LISBOA SCHOOL OF ECONOMICS & MANAGEMENT

MASTER IN FINANCE

MASTER'S FINAL WORK

DISSERTATION

THE IMPACT OF EMERGENT COUNTRIES ON THE INTERNATIONAL MONETARY AND FINANCIAL SYSTEM.

AN ANALYSIS BASED ON CENTRAL BANKS METRICS

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Abstract

This work proposes a reflection about the genesis of the problem of asset bubbles while integrating it in the context of the globalized market. We look at the problem on two dimensions: first, through the domestic policy regimes and its implications in the domestic capital structure; second, considering the role that the international monetary and financial system performs as a vehicle disseminating to the world, and amplifying, these same domestic policy measures. We highlight the dynamics between advanced economies and emergent market economies resorting to the role played by international capital flows as a monetary policy disseminating vehicle.

We carry this exposition resorting to the Austrian Capital Theory to explain how the wealth creation process should be supported on an efficient market capital structure, and then we make use of the Austrian Business Cycle Theory, as developed by Ludwig von Mises and later by Friedrich A. Hayek, to explain the distortions that the monetary manipulation exerts on the efficient market process of resource allocation. As far as we know, such an approach has not yet been explored within this perspective, particularly regarding the link of domestic monetary distortions between both, big developed and emergent economies, and their global impact, and this is the specific contribution of the present work.

Keywords: International Monetary and Financial System; Emergent Market Economies; Monetary Policy; Austrian Business Cycle Theory; Central Banks; International Capital Flows.

Contents

"All rational action is in the first place individual action. Only the individual thinks. Only the individual reasons. Only the individual acts."

Ludwig von Mises in *Socialism* (p. 97)

Introduction

The last decade showed the dependence by the western world on a debt-fuelled growth model. This dependency is well noted on the monetary response to the financial crisis of 2008 and on the Eurozone sovereign debt problem, where there were no space for the economy to fully deleverage and the debt burden to adjust. The Central Banks actions, led by the Federal Reserve Bank (FED), showed that the intention of the monetary authorities, and the governments, was to avoid these natural market dynamics and instead inflate on previous bubbles, via credit expansion, in order to "stabilize" the financial markets and put the economy right on track. However, economists, analysts, media and people in general have a high propensity to confuse an asset bubble for genuine economic growth.

We may look at these policies on two dimensions. A first one, where domestic policy regimes are too much concerned with inflation targeting[1] and short-term output growth, without understanding the full financial cycle.[2] On top of this, a second dimension is the role that the international monetary and financial system (IMFS)

[1] See Bernanke et al (1997).

[2] See Borio (2012).

performs as a vehicle disseminating to the world, and amplifying, these domestic policy measures[3].

Pressures on exchange rates and interest rates have spread the easy monetary and financial conditions through capital movements into countries that did not needed them. A key manifestation of this process has been the strong expansion of US dollar credit in emerging market economies (EME). This “hot money”, characterized by short-term capital flows, are in constant movement from one market to the other in search for higher returns, and it is precisely this constant flow of “new money” that created the speculative bubbles on a wide range of asset classes throughout the world, having a pernicious effect on both the real economy and the international financial markets.

This work proposes a reflection about the genesis of the problem of asset bubbles while integrating it into a context of the globalized market.

[3] See Borio (2014), BIS (2015, p.83-100) and Caruana (2015).

1. Capital movements and the EMEs integration process

1.1. Western economic integration

Globalization is a process that has been developing from a couple of centuries to this part, however it experienced at the end of the 18th century with the British Industrial Revolution a new and decisive impulse, which spread throughout the 19th century to other western European countries.[4]

The Industrial Revolution brought a more specialized and capital intensive productive process that allowed huge productivity increases and led Great Britain to an accumulation of high volumes of capital, therefore increasing the standards of living of its population (Ashton, 1949). This capital accumulation favoured an increase in productivity sparkling more investments and the development of new technologies that were introduced into the production process through innovations. It was a period of great changes where the modern society started to be shaped in most of its features.[5]

Eventually, the high amounts of savings could not find enough attractive investment opportunities at home and, as a consequence, this abundant capital stock available led the way to one of the most important events in the history, the first great international movements of capital in the modern age. This was a breakthrough for the economic affairs and for which the economic policy was not yet prepared to deal with. At the beginning of the 19th century the great economists of the time, such as

[4] For an overview about the factors that enabled Great Britain to become the birthplace for the Industrial Revolution, see Allen (2011).

[5] See Ashton (1948).

David Ricardo (1817) in Great Britain, still took it for granted that capital could only be invested within the country's borders and assumed international immobility of capital on their models. With only a few exceptions, a premise deemed to last in economic theory.

Anyway, during the 19th century, without such capital flows, particularly from Great Britain, and all the associated technology, it would not had been possible, in a relatively short time, that the other western countries close the gap with Great Britain. It is known that most of the railroads across Europe were built under British capital and know-how, as well as the gas companies providing light to all cities of Europe. These capital flows surpassed the European borders and were key drivers for the rise of US and Canadian economies, with the building of huge railroad and other infrastructures like channels and roads, and in the funding of several industries via major shareholder positions. Also, vast agricultural plantations and mines in Africa and Asia, especially in the colonial territories, were among the main hosts of British investments. By the beginning of the 20th century, Germany and the USA overtook Great Britain in GDP terms and have positioned themselves as the world leaders in industrialization. (Mises, 1958)

There was in those days a good deal of interest everywhere in an expanding world economy. The growth of trade volume sustained by technological improvements especially in transports (maritime and others), the smooth functioning of the gold standard, and the sustained flow of capital from country to country, facilitated vast migrations, most notably from Europe to Americas and the "new territories", all were expressions of the same favourable attitude towards the strengthening of a world economy. However, the clash of powerful nationalisms culminated in World War I

and interrupted what was a good approximation to a well-integrated world economy based on specialisation and its mutual benefits.

A war on a world scale could not but disrupt international economic relations, aggravated by the broke down of the international gold standard, while trade and payment controls were widely adopted and trade routes disrupted. We entered into a period characterized by protectionism and closed economies, strongly aggravated during the Great Depression of 1929-1933, generating conflicts and impoverishment of the population on a world scale that finally led to a new and devastating war. In the case of foreign investment, which is made in the expectation that investors will not be expropriated, these events tremendously shook the international trustworthy environment that prevailed in most of the 19th century. All this led to a period of economic protectionism and unilateralism, within a set of policies intending to solve severe unemployment problems at the domestic level with disregard to international concerns in what became known as "beggar-thy-neighbour" policies[6].

With the end of WW II the international financial infrastructure knew a series of institutional changes where the Bretton Wood's system of semi-fixed exchange rates was probably one of the most important accomplishments in restoring some international trustworthy environment.

The 20th century was the time of a progressive rearrangement of the International Monetary System (IMS) under the gold standard, changes that also paved the way

[6] These policies are mainly characterized by currency devaluations and the increase in protective barriers on foreign products and capital. The intended objective was to stimulate the domestic economy by reducing the nation resilience on imports while increasing the export's competitiveness in the international market. This type of policies often leads to "currency wars" where a continuous "competitive" currency devaluation by several competing nations provokes a disruption in the international trade and investment flows, as well, on a domestic point of view it reduces the citizen's purchasing power. As referred to by Mundell (1999), these policies more often backfired.

for today's economic and financial conceptual problems, initiated with the creation of the FED in 1913 with the responsibility of directing and controlling the banking system of the world most important economic power (Mundell, 1999). These mutations of the IMS towards an increasing control of the money creation process by the state, through the central bank, finally culminated with the end of the Bretton Wood's system at the early 70s and the beginning of a floating exchange rate system supported by fiat currencies.[7]

Starting from the 70s, we assisted, not only to the end of Bretton Wood's system, but also to a wave of market liberalization measures supported by the emergence of modern computing, particularly in the world of finance, the rise of the Eurobond market and the first ground breaking derivative securities theories, which found ground to expand on the progressive lifting of national borders and restrictive policies of previous closed economies. Also, by the end of the century, the expression "emergent markets" gained popularity.

The new impulse towards global markets integration reached places where the market dynamics had been absent and that possessed a tremendous potential, with China being the most impressive example. By the end of the 70s, the Communist Mao Zedong's China broke out emerging a new Communist party leadership orientated towards market dynamics in order to promote growth and an improvement in wellbeing of its population.[8] A new surge in international capital flows emerged leaving the developed economies, particularly after the 80s, in search for the new investment opportunities at the, now, emerging markets eager to raise the standard

[7] For an overview of the changes see Rothbard (1990, p. 88-112).

[8] This new mentality is well expressed by Deng Xiaoping famous declaration: "Black cat, white cat, what does it matter what colour the cat is as long as it catches mice?".

of living of their population and to increase their participation in the world economy, including in the design of its institutional agenda.

1.2. The integration process of the EME

1.2.1. Characteristics of the EME

In order to fully understand what an EME is, we need to consider their characteristics as well as to which extent they are actual markets. These economies are identified as being in a transitional period from agricultural and commodities export driven economic structures to industrialized economic structures, progressively more opened to market dynamics or a mixed economy. EME tend to have below world average per capita income, which may be an important comparative advantage in relation to advanced economies (AE) within the context of economies looking for a catching up through integration into the world market. Indeed, this lower per capita income was a major driver for the liberalization process embarked by several EME in the last two decades intended to attain a rapid economic growth and an improvement of the population's general standard of living.

The EME are subject to high volatility, especially because their economic structure is not diversified enough. Countries highly dependent on agriculture or commodities exports are not only exposed to changes of supply and demand in their products markets (changes often small but with strong economic effects due to relatively rigid price-elasticity of these goods), but also are very much exposed to external factors such as natural disasters, a global economic slowdown or in even a crisis in a major regional power, and some unexpected price shocks in specific commodities.

The rapid social changes that come with these transitions have a great impact on very sensible and unsustainable social structures and are a major focus of political and social instability, which may negatively influence the investors' confidence. India is a paradigmatic example, despite having an enormous potential, maybe only comparable to China, sees its competitiveness being affected by an unbalanced social structure and an overpopulated country where several cases of corruption and instability at the government level restricts the potential productive of capital flows, once long-term investment requires stability and some degree of predictability (Mises, 1958).

Another focus of volatility was the currency, usually tied in some way to the major ones, mainly the US dollar, in order to maintain certain "stability" and predictability within the country's terms of trade. The Latin American economies where specially fustigated by this problem in countries like Brazil or Mexico facing several financial crises due to severe currency mismatches and loose monetary policies originated by unstable short-term capital flows. Another big problem that investors encounter in these countries is a less mature capital market that imposes some restrains in terms of funding or capital allocation within the economy making the investments more costly, i.e., the risk country is high.

Despite all of these constrains, EME remain very attractive to investors due to a high return potential derived from low labour costs, especially from unskilled labour, and an implicit productive growth capacity. Once these economies do not have a sizeable domestic demand, they rely on export-driven strategies based on low-cost consumer goods and commodities, which will increase the profit margins and, consequently, the share prices for the companies involved.

Since the early 2000s, when we speak about EME, we immediately associate them to the giants Brazil, Russia, India and China, usually known by the acronym BRIC[9]. In 2010, South Africa was accepted in this group forming one of the two world economic blocks alongside with the G7 (USA, Canada, Japan, UK, France, Germany and Italy). This set of emergent economies accounts for 1/4 of the planet's land mass and almost half of the world population, which explain why their integration process fundamentally changed the economic and financial environment, and actually became one of the major drivers for world economic growth.

Low labour costs at a massive scale and weak infrastructure boosted capital inflows into those countries in search of lower production costs, while promoting long-term investment with the benefits attached in terms of infrastructures, technology and managerial knowledge indispensable to increase the productivity and the output, and at a later stage rising of the standard of living for the respective populations. These capital flows (as well as current surpluses in most of these countries) enabled the accumulation of large foreign exchange (FX) reserves[10] and in some cases, such as China and India, also the inflow of great quantities of gold. These FX reserves create a very important buffer that can be used against potential external shocks that may affect the country's solvency, and trouble their progress.

According to statistics provided by the World Trade Organization (WTO), the participation of BRICS in global exports more than doubled between 2001 and 2011, from 8% to 16%. In those eleven years, their total exports grew more than 500%, while total global exports only grew 195%. Between 2002 and 2012, intra-BRICS

[9] The term BRIC was first introduced by the economist Jim O'Neill in 2001 on the Goldman Sachs's paper "Building Better Global Economic BRICs".

[10] See Miyajima (2013, p. 2, graph.1).

trade increased 922%, from USD 27 billion to USD 276 billion, while between 2010 and 2012, BRICS international trade rose 29%, from USD 4.7 to USD 6.1 trillion.[11] Although the lion's share goes to China, and the probability of a reduction of this pace in the coming years, this is a major change in the context of the world economy after decades of relative stability within the major participants in world trade.

1.2.2. Recent performance

The recent economic history of the EME was marked not only for exceptional growth rates and an increase in standards of living during this integration period, but also by very fragile economies and financial systems, which coupled with unsustainable forms of capital flows led to several financial crises in the most vulnerable EME.

During the 80s and the 90s several EME ran large trade and current account deficits, considered by a large panel of analysts and economists as justifiable from a development perspective where countries with lower levels of per capita income should be funding their investment trough debt, a growth model replicated from the AE. It was also common in the EME, especially at the beginning of the 90s, the use of a fixed exchange rate to the US dollar in order to provide some currency "stability" and avoid the risks of monetary manipulation by the populist governments, through their own Central Banks, as the case of some Asian and Latin American countries.

The problem was that a combination of fixed exchange rates and high public deficits made EME highly dependent on foreign capital inflows in order to finance their deficits (Turner, 1995). When eventually some shocks, both endogenous and exogenous, hit the economy, capital flows to EME decreased and threatened to even

[11] http://brics.itamaraty.gov.br/about-brics/economic-data

stop. The FX reserves were used to maintain a fixed rate system tied to US dollar, when the international capital flows ceased, the FX reserves started to be drastically reduced creating a problem of currency mismatch and setting in motion a vicious cycle where capital outflows led to the increase of interest rates, decrease of FX reserves, slower growth rates and, finally, the currencies had to significantly devalue against the US dollar. This explosive cocktail induced a dramatic increase in the debt to GDP ratio, where a short-term duration structure erupted that further negatively impacted the solvability of the countries and affected the investor's confidence, generating more capital outflows and a severe current account problem. This was, among others, the case of the Asian crisis of 1997/1998, followed by both the Russian default (1998/1999) and later the disastrous collapse of currency board regime in Argentina (2000/2001).

Brazil, in particular, was a "victim" of several domestic financial imbalances created by unsustainable fiscal deficits and aggressive monetary policies, which resulted in an intensive debt monetization policy that destroyed the pricing mechanism and set in motion a severe problem of hyperinflation throughout the 80s and the first half of the 90s. Up to Real Plan (1994) successive heterodox policy packages against inflation were unable to change the monetary course of the country. With the Real Plan, the monetary situation improved, but the foundations of the process remained fragile, particularly vis-à-vis the pressure of outside financial flows; indeed, in the beginning of 1999, the government had to change the monetary regime and to devalue the Brazilian currency.

A similar crisis affected the Southeast Asia in 1997 starting in Thailand and spreading to other Asian countries, where despite amazing growth rates in the first half of the 90s an unsustainable economic structure emerged in several South East

Asian economies, applying great pressure on the FX reserves necessary to maintain the Thai baht fixed to the US dollar. With the baht devaluation, other currencies of nearby countries also became under pressure. Even in the Singapore case, well known by its stability, the government was obliged to make the currency float, provoking a big devaluation against the US dollar. What started as a currency crisis quickly turned into an Asian corporate debt crisis when the companies, eventually, were forced to restructure their US dollar denominated debt.

Facing similar currency pressures Russia defaulted in following years as well as Argentina. In this case, an imperfect currency board was adopted with the responsibility to maintain an Argentinian peso fixed status against the US dollar. The problem was that it never abandoned to pursue a very own monetary policy. This ambiguity between a fixed exchange rate and an independent monetary policy was a decisive contribution to the imbalances created.

The similarities of the drivers for all these crises were not a mere coincidence, a combination of fixed exchange rate systems, low levels of FX reserves and large fiscal and current account deficits proved to be extremely toxic for the economic structure and originated huge financial imbalances unadjusted to a distorted productive structure.

The reforms pursued after the Latin American and Asian financial crises with the support of international institutions such as the International Monetary Fund (IMF) and the World Bank (WB) proved to be extremely important in restoring the investor's confidence in the EME. These reforms within a more realist approach became known as the "Washington Consensus" and turned into a benchmark for future IMF bailout packages, which included a mix of structural and institutional

reforms to control government spending, privatizations of state-owned companies and balance of payments adjustments.

Some lessons were learned, looking back to the 90s crisis it is remarkable how much of these countries were able to transform in little more than a decade. Although risks persist in some more badly managed cases, particularly at the macroeconomic level, today's EME are more characterized by current account surpluses, being a few large EME net creditors to the world, with large amount of FX reserves, which created several layers of financial protection and make them more resilient, when compared to AE, against global market turnarounds.

2. Theoretical Survey

We will now provide the necessary theoretical framework to understand how the market process of wealth creation develops, first in a free-market economy and then under the monetary distortions introduced by Central Banking. We will first construct a framework to a domestic economy expanding then to the international implications of a monetary distortion.

We will carry this exposition resorting to the Austrian Capital Theory to explain how wealth creation process is supported on an efficient market capital structure, and then make use of the Austrian Business Cycle Theory, as developed by Ludwig von Mises and later by Friedrich A. Hayek, to explain the distortions that the monetary manipulation exerts on the efficient market process of resource allocation. As far as we know, such an approach has not yet been explored within this perspective, particularly respecting the international link of monetary distortions between big developed and emergent economies, and this is the particular contribution of this work.

We start by consider the productive process as a series of steps towards a specific goal, which usually materializes itself as a good or a service. In order to reach this goal the individual should analyse all the means he has available and think of the best way to arrange them. The individual should *act*.

The *human action* may be understood as purposeful behaviour (Mises, 1949, p.11-13) aiming at a definite end and oriented by the ideas concerning the suitability or unsuitability of definite means. It is thus a conscious behaviour originated by a set of

judgments of value. All human action comprises a *time dimension*[12] where the subjective individual's perception of time is incorporated on his reasoning. The individual acts through time into an uncertain future and, when acting, he is always incorporating his past knowledge and information on the formulation of his expectations.[13]

The concept of time is transversal to all human action and consequently to all market phenomena. The logical notion of *time preference* establishes that, other things being equal, the individual prefers to satisfy his needs and reach his objectives as soon as possible, the "present good" is always preferable to some "future good" (Mises, 1949, p. 480-481). It is in this sense that a time element is instrumental for the development of a pricing mechanism and provides the context where interest rates play a significant role in signalling to the market the time preference of the individuals[14].

As mentioned earlier, the productive structure is composed by a series of successive stages that culminate in the good or service to be consumed (*consumer good* or "first-order economic good"). We will call to those intermediary stages *capital*

[12] Mises (1949, p.490-493)

[13] The concept of entrepreneur presented by Mises in "Human Action", and key to the Austrian Capital Theory, is of an individual that is always reassessing his "plan", always adjusting his expectations and decisions from the signals he receives from the market. He may, at any point, modify his objective rearranging and revising the stages of production where he is involved. He always seeks the disequilibrium; he is a discoverer of existing opportunities.

[14] To the mainstream economists, either monetarists or Keynesians, the key factor to determine interest rates is the Central Bank's monetary policy. According to the *Expectations Theory* the long-term interest rate is an average of current and future short-term rates. Therefore, it is argued that by setting the short-term interest rates the Central Bank can influence the entire interest rate structure through the expectations about its future interest rate policy. In this framework, the differences between short and long-term preferences are not recognised, and the individuals are supposed to mechanically form their expectations due to a *constant time preference*, what leads to significant distortions in the decisions of consumers and producers, through effects on the price mechanism and savings.

goods[15], in the sense that the economic nature of a capital good depends on the subjective opinion of the individual who believes that it will enable him to complete a specific stage in the productive process. The capital good is therefore a "higher-order economic good" in the production process scale and arises from the union of three essential elements: natural resources, labour, and time. Moving down in the production structure they are also originated from the incorporation of other capital goods in the production process.

An indispensable element to produce capital goods is *savings*[16], or unconsumed consumer goods, where they will first generate capital goods that will be gradually used up and replaced by other capital goods until all the stages in the production process are completed and we end up with the final consumer good ready to be supplied.[17]

The modern societies are characterized by an increasing division of labour, or knowledge, both horizontal and vertical, which leads to a lengthening of the productive structure with more and more intermediate stages. Comparatively, a society possess more wealth than other because it has more "time accumulated" in form of capital goods, which tends to make that society's economic structure more productive. This will be reflected in more consumer goods with higher quality that will generate more revenues, higher profits and wages. In short, these conditions allow a better remuneration of the factors of production. However, in order to maintain this

[15] It is important to look at the concept of *Capital*, which from an economic perspective differs from capital good and may be viewed as a subjective valuation of the market value that entrepreneurs attribute to capital goods (Huerta de Soto, 2006, p. 282). It is important to point out that in this work, when applying the term "Capital", we will be referring to the body of Capital Goods that constitute the productive structure.

[16] See Böhm-Bawerk (1901).

[17] For an analysis of the role of savings in the production process see Hayek (1931).

productive structure going on, once the capital employed is not perpetual and eventually it becomes obsolete, a certain minimum level of savings is essential to compensate for the capital consumption[18] during the production process.

Money plays here a fundamental role as a store of value for the unconsumed goods in the production process enabling their value to be maintained, or saved, for a longer period than its physical life. Money also performs a key role in the economic calculation process[19] where it serves as a general medium of exchange for all the goods and services present in the market, thus being the "present good" per excellence.

As mentioned earlier, individuals, other things being equal, value more a present good than a future good. However, this is a subjective valuation that not only varies from one person to another but even during the lifetime of a single person. This difference in the subjective valuation means that a market that comprises many economic agents with different time preference scales allows for multiple opportunities of mutually beneficial exchanges. Therefore, the *interest rate* is the price defined in a dynamic market interaction between the sellers of present goods, which are the savers that withheld immediate consumption in exchange for future more valuable goods, and the buyers of present goods, the ones that will consume them, such as workers, owners of natural resources and capital goods.[20]

[18] For more on Capital Consumption see Mises (1949, p. 261-264) and Hayek (1935).

[19] Introducing a transversal unitary measure is basically linking the purchasing power of every good and service to a price measured in monetary units, which is, in this way, connected with all prices in the market. However, the inverse means that money in itself will have infinity of individual purchasing powers derived from goods that are heterogeneous and full of specificities.

[20] This market where the interest rate is determined covers the entire productive structure of society. In this work, we focus on a portion of that market (loan/credit market), where there is the only directly observable figure for the interest rate, consisting on the natural interest rate, of money, plus the risk premium plus the premium for expected inflation/deflation.

Consequently, interest rate plays a vital role in the coordination of the behaviour from consumers, savers, investors and producers, as well as it is a key signal to entrepreneurs on how they should efficiently organize, and reorganize, the stages of the productive processes according to the consumer's preferences. In a "monetary economy" the individual's time preferences manifest themselves through the demand[21] and supply[22] of money.

At this point it is important to shed light to a fundamental misconception about the role of money on the wealth creation process of society. When we experience an increase in the quantity of goods, either consumer goods or capital goods, while maintaining the stock of money unchanged, the society will benefit from an increase in real wealth due to an increase of the pool of goods available, either to be consumed in the present (consumption goods) or to be used in the productive process (capital goods) that will generate future consumption. From this, it results an increase in the purchasing power of each monetary unit and a decrease on the price, measured in monetary units. But with money it goes another way, when we increase the money supply with no alteration in the pool of goods available, what will change is the quantity of exchangeable units that will dilute the purchasing power of a monetary unit, increasing the price. In short, instead of an increase in real wealth, we

[21] The *demand for money* is based both on a pre-existing purchasing power and in the belief that it will continue to have a monetary function as an exchangeable asset in the future. It is this temporal effect that confers the utility in holding money for the individuals, while it is the uncertainty in the future that will drive the demand for holding money, according to each individual preference scale (Mises, 1912, p.97-123) and Rothbard (1997).

[22] The supply of money could be understood as the total quantity of money available on a specific moment in time, which is the result of the sum of all individual cash-balances throughout the economy. We are able to make this inference because every monetary unit is always property of some economic agent and cannot exist out of this scope.

are in the presence of a redistribution process towards the early receivers of the new monetary units.[23] [24]

The process by which wealth is created within a society is that of capital accumulation based on true, or voluntary, savings. We will now analyse the specific entrepreneurial market processes that in a free market dynamics tend to invest the resources, previously, saved by the economic agents in an efficient way. This knowledge is important to then understand the fundamental differences with respect to what happens if investment is financed by credit based on monetary expansion. As referred to above, the market's productive structure is a temporal process composed by many very complex temporal stages in which labour, capital, goods and productive resources are not only devoted to producing consumer goods maturing this year, but consumer goods and services that will mature, and eventually be demanded by consumers, two, three, and several years in the future.[25]

Now, let us consider that the subjective individual's time preferences decrease and as a result the current consumption also decrease. The signal to the market of this decrease will manifest itself on three key spontaneous microeconomic processes that will tend to guarantee a correct investment of the newly created pool of

[23] "The services which money renders can be neither improved nor impaired by changing the supply of money." (Mises, 1949, p.418)

[24] This theory is known as the "Cantillon Effect", and attributed to Richard Cantillon the first to address the important impacts that a change in the money supply, and credit, have on changes of the relative prices in the economy. See Cantillon, Richard (1755): *Essai Sur La Nature Du Commerce en Général*.

[25] For example, a period of several years elapse between the moment engineers begin to conceptualize and design a new car, the time the iron ore has already been mined and converted into steel (which in itself is a process that took several years starting in registering it, complying with all legislation, to build the accesses and the mining infrastructure, to finally bring the iron ore to the market and then be transformed into steel), the different parts of the car have been produced and then assembled in the auto factory, the new cars distributed, marketed, and finally sold. This period comprises a very complex set of productive stages.

savings.[26] The *first effect* is the new disparity in profits between the different productive stages, where the immediate sales in current consumption goods industries will fall and profits will decrease, tending to stagnation when compared with the profits in other sectors further away from current consumption[27]. Entrepreneurial profits are the key signal that guide the entrepreneurs investment decisions, so the relative higher profits in industries producing capital goods signals to the entrepreneurs that they should redirect their efforts from less profitable industries closer to consumer goods to more profitable capital goods industries situated further away in time from consumption. The *second effect* that comes from the increase in savings is the consequent decrease of the interest rate and the way it influences the market price of capital goods[28], further away the capital good is from the final consumption stage and greater the increase will be. A higher price of capital goods in conjunction with a lower price of less demanded consumer goods is a very powerful signal sent to the market for entrepreneurs to redirect their efforts into production stages further away from consumption. The *third effect* is what Hayek called *The Ricardo Effect*[29] and refers to the impact that an increase in savings has on real wages. A decrease in sales tends to bring down some consumer goods prices and if the factors incomes remain the same it will be translated into higher real wages. This means, relatively speaking, that it is in the interest of the entrepreneurs to replace labour with now cheaper capital goods. What the Ricardo Effect points out is that it is perfectly possible to earn profits with a decrease in sales if costs decrease

[26] For a more detailed analysis see de Soto (2006, p. 319-332).

[27] Namely, consumer goods that will mature several years from now and that were not negatively impacted by the decrease of current consumption.

[28] Note that the interest rate is used to discount the future cash flows generated by each capital good and therefore it will increase its market price.

[29] See Hayek (1939, p. 8-15).

even more, in this case, by the replacement of labour, which became more expensive, by capital goods such as machinery or computers. The ones who will produce this new demanded capital goods are precisely the workers that have been dismissed by the stagnant consumer goods industries and were reallocated to the more distant capital goods industries.

This third effect along with the two previous ones, promotes a more *roundabout* productive process.[30]This new capital-intensive productive structure is fully sustainable because is backed by prior real savings, and moreover it may also significantly increase in the future, the quantity and the quality of the consumer goods, as well as the real income of all economic agents.

It is important to also remember that all increases in voluntary savings, and investment, initially bring about a decline in the production of new consumer goods and services in relation to the quantity that could have been achieved if inputs were not diverted from the stages closest to final consumption. However, this decline is key to reallocate productive factors necessary to lengthen the stages of capital goods furthest from consumption while it is also aligned with the consumer's temporal preferences. The fact is that voluntary savings supports this process, therefore it will not increase the prices of the consumer goods due to a decrease of their immediate supply.[31]

We are now in a position to understand, by contrast with the process of healthy capital accumulation, what happens if investments are financed not by prior real

[30] Eugen von Böhm-Bawerk stated in a critique to Marx's exploitation theory that the return on capital comes from the roundabout nature of the production process, which necessarily incorporate a time dimension. (Böhm-Bawerk, 1884, Book 6, Chapter 3)

[31] Hayek (1941, p. 275).

savings but by a process of artificial credit expansion directed by Central Bank and put in place by the fractional-reserve banking system.

An economy that functions under a developed banking system reflects monetary fluctuations as a change in the credit available. The money enters the system through the purchase of assets by commercial banks or by the Central Bank through a loan system directed to the commercial banks[32], and has an initial impact in the credit market as banks adjust both sides of their balance sheet to the change in money supply[33]. The banking system will now alter the total credit available, relative to savings, which in turn will have a direct impact on the distortion of the equilibrium rate of interest, disrupting the balance between supply and demand for capital. As expressed by Wicksell, it is this relative relation between natural and effective interest rate that brings about changes in the demand for capital (Wicksell, 1898, p. 107).

Mises advanced two distinct roles from banks in the credit process (Mises, 1912, p. 261-268): financial intermediation through the negotiation of credit originated in other people´s deposits (*commodity money*); and concession of credit originated in the issue of fiduciary media not covered by money, i.e. not originated by prior savings, defined by Mises as *circulating credit*.[34] This expansion of circulating credit through the generation of loans not backed by an increase in savings distorts the market signals lowering the interest rate. It provides an idea of profitability to investment projects that until that point could not find funding at profitable rates. It creates an

[32] For an overview on the current monetary creation process see McLeay et al. (2013).

[33] For an alternative view about the money supply measure see Salerno (1987).

[34] See de Soto (1995) and Rothbard (1994) for an analysis on both the economic and legal aspects of a fractional-reserve banking system.

illusion of increasing savings, setting in motion a change in the consumer's time preferences. However, this is an unsustainable arrangement for the society's productive structure and the dynamically efficient process of a free market will, inevitably, correct the errors in the investment decisions committed by the entrepreneur on this distorted environment (de Soto, 2006, p. 361-384).

A first reaction is the rise on the price of the original means of production (labour, natural resources, and commodities). This happens because these resources were not previous freed from consumer goods industries where savings have not increased, so the entrepreneurs on the various stages of the production process are competing against each other in demanding the original means of production with the newly created loans received from the banking sector in order to expand their operations. Then we have a subsequent rise in the price of consumer goods at an even quicker pace than the rise in the price of the factors of production. This is explained by the fact that time preference tend to systematically increase when the new money created spread through the economy and reaches the consumers at an environment where entrepreneurs are trying to produce more for future consumption and less for present consumption. This leads to a substantial relative increase in the accounting profits of companies closest to final consumption, especially when compared with the profits of capital goods industries, which are stagnating due to their costs rising more rapidly than their turnover. This dynamic will tend to divert the factors of production from higher stages to consumer goods industries, thereby restricting the supply of resources available to add to, or replace, the stock of capital goods.[35] The *Ricardo Effect* exerts here an opposite impact to the first when an increase in voluntary savings takes place. The relative rise in the consumer goods

[35] This is what Austrian economists call *capital consumption*.

prices in respect to the slower increase of the original factors income begin to drive down real wages, inducing entrepreneurs to substitute machinery by cheaper labour, thus lessening the demand for capital goods and further reducing the profits of the industries in the stages furthest from consumption. When the pace of credit expansion diminishes, something that sooner or later occurs, the market observes an increase in the loan interest rate that may even exceed the pre-credit expansion figures. The escalating interest rate is due to a lower purchasing power of the monetary unit, a higher risk premium demanded by the lenders in a higher time preference environment, and also by the entrepreneurs involved in *malinvestments*[36] begin a "fight to death" to obtain additional funding in order to complete their unsustainable investment projects.

The combination of these microeconomic reactions provokes the companies operating in the stages more distant from consumption to begin to discover that they are incurring in huge accounting losses. These accounting losses when compared to the relative profits generated in the stages closest to consumption reveal that serious entrepreneurial errors have been committed and that there is urgent need to reassess and liquidate the investment projects wrongly embarked in the boom years. A generalized error of economic calculation was committed.

A financial crisis starts when the market discovers that the true market value of the loans granted by banks during the boom years are only a fraction of what was originally thought, leading to a balance sheet mismatch. The market discovers that

[36] This term was used and developed by Mises in explaining the type of investment that result from a distortion in the pricing mechanism by artificial credit expansion. It is these malinvestments that will erect an unsustainable productive structure that will consume wealth (capital) instead of creating it (see Mises, 1912 and 1949).

the banks are in fact bankrupt, and it was not for the action of the Central Bank the financial and monetary system would collapse.

It is important to refer that the financial and banking crisis that erupts is not the cause of the economic recession, but one of its most important symptoms. The economic recession begins when the market finds unprofitable the investment projects taken during the boom period, and the consumers demand the liquidation of these malinvestments, which were planned to mature in a too-distant future considering the real time preferences of the consumers, through the consumption/saving choices of the recipients of wages, rents, profits and capital gains. The recession is the first step to the healthy and necessary readjustment that tend to align the society's structure of production with the individual's time preferences, consisting, mainly, in the reallocation of productive resources from the stages further away from consumption to the ones closest to it.

3. Capital flows

Understanding the composition of the capital flows is an indispensable source of information to assure financial stability. This is particularly true as far as monetary policy framework is concerned insofar some forms of capital flows are more sensitive to Central Bank's policies, and also to anticipate and prevent the formation of liquidity imbalances usually linked to maturity/duration, and currency mismatches.

3.1. Capital flows composition

We may look into these flows on four dimensions (BIS, 2009, p. 25):

- *Equity vs. debt*

Debt forms of investment leverage the exposure to risk for the recipient of the funds, once the service of debt, as well as the repaying or rollover, are irrespective of the returns earned on the investment. Equity investment poses the risk mainly on the supplier of funds, where the returns earned depend on the profitability of the investment, thus increasing the investment risk-assessment quality.

- *Short-term vs. long-term*

Short-term capital flows are very sensitive to Central Bank's policies. The behaviour of these flows are closely linked to domestic short-term rates with the risk focus on the borrower, especially when financing long-term investment projects with short-term debt paper. The interest rate and refinancing risks may lead to maturity mismatch problems. Long-term debt put more pressure on the lender because a change in the market conditions may show an erroneously risk-assessment of the investment.

- *Investment vs. consumption*

The flows associated with capital formation and directed to private sector investment tend to be more productive that those used to finance government spending, which create very often a fiscal imbalance, or used for private sector consumption that are commonly associated to an increased purchasing power via exchange rate appreciation.

- *Foreign vs. domestic currency and tradable vs. non-tradable*

Foreign currency inflows should accommodate investment oriented to the expansion of the productive capacity in the tradable goods sector, which will tend to originate trade surpluses and avoiding this way the emergence of currency mismatch problems.

3.2. Types of capital flows

Capital flows may be divided in three major different types.

Foreign Direct Investment (FDI) that is usually considered by the capital importing country the best source of capital in terms of financial vulnerability, risk and productivity. It is a long-term flow usually represented by equity where the purpose is to have some degree of control over the firm where the capital is invested, and it is also associated with domestic capital formation.

Portfolio Investment (PI) is a type of flow where the asset may assume different natures and may vary in temporal magnitudes, although high sensitivity to short-term yields strongly characterizes the moves of this flow. Consequently, the composition and direction of the flow will depend on the economic and monetary policies (fiscal policy, exchange rate regime, interest rate…) influencing the investor's strategy.

Bank Loans (BL), may be divided in public and private sector. The difference between them being the public guarantee provided to commercial bank loans from private banks and private financial institutions. The cross-border bank lending played a very important part on the emergence of a series of financial crises during the 90s, especially because it amplified maturity mismatches from borrowing short-term and lend long-term as well as currency mismatches from borrowing in foreign currency while lending in the domestic currency.

4. International implications of an expansionary monetary policy

We have been analysing the dynamics of credit expansion within a domestic market context, but in a world of increasing trade and financial integration, as well as an inclusive monetary system, there is a global capital structure with its foundation on the development of production processes with a high degree of international specialisation. This capital structure encompasses the usual inter-temporal dimension and also a geographic dimension on a world scale. If the global capital flows, in the form of foreign investments or cross-border bank loans, are set in motion by productive differences in interest rates among nations, the outcome is a better allocation of resources, both inter-temporally and geographically. Capital goes from where it is plentiful to where is scarce to produce those goods that best satisfy consumer preferences.

But with global capital flows triggered by monetary expansion, we are required to elaborate on the previous considerations and think of a framework for the international implications of credit expansion.

4.1. The US dollar role in the global economy

First thing to consider is whether or not the international implications of a credit expansion event are independent of the place where it is occurring. The world of today is dominated by fiat currencies, where only a reduced number of them have a major importance in the international monetary system as a *reserve currency*. Each nation use these reserve currencies in order to be able to trade in the international markets, once they are currencies used as denomination for the international

transactions. The two main reserve currencies are the US dollar and the Euro, both accounting for 85% of the international foreign reserves composition.[37]

We may consider two fundamental characteristics that make a currency useful to international trade and consequently generate demand for holding it as reserve currency: to be issued by a large trading nation and that the currency holds its value over time. It is obvious that the monetary policy pursued by a country whose demand for its currency accounts for 3/5 of total global demand has a greater impact than nations that does not even possess a currency with the reserve status, or has a reserve status but with a marginal demand.

Therefore the central pillar of the global economy is the role that the US dollar plays as the main denomination for global trade, which results in a structural demand for dollar borrowing. For several decades the US economy did not have any meaningful competition in terms of size and long-term stability, and in top of that, geopolitical factors contributed to the US dollar international dominant position with its military power and its deep influence in the building of the international institutional infrastructures, creating a huge “dollar zone” where the US dollar has a global and almost indisputable influence.[38]

However, presently, we observe the beginning of the first movements of structural changes at those levels. The US economic and institutional power is being defied by the BRICS, with China being perceived as the US main antagonist, where an irresponsible short-term oriented monetary policy pursued by the FED, is creating the necessary space for the others world powers integrated into the world economy,

[37] See BIS (2015, p.85-86).

[38] On drivers for reserve composition see McCauley et al (2014).

begin to conceive the use of alternative reserve currencies, or even the migration to an alternative commodity-money. Adding to that, the US is already being internationally questioned about the stability of their economy and currency, especially by the EME block with the BRICS playing the leading role.[39] Indeed, in less than two decades the US economy had suffered from two severe financial crises[40] and is experiencing today an extremely difficult and challenging situation with the inability of the economy, and the financial markets, to keep afloat without a zero per cent interest rate policy and other monetary stimulus.

This is a very significant issue because a loss of demand for holding US dollars as reserve currency would mean that trillions of dollars held overseas may start to be thrown into the market devaluing the US dollar and bringing inflation back home at the US, as the FED for example would need to print new US dollars to redeem the immense amount of outstanding US Treasury debt, largely held by foreign countries. If we compare the actual US monetary base of around USD 4 trillion (Appendix, Graph 1) with the US Treasury foreign holdings of more than USD 6 trillion (Appendix, Table 1), we may start to have an idea of the tremendous impact that a loss of the current, undisputed, reserve currency power will have on the US economy and international markets. The world financial structure as we know it today will cease to exist.

[39] The recent creation of the Asian Infrastructure Investment Bank designed to support infrastructure development in the Asia-Pacific region, the firm intention to make the renminbi an international reserve currency (what was recognized by the IMF in the end of 2015), and the build-up of gold reserves by several Central Banks are important signs that the confidence in the US dollar is not irrevocable.

[40] For an overview of the dot.com crisis and the 2008 Financial Crisis under an Austrian economics framework see Garrison et al (2003) and Salerno (2012).

4.2. The FED's monetary policy

From this we may infer that the monetary policy pursued by the FED set the pace for the global monetary and financial environment. The FED's expansionary monetary policy is not a recent event and has been eroding the purchasing power of the dollar from several decades to this part (McKinnon, 1993). But as a reaction to the financial crisis of 2008, this type of policies became massive as the only response to collapsing financial markets and an economy in the deepest recession since the *Great Depression*. We may distinguish between the main policies pursued by the FED, the Zero Interest Rate Policy (ZIRP)[41] and the Quantitative Easing program (QE)[42].

Focusing only on the short-term challenges tend to diminish the capacity to project a logical structure of reasoning towards the long-term consequences of our actions. Such extremely low short-term interest rates that have prevailed even since the financial crisis of 2008, and the later asset purchase programs have several long-term implications. In the search for returns, investors with a more conservative nature tend to assume risks not aligned with their risk profile while companies remain

[41] The ZIRP aimed, mainly, at encouraging borrowing to the detriment of saving by reducing the short-term financing costs, either by bank lending or bond market issuance, to both public and private sectors that faced huge liquidity problems in order to keep the unsustainable and highly leveraged cost structure that aroused from the boom phase. Influencing the "money-market price" means to distort, probably, the most important market price, the one that determines the cost of carry, the cost of speculation.

[42] The first round of QE initiated in November 2008 was designed to clean the commercial banks' balance sheets following the financial system meltdown through the purchase of toxic assets such as Mortgage Backed Securities (MBS). With the inability of the ZIRP to bring the desired robust economic growth and with the threat of a deflationary cycle on the way, the FED embarked in two more massive rounds of QE, in November 2010 and September 2013, which basically were meant to replace the interest rate mechanism that could no longer be manipulated as an economic stimulus once it approached the zero lower-bound. It tried to influence directly the short-term market rates creating an excess demand for several debt instruments and structured assets, propping up their prices and reducing the corresponding yields.

too risk-averse to make investments[43]; The low rates set-up make the available resources go into some high-risk sectors, causing capital misallocation within the productive structure[44]. The emergence of bubbles in several asset classes financed by cheap credit and speculative investments (among others, in stocks[45], debt instruments[46], real estate, art pieces), and too low interest rates in AE leads to a high volume of carry trades contributing to the emergence of asset price bubbles in the EME[47]. It affects the formation of expectations and alters the patterns of human behaviour, where taking on debt begins to be seen as natural on a declining purchasing power environment. Moreover, it weakens the wealth formation mechanism creating an environment of capital consumption instead of capital accumulation. Money starts to increase its importance as a medium of exchange in detriment of its role as a store of value; it prevents the healthy process of creative destruction. Without a proper liquidation process of malinvestments, the restructuration of the financial institutions balance sheet[48] is delayed. And if the financial institutions are weak, they'll be unable to transmit the monetary impulses efficiently via an increasing quality lending, it brings a disincentive to fiscal consolidation, either by diminishing the debt service burden, providing a wrong perception of debt sustainability, or by artificially compressing the sovereign spreads, thus reducing the market discipline.

[43] See OECD (2015).

[44] See 85th BIS annual report (2015, p.42-43, p.50-51 and p.57-58)

[45] See some evidences in Rixtel (2015). Investors are rewarding CEOs focused on share-buybacks, dividends and M&A instead of those applying the resources in long-term investment or R&D (OECD, 2015).

[46] See Appendix (Graph 2).

[47] Find some evidences in Bruno et al (2015) and BIS (2014, p. 71-73).

[48] For the importance of Balance Sheet management see BIS (2012, p.2-9) and Borio (2012).

What happens as a consequence of this type of policies is that all other nations tend to adopt similar monetary policies and employ some measures to “fix” their currencies to the US dollar (or the Euro, if it is the case), in order to maintain some degree of stability in their terms of trade. This fact will play a major role as a transfer mechanism for monetary policy.

4.3. The International capital flows as a vehicle for monetary policy

Let us now expand into the international implications of a credit expansion in the US, where a good starting point is the logic applied by Mises about the international (trade) effects of credit expansion (Mises, 1949, p. 446) may be used also in international investment, where an expansion of the money supply above the quantity that investors want to hold will led to a search for returns, part of it on foreign markets, distorting the assessment of risk.

On the global market, domestic economies are oriented to some specific stages in the global structure of production. The AE devote their efforts, mainly, into intermediate capital goods’ stages of production that require more capital intensive processes, while the EME are oriented, essentially, to higher order goods such as commodities production and also to production of consumer goods. The AE have a comparative advantage in producing high-tech with a high degree of knowledge that require more efficient production processes. On their side, EME are characterized by a low income and low educated work force as well as lack of labour legislation that make them extremely competitive for labour-intensive sectors, and also by being rich in natural resources and commodities it will lead to high volumes of foreign investment in infrastructures and machinery once it is a sector that requires more

capital-intensive production processes, which as we previously saw make them much more sensitive to changes in money supply[49].

In short, the capital flows tend to go from the AE into EME[50], first through investment both in higher order goods, such as commodities that are required in their intermediate production processes, and also in consumer goods industries, where the profit margins are bigger due to low labour costs. These products will later be consumed by the AE population funded precisely by the monetary creation process that, as noted by Mises, will tend to diminish the desire to hold money and will be used to purchase consumer goods that are produced abroad, being this the second flow from AE into EME. This dynamics made the EME net creditors of the world, while the AE became net debtors.

There are two very important pricing mechanisms that will regulate the direction and intensity of the capital flows, the exchange rate and the interest rate.

The exchange rate will be deeply influenced by the movements of capital and will influence in a high degree the monetary policy that each nation will adopt. The EME try to have their currency relatively stable against the US dollar, and the Euro, in order to avoid high volatility for their international terms of trade[51]. With lower labour

[49] The continued expansion of the money supply in the AE tended to lift the prices up during this period creating large trade surpluses on those countries. The production expansion verified in the major EME had the direct effect of increasing the demand for commodities and natural resources that adding to the structural demand from the AE provided the smaller EME commodity-exporting countries with large inflows of FDI.

[50] The period leading to the Great Financial Crisis of 2008 was marked by a growing flow of capital into the EME (CGFS, 2009). Despite the FDI had been growing during the period, its share on total inflows was reduced from 49% in 2004 to 30% in 2007 (Mihaljek, 2008, p. 13-15), providing some initial clues to a potential misallocation of resources within EME once the money was flowing through less productive channels. After 2009 the credit expansion was supported by a rise in importance of PI flows, mainly the ones related with debt securities and the slow return of cross-border bank lending (Cohen et all, 2015).

[51] See Takáts et al (2014, p. 34-35).

costs being the root for their economic structures the resilience of their export's competitiveness to an appreciation of the exchange rates is very low. An inflow of capital will have the direct effect of, precisely, bid up a country's exchange rate expressed as an increase of demand for its currency. In order to stabilize this increase, and avoid competitiveness issues, the Central Bank will intervene in the FX market by expanding its monetary base and, in the present case, buy US dollars in reverse, thus re-establishing a balance between both currencies similar to the previous one, but now grounded on a bigger monetary base. The Central Bank with this operation will accumulate foreign exchange reserves and on top of that will expand the money supply[52] to the domestic market creating a similar dynamics that the one described earlier, distorting the pricing signal sent to the domestic market and inducing a series of malinvestments under an interest rate with no relation to the individual time preferences.

This dynamics has its end when the US expansionary monetary policy begin to experience a reduction in its growth rate, thus reducing the capital flows necessary to sustain a distorted capital structure and creating problems in the debt rollover[53], which will generate an outflow of capital into the US. These outflows will exert pressure to a decline in the EME exchange rate making the debts denominated in foreign currency more difficult to repay and bringing a serious threat to the nation's solvability. If they try to defend their currencies recurring to higher interest rates to attract capital from abroad, a consequence might be the burst of some sectorial bubbles built on artificially low interest rates and a loose monetary policy.

[52] For evidences about the EME accommodative policy of the monetary expansion initiated in the AE see BIS (2015, p.65-82).

[53] On the international dimension of credit see Borio et al (2011).

The reversal on the credit expansion in the US will affect the unbalanced capital structure erected in the EME with the creation of a severe currency mismatch and also with a huge problem of duration mismatch, exacerbated by differences in interest rates between EME and the US where a carry trade dynamic tend to amplify these mismatches.

Conclusion

Each historical period is marked by a debate about the proper design for the IMFS, and today is not different. A global capital structure emerged supported by an environment of growing intensity in international trade, and investment, which poses new and complex challenges to the present international monetary and financial structure. Within this context, great opportunities as well as great threats arise.

Today, there are no such things as domestic monetary and financial regimes isolated from the international context. We have been experiencing a series of unconventional and dysfunctional monetary policies in AE that are being accommodated by foreign economies, namely the EME, where it has been exacerbating the build-up of financial imbalances culminating in recurrent financial crisis and capital misallocation. The existence and the scale of these phenomena are new, requiring further development and discussion due to the obvious and growing influence of EME on the direction of the world economy. It will be needed an integrated framework covering the relation between AE and EME monetary policies contemplating the capital flows composition as a privileged vehicle for its dissemination.

Consequences from the failing to adapt to this new environment should not be underestimated. We are seeing today glimpses of a recent past marked by currency competitive devaluations, protectionist measures and economic stagnation. If we are not able to return to sound and sustainable economic and monetary dynamics, the rupture of the IMFS may very well be around the corner.

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Appendix

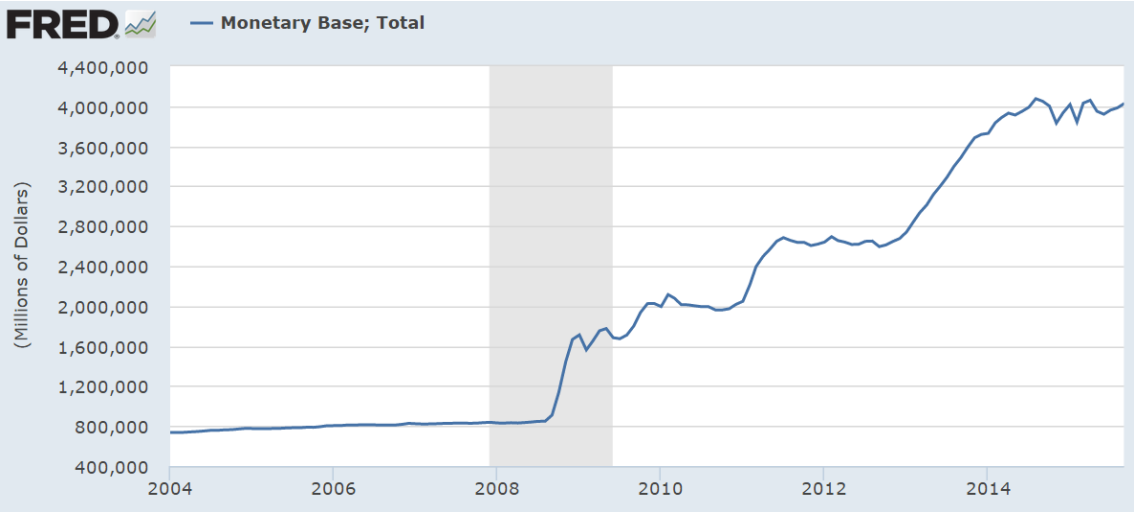
Table 1. Value of foreign holdings of US Treasury securities, by major investing country, as of June 30, 2014

Country	Total	Treasury long-term debt[1]			Treasury short-term debt[1]
		Total	of which: Nominal	of which: TIPS[2]	
China[3]	1,269	1,261	1,117	143	8
Japan	1,220	1,160	1,135	25	60
Belgium	363	353	342	11	10
Brazil	254	228	216	12	26
Middle East oil exporters[4]	228	185	153	32	43
Taiwan	179	178	159	19	1
Switzerland	176	154	139	15	22
Cayman Islands	171	100	65	35	70
United Kingdom	160	132	114	19	28
Hong Kong	158	107	105	3	50
Rest of world	1,838	1,524	1,406	118	314
Total	**6,015**	**5,382**	**4,951**	**431**	**633**
Of which: Holdings of foreign official institutions	*4,106*	*3,765*	*3,466*	*299*	*341*

1. Long-term denotes original maturity of over one year; short-term denotes original maturity of one year or less.
2. TIPS are Treasury Inflation-Protected Securities.
3. Excludes Hong Kong and Macau, which are reported separately.
4. Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.

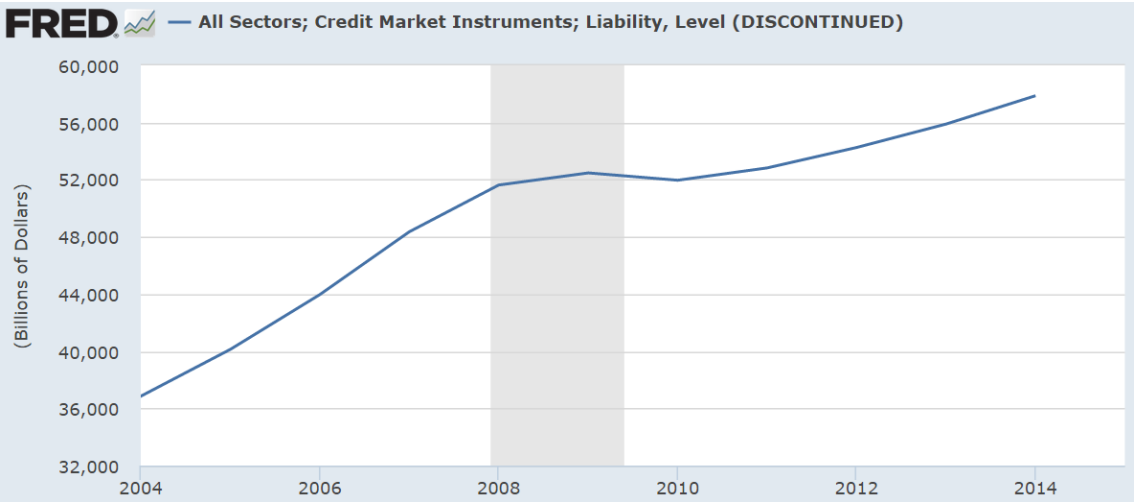
Source: Department of the Treasury (US)

Graph 1. US Monetary Base (Total)



Source: Federal Reserve Economic Data (FRED)

Graph 2. US Debt (Total)



Source: Federal Reserve Economic Data (FRED)

Developed Glossary

Austrian School of Economics. A group of economists who developed the modern subjective theory of value and applied it to the various problems of economics. The main personalities within the first generations of the School were Carl Menger, Friedrich von Wieser, Eugen von Bohm-Bawerk, Ludwig von Mises and Friedrich A.Hayek.

Business (Trade) Cycle. The periodic regularity of changes that are assumed to take place in aggregate economic activity. The phases of this cycle may be identified as booming prosperity which ends in a severe crisis; a period of liquidation, high unemployment and resources adjustment, popularly known as recession (or depression in more severe cases); and a period of recovery that sets off an upsurge leading to a new boom.

Capital. The fundamental concept of economic calculation that expresses in monetary terms the net wealth of the entire set of capital goods and marketable assets (savings) belonging to a definite economic agent participating in the market economy.

Capital accumulation. The process of increasing the supply of capital goods. Capital can only be accumulated by producing more wealth than is consumed, meaning, by saving.

Capital consumption. The process of reducing the pool of capital goods.

Capital goods. Produced factors of production such as machinery, buildings, partially finished goods, cash and consumer goods, which make it possible to the

owner to engage in more time-consuming and more productive processes of wealth creation.

Circulation credit. Credit extended by banks in the form of banknotes or demand deposits especially created for this purpose; as opposed to credit granted by the loan of a bank's own funds, or funds deposited with it by its customers.

Commodity credit. The exchange of a lender's present goods or money for the borrower's promise of payment in future goods or money in which the immediate sacrifice of the lender corresponds exactly to the goods or sum of money received by the borrower. In contexts of banks, commodity credit represents loans of banknotes or the extensions of demand deposit credit for which the bank holds 100% monetary reserves.

Credit Expansion. An increase in the quantity of monetary units created by an increase in bank loans over and above the number of monetary units that savers have released to the banks for lending to third parties. Credit expansion is only possible with a fractional reserve banking system.

Deflation. A decrease in the quantity of money, in a broader sense, which is not offset by corresponding decrease in the need for money, in the broader sense, so that a rise in the purchasing-power of money must occur.

Easy money. A loan market condition in which funds can be borrowed at lower interest rates than those that would prevail under free market conditions. The easy money policies lead to an expansion of circulating credit.

Economic calculation. The process by which fallible men acting in a changing world choose, on the basis of monetary prices, among an infinite variety of

imaginable and possible methods of production. Economic calculation in the absence of a generally accepted medium of exchange (money) is not possible. In a market economy, money prices arise from the bids and ask producers and consumers. Thus, prices reflect the relative urgency of their various wants. The prices at which goods and services are exchanged influence the choices that consumers and producers make when bidding for natural resources and final products, as well as for produced and semi-produced factors of production. Therefore, market prices enable individuals (consumers and entrepreneurs), to calculate and guide production so that the means available tends to be devoted to the most urgent wants. The two requisites for economic calculation are (1) private ownership, not only for consumer's goods but also for factors of production, and (2) a common denominator, money, in which relative values may be expressed.

Fiat money. A coin or piece of paper of insignificant commodity value that a government has declared to be money and to which the government has given legal tender quality. It is issued without any intention to redeem it and consequently no reserves are set-aside for this purpose. The value of fiat money rests on the acceptance of political law.

Forced savings. Savings on the part of consumers who are compelled to forgo consumption because commodity prices rise and they can afford to buy less.

Hot money. Money in bank balances, demand loans on securities or short-term investments that the owners may move without notice from one country to another in search of greater security or better returns. Hot money moves promptly on loss of confidence in a currency due to the fear of depreciation, legal devaluation, or

prohibition on future transfers out of the country; hot money moves to those countries paying the highest interest rates or offering better terms.

Human action. Purposeful behaviour; an attempt to substitute a less satisfactory state of affairs for a better one. Human action is always rational, presupposes causality and takes place over a period of time.

Inflation. Any increase in the quantity of money, in a broader sense, which is not offset by a corresponding increase in the need for money, in a broader sense, so that a fall in the purchasing-power of money must happen.

Malinvestment. An investment in wrong lines which lead to capital losses. It results from the inability of investors to forecast correctly, at the time of investment, either (1) the future pattern of consumer demand, or (2) the future availability of more efficient means for satisfying correctly foreseen consumer demand.

Originary interest. The difference between the present values of present and future goods.

Roundabout methods of production. A term devised by the Austrian economist Eugen von Bohm-Bawerk to describe the capitalistic production process whereby capital goods are produced first and only later, through the use of these capital goods the desired consumer goods are produced.