.0143 (1.5008)	0.0006 (0.70049)			
KAOPEN*QI	-0.0081*** (-6.30888)					
KAOPEN*LLL		-0.0032 (-1.1381)				
KAOPEN*INF			8.2×10^{-06}*** (7.8416)			
EML				0.0031*** (4.15523)	0.0302*** (4.4828)	0.0011** (1.8815)
EML*QI				-0.0020*** (2.6689)		
EML*LLL					-0.0067*** (-4.3434)	
EML*INF						8.9×10^{-06}*** (4.3539)
m 2 (p-value) ♠	0.3509	0.6194	0.3004	0.7220	0.3375	0.2711
Sargan J. Stat	187.79	170.64	188.89	182.04	166.93	182.18

(***), (**) and (*) significance at 1%, 5% and 10% level respectively. ♠ If p-value > 5%, m 2 statistic fail to reject the null hypothesis of second order autocorrelation at 5 % significance level. (.) Values between brackets are the t statistics.