

The Dynamics of International Liberalization Process and Financial Stability: A Revisit to Regional Experiences and Some Policy Guidelines

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Abstract

This study explains some issues regarding the association between the dynamics of deregulation of financial sector relative to financial stability and commerce of Latin America, South East Asia and Europe for the period of (1971-2008). More precisely, we examine the impact of evolving within an "excess" of financial liberalization relative to commercial opening on the vulnerability of a country to currency crisis and link it to the argument of ample sequencing of liberalization reforms. The degree of correlation between financial liberalization and exchange crisis is analysed through dynamic panel data models using the GMM methodology. Our results suggest nonlinearity of the effect of financial liberalization on exchange pressures. Moreover, it is shown that the positive effect of financial integration on the speculative pressures appear once the rate of financial liberalization exceeds some threshold. While identifying the threshold effects it is found that synthesized structural changes in financial liberalization affect exchange market pressures. Our results also suggest that the impact of financial liberalization depend on the dynamics of integration of financial sector relative to the real sector. In fact, the "bad" dynamics of financial liberalization lead to an increase of a country's vulnerability to exchange crises since the integration.

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Introduction

This study throws some light on the relationship between the dynamics of liberalization reforms, the speculative pressures, and the asymmetrical character of the spillover effects through different countries. In this context reference is made to the recent wave of financial crisis and the USA as a focal country. This phenomenon has revealed the need for a better understanding of the relationship between the dynamics of liberalization and financial stability.

The literature on speculative bubbles and sun-spot equilibria is still puzzled over the mysterious phenomena which shows how unexpected the intensity and direction of spillover effects of the financial crises could be (Eichengreen, Rose and Wyplosz, 1996). Several studies supporting the debate on adequate sequencing of reforms (Rodrik, 1986 ;Mckinnon ,1991 ; Edwards ,1984,1990 ; Funk, 1993 and Stiglitz , 2002) have shown that ‘financial liberalization first’ policies increase the level of financial vulnerability of a country. Interestingly, Edwards (1984 and 2009) advocates that freeing up capital flows prematurely before domestic and trade liberalization may cause economic instability. McKinnon (1993) also argues that a rapid inflow of capital at the beginning of the process of liberalization will appreciate the exchange rate. For that reason, domestic tradable producers may have difficulties to compensate for the removal of protection. In fact, this premature deregulation would seriously damage the international competitiveness of economies by decreasing profitability of their exports. Moreover, massive inflows can appreciate exchange rate and /or inflate asset price bubbles which in turn may increase the risks of financial instabilities.

Edwards (2009) define financial liberalization as a binary process that omits the dynamic nature of the process of integration. This paper studies the issue by analysing the dynamics of integration policies and empirically spot the diverse dynamics of the liberalization process.

However, Edwards (2009) does not consider the existence of threshold effect of financial liberalization on speculative pressures. Indeed, the negative impact of financial liberalization on speculative pressures, undergone by an economy does not appear immediately but occur during the financial integration process.

In this furrows of ideas, we discuss the relationship between the evolution within a bad dynamic of financial liberalization and the contagion effects of the latest waves of financial crises. We suggest that the phenomenon of crisis is a natural outcome of the bad governance of the financial integration process. Consequently, the purpose of this study is to investigate the following hypotheses:

1. The effect of financial liberalization on speculative pressures is non linear.
2. Once the financial liberalization exceeds some “threshold”, the effect of an additional increase depend on the dynamics of financial liberalization of an economy.

In this paper, panel data is used to investigate whether the dynamics of international liberalization of a country can explain its financial instability. The latter is synthesized by speculative pressures undergone by the foreign exchange market. We also estimate some financial liberalization thresholds above which the impact of an additional increase of the degree of financial integration on the exchange pressure varies, conditional upon the dynamics of liberalization of a country.

By using a dynamic panel threshold model, (Hanson, 1999), we analyze the dynamic effects of financial liberalization on the intensity of currency crises. Rest of the paper is organized as follows: In section 2, we briefly review the financial and trade liberalization policies in Latin America, South East Asia and Europe in relation with their financial stability during the period (1970-2008). In section 3, we discuss the necessity of a theory instituting the best dynamics of liberalization and suggest some axioms of such a theory. In section 4, we

describe the data set, definition of the variables, the econometric model and report the empirical results of regressions for each area. Finally, we highlight some promising avenues of the study that may provide guidance for future research.

2. Dynamics of Liberalization in Regional Perspective and Its Impact on Financial Stability

The path analysis of international integration in relation to financial instability enables us to identify "bad" scenarios of liberalization.

For instance, the regions of Latin America, South East Asia and Europe have been contaminated by the respective, Mexican "Tequila effect" (1994), the Thai "Asian flu" (1997) and the recent American "subprime crisis" (2007).

On the basis of selected countries belonging to each of these regions, we investigate the process of financial integration (legal and effective) during the period (1971-2008). We also analyze the interaction between the commercial opening and financial liberalization in relation with the respective regional financial instabilities.

2.1 Legal and Effective Financial Liberalization

Since the 1980s, most of the countries of the three regions of Europe, South East Asia and Latin America have undertaken an unprecedented move towards full financial liberalization. Interestingly, the three regions have maintained a high level of financial integration during the period (1970-2007). This observation is surprising in view of the period of liberalization of capital flows in European and South-East Asian (1970) and Latin American regions (1980).

During the 1990s and early 2000s, European countries re-imposed capital controls, this change in policy can be explained by the potential risk of

financial contagion during that period¹. Nevertheless, the average share of financial exchanges as percentage of GDP continued to increase. It was almost threefold in the 2000 and doubled by 2007.

Inspection of the dynamics of financial integration in South-East Asian area reveals that most countries of the region used capital controls as an instrument to stabilize their economy. In fact, the South East Asian region lifted capital controls four times during the period of our analysis. The movement of capital had remained free of control only in the era of 1990s.

In fact, during 1990s the IMF and the US Treasury encouraged the South East Asian economies to liberalize their capital account. As a result, the volume of financial exchange had doubled in 1990 and tripled in 2000 relative to 1980s. This rapid pace of financial liberalization explains the regional nature of the contagion effects of Thai crisis in 1997.

In the Latin American area, the policy of financial liberalization was a part of the IMF structural reforms package. Indeed, economies of this region adhered, since the end of the 1970s, to the IMF reforms policy which governed their financial liberalization pace. Consequently, the volume of financial exchanges as a percentage of GDP had more than doubled during the period of (1970-1980) and (1980-1990). Similarly, this dynamic of financial liberalization may explain the regional spread of Mexican crisis and the financial vulnerability of Latin American economies during the last few decades.²

2.2 International Integration and Financial Stability

The international liberalization and integration is a dynamic process in which economies move sequentially towards a global environment. At the country level, this process results in a dynamic movement towards full liberalization of commercial and financial spheres.

² Debt crisis (1980), Abrupt of flows of capital (Mid 1990s).

Our analysis of the processes of trade and financial liberalization is based on legal indices and effective indicators. As a measure of the severity of commercial restrictions and financial barriers, two indices i.e the mean tariffs on imports and the index of international capital market control for the period (1985-2007)³ have been taken. Edwards (2009) suggest considering two reference values, i.e a mean tariff of 9.4% at which the current account is considered legally integrated and a distributional index value of ‘4’ at which the capital account is judged as integrated⁴.

Table 1 Evolution of Legal International Liberalization

	Mean tariff (Percent)				Index of international capital market control			
	1985	1995	2004	2007	1985	1995	2004	2007
Latin								
America	39.892	12.467	8.883	9.133	2.889	6.530	6.287	6.229
Asian								
South-East	29.422	20.600	8.237	9.385	2.000	5.317	4.814	4.616
Europe	8.073	6.990	3.002	4.638	4.381	7.218	7.203	6.502

Source : Institute Fraser et Personal Calculation

Table 1 reports the dynamic representation of legal evolution of the process of liberalization in terms of two dimensions i.e commercial and financial liberalization. It is observed that the three regions moved towards greater commercial opening overtime. However, the emerging regions have deregulated more carefully their finances.

According to these indices, the official financial integration had preceded the legal commercial integration in Latin America. The economies of this region evolved an “ex-liberalization” of capital account relative to opening of the commercial account during the period 1985-95. Taking into account the waves of financial crises which shook this area in the 1980s and in the middle of the 1990s, we suggest that such a sequence “evolve at a certain date with a liberalized capital account and a closed commercial account”

³ Table 2

⁴ The values 4 and 9.4% correspond respectively to the 25th percentile of the distribution of the index of financial opening and indices “mean tariff on the imports for 130 countries over the period (1970-2008).

constitute a bad dynamics of liberalization and makes economies financially unstable.

Similarly, the sequence of liberalization of the South East Asian region had been instrumental in generating financial instability by the end of 1990s. Table 1 shows that, during the first period (1985-1995), the mean tariffs had decreased by 30 % while the financial openness index had more than doubled. The regional nature of contagion effects of the Thai crisis during the 1997 suggest that the dynamics of integration, of opening of capital and trade accounts in not a synchronized way could have turned the South East Asian countries financially more vulnerable.

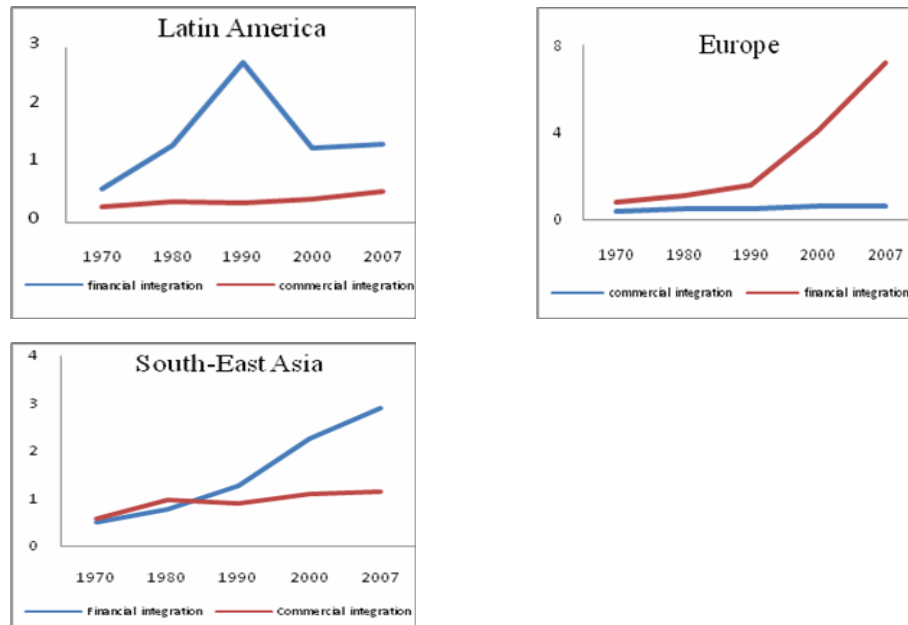
Lastly, the analysis of European international integration is also as interesting as their predecessors. In fact, the capital account has been integrated in the late 1990s and the commercial restrictions were also lifted by the same time. However, the mean tariffs on imports have risen between 2004 and 2007. This commercial policy change may have been a "bad" dynamic of liberalization. Interestingly, Europe was the first region that was shook by the contagion effect of sub-prime crisis of the United States in 2007. This "bad" dynamism can partially explain the direction of financial contagion of this crisis.

The second part of our analysis is based on effective indicators of international liberalization in terms of the ratios of (commercial exchanges to GDP) and (financial exchanges to GDP), as the respective measures of commercial opening and financial liberalization. The values of 0.47 and 0.66 indicate the levels from which we can conclude that the current account and capital and financial accounts are "integrated". The juxtaposition of the indicators enable us to catch the dynamics of the process of integration in terms of the flows effectively received by each region.

As shown in Figure 1 the preliminary assumptions are confirmed. It could be seen that the process of integration in Latin American area was characterized by an important and premature liberalization of the financial account relative to the level of commercial opening. Especially, financial

liberalization preceded the opening of trade. Whereas in case of the South-East Asian area, commercial opening was realized before the opening of financial liberalization. However, the South-East Asian region exhibits a simultaneous deregulation of the two dimensions of the integration process (trade and finance). In fact, during the first stages of liberalization, we notice a synchronic movement between the process of commercial opening and the process of financial liberalization.

Fig. 1 Effective Evolution of the Process of International Liberalization



Source: Personal calculations

In case of Europe, the indicators of effective liberalization suggest that financial integration took place in 1977 while the commercial one occurred in 1984. By the same way, the indicator of financial integration has reached its highest peak and increased by 43% in 2007. Interestingly, the pace of financial liberalization had preceded the commercial opening since the early 2000s.

In the light of this preliminary analysis, we propose to define a ‘sound’ dynamic of international integration. Such dynamics will enable an economy to move towards total integration and overcome any potential risk of financial instabilities.

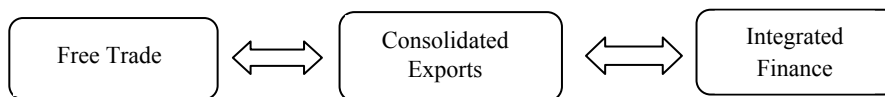
3. Liberalization and Contagious Crises: Theory and Evidence

This section describes the safest dynamics of liberalization and also discusses the existence of regional heterogeneity of liberalization dynamics. Indeed, the possibility of contamination of some economies while others remaining intact can be explained by the adoption of diverse policies of international deregulation.

The theory of financial liberalization has recommended the internationalization of markets as a way to boost growth and development. Interestingly, financial crises are a phenomena that have accompanied the rise of a liberal model of development.

The literature of optimal sequence of integration has been widely investigated by Mckinnon (1973, 1991) and Edwards (1984). According to these authors, the decontrol of capital account must be postponed till the end of the reforms process and, especially after the consolidation of banks and the commercial liberalization process. McKinnon (1973, 1991) and Edwards (1984, 2009) recommend the launching of commercial liberalization before lifting capital controls as an optimal dynamics of integration.⁵

Fig. 2: An Optimal Dynamic of International Integration:



Countries that have liberalized their capital and financial accounts after pre-consolidation of their current accounts, by strengthening their exports,

⁵ Figure 2

did not risk a premature exposure to exchange pressures. It's the existence of a short term interaction between these two accounts which insures the possibility of compensation in the case of external revenues deterioration. Thus trade constitutes a stabilizing force for the economy and commercial opening appears as a prerequisite to the deregulation of capital and financial accounts.

3.2 Regional Heterogeneity of Liberalization Dynamics

For each region, two groups of countries undertaking the “good” and the “bad” dynamic of reforms is distinguished. This exercise is based on the commercial and financial integration indicators discussed earlier.⁶ Two indices (mean tariff on the imports and the index of international capital market controls) were used as legal measures of commercial and financial liberalization.

Figure 3 shows that the group of “good” dynamics fulfill two conditions, i.e the average tariff in a country is $\leq 9.4\%$ before having an index of financial opening ≥ 4 . Moreover, during the two last decades, this group of countries have shown an index of effective commercial liberalization ≥ 0.47 before financial integration i.e having an index ≥ 0.66 . Intuitively, the group of “bad” dynamic was found with an open capital account, an index of international control of the capital ≥ 4 , before having average tariffs $\leq 9.4\%$ i.e an open current account during the period 1971-2007. Similarly, this group had, at a certain moment, a closed commercial account with the share of the commercial exchanges in GDP < 0.47 while the opening of financial account led to the share of financial exchanges in GDP ≥ 0.66 .

As expected, heterogeneity is detected across regions and even within the different areas each economy has its own trajectory of international liberalization.

An examination of commercial and financial dimensions of the process

⁶ Section 1, 1.2

of integration across groups of each region, enable us to draw the following result. The "good dynamic" groups have initially exhibited an important commercial liberalization. However, the trajectory of integration of the "bad dynamic" groups is characterized by an outgrowth of financial liberalization compared to commercial opening. An analysis of the Speculative Pressure Index (SPI⁷) of diverse groups, reveal that the SPI of the groups which undertook "bad" sequence of liberal reforms were more volatile relative to the SPI of "good" dynamic groups. For example, the variance of the European indicator of foreign exchange market disequilibrium during the period (1969-2008) was 0.0012 for the "good" dynamic group and 0.037 for the "bad" dynamic group.

In short, the theoretical hypotheses and the empirical evidence suggests that dynamics of financial liberalization may constitute an important determinant of the liberal model crises. Thus, it seems an opportune time to investigate the dynamics of economies' liberalization in relation to their financial stability.

4. The Dynamics of Liberalization and Financial Stability: Empirical Investigation

This section investigates the impact of sequencing of liberalization reforms on speculative pressures intensities. Particularly, we investigate the effects of a "bad" liberalization dynamics on countries' vulnerability to speculative attacks.

4.1 Data Description and Definition of Variables

Based on Girton and Roper (1977), we define a currency crisis episode using a synthetic index of speculative (SPI) pressures as a measurement of crisis. The endogenous variable SPI_{it} is measured as a weighted mean of exchange rate variations, interest rate changes and the negative of the

⁷ Similarly to Girton and Roper (1977), exchange market pressure is a weighted average of exchange rate changes, international reserve changes, and interest rate changes.

monetary reserves variation so as to smoothen the differences in volatility among these series⁸. This technique avoids any of the sources of volatility to dominate the index.

This index translates the intensity of tensions on the exchange markets undergone by a country during the period (1971-2007). The negative sign allotted to the annual mean variation of monetary reserves enable us to obtain a high value index, as the crisis is close. This index captures the instances of successful and unsuccessful attacks. The reason is simple: the central banks tend to thwart the speculative attacks by depreciating the currency or, by increasing the interest rates or, by exhausting gradually their international reserves.

Consequently, the speculative pressures indicator capture these three policies by using changes in exchange rate as an index of monetary policy and, by the recourse to the change in the "interest spread"⁹ relative to a reference currency and, by employing the differential of reserve ratio relative to a reference currency. In fact, the misalignment of interest rates, and of the ratio of reserves in a country, relative to the reference country reflect a pro-crises policy.

The exchange pressures undergone by a country *i* at time *t* are computed as:

$$SPI_{it} = [\alpha (\% \Delta e_{it}) + \gamma \Delta (i_{it} - i_{ct}) - \delta (\% \Delta r_{it} - \% \Delta r_{ct})]$$

with e : the domestic price of the currency /the reference country currency in terms of the currency of country i ¹⁰, i_{it} (i_{ct}) is the nominal interest rate of country i (the country "center") and r is the ratio of reserves (reserves /

⁸ See also Eichengreen and al (1994,1995)

⁹ See Haile and Pozo (2008). This differential seems being a good signal of currency crises (see Kaminsky, Lizondo and Reinhart (1998) and Kaminsky and Reinhart (1999) for further discussion).

¹⁰ We consider US as the reference country for the variable e because of the availability of the data.

M1). Germany is taken as the center of reference for the European sample while the US is taken as center for emerging economies. Whereas α , γ and δ are the weights¹¹.

In the models, a set of macroeconomic variables is included (Table 2). Their choice is based on theoretical and empirical literature on financial crises and is subject to the availability of data¹².

Our sample size consists of 47 countries selected from the three regions (Europe, Latin America and South East Asia) for the period (1971-2008). Each region is divided in two groups which synthesize both the "good" and "bad" dynamics of the liberal reforms. An econometric modeling is applied to each group of liberalization separately.¹³

Table 2 Indicators of Vulnerability to the Crises

Category	Concept	Measure
Macroeconomic Indicators	Commercial Imbalance	Commercial Balance/ GDP
	Monetary Disequilibrium	M2/Reserve
	Fundamentals	Inflation, Growth Rate of GDP
	Foreign Indebtedness	debt/total_eng , total_engagement/ reserves
	International Shock	Oil Price
Common Shock	Sensitivity to the Fluctuations in EU	bta_ 10 years
Policy of Integration	Commercial Links	Commercial Opening/GDP
	Financial Links	Financial Exchanges/GDP,

¹¹ The weights are computed based on Sachs, Tornell and Velasco (1996).

¹²Source international Financial Statistics (IFS), International Monetary Fund (IMF), Reserves (1L.d), exchange rate (line rf), interest rate (60B...ZF otherwise 60...ZF), M1 (line 34); M2 (line 35+M1) commercial balance = (Exports- Imports)/GDP; commercial opening = (Exports +Imports)/GDP; Exports (line 70...ZF), Imports (line 71... ZF); Data base of Lane. P and Mielsi-Feretti. G (2006): FDI (Foreign Direct Investment) , PI (Portfolio Investment) Financial exchanges = FDI+PI+DEBTS/GDP; KOPEN (<http://www.ssc.wisc.edu/~mchinn/research.html>) and the return the American Treasury Bond of 10 years , BIS « International Bank of Settlement » (<http://www.economagic.com/em-cgi/data.exe/fedbog/day-tcm10y>)

¹³ See Annex

4.2 Econometric Model

4.2.1 Specifications

In the first step of our analysis, we estimate a linear model given as below in equation (1):

$$SPI_{it} = \eta_i + \gamma \text{integ}_{it-1} + \beta' X_{it-1} + e_{it} \\ i = 1, \dots, n \quad t = 1, \dots, T_i \quad (1)$$

SPI_{it} is an index of speculative pressure in country i for the period t , integ_{it-1} constitutes a delayed measure of financial integration (threshold variable), X_{it-1} represent a delayed vector of control variables, η_i synthesizes an unobserved country specific effect and e_{it} is the error term for each observation.

Most studies have relied on linear models to analyze the speculative pressure undergone by an exchange market during a given time period. After each generation of crises, economists have retained factors that triggered exchange crises i.e, some weak fundamentals¹⁴ (Krugman, 1979), weak “hard fundamentals” (Jeanne, 1996), commercial linkage (Glick and Rose, 1999) and financial linkage etc (Kaminsky and Reinhart, 2000).

This paper proposes to introduce a discontinuity in the effects of financial liberalization on the speculative pressures. We suggest that inability of classical models to forestall the crises occurrence may be due to the non linear nature of financial liberalization effects on speculative pressures.

To assess a non-linear specification (a sequential estimation), we endogenize the dynamic effect of financial liberalization on speculative

¹⁴ See Cartapanis et al (1998), Kaminsky et al (1998)

pressures by incorporating the level above which structural change has occurred:

$$SPI_{it} = \eta_i + \gamma \text{integ_fin}_{it-1} + \mu I(\text{integ_fin}_{it-1} > \bar{\delta}) + \theta \left(\text{integ_fin}_{it-1} * I(\text{integ_fin}_{it-1} > \bar{\delta}) \right) + \beta' X_{it-1} + \varepsilon_{it} \quad (2)$$

$\bar{\delta}$ is the threshold, estimated by using the threshold detection technique of Hansen (1996).

$I(\cdot)$ is an indicator function which considers two cases i.e whether the level of financial liberalization integ_fin_{it-1} is higher (1) or lower (0) relative to an estimated threshold ($\bar{\delta}$).

Indeed, if the level of financial liberalization is below this threshold, ($I(\cdot)=0$ and $\theta=0$), the relation (financial integration /speculative pressure) is rather linear. Otherwise, if the level of financial liberalization exceeds $\bar{\delta}$, ($I(\cdot) =1$) and the coefficient of the liberalization of finances is (θ), the said relationship is non linear.

The effect of the threshold would be verified, if the coefficient of financial liberalization moves from \square to $\square + \theta$. That is why, we have taken recourse to the Wald test to infer the null hypothesis ($\square - \theta = 0$). Rejection of the constancy of coefficients imply that the level of financial liberalization of the countries for which this level exceeds “the threshold” (θ) explains more pertinently the marginal effect of financial integration on the speculative tensions. This specification enables us to evaluate the impact of financial liberalization dynamic on the speculative pressures in order to appreciate its effectiveness for each of the sequences of liberalization reforms.

Lack of complete sets during the period of analysis justify the use of incomplete panels. Similarly, the differentiation of equation (1) requires recourse to dynamic panel models. For such models, the “GMM”

techniques¹⁵ provide more consistent and efficient estimators. Based on the instrumental variables principles, this method ensures the convergence of estimators. Similarly, GMM procedure overcomes the problem of endogeneity bias. This problem arises from the correlation between the lagged dependent variable, SPI_{it-1} and the error term ϵ_{it} as well as between some explanatory variables and the country specific term η_i .

First order differentiation of the model given in equation (10) is expressed as below in equation (3):

$$(SPI_{it} - SPI_{it-1}) = \gamma (intef_{im_{it-1}} - intef_{im_{it-2}}) + \beta' (X_{it-1} - X_{it-2}) + (\epsilon_{it} - \epsilon_{it-1}) \quad (3)$$

$$i = 1, \dots, n \quad t = 2, \dots, T_i$$

The model given above eliminates the time-invariant bias which includes the effect of omitted variables and the country specific effect. However, from the correlation between $(SPI_{it-1} - SPI_{it-2})$ and the differentiated error term $(\epsilon_{it} - \epsilon_{it-1})$ arises a new kind of bias. In order to overcome this econometric externality, the GMM estimation of equation (2) is based on a set of orthogonality conditions between the error terms and instrumental variables.

The orthogonality conditions of Arellano and Bond (1991) are defined as follows:

$$E(intef_{im_{it-1-s}}(\epsilon_{it} - \epsilon_{it-1})) = 0 \text{ pour } s \geq 2 ; t = 3, \dots, T_i \quad (4)$$

$$E(X_{it-1-s}(\epsilon_{it} - \epsilon_{it-1})) = 0 \text{ pour } s \geq 2 ; t = 3, \dots, T_i \quad (5)$$

This technique enable us to overcome the over-fitting risk by reducing the dimensionality of the instruments while taking into account the presence of heteroscedastic consistent standard errors. The estimates of difference model are obtained after a two step procedure. In the first stage, the retained residuals are used to provide a consistent estimate for the variance–

¹⁵ Arellano and Bond (1991)

covariance matrix of errors. The error terms are assumed to be independent and homoscedastic over time and across the countries. Therefore, the difference estimate is asymptotically more efficient than that of the first step. Secondly, the presence of a second-order serial correlation of the error terms (the first-differenced equation) given by expression (2) must be tested to validate the consistency of GMM estimates. In fact, the coherence of the GMM estimator depends on the following assumption: $E(\varepsilon_{it}, \varepsilon_{it-2}) = 0$. The test statistic is asymptotically standard normal under the null hypothesis and is given by

$$N = \frac{\Delta \hat{\varepsilon}_{-2} \Delta \hat{\varepsilon}_{-1}}{\sqrt{\Delta \hat{\varepsilon}}}$$

With $\hat{\varepsilon}_{-2}$: vector of the residuals lagged twice and $\hat{\varepsilon}_{-1}$ is a vector of trimmed $\hat{\varepsilon}$ to match $\hat{\varepsilon}_{-2}$.

The test of over identified restrictions of Sargan (1958) is performed. Under the null hypothesis, the Sargan statistic is asymptotically distributed as a χ^2 with $p-k$ degrees of freedom and is written as:

$$S = \Delta \hat{\varepsilon}' \left(\sum_{i=1}^n w_i' \Delta \hat{\varepsilon}_i \Delta \hat{\varepsilon}_i' w_i \right)^{-1} w' \Delta \hat{\varepsilon} \quad (6)$$

Where; W: is the matrix of instruments, p: is the number of columns in W, and k: are the number of estimated parameters.

4.2.2 Identification of the Threshold Effect

Taking into account the sequential nature of the process of integration, we suppose that the impact change of financial integration on speculative pressure occurs only when the financial liberalization exceeds some threshold value. In order to estimate the threshold, we use threshold models which allow consistent threshold estimates. In the first stage, we determine a threshold using the procedure of “trimming.” This technique leads to an equal partition of regimes, leaving at each stage sufficient number of observations to estimate the parameters of the model. Similarly, this methodology eliminates the tail observations. Indeed, the detection of a

rupture point close to the tails of threshold distribution is often caused by the problem of skews. In such cases, the threshold does not necessarily reflect a structural rupture. The model of Hansen (1999) can be written down as:

$$SPl_{it} = \mu_i + \alpha x_{it-1} + \beta'_1 \text{integ_fin}_{it} I(\text{integ_fin}_{it-1} \leq \gamma) + \beta'_2 \text{integ_fin}_{it} I(\text{integ_fin}_{it-1} > \gamma) + \epsilon_{it} \quad (7)$$

β'_1 and β'_2 are the marginal the effects of the process of financial integration according to the value of threshold, μ_i is country-specific effects and ϵ_{it} are error terms (supposed *iid* of average 0 and variance σ^2).

Identification of the coefficients of regression assumes that integ_fin_{it-1} does not vary through time.

Similarly, least squares estimation of the threshold and regression slopes is performed using fixed-effects transformations¹⁶. $\hat{\gamma}$ is the value of γ which minimizes the residual sum of squares for the interval of trimming

$$\hat{\gamma} = \underset{\gamma}{\text{argmin}} S(\gamma) \quad \text{with } S(\gamma) = e(\gamma)' e(\gamma).$$

Hansen (1999) proposes to build confidence intervals on the basis of likelihood ratio for each value in order to establish an interval of non-rejection of the threshold significance:

$$LR(\gamma) = \frac{(S(\gamma) - S(\hat{\gamma}))}{\sigma^2}$$

For the identified threshold value $\gamma = \hat{\gamma}$, the ratio of maximum likelihood (LR) is null and tends towards a random variable whose function of distribution is:

$$P(\epsilon \leq x) = \left(\left[1 - \exp \left[-\frac{x}{2} \right] \right] \right)^2.$$

¹⁶ See Hansen (1999) for a further discussion

In the presence of homoscadasticity, we can generate p-values for the test statistics.

Namely, $p = 1 - \left(1 - \exp\left(-\frac{1}{2} LR(\gamma)^2\right) \right)^2$ is the asymptotic p-value for the likelihood test. The critical values can be calculated by inversion of this distribution function. Thus, the test for threshold is rejected at the asymptotic level of α if $LR(\gamma)$ exceeds $c_{\alpha}(1-\alpha)$ where $c_{\alpha}(\alpha) = -2 \log\left(1 - \sqrt{1-\alpha}\right)$. The selected critical values are reported in Table 3.

Moreover, the confidence interval (risk α) correspond to the values of γ such as $LR(\gamma) \leq c(\alpha)$.

Table 3 The Asymptotic Critical Values

	0,8	0,85	0,9	0,925	0,95	0,975	0,99
$P(\xi \leq x)$	4,5	5,1	5,94	6,53	7,35	8,75	10,59

4.3 Empirical Results

The estimates of dynamic panel models for Europe, the South-East Asia and Latin America are displayed in Tables 4, 5 and 6 respectively.¹⁷ A sensitivity analysis is also performed to investigate the appropriate non-linear transformation for the variable “financial integration” by studying the diverse distribution functions. A battery of control variables are used in various specifications.

As may be seen, the effects of financial integration on speculative pressures undergone by exchange markets differ widely through the groups for each region. The dynamics of reforms seem to exert a significant impact on the financial vulnerability of countries to exchange pressures.

¹⁷ The detailed results are reported in tables 9 to 14 (see Appendix)

For example, European countries which have proceeded to a premature opening of their capital and financial account have perceived a threshold (speculative pressure/ financial liberalization) when the volume of their financial exchanges has exceeded 80 percent of their GDP. Such a result suggests that an additional financial integration of 1 percent leads to an increase in exchange tension of 4 percent. Similarly, the group of South-East Asian bad dynamic has undergone an increase of 0.0014 percent of speculative pressure after a rise of financial liberalization of 1 percent. Regarding the Latin American group, the threshold was of 103 percent with an increase of 0.004 percent.

However, the good sequence groups were not exposed to similar effects after reaching the threshold level. For the European and Latin American groups, the exchange tensions have tended to decrease respectively by 0.93 percent and 0.05 percent in response to an increase of financial integration by 1 percent. Concerning, the South-East Asian group the speculative pressure increase by 0.01 percent.

The main idea that emerges from these results is that close commoves between the processes of commercial opening and financial liberalization during a long period could have generated a "bad" dynamics of the process of integration in South-East Asia. Interestingly, the level of financial integration was around 80 percent during the 1980s for the two groups of countries. This observation suggests that the contamination of most economies of South East Asia may be explained by the "bad" dynamics of liberal reforms. In fact, the trade balance has enabled the speculative pressures to decrease in South-East Asia for good sequence group.

Regarding the other control variables, bad dynamic group of South-East Asia has undergone the fluctuations of the US economy. In fact, an increase of the American Bond returns by 1 percent significantly raises tensions on the exchange markets. For the South-East Asian countries, the ratio M2/Reserves lowers significantly the speculative pressure. Such a result suggests that the South-East Asian' central banks may encounter difficulties to stop reserve decline in case of panic. Concerning the impact of oil price,

the effects differ through regions and groups. This could be explained by the length of period and the inclusion of oil exporting countries.

These results, however, must be interpreted cautiously in view of the use of annual data series, which may not capture efficiently the indicators' changes during the same year.

Table 4 Regression Results for Europe

Variables	GMM regression with threshold (Good sequence group)	GMM regression with threshold (Bad sequence group)
m2_res	- 0.314 (-0.51)	-0.00001 (-0.01)
eng_res	0.052 (1.17)	-0.216 (-1.44)
finance_integ	0.841* (1.66)	-4.492* (-1.65)
I (finance_integ > τ)	- 0.609 (-0.76)	1.339 (0.61)
finance_integ* I (finance_integ > τ)	- 0.937* (-1.91)	4.583* (1.75)
cominteg_gdp	0.008 (0.70)	-0.679 (-0.44)
oil_price	- 0.899** (-1.99)	-0.054 (-0.04)
bta_10_years	-1.809 (-0.31)	17.007 (0.93)
growth rate of gdp	1.175 (1.45)	-0.337 (-0.25)
debt_total eng	- 0.136 (-0.21)	-6.955** (-2.53)
Trade balance_gdp	0.08351*** (4.03)	-0.23018 (-1.27)
Observation number	261	349
Threshold (Method of Hansen)	200%	80%
Test of significance of Ficher (p_value)	0.0040	0.0001
Sargan test (S statistics)	0.4966	0.2709

« * » p<0.1, « ** » p<0.05, « *** » p<0.01

Table 5 Regression Results for South East Asia

Variables	GMM regression with threshold (Good sequence group)	GMM regression with threshold (Bad sequence group)
m2_res	-7.22e-07* (-1.97)	-0.006*** (-7.83)
eng_res	0.086*** (3.55)	-0.004*** (-3.18)
finance_integ	-0.002** (-2.63)	-0.0013*** (-4.08)
I (finance_integ > $\hat{\mu}$)	0.173 (-0.62)	0.041 (1.15)
finance_integ* I (finance_integ > $\hat{\mu}$)	-0.001** (-2.01)	0.0014*** (4.28)
cominteg_gdp	0.054 (0.84)	-0.0002 (-0.88)
oil_price	-0.181 e-03 (-0.87)	-0.0001 (-0.81)
bta_10_years	-0.033 (-1.02)	0.014*** (4.74)
growth rate of gdp	-0.218* (-2.26)	0.0005 (0.63)
debt_total eng	-0.316* (-2.27)	0.125*** (3.18)
Trade balance_gdp	-0.982 (-1.75)	0.0003 (0.69)
Observation number	170	108
Threshold (Method of Hansen)	84%	80%
Test of significance of Ficher (p_value)	0.0001	0.0012
Sargan test (S statistics)	0.2977	0.3064

« * » p<0.1, « ** » p<0.05, « *** » p<0.01

Table 6 Regression Results for Latin America

Variables	GMM regression with threshold (Good sequence group)	GMM regression with threshold (Bad sequence group)
m2_res	-0.00001 (-1.41)	-2.21e-08*** (-3.11)
finance_integ	0.051* (1.66)	-0.004*** (-2.59)
I (finance_integ > τ)	1.714* (1.65)	-0.672*** (-2.59)
finance_integ* I (finance_integ > τ)	-0.050* (-1.65)	0.003** (2.06)
oil_price	0.002* (1.75)	0.002* (1.85)
bta_10_years	0.011 (0.73)	0.018 (0.93)
growth rate of gdp	0.0001*** (10.24)	-0.0002 (-0.98)
debt_export	0.003 (0.78)	-0.0008 (-0.30)
tradebalance_gdp	0.0088 (1.23)	0.0007*** (2.63)
Observation number	142	403
Threshold (Method of Hansen)	48%	103%
Test of significance of Fisher (p_value)	0.0000	0.0000
Sargan test (S statistics)	0.0806	0.0727

« * » p<0.1, « ** » p<0.05, « *** » p<0.01

5. Conclusion

This paper revisits some unexplored areas of the international liberalization process in regions where renewed interest in this area has resurfaced. We identify the presence of a significant theoretical and empirical relation between the dynamics of financial liberalization and the intensity of speculative pressures. It is suggested that, the dynamic nature of the process of financial liberalization require the development of a theory which institutes the safest dynamics of liberalization for an economy.

This research also sheds some light on the relationship between the dynamics of liberalization reforms and financial stability. We used a dynamic panel model specification to investigate whether the impact of financial integration on a country's financial vulnerability differs according to the trajectory of international integration. We were particularly interested in proving that the pace of deregulation of capital and financial accounts governed the effect "financial instability" of the financial integration process. Investigation of international liberalization in some regions (Latin America, South East Asia and Europe), enable us to identify the "bad" dynamics that have rendered at some dates those regions financially unstable. The central assumption of this article is that the effect "exchange pressures" of a policy of integration depends mainly on the pace of financial liberalization relative to commercial opening.

The existence of connection or disconnection between the two spheres (real and financial) is a chronic concern for policymakers, the scholars and foreign investors. In fact, the economic downturns result often from the financial sphere's deficiencies.

The process of financial liberalization had been often criticized and identified as the main reason of financial instabilities during the last decades.¹⁸ However, empirical research fails to provide a unanimous

¹⁸ Stiglitz (2002)

judgment concerning the effect "crises" of the process of financial liberalization.

The regional integration process of Europe, South-East Asia and Latin America has rendered these areas financially more vulnerable. Now these countries still moving towards complete integration, sometimes according to a "bad" dynamism. It's an opportune time to stop seeing liberalization as a homogeneous process. Even if a country ensures free movement of trade and capital, such a position will be static. Indeed, the changes in global environment or, of the trade terms or, even domestic slowdowns could alter that static position.

The analysis of current trajectory of international integration of the regional countries suggests that the phenomenon of "excessiveness" of financial liberalization relative to commercial opening is still present and claims a careful monitoring. Especially, we think that the European countries must take into account their regional pace of international integration. In fact, the increasing linkages between these economies within a regional governance of monetary and fiscal policies may constitute a trigger factor to a regional crisis. Interestingly, the greater regional liberalization within a region is usually accompanied by the erection of restrictions to trade and foreign capital with the rest of the world. Consequently, we call for cooperation and coordination of regional institutions with a multilateral mandate in order to supervise national policies.

The departure point has been the regions shaken by contagious crisis. Even if our results seem to be general, they provide the basis for a new area of search: given the dynamic nature of liberalization process, it's logical that the effects of financial liberalization may differ from one period to another and also across the countries.

The safest way to internationalize is to keep evolving into a good dynamics that is: a free trade, consolidated exports and a steady movement towards total financial liberalization.

A possible way to avoid a global financial instability consists of the establishment of a re-regulation of the international liberalization dynamics for countries which had diverged from the optimal dynamics of liberalization. Moreover, the nonlinearity of the effect of financial liberalization may provide an answer to the following question: Why the theoretical debate as well as the empirical investigation diverges in the direction of impact of financial liberalization on speculative pressures?

The most telling report is that even within those regions, countries were not contaminated similarly. This finding is of particular importance considering the global character of modern crises.

References

- Arellano, M. & Bond, S. (1991). Some Tests of Specification for the Panel data: Monte Carlo Evidence and an Application to Employment Equations. *Review of Economic Studies*, 58, 277–297.
- Bonfiglioli, A. (2008). Financial Integration, Productivity And Capital Accumulation. *Journal of International Economics*. doi:10.1016/j.jinteco.2008.08.001.
- Chinn, M. D., & Ito, H. (2006). What Matters for Financial Development? Capital Controls, Institutions, and Interactions. *Journal of Development Economics*, 81, 163-192.
- Claessens, S., Demirgüç-Kunt, A., & Huizinga, H. (2001). How does foreign entry affect domestic banking markets? *Journal of Banking and Finance*, 25, 891-911.
- Dooley, M., & Isard, P. (1980). Capital Controls, Political Risk, and Deviations from Interest- Rate Parity. *Journal of Political Economy*, 88, 370-84.
- Dooley, M., Fernandez-Arias, E., & Kletzer, K. (1994). Recent Private Capital Inflows to Developing Countries: Is the Debt Crisis History? Working Papers, WP/ 4792, National Bureau of Economic Research, Inc.

- Edwards, S. (1984). The Order of Liberalization of The External Sector In Developing Countries. In: Princeton Essays in International Finance, 156, Princeton University.
- Edwards, S. (2009). Sequencing of reforms, financial globalization, and macroeconomic vulnerability. *Journal of Japanese International Economies*, 23, 131-148.
- Eichengreen, B. (2001). Capital Account Liberalization: What do Cross Country Studies Tell Us? *World Bank Econ. Rev.* 15, 3, 41–365.
- Eichengreen, B., Rose, A., & Wyplosz, C. (1996). Contagious currency crises: First Tests. *Scandinavian Journal of Economics*, 98(4), 463- 484.
- Funke, M. (1993). Timing And Sequencing of Reforms: Competing Views and the Role of Credibility. *Kyklos* 46, 3, 337–362.
- Glick, R., & Rose, A. K. (1999). Contagion And Trade: Why Are Currency Crises Regional? *Journal of International Money and Finance*, 18, 603-617.
- Glick, R., Guo, X., & Hutchison, M. (2006). Currency Crises, Capital-Account Liberalization, and Selection Bias. *The Review of Economics and Statistics, MIT Press*, 88(4), 698-714.
- Glick, R., & Hutchison, M. (2005). Capital Controls and the Exchange Rate Instability in Developing Countries. *Journal of International Money and Finance*, 24(3), 387–412.
- Girton, R., & Hutchison, M. (2005). Capital Controls and the Exchange Rate instability in Developing Countries. *Journal of International Money and Finance*, 24(3), 387–412.
- Hansen, B. (1999). Threshold Effects in Non-dynamic Panels: Estimation, Testing and Inference. *Journal of Econometrics*, 93, 345-368.
- H. (2006). Financial Development and Financial Liberalization in Asia: Thresholds, Institutions and the Sequence of Liberalization. *North American Journal of Economics and Finance*, 17, 303–327.

- Kayser, B. (1996). *Géopolitique de la Méditerranée, une géographie de la fracture*. Retrieved From <http://hgtice.free.fr/peda/medit/kayser.htm>
- Lane, P., & Mielsi-Feretti, G. (2006). The External Wealth of Nations Mark II : Revised and Extended Estimates of Foreign Assets and Liabilities, 1970-2004. *FMI*, Working paper, WP/ 06/69.
- Mckinnon, R. I. (1973). *Money and Capital in Economic Development*. The Brooking Institution. Washington, DC.
- McKinnon, R. I. (1991). *The Order of Economic Liberalization: Financial Control in the Transition to a Market Economy*. The Johns Hopkins University Press, Baltimore et Londres.
- McKinnon, R. I. (1993). *The Order of Economic Liberalization: Financial Control in the Transition to a Market Economy*. 2nd Edition, Johns Hopkins University Press.
- Morana, C., & Beltratti, A. (2008). Co-movements in International Stock Markets. *Journal of International Financial Markets Institutions and Money*, 18, 31-45.
- Obstfeld, M. (1998). The Global Capital Market: Benefactor or Menace? *Journal of Economic Perspectives*, 12, 9-30.
- Radelet, R., & Sachs, J. (1998). Why Not Let the Banks Own the Debtor Firms? *Singapore Straits Times*.
- Sachs, J. D., Tornell, A., & Velasco, A. (1996). Financial Crises in emerging market: the lesson from 1995. *Brookings Papers on Economic Activity*, 1, 147-215.
- Stulz, M. (2000). *U.S. Banks, Crises, and Bailouts: From Mexico to LTCM*. NBER Working Papers 7529,, National Bureau of Economic Research, Inc.
- Stiglitz, J. E. (2000). *Principes d'économie moderneé*. 2e édition, Boeck, Belgique, 2000.

Sandretto, R. (2000). Les risques de la libéralisation financière vus à travers le prisme des crises financières récentes des pays émergents. CNRS et Université Lumière, 2, 3.

Stiglitz, J. E. (2002). Globalization and its Discontents. New York: W.W. Norton and Company.

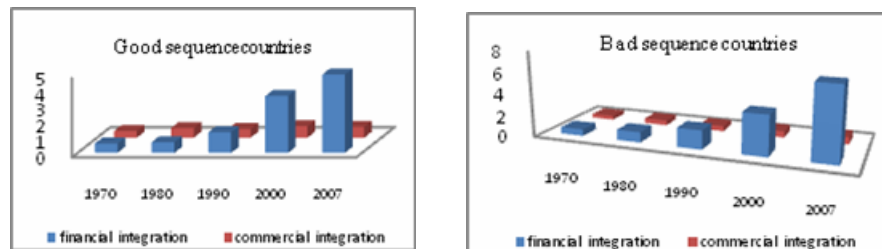
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APPENDIX 1

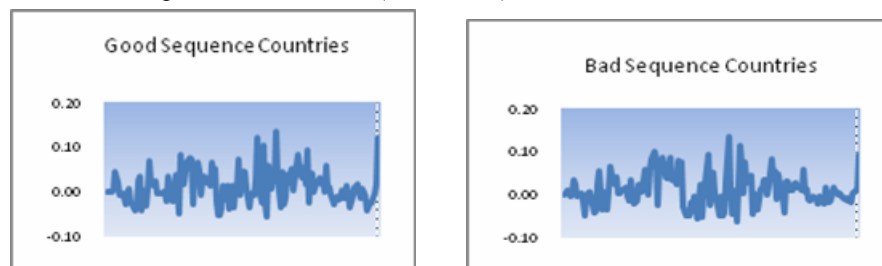
Table 3 The Countries of Each Sequence by Area

	Good Sequence	Bad Sequence
Europe	Cyprus,Finland,Ireland, Netherlands, Romania, Norway, Turkey, Sweden	Austria, Belgium , Denmark, Spain, France, Greece, Iceland, Switzerland, United Kingdom, Portugal, Italy
South East Asia	China, Korea, Indonesia, Malaysia, Thailand,	Japan, Philippines, Singapore
Latin America	Brazil, Colombia, Costa Rica, Guatemala, Nicaragua,	Argentina, Bolivia, Chile, Dominican Republic, Ecuador, Peru, Paraguay, Panama, Mexico, Jamaica, Uruguay, Venezuela, Rep. Bol.

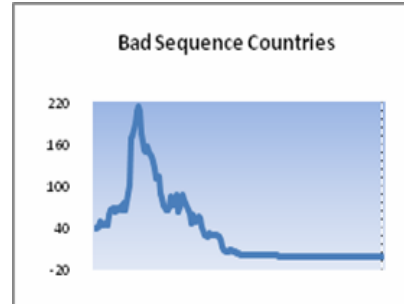
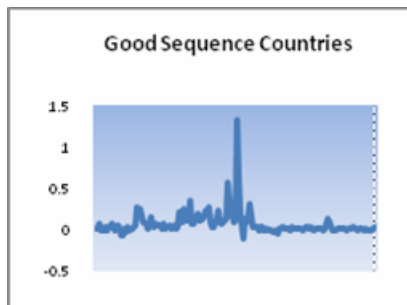
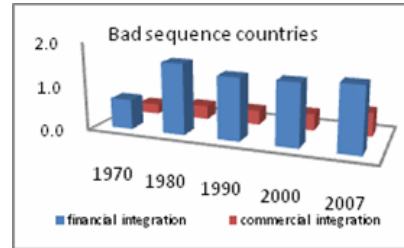
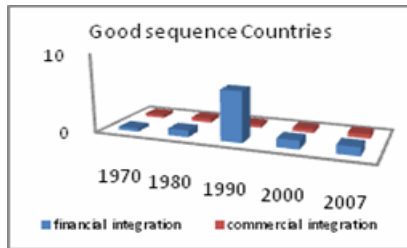
Fig. 3 Evolution of the Process of Financial Integration of the Sequences for Europe



Evolution of Speculative Pressure (1971-2005)



Evolution of the Process of Financial Integration of the Sequences for Latin America



Evolution of the process of financial integration of the sequences South East Asia

