Propagation of Financial Tensions from Developed Economies to Emerging Economies

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ABSTRACT

This paper aims to present the effect they have financial tensions in countries with developed economies on emerging economies. Because many economies have entered into recession, this has resulted in significant slowing of economic growth. The paper’s objectives are related to the presentation of the current global economic situation, the rapidity with which covered the entire world financial crisis. Also, there are presented the levels of development trade flows, financial and monetary, the financial tensions’ effect in developed economies and emerging economies, financial ratios and analysis, their composition and relations between them. The methodologies used in this paper are based on economic analysis and a financial interpretation and econometric calculations of the propagation of financial tensions.

1. Introduction

The paper is structured in five chapters, as follows: the first chapter presents state of the art, the second chapter presents highlights of financial tensions in emerging economies from Europe, Asia, Latin America, Middle East or Africa and financial Tension Index (EE-FTI), introduced by the International Monetary Fund and calculated for different economic regions. Chapter three presents the econometric approach of spreading financial tensions, considering the three sets of variables: the index of financial pressure in developed economies (AE-FTI), specific national characteristics and vulnerabilities (X), global general factors (GF) on a group of 26 countries spread parameter setting of financial pressure and parameter propagation period for these selected countries financial power. Chapter four shows the evolution of banking crises and capital flows in Latin America, Asia and the effect on Europe. The paper ends with the fifth chapter which presents the conclusions of this theme.

2. State of the art

Phenomenon still uncertain for some one U.S. mortgage crisis, credit crisis sub-prime crisis (an expression that characterizes high-risk transactions) move the severe consequences that irrationality can induce a weak national financial system, global propagated consequences, too [7]. Despite the risk, the U.S. sub-prime market has seen a dramatic evolution, from 5% in 1995 to 20% over 10 years, the mortgage crisis began visualization sub-prime loans to over 1300 billion dollars, half of them just in the before year [3].

In the period immediately following the outbreak of the sub-prime crisis in the United States in August of 2007, the global economy has been severely shaken but had no negative effects to really make their presence felt yet. Economic activity was reduced in intensity because of tighter credit conditions, while the end of the first half of 2008 marked the entry of the developed economies in a phase of moderate recession, but recession yet disrupt the relatively robust growth rates in emerging economies and developing economies [23]. Deteriorating economic situation of the United States followed its course with the second outbreak of the financial crisis of September 2008 [8], followed by the collapse of a large American investment group Lehman Brothers, the rescue efforts largest U.S. insurance company, American Insurance Group as well as in Europe, Bear Sterns [2].

In addition to any generalized increase in risk for financial operations, cash flows are hampered by a number of nuisances: the massive losses suffered by banks (especially those in Western Europe) and hedge funds, the desire to transfer funds under the "umbrella" provided The accumulation of mature markets, not

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least concerns about national economic outlook, particularly in economies that relied mostly on external financing (for India or South Africa) [11].

All the world’s economies have been badly affected, although the shock wave propagated in uniform, some feeling the effects more strongly than others. For developed economies, 2008 saw an unprecedented decline of 7.5% [1], they then entered into deep recession. While the U.S. has been affected most by the steady decline in the housing market and increasing financial tensions, Western Europe and Asia have been hit the most by the collapse of international trade and their own financial problems and changes in housing markets [4], [5]. In turn, these emerging economies have suffered from the crisis, registering a 4% contraction. Negative effects were induced both through commercial channels and the tax [10].

3. Highlights of financial tension in emerging economies

State-induced financial crisis in U.S. real estate market in 2007 quickly turned into a serious global crisis and increasing its accelerated collapse of Lehman Brothers in September 2008 was to raise the status of (somewhat improperly) the "second Great Depression". After some period of stagnation, the crisis has reached emerging waves. In the last quarter of 2008, most emerging economies faced difficulties in terms of stock markets, guaranteed loans and guarantees in foreign currency. Impact on exchange rates then led to a combination of massive devaluations and foreign reserves are exhausted. Concern due to reduced capital inflows and external sustainability has increased the spread bonds, especially emerging Europe and Latin America. Moreover, gloomy economic outlook have impacted heavily on stock markets. Massive withdrawals from investment funds in emerging economies over the same period of 2008 suggest that investors in mature markets had begun to withdraw their capital (Figure no 1). Three and four quarters of 2008 have confirmed a drastic reduction of funding sources, the most severely affected being borrowed from Europe and Asia. Rapid decrease of external sources of funding has major consequences on the work of emerging economies, industrial production is significantly reduced. The most significant decline was registered by the emerging states in Europe, whose economies have contracted by 17.6%, reflecting lower demand for imports of advanced economies (a consequence of the credit crisis).

Figure no 1. Capital flows to emerging economies (U.S. $ million)
Source: Bloomberg Financial Markets; EmergingPortfolio.com; Bank for International Settlements; IMF

Figure no 2. Capital flows impact on production
Source: Balance of Payments Statistics, IMF
During similar crises in emerging economies in intensity, particularly Latin American debt crisis and Asian crisis of 1997-1998, foreign investment has gone a long time, and restart production was done very slowly (Figure no 2). Although imbalances in financial statements were not the trigger of these two crises, both crises have seriously affected the banking sectors in the United States and Japan.

In light spreading U.S. mortgage crisis, it is necessary to coordinate policies to counter approach. Thus, the advanced economies should continue their efforts to stabilize the financial system not only for domestic political reasons, but also to inhibit the spread of financial tension into emerging economies. Moreover, easier access to external sources of funding would help emerging economies in the process to avoid worsening condition that is or avoid currency crises.

Examples are open swap lines of the Federal Reserve System of the United States and the European Central Bank with many emerging economies. But according to longer-term prospects, financial integration is a very necessary condition for the global economy can thrive. Since the financial relations between states facilitate the transmission of monetary financial tension, is needed to develop methods to combat the adverse external shocks, especially in open economies.

A first step in reducing the current financial crisis on emerging economies is to determine the intensity and scale of financial tension both in emerging economies and the developed ones. Regarding economies, the International Monetary Fund (IMF) has introduced an Advanced Economies - Financial Tension Index (AE-FTI) based on market fluctuations. The index was calculated for the period since 1981, on a total of 17 economies, comprising about 80% of GDP in developed economies. Status of the index for the year 2009 crisis illustrates the depth and intensity, whereas, from the first quarter of 2008, almost all advanced economies have experienced major financial problems (Figure no 3).

In seven previous cases of such crisis, high fiscal tension affected at least 50% of advanced economies. With one exception (ERM crisis - European Exchange Rate Mechanism), these episodes have affected the United States. Certain steps described in major financial tension associated with dislocations were strong in the banking sector (the Latin American crisis of the early 1980s and banking crises in Japan and Scandinavia in the 1990s). But the last such episode focuses more on securities markets (e.g. stock market crisis of 1998, 2000 and 2002).

Financial tensions have two common elements: usually occur suddenly and result in more sectors of the financial system of a state. General degree of tension experienced by a country depends on the economic
importance of the financial sector or sectors affected. Previous claim has two implications for determining the index of tension: first, the index should be able to include the development of a considerable number of financial markets, and aggregating sub-indices should reflect the relative importance of several financial factors. Based on these principles, Emerging Economies – Financial Tension Index (EE-FTI) is determined using the following indicators: a) index of exchange market pressure (IEMP), which increases as the depreciation of the exchange rate or international reserves decline, b) bonds spreads, indicating a high level of their increased risk of insolvency, c) "banking beta sector", indicating the standard model based on evaluation of capital assets (MEAC) over a period of 12 months. A value greater than 1 suggests that the banking sector is imminent outbreak of a crisis, d) returns securities) securities yield volatility.

More broadly, using the index described above can identify four episodes of systemic financial tension. The first is the intensification of the Asian crisis in the first quarter of 1997. The second takes place in late 1998 was felt more strongly by the emerging economies. This episode reflects the financial instability caused by external debt crisis of the Russian and American speculative corporation bankruptcy Long-Term Capital Management (LTCM). The third increase in EE-FTI crisis occurred against "dot-com" in 2000. The fourth is more differentiated than the first three regions, the most significant occurring in Latin America in the year 2002. Regarding the current crisis, as financial tension index, the first signs have emerged in Asia, and then multiplying in all other regions. In the first quarter of 2008, all regions exhibited extremely high levels of financial pressure, while similar events developed economies. Strong correlation of financial tension in terms of emerging economies suggests the influence of common factors. One of these factors consists of accumulated tensions developed economies. Figure no 5 compares the aggregate indices of financial tension for developed economies (EA-FTI) and emerging (EE-FTI). The link between the two indices is high, maximum points were achieved almost simultaneously, in particular regarding the current crisis. Maximum of four points of the graph, you can easily distinguish events that severely disrupted the financial stability of economies - the Asian crisis, LTCM bankruptcy crisis "dot com" and current events. Regarding the current financial crisis, changes in the two indices is atypical – AE-FTI value was positive in the second quarter of 2007, then increased rapidly, while the EE-FTI showed negative values in first quarter 2008, then accelerated to increase its value. Thus, although the initial response was slow in emerging economies, influence the manifested strongly developed, significantly affecting them in 2009.

There are two categories of factors that animate the relationship between financial pressure and emerging economies, namely the common ones, which produce similar effects among all emerging economies and the specific, highlighting the differences between them, as shown in Figure no 5.
The presence of both factors is justified by the simultaneous spread of emerging tensions in the regions. They include global shocks, such as, for example, sudden change of perspective on the markets accompanied by high risk. The role of these common factors is most likely related to increased financial integration of most emerging economies in recent decades - in other words, financial globalization. Or national-specific factors can be grouped into two main categories: economic and financial links between advanced and emerging economies and domestic vulnerabilities, derived from structural features.

Regarding how to facilitate the transmission links between financial tension states, the literature mentions two channels, namely the financial and commercial. Financial tension may be caused by the withdrawal of credit in advanced economies following a financial shock. Furthermore, tensions could arise from financial losses incurred by the funds invested in emerging markets in developed economies in crisis.

Financial tensions can arise in terms of international trade, as a consequence of reducing the volume of exports to developed economies during a crisis, reflecting current and future demand contractions. In the past twenty years, trade relations have developed the percentage of GDP of emerging economies to developed economies exports doubled. More than half of these exports are now originating from emerging Asia (particularly China). But financial and commercial channels of transmission of crisis can and interact, whereas the availability of commercial loans is affected by the volume of trade. Thus, recent international trade imbalances are at least the result of the unavailability of financing sources. The following figure compares the size and composition of financial relations between emerging economies. It is apparent that at least the last ten years, debts to banks belonging to developed economies have grown rapidly, particularly in emerging Europe, while emerging Asia saw some decline, especially after the 1997-1998 crisis. Consequently, emerging Europe is more vulnerable to external banking crises, while emerging Asia is prone to disturbances caused by external securities markets. Meanwhile, Western European banks have increased their dominance over bank flows, while North America was the main source for portfolio investment. Therefore, the United States and Canada increased their ability to induce imbalances among securities markets. National sources include vulnerability to shocks prolong the solvency and liquidity problems, and factors related to degree of openness of economies to the global economy. These factors increase the susceptibility of occurrence of currency crises and financial tensions while the potential transmission originating from countries with significant foreign investments.

4. Econometric approach of spreading financial tensions

Econometric approach is a formal statement of common factors and their specific financial tension transmission from advanced to emerging economies. EE-FTI has been determined for a total of 26 countries and a period from January 1997 and ending with December of 2008. These States are South Africa, Argentina, Brazil, Czech Republic, Chile, China, Colombia, Korea, Egypt, Philippines, India, Indonesia, Israel, Malaysia, Morocco, Mexico, Pakistan, Peru, Poland, Russia, Slovakia, Slovenia, Sri Lanka, Thailand, Turkey and Hungary. In the above assertions, the financial tension index in emerging economies (EE-FTI) is governed by three sets of variables:

1. financial tension index in advanced economies (EA-FTI)
2. specific national characteristics and vulnerabilities (X);
3. global general factors (GF).

It will start from the assumption that financial tensions in the advanced economies of the emerging economies are exogenous, whereas narrative analysis of episodes of widespread financial tension in advanced economies has not revealed the onset of similar phenomena in emerging economies. Moreover,
empirical tests support the hypothesis of independence on the direction of causality for most advanced economies tensions emerging economies. The equation below represents a compact description of the possible relationship of dependence between these variables (i and t denote countries and time, and means error):

\[ EISF_t = \alpha + \beta EAFS_i + \gamma X_{it} + \delta + \epsilon_t \]

Relative functions of common and specific factors can be described as follows:

- Scale degree of spread (β), measured by that measure how financial tension on i economy respond in advanced economies. Common effects of tension in advanced economies are measured by the average spread parameters:
  \[ \beta = \frac{1}{n} \sum \beta_i \] (n being the number of economies)

- National component to propagate tension has two effects - one direct and one indirect. Indirect effect captures the impact of national factors on the propagation parameters:
  \[ \beta_i = f(X_{it}) \]

For example heavily indebted economies in relation to developed countries will have high spread parameter. The direct effect captures the influence of national factors on emerging markets (β).

EE-FTI index is composed of four indicators of prices and an indicator of market tension (IEMP). Each component is adjusted, as measured by the inverse standard deviation, and then summed to determine the rest of the index. By this method, a fluctuation of one component does not strongly influence the outcome. The addition also allows the separation of components into sub-index values. The five components of EE-FTI are IEMP, spreads bonds, β variable, banking sector profitability measures and yield volatility measures may be combined as follows:

\[ EEITF = IEMP + \text{bonds spreads} + \beta + \text{return actions} + \text{stock return volatility} \]

IEMP for state and month is determined as follows:

\[ IEMP_{it} = \frac{\left( \Delta e_{it} - \mu_{it} \right)}{\sigma_{it}} = \frac{\left( \Delta RES_{it} - \mu_{RES} \right)}{\sigma_{RES}} \]

were \( \Delta e \) and \( \Delta RES \) denotes the monthly percentage change in exchange rate and national reserves (excluding gold). Symbols “σ” and “μ” are the standard deviation and average deviation of the series, in other words, each component is standardized IEMP. Bonds spreads are calculated using spreads and JPMorgan EMBI Global defined as return of the security minus the yield on 10 years U.S. Treasury. β variable banking sector is identical to that used in standard models for valuing assets and capital is defined as follows:

\[ \beta_i = \frac{\text{COV}(r, \pi_i)}{\sigma_{H}^2} \]

where “r” is the annual return of the banking market. A higher value of the β variable, indicating that fluctuations in shares proportional to the stock market moves suggest a risk in the banking sector and also produce a banking crisis was imminent. The final component is the volatility of yields that fluctuate. A high volatility indicates a high degree of uncertainty and financial tension while an equally high.

4.1. Analysis while the variable component of EE-FTI

This analysis focuses on spreading awareness of financial tensions in emerging economies as described in Figure no 5.

\[ EEITF_n = \alpha + \sum \rho^i \text{Luna}_i + \epsilon_n \]

were Luna, is a simulated variable for month t counted and \( \rho^i \) measured coefficient time series variable element in its financial tension emerging economy and is responsible for 50% of the variation in EE-FTI. Relationship can be developed through the following model:

\[ \rho^i = \alpha + \beta \text{AEITF}_n + \sum \gamma^i \text{GF}_n^i + \epsilon_i \]

The model correlates \( \rho^i \) variable component with AE-FTI and FG, the latter including the annual variation of overall output, aggregate price of goods and the LIBOR index, summarizing the results of the model to the 26 economies, revealing that the most important variable \( \rho^i \) is financial tension from advanced economies, responsible for 47% of \( \rho^i \) variation, suggesting that financial strains in developed economies play an important role in forecasting the emerging economies.

4.2. Analysis of financial stress propagation

To analyze the propagation of financial stress, EE-ITF is modeled as a function of EA-FTI, a number of global factors and a constant specific national.
The coefficient of interest in this model is $\beta_i$ - the parameter spread of financial tension among developed and emerging economies. Given that the propagation parameter varies over time (between periods of calm and periods of financial tension), the model is turned on:

$$EEITF_n = \alpha_i + \sum_{c} \left( \beta_i^{\text{EAITF}} + \beta_i^{\text{Dt}} \right) + \sum_{g} \gamma_i^{\text{GHIT}} + \epsilon_n$$

were $D_1$ și $D_2$ represented two variables are simulated two episodes of tension propagation parameters of these two episodes can be played by $\beta_i^{\text{EAITF}}$ și $\beta_i^{\text{Dt}}$. Propagation of financial tension on emerging economies may not be instantaneous; therefore the model associated with it a variable delay ($l$):

$$EEITF_n = \alpha_i + \sum_{c} \sum_{l=0}^{1} \left( \beta_i^{\text{EAITF}} + \beta_i^{\text{Dt}} \lambda_i \right) + \sum_{g} \gamma_i^{\text{GHIT}} + \lambda_i \cdot EEITF_{n-1} + \epsilon_n$$

were $\lambda_i$ represent delayed tension. The combined effect of propagation of tension in a single period of delay can be written as:

$$\beta_i = \beta_i^{\text{EAITF}} + \beta_i^{\text{Dt}} + \beta_i^{\text{Dt}} \lambda_i$$

this means $\beta_i = \left( \beta_i^{\text{EAITF}} + \beta_i^{\text{Dt}} \right) + \left( \beta_i^{\text{EAITF}} + \beta_i^{\text{Dt}} \right) \lambda_i$, - for the first episode of tension

and $\beta_i = \left( \beta_i^{\text{EAITF}} + \beta_i^{\text{Dt}} \right) + \left( \beta_i^{\text{EAITF}} + \beta_i^{\text{Dt}} \right) \lambda_i$, - for the second episode.

Parameter propagation environment $\beta$ presents the greatest importance in terms of financial tension propagation, the variation was oscillating between 0.62 and 0.65, the other interaction variables having significant value to influence index. National component of the parameter estimates $\beta_i$ by the International Monetary Fund confirms its importance in the transmission of financial tensions. As shown below, on average, 70% of financial tensions formed in the advanced economies are sent to emerging economies ($\beta_i = 0.7$). Moreover, the spread of financial tension occurs quickly and had them a month or two to reach the emerging economies. However, the rate of spread $\beta_i$ varies significantly by state and region, where China's ineffective and about 1.3 for Chile and Turkey. Severity spreading financial pressure varies so greatly over time, depending on the succession of financial crises in advanced economies (the mid-2007 until now and the mid-1998 to mid 2003). As the next figure, it appears that some countries such as Brazil and Colombia, which recorded strong imbalances in the past, are not as affected as China or Hungary who feel a far greater effect.

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**Figure no 8. Parameter propagation of financial tension**

*Source: Calculations IMF*

**Figure no 9. Parameter spread in times of financial tension**

*Source: Calculations IMF*
5. Banking crisis and capital flows

The current global crisis involves various systemic banking crisis in many advanced economies. Considering the perpetual expansion of financial globalization (in terms of international financial flows and the abundance of branches/subsidiaries of large banking corporations), banking crisis in advanced economies can seriously affect emerging economies by sharply reducing capital flows. It will then be presented to two crises in which banks in advanced economies were heavily involved in loans in emerging economies: the Latin American debt crisis of the 1980s and 1990s Japanese banking crisis.

5.1. Latin American debts crisis

Latin American debt crisis literature associated with high blood bank financial institutions in the United States. It is true that many large American corporations and banks in Western Europe were heavily involved in financial operations in Latin America by numerous syndicated loans granted. By the end of 1978, such loans had reached a level equivalent to twice the capital and reserves of the main American banks. However, the factor which triggered the state of insolvency in emerging economies has not been established by mass withdrawal of funds by North American banks, but rather a combination of steep interest rates charged by them and falls in oil prices. Mexico was the first state entered default in August 1982 and over the next 16 years; most Latin American states have debt renegotiated by North American banks.

Thus, given exposure to Latin American debt crisis has impacted heavily on North American banks, forcing them to significantly reduce financial flows to the south. Even after renegotiating debt between 1983 and 1989, loans in the region decreased by 20%. Moreover, loans from banks and other developed economies have been significantly reduced. Although the withdrawal of funding is somewhat related to financial stress recorded North American banks, can not establish a precise connection between this episode and the current crisis. In particular, the factor which triggered the debt crisis in Latin America was up to insolvency of debtors in emerging economies, while the factor which triggered the current crisis is the loss incurred by creditors in developed economies, losses that led to the disappearance of sources financing in emerging economies. In a manner somewhat similar, in the 1980s succeeded in avoiding a systemic banking crisis proportions in terms of policy adjustment guarantee granted major banking groups.

5.2. Japanese banking crisis

Undoubtedly, Japan suffered a systemic banking crisis in the 1990s, the crisis caused by the collapse of stock markets and real estate and corporate tensions. At that time, Japanese banks were heavily involved in emerging economies, especially those in Asia.
But capital flows that they generate in insular Asia (Hong Kong, Singapore) began to restrict the early 1990s, the decline is accelerating after 1994 (Figure 12). However, if East Asia, where Japanese banks concentrated on Thailand and Indonesia, claims continued to increase until the outbreak of the Asian crisis in 1997. In the next two years, with the pressures exerted by the deterioration of the banking system of the Japanese economy, Japanese banks withdrew from East Asia; even today the amounts allocated were significantly lower than the peak of a decade ago. Reflecting the weakness of the Japanese banking sector, loans to East Asia declined while the domestic demand for loans in Japan. The degree of contraction is even more evident if one compares the claims of Japanese banks with those in other advanced economies. Therefore, it can be concluded that the withdrawal of Japanese bank loans was not part of a whole stream of abandonment of East Asia, whereas other advanced economies have continued to provide credit analysis on the outbreak of the Asian crisis. First, Japanese banks have withdrawn from commodity markets restricted, the cost of financing has increased sharply (LIBOR London Interbank rate exploded) and found themselves forced to move to stabilization capital. In this situation, Japanese banks have been shifted to commodity markets in Asia, where the presence of Japanese companies was pervasive. But the Asian crisis, a national economy increasingly weakened and growing pressure on higher capital adequacy strategy led to the abandonment of consumer markets. There followed a severe contraction in lending in East Asia, which has not improved only marginally, with Japan’s economic recovery since 2002.

![Figure 12. Claims on banks of advanced economies of East Asia (% GDP)](source: Bank of International Settlements, IMF)

Prolonged impact of the Asian banking crisis underlines the importance of inter-relationships that make countries that have a direct relation to the areas affected by financial crises to experience their different effects. For example, emerging Europe has shown that the state of the interbank market in Western Europe had a significant impact on the lending activity of banks in Central and Eastern Europe. Moreover, it appears that foreign branches of U.S. banks had little access to the financial statements of parent multinationals during periods of liquidity tightening in the U.S. Clearly, transnational character multinationals current bank may worsen financial fragility, but also can be a stabilizing force on financial stress experienced by emerging economies, provided that their economies are robust and undisturbed source of financial imbalances.

6. Conclusions

In recent years the bank has increased the phenomenon of globalization, both in terms of international banking flows and the dispersion of the few large banking corporations worldwide. International Degree currently covers most regions, especially emerging Europe, where more than 70% of banks are foreign. This can positively influence capital flows from developed to emerging economies. On the other hand, the presence of foreign banks in emerging economies is often associated with financial instability, an example we will consider it economic crisis in Argentina (1999-2002). At that time, Citibank sold a group of member banks (Bansbud) and Credit Agricole decided to stop investments, allowing the government to take over three banks - Bersa, Bisel and Suquia. Similarly, financial tensions parent bank's financial systems can counteract the positive effects of inclusion of foreign banks in emerging economies. However, during the Asian crisis, foreign banks in Malaysia have fared better in terms of profitability and credit quality than the local banks. Mostly positive evolution of foreign banks during periods of financial imbalances in emerging economies is primarily due to profitability, efficiency and financial resources, making them better able to withstand possible economic or financial pressures. Then, global banking groups manage units easier to obtain liquidity in international financial markets, based on reputation and informational advantages. Finally, even if external funding is exhausted, foreign banks can still access funds from partner banks, especially if the latter are only marginally affected by financial stress home.
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