

## ECONOMIC GROWTH CYCLES IN LATIN AMERICA AND DEVELOPING COUNTRIES\*

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### ABSTRACT

The Minskyan approach to financial instability and its effects on the real economy have recently been revived in order to explain the exchange rate crises undergone by the so-called emergent economies. Economies of this type are characterized by repeated scarcity of foreign currency, which can be explained by using Neo-Schumpeterian theory. Based on the Minskyan approach and on the Neo-Schumpeterian literature, this study seeks to demonstrate that there is a cyclic recurrence of exchange rate crises in Latin-American (peripheral) economies. By using data on international liquidity, the balance of payments and the increase in production in the G7 economies and in thirteen Latin-American economies, it was found that the Latin-American economies reflect the cycles of international liquidity.

*Key Words: International Liquidity, Financial Instability, Cycles.*

*JEL: F32, F33, F43, O30*

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\* This paper was granted by the Center of Strategies (Centro de Gestão e Estudos Estratégicos) of the Ministry of Planning in Brazil (CGEE), research project CGEE/Impactos.

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## 1. INTRODUCTION

The lack of an economy's National System of Innovation (NSI) and their effects on competitiveness are relatively well established in the Neo-Schumpeterian literature. The difference in competitiveness between economies at different levels of development and their respective NISs is, in general, the result of the fact that economies with a less developed NIS have a greater foreign vulnerability.

However, this real feature of developing economies interacts with the national and international financial sectors. When one thinks of the money as an element that is able to determine "motives and decisions" (Keynes, 1973) it is noted that it is impossible to understand how the path of economic growth is determined without a theory that takes monetary dynamics into account, especially when the financial sector becomes predominant (Plihon, 1995).

The theory behind the non-neutrality of money refers to monetary production economies that are characterized by the combination of historical time, uncertainty and money. This three-way combination furnishes the conditions for the long-term non-neutrality of money and causes liquidity preference to take the leading role in the determination of the level of employment in these economies (Dow, 1985, Chick, 1986, Keynes, 1973, 1979, 1936, 1937, Amado, 2000, Carvalho, 1983-84).

This theory makes it possible to determine agents' decision-making process according to subjective and conventional aspects rather than rational expectations. In this case, banks play an important role in determining the money supply. Their willingness to create or destroy money results from their perception of the state of the economy and their decision to choose the paths has the power to decide the course taken by the real economy. These analyses, carried out primarily in closed economies, can also be used in open economies. In this case, it is seen that the interaction between economies structurally rather differentiated has the effect of producing cycles in the peripheral economies that reflect those in the developed ones. (Mollo e Amado, 2001; Resende, 2005).

The fragility of the production and financial systems in peripheral economies (developing economies) increases the dependence of their growth cycle on their foreign exchanges revenue, whose fluctuations are directly linked to the behavior of the international financial system. This, in turn, shows itself to be typically Minskyan in its adoption of criteria for granting credit which is based on the expected relative ability of each economy to pay its external debt. This paper intends to show that the growth cycles of peripheral economies (specifically, Latin American economies) reflect the cycles of international liquidity.

In addition to this introduction and the conclusions, this article is divided into four other sections. The next section analyses the nature of international economic integration under a deficient NSI. In Section 3 Minsky's theory is analyzed, showing the active role played by banks in the creation of liquidity and the effects of this behavior in determining the growth paths of monetary production economies and the cycles which they go through. In Section 4, we analyze open economies as well as the so-called mirror cycles. In the fifth section, the cycles of the thirteen largest Latin American economies are subjected to empirical analysis in an effort to show the role played by international liquidity.

## 2. INTERNATIONAL INTEGRATION OF DEVELOPING ECONOMIES.

The concept of National System of Innovation (NSI) is central in the theoretical and empirical literature on economic development. This concept is presented in the Neo-Schumpeterian literature where technological progress plays a core role.

It refers to an institutional artifact that fuels technological progress (...) by means of the establishment of a national system of innovation, the flow of information and scientific knowledge required for the process of innovation is made possible. These institutional arrangements involve companies, networks for the interaction of companies, governmental agencies, universities, research institutes and private laboratories, as well as the activities of scientists and engineers: institutional arrangements that articulate with the education system, the industrial and business sector and with financial institutions to form a circuit of agents who are responsible for the production, implementation and dissemination of technological innovations (Albuquerque, 1996:228) – our emphasis.

Nelson (2005), Freeman (2004), Fagerberg (1994), Dosi et al. (1994) highlight the positive effects of the NIS on an economy's productivity and competitiveness. They also consider the impossibility of substituting the NIS by the importation of technology, given that technology has a local feature. Therefore, in spite of the recent process of globalization, the NIS remains central in the development of technical progress and its dissemination (Freeman, 2004). As regards the relationship between the NIS and an economy's level of competitiveness, Porter (1990, quoted in Freeman, 2004:25) argues that,

Competitive advantage is created and sustained by means of a highly localized process. Differences in national economic systems, values, cultures, institutions and histories, make deep-seated contributions to competitive success. The role of nations appears to be just as strong, or even stronger than ever. Although the globalization of competition might make it seem that the role of nations is less important, they are, in fact, more important. Since there are few tariff barriers to protect uncompetitive companies and domestic industries, nations acquire a growing importance because they are the source of competences and technology that lead to competitive advantage<sup>4</sup>

When Fajnzylber (1983) points out the competitiveness of the peripheral economies in the context of the Center vs. Periphery relationship, he draws close to the Neo-Schumpeterian School and its concept of NSI. According to this author, an industry which does not have an "endogenous nucleus of technological dynamism" cannot overcome the external vulnerability of peripheral economies. He intends the term "endogenous center for stimulating technology" to a scientific-technological infrastructure which is closely integrated and linked to the productive system, along the lines of the NSI proposed by the Neo-Schumpeterians.<sup>5</sup>

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<sup>4</sup> Freeman (2004:31) points out that, in addition to external economic vulnerability not being a recent phenomenon, it is related to an economy's NIS.

<sup>5</sup> In other words, it would be set up with "a wide range of agents and objectives: industrial plants, institutes of technology, basic science institutes, organisations that would educate and train personnel to qualify them for different levels of work and for the ministries and federal organs that determine policies and standards; it is by the interaction of these agents and objectives that the creative process is produced (...) along with the learning process, which is the determining factor in long-term competitiveness" Fajnzylber (1983:281).

Technological progress and its positive effects on the productivity and competitiveness of an economy are spatially localized.<sup>6</sup> In addition to this, the less developed an economy's NSI is, the less technical progress there is and, therefore, the less productivity.<sup>7</sup> Also, there will be less ability to produce goods which are at the leading edge of technology or near this level. Thus, the productive system tends to be less diversified and its coefficient of importation in relation to its coefficient of exportation tends to be higher, mainly in the upward phases of economic growth cycles.

Therefore, the development of the NSI is structural to the extent that it is related to the establishment of "institutional arrangements involving companies and their research and development departments, research institutions, systems for financing innovation, educational institutions, laws, etc." (Bernardes & Albuquerque, 2003:866). In this way, differences in the level of development of the NIS among countries result in structural differences in competitiveness of the economies, given that the technological paths of these same countries do not only affect their productivity, but also income and price elasticity of demand which result in a balance of payments constrained economic growth. Canuto (1998) presents a formal statement of this argument. According to this author, there are hidden and specific elements in technological endowment which limit the technology transfer by means of direct foreign investment and other forms such as licensing. On the other hand, systems regulating the acquisition of technology (patents, industrial secrets, etc.) set up barriers to the unrestricted replication of technology. In this way, standards of specialization by sector are established in economies and also different structures of production and competition between them. As regards the competitiveness of economies, it is possible, to a certain extent, to compensate for differences in productivity by changes in the exchange rate. However, "exchange rate devaluations by the South have a decreasing success in attracting activities from the North, insofar as the absorption of these activities reaches those sectors with strong technological dynamism and/or a high level of appropriability." (Canuto, 1988:8).

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<sup>6</sup> Regarding the local nature of technology, Fagerberg (1994:1156-1161) holds that "(...) technology, or knowledge about how to do things, is built into organizational structures (companies, networks, institutions, etc.) and its transference is, frequently, difficult and costly (...) firms are characterised by different combinations of inherent competences (including technological knowledge) and strategies play a key role. Technological change is the combined result of innovative activities and learning within organisations, especially companies, and the interaction between these factors and their social contexts. The cumulative nature of this process is frequently emphasised. Country specific factors also have an influence on the process of technological change by means of various channels, and this gives a distinct national character to technology – and to the process of technological change – in different countries. As a result, many authors in this area, explicitly or implicitly, as an analytical technique, consider countries as separate technological systems where each one has its own specific dynamics. Lundvall (1992) and Nelson (1993) use the concept of the national system of innovation in this way (...) studies on technological spillover emphasize that these are, in large measure, geographically located (...) large differences in the production levels in different countries, to a large extent, reflect technological differences". Moreover, "economic development is interlinked with changes in the institutions which ensure the creation, dissemination and exploitation of technological knowledge and with changes in corporate strategy and organization (...) without investment in the educational, training and research and development (R&D) infrastructure and other scientific and technological activities, very little can be achieved by acquiring imported technology." Dosi et al. (1994:28-29). On this point, see also Fajnzylber (1983, cap.V).

<sup>7</sup> See for example, Freeman (2004), Fagerberg (1994), Dosi et al. (1994) and Bernardes & Albuquerque (2003). Also, Albuquerque (1999) argues that the level of development of a country's NIS is positively correlated with its level of economic development

It is concluded from the analysis presented so far that, in a country where the NIS is relatively less developed, in spite of its industrialization, its income elasticity for the demand for exportation tends to be lower than its income elasticity for the demand for importation. In this case, there will be foreigner structural vulnerability, as was first proposed by Economic Commission of Latin America and Caribbean (Eclac)<sup>8</sup>. Besides, the limited diversification of the production system and low levels of technical progress and competitiveness in the economy inhibit the rates of return on investment. These factors discourage capital inflows and Foreign Direct Investment (FDI) leading to harmful effects on the external sector of the economy.

Therefore, in economies with a less developed NSI than the central ones, there is a propensity for there to be a chronic scarcity of foreign exchange, which means that there is a greater external restriction on their growth *vis-à-vis* the economies with a more developed NIS. Therefore, in those economies there is a structural external vulnerability which interacts with the international financial sector, and affects their growth cycles. This is analyzed in the next sections.

### **3. FINANCIAL INNOVATION, ENDOGENOUS MONEY SUPPLY AND CYCLES**

Exogenous money supply is central in the mainstream monetary theory. To a large extent this situation is due to an ideological component related to two issues: i) attributing the onus for monetary problems to the monetary authorities, which, because they do not follow market mechanisms, end up disregarding individual preferences; ii) the ease with which the causal relationships posited by this theory are established. .

Since long time ago several authors have questioned this notion.<sup>9</sup> However, recently, a complete tradition associated with the approach of an endogenous money supply has gained support. Nevertheless, even though being radically opposed to the exogenous supply tradition, it ended up producing results which, from the point of view of the notion of the neutrality of money, do not diverge in any substantial way, from those of orthodox theory.<sup>10</sup>

There is also a third approach which stands out in this debate. It is associated with the idea of financial innovation and demonstrates that banks are agents which also have liquidity preference. This fact, regardless others, makes the money supply endogenous. Under “financial circulation”, money is itself an alternative asset when it satisfies the demand for money as a precautionary or speculative motive, including banks. By means of monetary policy, the Central Bank can influence credit supply, as well as banks’ reserves. However, these agents increase or reduce their credit supply according to their “degree of confidence in their long-term expectations”, and this makes the money supply endogenous – standing between the public and the Central Bank are the banks that are able to adopt strategies which confirm, weaken or oppose the monetary authority’s policy.<sup>11</sup>

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<sup>8</sup> See Prebisch (2000:185-189). Notice that this argument is to be found in Thirlwall’s model, with or without the presence of capital flows. See McCombie and Thirlwall (1994).

<sup>9</sup> See the debate on Currency and Banking Schools, Bullionists and Anti Bullionists etc.

<sup>10</sup> See Moore (1989), Kaldor (1978) among others.

<sup>11</sup> For details, see Carvalho (1993).

At the same time, banks are able to change money supply because they can create institutional mechanisms that allow them to avoid the restrictions imposed by the monetary authority. This allows the banks to have power to determine the money supply and, for this reason, they are able to intervene decisively in the growth path of a monetary economy of production.<sup>12</sup> In this regard, Minsky notes:

In our economy money is created as bankers acquire assets and is destroyed as debtors to banks fulfill their obligations. Our economy is a capitalist economy with long-lived and expensive capital assets and a complex, sophisticated financial structure. The financial processes of a capitalist economy center around the way investment and positions in capital assets are financed. To the extent that the various techniques used to finance capital asset ownership and production lead to banks acquiring assets, money is an end product of financial arrangements. In a capitalist economy investment decisions, investment financing, investment activation, profit commitments to make payments due to outstanding debts are linked. To understand the behavior of our economy it is necessary to integrate financial relations into an explanation of employment, income and prices.” (Minsky, 1982:17).

Later on, the same author comes back to precisely the importance of the endogenous nature of money:

Innovations in financial practice are a feature of our economy, especially when things go well. New institutions... and new instruments...are developed and old instruments increase in volume and find new uses. But each new instrument and expanded use of old instruments increases the amount of financing that is available and which can be used for financing activity and taking positions in inherited assets...The quantity of relevant moneys in an economy in which money conforms to Keynes’s definition, is endogenously determined. The money of standard theory ...does not catch the monetary phenomena that are relevant to the behavior of our economy. (Minsky,1982:66).

In this way, banks operate in the same way as other companies and try to increase their share in markets and their chances of making profits via innovations and this search is an essential feature of their activities. However, the way in which financing takes place in the type of economy that is being analyzed is one of the main elements that makes it intrinsically unstable, as we may note from the following:

Stable growth is inconsistent with the manner in which investment is determined in an economy in which debt-financed ownership of capital assets exists, and the extent to which such debt financing can be carried is market determined. It follows that the fundamental instability of a capitalist economy is upward. The tendency to transform doing well into a speculative investment boom is the basic instability in a capitalist economy. (Minsky, 1982:66).

The upward instability to which Minsky refers is associated with his classification of economic units according to their degree of financial fragility. He defines three categories of unit which have different financial structures and shows how the form of financing and the way the financial system operates tend to increase the share of the most vulnerable units. This weakens the economic system as a whole and, while, on the one hand, it allows an economic boom to take

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<sup>12</sup> For a discussion of the repercussions of the institutional changes that make the money supply endogenous, on monetary theory and the results of the non-neutrality of money, see Chick (1986) and Paula (1999).

place, on the other, it creates the endogenous conditions that lead the economy into a crisis at a later date.

Hedge finance takes place when the cash flows from operations are expected to be large enough to meet the payment commitments on debts. Speculative finance takes place when the cash flow from operations are not expected to be large enough to meet payment commitments, even though the present value of expected cash receipts is greater than the present value of payment commitments. Speculating units expect to fulfill obligations by raising funds by new debts. ...In addition to hedge and speculative finance there is Ponzi finance- a situation in which cash payments commitments on debt are met by increasing the amount of debt outstanding. High and rising interest rates can force hedge financing units into speculative financing and speculative financing units into Ponzi financing. Ponzi financing units cannot carry on too long. Feedbacks from revealed financial weakness of some units affect the willingness of bankers and businessmen to debt finance a wide variety of organizations. Unless offset by government spending, the decline in investment that follows from a reluctance to finance leads to a decline in profits and in the ability to sustain debt. Quite suddenly a panic can develop as pressure to lower debt ratios increases. (Minsky, 1982:67).

According to Minsky (1986), when banks maximize profit during a boom and favorable expectations, they tend to allow more vulnerable financial units. Thus, it is precisely the upward movement of the economy which tends to raise the interest rate, since the former raises the demand for money and, in so doing, tends to increase the fragility of these units.<sup>13</sup> However, the subjectivity inherent to banks, coupled with the way in which they shape expectations in monetary economies of production under uncertainty, means that, once a certain level of vulnerability is reached, they no longer make new loans because of the reversal of expectations. This renders the existence of the more fragile units unviable and generates a financial crisis which spreads throughout the real economy.

Therefore, in Minsky's work, it may be said that the monetary/financial area, as taken from Keynes, is connected to the real economy, whether because the money supply is assumed to be endogenous, or because the way monetary economies is financed is held to be the source of the crises in advanced economies. His explanation shows the whole cycle of an economy, since it analyzes both the upward and downward phases, and it also shows that such cycles are recurrent.

Minsky's works were basically associated with closed economies. However, recent works have attempted to carry out the same type of analysis on exchange rate crises in a variety of economies, especially peripheral economies (Arestis e Glickman, 2002, Paula e Alves Jr., 2000, Lopez, 1997, Resende e Amado, 2006). These studies have used Minsky's models of development to analyze the international financial system and have taken countries to be economic units, similar to the category of "vulnerability" developed by this author. They established measures of vulnerability and sought to show how exchange rate crises occur as a result of the recent economic cycles in these countries.<sup>14</sup>

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<sup>13</sup> For an interesting discussion on the relationship between economic booms and increases in interest rates in Minsky, see Mollo (1988).

<sup>14</sup> An example of this attempt to quantify vulnerability can be found in Paula e Alvez Jr (2000).

As regards Minsky's viewpoint, we believe it is important to show that there are a number of marked differences in relation to the countries which we use as his units of analysis and the units of analysis used by him. Whereas in Minsky's work the problem is the project's monetary flow and the specific project's ability for repayment, in open economies, with a high level of external vulnerability, the problem is not only associated with specific projects' ability for repayment but also with the capacity for generating foreign exchange that will allow such repayment. In this case, the process is much more complex and demands more sophisticated method.<sup>15</sup>

It is worth noting that the cyclical and repetitive nature of the crises in peripheral countries, especially in Latin America, is very striking and that their solution to exchange rate crises comes to determine part of their chosen model of development. Therefore, it is intended to show how the persistent problems of financing in these countries come about and the way in which the external solutions to the problems of financing and/or to the foreign exchange restrictions are linked to the development of the international financial system along lines which are very similar to those proposed by Minsky.

#### **4. THE PERIPHERY AND THE MIRROR CYCLE**

Latin American economies and the periphery in general tend to reflect the cycles of the central economies. In other words, if we were to analyze the peripheral economies as if they were companies (the approach taken in analyses of the role of foreign exchange based on Minsky's work, such as Paula and Alves Jr., 2000; Resende and Amado, 2006), it can be seen that they tend to reproduce the willingness of the international financial system to grant loans and agree to finance projects that are more vulnerable. Therefore, countries under speculative finance became fast Ponzi. The factor which makes this type of situation worse is that the conditions for countries are harsher than for companies, since, for the latter, it is stipulated that they must have sufficient funds to honor commitments at the many critical points in their cash flow. In the case of countries, however, there are the problems associated with projects that have been financed, which are the same as in companies but where it is also necessary to convert these cash flows into foreign currency in order to make payments abroad. This last problem is of a macroeconomic nature and goes beyond the question of analyzing the individual projects. There can be cases where projects or firms which are viable in terms of their ability to deal with cash flow but have problems because of foreign exchange restrictions in the countries where they are located, that make them unviable when it comes to repaying international loans that they have taken out.

Thus, in these countries, there is an asymmetry as regards the relevant variables that must be included when analyzing the process of becoming indebted. While domestic companies carry out their analyses on the basis of cash flows in the domestic currency, banks and other international financial agents take into account both the cash flow of projects and also the country's external vulnerability. Therefore, during the upward stage of the cycle, when these banks have a favorable view of the process and surplus liquidity, in large part endogenously produced by financial innovations, they agree to finance speculative units, which, as a result of fluctuations in the interest rate may turn into Ponzi. They may even agree to finance countries which already have the characteristics of speculative units and Ponzi.

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<sup>15</sup> Paula and Alvez Jr. (2000) develop this type of approach to a certain extent.



Nevertheless, changes in the perception of the degree of financial fragility in these countries can lead to abrupt changes at the granting of new loans and, in this case, the majority of the Ponzi units go bankrupt and countries in the same situation default.<sup>16</sup> At such moments in foreign exchange crises, there is a need for institutions that can coordinate and make the supply of credit more flexible at the international level and, if they do not exist, there is deepening of the crisis caused by the cyclical behavior of the international financial system.

However, it must be asked why peripheral countries allow themselves to become involved in the type of process leading to financial vulnerability that is analyzed above. There are two main reasons why this happens:

- i) The relatively low level development of their NIS means that these countries have lower international competitiveness and less ability to attract capital than the leading countries. It also leads a low level of diversification of production and technology, which means a higher importation coefficient, mainly in the upward phases of their cycle. The result of this set of factors is a severe external limitation on their economic growth.
- ii) Some analyses note the inability of the national financial system to supply the domestic economy with long-term financing. Thus, when there is favorable situation regarding international liquidity, resort is had to external capital to satisfy this need. This is the source of the accumulation of foreign reserves in periods when the Brazilian foreign debt increased in the 1970s (Studart, 1995).

Empirical experience appears to confirm a combination of these two elements, i.e., foreign exchange restrictions and lack of long-term private domestic finance. This would explain the peripheral economies' acquisition of international financing whenever it is easy to obtain and, also, positive changes in the international reserves of these peripheral countries in moments of elastic supply of international liquidity.

However, precisely because there is a limit on the foreign exchange constraint associated with the growth of these peripheral economies, they tend to become vulnerable when there is an increase in the process of indebtedness, as Paula e Alves Jr. (2000) demonstrate for the recent period

As a result of the geographical remoteness of banks and international financial agents regarding the formation of expectations concerning peripheral countries, extremely pronounced adjustments are observed when the international financing of these countries is interrupted<sup>17</sup>. This is what is observed at the moment when the upward phase of the international financial system turns into the downward phase. In the case of peripheral countries, this restriction comes into effect with great force and creates a general process that has profound effects on the real economy of these countries.

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<sup>16</sup> According to Dow (1993:168-176) external credit supply is not uniform between economies, and the international financial system has different effects on their growth. Therefore, it is not neutral. According to the same author, this point of view finds support in the behavior of the international financial system: banks adopt discretionary controls regarding the distribution and volume of external credit, and this is exercised within the limits of their assessment of sovereign risk. On this viewpoint, see also Paula and Alves Jr (2000), Amado (1997) and Amado (2003).

<sup>17</sup> This is usually referred in the literature as herd behavior. See Calvo and Végh (1999).

## 5. INTERNATIONAL LIQUIDITY AND CYCLES: SOME COMMENTS ABOUT LATIN AMERICA

According to Dow (1986-87:249; 1993:167), the rates of return on assets in developing economies are relatively low in comparison to those in developed countries. Therefore, the former are constantly subject to capital outflows whereas liquidity preference is persistently high. Furthermore, these economies have a lower capacity for the generation of foreign exchange by means of net export growth *vis-à-vis* developed economies (Dow, 1993:159-162). In these economies, persistent deficits in the current account frequently appear in the upward phases.<sup>18</sup>

Therefore, the relationship between the international financial system and the peripheral economies has a distinctive nature to that which exists with the central economies, and this leads to unequal development. In world financial markets, the economies of the first type are placed in the category of speculative/ponzi, while the latter are categorized as hedge, due to the fact that the former are less able to generate the liquid inflow of the foreign exchange (whether it be in the commercial, services or financial account) which they require to pay their international debts. Moreover, because the peripheral economies are relatively less able to generate net exchange revenues, this leads to a greater degree of external vulnerability in relation to the developed economies.<sup>19</sup>

The relatively higher level of uncertainty in the international financial system in respect of the net capital inflows to the peripheral economies means that there is a lower availability of credit for the Periphery *vis-à-vis* the center.<sup>20</sup> According to the analysis in the previous section, in the upward phases of the cycles in the world financial markets this uncertainty is attenuated: the resulting widespread optimism allows the expansion of credit, including the Periphery. In Minsky (1986)'s financial theory, creditors believe that the indebted speculative/ponzi units will manage to roll-over their debts in periods of optimism. The increase in the net capital inflows to the balance of payments of the peripheral economy improves the supply of finance, limiting the scarcity of foreign exchange, thus preventing external restrictions on its growth.<sup>21</sup> In addition to this, because of chronic deficits in current account transactions, its external vulnerability is camouflaged by the improvement in the balance of payments surplus. Therefore, this mitigates the uncertainty and liquidity preference in the peripheral economy.

However, in the downward phases of the cycles, this optimism dissipates and credit rationing is more intensive or asymmetric for the periphery, given the relatively greater level of uncertainty as regards its capacity to honor its external financial commitments. Consequently, there is an increase in uncertainty in the periphery regarding the future availability of finance and

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<sup>18</sup> Minsky (1994:30-33) puts forward a similar argument, according to which (peripheral) debtor countries have "chronic" deficits in the overall balance of the items in their balance of payments as regards the commercial balance and the payment of interest and amortization.

<sup>19</sup> So an economy's external vulnerability is determined on the basis of its net foreign exchange revenues. Therefore, the volume of its accumulated net external liabilities is taken into consideration in this concept of external vulnerability, because the higher this volume, the less the net foreign exchange revenues as a result of the payment of financial commitments represented by the external liability. Lastly, it should be noted that the opening up of capital accounts that took place in various economies in the 1990s, can heighten a country's external vulnerability by making it more sensitive to the volatility of capital flows.

<sup>20</sup> On the concept of degrees of uncertainty in Keynes, Shackle and Davidson, see Crocco (2002).

<sup>21</sup> Dow (1986/87) demonstrates the positive relationship between increases in net supply of foreign exchange and increases in the supply of finance, whether it be in fixed or flexible exchange rates systems.

external credit, in the context of balance of payments constraints. There is therefore an increase in liquidity preference in the peripheral economy, expressed by means of the purchase of foreign assets – capital flight –, which reinforces the perception of the international financial system regarding its speculative/ponzi position.<sup>22</sup> Thus, external vulnerability appears in periods when there is credit rationing in the periphery and this is a recurring phenomenon, given that the financial markets exhibit endogenous cyclical behavior in monetary economies of production (Minsky, 1986).

Indeed, the peripheral economies do behave in a way that reflect the cycles of international liquidity. This peculiarity has three main causes: i) the low level of development of their NIS, along with foreign exchange constraints; ii) the need to attract external capital to supply the peripheral economy with long-term finance, given that its financial system does not fulfill this role because it is not sufficiently developed (Studart, 1995); iii) the typically Minskyan behavior of the international financial system.

In order to examine the relationship between the cycles of international liquidity and the growth cycles of the Latin American economies, we studied the rate of growth, the current account balance and the financial account of the balance of payments of the fifteen largest Latin American economies. Cuba and Venezuela were excluded from this sample, since the former has negligible participation in the international credit market and the dynamics of the latter are closely linked to the world petroleum market. Thus, the sample studied consisted of the following countries: Brazil (Br), Mexico (Me), Argentina (Ar), Colombia (Co), Chile (Ch), Peru (Pe), the Dominican Republic (DR), Guatemala (Gu), Uruguay (Ur), Ecuador (Ec), Costa Rica (CR), El Salvador (ES), and Panama (Pa).

The increase (fall) in net foreign liabilities – which corresponds to the deficit (surplus) in current account of the balance of payments – of several Latin America countries is correlated with the rise (fall) of the moving average of international liquidity (MIL), during recent decades.<sup>23</sup> The correlation coefficient for the MIL and the current account surplus of the countries

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<sup>22</sup> According to Dow (1999:154-155), in a closed economy, “the national currency is generally the most liquid asset and the one with the most stable value. However, there is range of currencies in the international economy (...) where the value of the domestic currency falls to a significant degree in relation to foreign currencies, due to domestic inflation or the depreciation of the exchange rate, other currencies will satisfy liquidity preference (...) let us suppose that, for a given level of liquidity preference, there is a loss of confidence in the stability of the value of the domestic currency in relation to other currencies, then foreign currencies will be more able to satisfy this liquidity preference. Dow (1999:156) puts forward the motives of transaction, speculation and precaution to explain the demand for international currency by showing that, among other factors, the greater the uncertainty regarding exchange rates (the precaution motive), in addition to the search for lower losses from changes in the exchange rate (the speculation motive), the more agents will increase their demand for liquid international assets.

<sup>23</sup> International liquidity corresponds to the sum, regardless negative values, of the values taken from the following sections of the Balance of Payments of the United States, the United Kingdom, Japan, Germany, Italy, France, and Canada (known as the G7): “portfolio investments (assets and liabilities)”, financial derivatives (assets and liabilities)” and “other investments (assets and liabilities)”. Plihon (1995) only uses the data for “portfolio investment” as a proxy for international liquidity. However, the headings “financial derivatives” and “other investments” also include short-term capital and financial instruments associated with the derivatives and futures market. The source of these data was the International Financial Statistics Yearbook (IMF). It was decided to choose the moving average for international liquidity, that is, the arithmetic average for two periods (the sum of international liquidity for the present and previous years divided by 2), this being the reason for the use of the series from 1971 onwards. This option is due to the fact that it is the average fluctuations in international liquidity that affect macroeconomic variables as a result of the presence of delays in response.

between 1971 and 2004, with the exception of the Dominican Republic and Ecuador, suggests that there is an inverse relationship between these variables. For small countries like Guatemala, Costa Rica, El Salvador and Panama, this coefficient exceeded the figure of -0.50 (Tables 1A and 1B).<sup>24</sup>

**Table 1A – Correlation Coefficient between the Moving Average of International Liquidity and the Current Account Balance (1970-2004)**

Br	Me	Ar	Co	Ch	Pe	RD
-0,33	-0,44	-0,22	-0,26	-0,02	-0,31	0,19

Source: Eclac (www.eclac.cl) - Badestat, Financial Statistics Yearbook (FMI)

**Table 1B – Correlation Coefficient between the Moving Average of International Liquidity and the Current Account Balance (1970-2004)**

Gu	Ur	Eq	CR	ES	Pa
-0,90	-0,24	0,02	-0,76	-0,67	-0,57

Source: Eclac (www.eclac.cl) - Badestat, Financial Statistics Yearbook (FMI)

It can be seen that the rise in the MIL leads to an increase in the net external liability of the great majority of the Latin American economies, which, as previously explained, increases the vulnerability of these economies. Thus it is possible to find a positive statistical relationship between the fluctuations in international liquidity and the degree of external vulnerability of these countries. Although this vulnerability may possibly be hidden by balance of payments surpluses during periods of increase in international liquidity, it represents the real basis for classifying peripheral economies in the speculative and ponzi categories. The high, negative correlation between the MIL and the current account surplus of the countries under study supports the fact that the high external limits on the growth of these countries is the result of the low relative level of development of their NISs.

As a result of this, the growth of these peripheral economies requires an increase in the demand for imports, along with the low level of competitiveness of exports. Therefore, there is a tendency for the downfall of the trade balance and the current account balance when the periphery grows up, sustained by the net capital flows.

However, positive and rising in financial account balances depend on the level of international liquidity, mainly in economies under speculative and ponzi categories. During periods of low cyclical international liquidity, the strong external credit rationing experienced by peripheral- speculative-ponzi economies imposes a foreign exchange constraint on growth, along the lines proposed by Thirlwall's Law.<sup>25</sup> Growth is also damped for other reasons that are added

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<sup>24</sup> This conclusion should be viewed with caution, since the influence of other variables on those used in the study has not been taken into account. To do so, it would be required to develop an econometric model; a task reserved for future studies.

<sup>25</sup> Thirlwall's Law takes into account an economy's structural competitiveness, as measured by the income elasticity of its exports and imports; an important determinant of its level of international vulnerability and, therefore, of the

to the foreign exchange constraints: scarcity of this foreign currency inhibits the supply of finance (Dow, 1986/87) and leads to increases in uncertainty regarding long-run growth as well as external solvency. i.e., as regards the future availability of foreign exchange in relation to future financial commitments contracted on the international market. The rise in liquidity preference that results from this process puts pressure on domestic interest rates and discourages investment decisions, and this inhibits economic growth.

The fact that the growth of peripheral economies is a mirror of the liquidity cycles of the international financial system is supported by the correlation coefficients for the rate of variation of the moving average of real international liquidity (MRIL) and the rate of variation of the real GNP of Latin American countries and developed countries (G7) from 1971 to 2004 (Tables 2A and 2B).<sup>26</sup> This coefficient was positive and higher than 0.29 for all the peripheral countries, with the exception of Chile, Ecuador, Panama and El Salvador, where the last one was in a state of civil war for many years during the period under study. Uruguay, Colombia and Brazil had very high coefficients – higher than or equal to 0.50. As regards the developed countries, the coefficients were equal to or lower than 0.30 except for Japan.

**Table 2A – Correlation Coefficient of the Rate of Variation of the Moving Average of Real International Liquidity and the Economic Growth Rate – 1971-2004**

Br	Me	Ar	Co	Ch	Pe	RD	Gu	Ur	Eq
0,50	0,33	0,38	0,52	0,25	0,34	0,34	0,38	0,56	0,27

Source: Eclac (www.eclac.cl) - Badestat, Financial Statistics Yearbook (FMI)

**Table 2B – Correlation Coefficient of the Rate of Variation of the Moving Average of Real International Liquidity and the Economic Growth Rate – 1971-2004**

CR	ES	Pa	USA	UK	Al	Fr	It	Ca	Já
0,30	0,02	0,23	0,30	0,22	0,01	0,23	0,24	0,27	0,39

Source: Eclac (www.eclac.cl) - Badestat, Financial Statistics Yearbook (FMI)

USA= United States, UK = United Kingdom, GE= Germany, Fr = France It = Italy, Ca = Canada, Ja = Japan.

The positive correlation between international liquidity and economic growth was expected for all countries. The United States are the suppliers of world liquidity and, since it is the largest economy on the world, the increase in finance that precedes decisions to invest in this country has significant effects on the expansion of international liquidity. Thus, the latter is

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limits of on its growth. On the question of Thirlwall's Law and Latin American and Brazilian experiences, see López & Cruz (2000) and Jayme Jr (2003, 2006).

<sup>26</sup> Real international liquidity corresponds to international liquidity deflated according to the US price index (producer prices/industrial goods). The use of rates of variation for the calculation of correlation coefficients was necessary in order to avoid problems of spurious correlation. This technique was not necessary for the calculation of correlation coefficients between MLI and the balances on current account (Tables 1A and 1B), since these balances are stationary.

affected by the US endogenous growth cycle, which, in turn, is fed by the expansion of international liquidity. Besides, the increase in international liquidity is supported by the US deficits in the current account, which mainly occur in the upward phases of its growth cycle. The correlation coefficient between US current account balances and the MIL between 1971 and 2004 is -0.90 (Table 3) It also appears that a similar phenomenon occurs (Table 3) in the United Kingdom (UK), where the second most important international financial market is located.

**Table 3 – Correlation Coefficient between the Moving Average of International Liquidity and the Current Account Balance of the Balance of Payments – 1971-2004**

USA	UK	Al	Fr	It	Ca	Ja
-0,90	-0,63	0,24	0,63	0,13	0,59	0,81

Source: Financial Statistics Yearbook (FMI)

For Germany, France, Italy, Canada and Japan there is a positive and, in general high, correlation for the MLI and the current account balances (Table 3). This result suggests that: i) the developed economies, with the exception of the economies that supply international liquidity (USA and UK), increase their global foreign exchange revenues (resulting from their net exports and their net income from interest and dividends) when there is an upward cycle in international liquidity and this helps to explain the positive correlation between the last named factor and the growth of these economies; ii) the argument which holds that there are different standards of international integration and correlation between international liquidity and the growth of developed and peripheral economies is correct.

When there is an upward cycle in international liquidity, there are current account surpluses (a drop in their external liquid liabilities) in the developed economies (with the exception of those that supply liquidity), and deficits in the financial account of the balance of payments, which helps to expand international liquidity. The peripheral economies, on the other hand, absorb external resources that are required for their development and there are current account deficits and financial account surpluses (Tables 4A and AB and Picture 1 and 2). The dependence on international liquidity and, therefore, on the absorption of external resources by the peripheral economies aimed at promoting economic growth, is reflected in their higher level of external vulnerability *vis-à-vis* the central economies. The correlation coefficients for MILR and the growth of these economies show themselves to be, in general, higher in relation to the same coefficients for the developed economies (Tables 2A and 2B).

**Table 4A – Correlation Coefficient between the Moving Average of International Liquidity and the Financial Account Balance of the Balance of Payments <sup>a</sup>**

Br	Me	Ar	Co	Ch	Pe	RD	Gu	Ur	Eq
0,34	0,43	-0,06	0,41	0,18	0,52	0,34	0,83	-0,04	-0,15

Source: Eclac (www.eclac.cl) - Badestat – Produced by the authors of the article

<sup>a</sup> The Eclac database contains information about the financial accounts of several countries that is not available for the first few years of the 1970's. Thus, the start dates for the series used to calculate the coefficients for Br, Me, Ar, Co, Ch, Pe, RD, Gu, Ur and Eq, are, respectively, 1975, 1979, 1976, 1971, 1975, 1977, 1971, 19878, 1976, 1977, 1976, 1977.

**Table 4B – Correlation Coefficient between the Moving Average of International Liquidity and the Financial Account Balance of the Balance of Payments <sup>a</sup>**

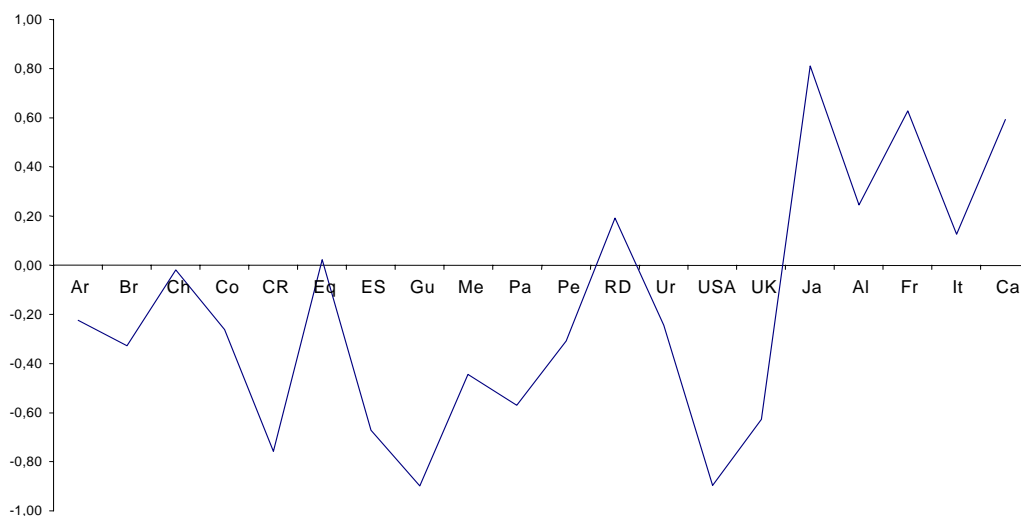
CR	ES	Pa	USA	UK	Al	Fr	It	Ca	Já
0,53	0,65	0,55	0,91	0,49	-0,42	-0,56	-0,11	-0,68	-0,23

Source: Eclac (www.eclac.cl) – Badestat; Financial Statistics Yearbook (FMI) – Produced by the authors of the article

<sup>a</sup> The Eclac database contains information about the financial accounts of several countries that is not available for the first few years of the 1970's. Thus, the start dates for the series used to calculate the coefficients for CR, ES and Pa, are, respectively, 1977, 1976 e 1977. For the G7 countries the start date is 1971.

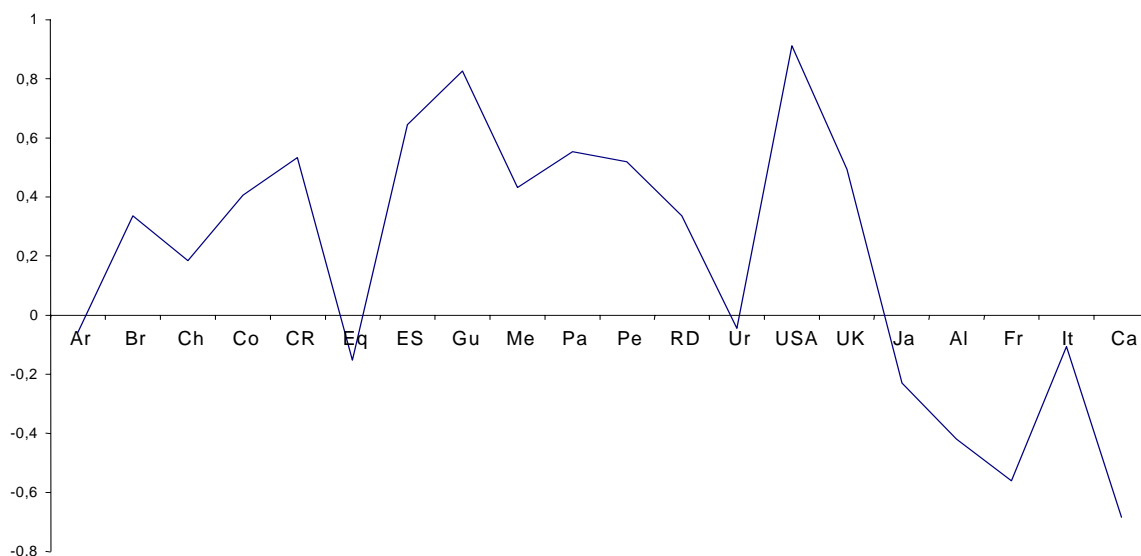
**Picture 1**

**Correlation Coefficient between the Moving Average of International Liquidity and the Current Account Balance (1971-2004)**



Source: Eclac, Financial Statistics Yearbook (FMI)

**Picture 2**  
**Correlation Coefficient between the Moving Average of International Liquidity and  
the Financial Account of the Balance of Payments – 1971-2004**



Source: Eclac, Financial Statistics Yearbook (FMI)

Therefore, the structural lack in competitiveness and the low level of development of the financial system in Latin American economies (peripheral), allied with the Minskyan behavior of the international financial system explains the positive correlation between the variations in international liquidity and fluctuations in the external liabilities in these economies. Furthermore, this correlation suggests that growth cycles in the peripheral economies are heavily dependent on the cycles of the international financial markets.

Finally, the cycles identified during the period under study demonstrate the Minskyan behavior of the international financial system and the debtor units (countries), although the characteristics of these cycles are different in various aspects. According to Ffrench-Davis (2003), the 1990s cycle can be distinguished from previous cycles by: i) the increase in the importance of the international financial market in determining positive and negative shocks undergone by the emergent economies; ii) the predominance of private capital flows; iii) the occurrence of crises of a financial origin in economies which had undergone reforms that were considered to have been successful by international financial agencies and risk evaluation agencies; iv) the reduction in regulation and supervision of capital flows, whether supply-side or demand-side. Furthermore, confirmation of the growth and diversification of the flow of international finance, from the 1970s to the present, has been accompanied by the substitution of long-term bank credit by flows of portfolio investment, medium and short-term bank financing and capital flows associated with fusions and acquisitions. This has resulted in an increase in the share of highly liquid assets in the external liability structure of economies.



Accordingly, financial flows in the 1990s became much more volatile in comparison to flows during previous periods and, therefore, capital inflows and outflows became more sensitive to the mood of international financial markets. The predominant agents in the financial market specialized in assets with high liquidity and became more responsive to changes in the variables which affect short-term returns on assets. Short-term horizons came to predominate in the area of international capital flows and the mood of the international financial markets became more important in determining such flows (Ffrench-Davis, 2003; Ffrench-Davis & Ocampo, 2001; Plihon, 1995). The above-noted characteristics in the expansion cycle of international liquidity in the 1990s made the Minskyan behavior of the international financial system even more evident, and this came about as a result of the lack of institutions at the international level able to coordinate and make the supply of liquidity more flexible.

## 5. CONCLUSIONS

This study analyzed the peculiarities in the interaction of the international financial side and the real and financial sides of developing (peripheral) economies which condition their cycles of economic growth. According to the Neo-Schumpeterian literature, peripheral economies have deficiencies in their NIS *vis-à-vis* central economies. These deficiencies have damaging effects on competitiveness and on the ability of these countries to attract capital, resulting in significant constraints on external resources in comparison to the central economies. Still, the private financial system in the peripheral economies is also fragile and, in general, does not have long-term finance. This characteristic, allied to the scarcity of foreign exchange, leads peripheral economies to increase their external debt whenever it is possible to gain access the international financial system.

In this article we intended, once more, to understand exchange rate crises in the so-called emerging countries according to Minsky's (1982, 1986) enlightenment, based on the impact that financial instability and its real consequences have on economies in general, and on peripheral economies in particular. We also drew attention to the correctness of this approach, but we also emphasized that there were many occasions when the notion of recurring cycles was not confirmed.

It was found that the peripheral economies behave in a way that reflect the cycles of international liquidity, thus creating cycles whose initial cause is the supply of liquidity in the international market, which weakens these economies. As a result of the changes in the subjective expectations of those who supply international liquidity to the peripheral economies, the expansion phase of the cycle lead to crises. We also argue that this is a pattern that has repeated and intensified with the recent move toward financial liberalization on an international scale.

In the case of thirteen Latin American countries, the data showed that the type of theoretical approach used was able to provide an understanding of the cyclical development in their economies. It was also found that there is a Minskyan component which explains the way these economies develop and that this element is also determined by factors arising from the international financial system and not only from events within their domestic financial system. The higher degree of external vulnerability of Latin American (peripheral) economies, which results from deficiencies in their NISs and their financial systems, produces asymmetric behavior on the part of the international financial system. This situation comes into effect in the periods

when there is a cyclical reduction in international liquidity and stronger restrictions on credit for peripheral economies vis-à-vis the central economies, and this conditions their growth cycles.

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