

Why does the investment rate do not increase? Capital Accumulation and Stabilization Policy in the 1990s and 2000s in Brazil

Carmem Feijo^{*}

Marcos Tostes Lamonica^{**}

Julio Cesar Albuquerque Bastos^{***}

Resumo

A estabilização da inflação foi conquistada em meado dos anos 1990, mas desde então a economia brasileira não tem mostrado uma tendência de crescimento estável. Este artigo discute que, como a taxa de juros foi mantida muito alta no Brasil, isso afeta o crescimento através de seu impacto sobre a decisão de investimento. Em um ambiente macroeconômico de elevada incerteza, as decisões de acumular capital dependem fortemente de lucros retidos e são afetadas negativamente pelo alto nível persistente de taxas de juros. Em nosso exercício econométrico observou-se que a participação nos lucros é positivamente correlacionada com a taxa de investimento nos anos 1990 e 2000, e a financeirização atua negativamente sobre o investimento em capital físico.

Palavras-chave: Acumulação de Capital, Crescimento Econômico, Economia Brasileira

Abstract

The stabilization of inflation was conquered in the mid 1990s, but since then Brazilian economy has not shown a stable growth trend. This paper discusses that as interest rate has been kept very high in Brazil, it affects growth through its impact on investment decision. In a macroeconomic environment of relatively high degree of uncertainty, decisions to accumulate capital rely heavily on retained earnings and are negatively affected by the persistent high level of interest rates. In our econometric exercise it was observed that the profit share is positively correlated with the rate of investment in the 1990s and 2000s, and financialization negatively impacts physical capital accumulation.

Key words: Capital Accumulation, Economic Growth, Brazilian Economy.

JEL classification: E22, E12

Área 6: Crescimento, Desenvolvimento Econômico e Instituições

* Professora Titular da UFF, Pesquisadora Cnpq. email: cbfeijo@gmail.com

** Professor Adjunto da UFF. email: marcostostes@hotmail.com

*** Professor Adjunto da UFF. email: julio_bastos@globo.com

Why does the investment rate do not increase? Capital Accumulation and Stabilization Policy in the 1990s and 2000s in Brazil

Resumo

A estabilização da inflação foi conquistada em meado dos anos 1990, mas desde então a economia brasileira não tem mostrado uma tendência de crescimento estável. Este artigo discute que, como a taxa de juros foi mantida muito alta no Brasil, isso afeta o crescimento através de seu impacto sobre a decisão de investimento. Em um ambiente macroeconômico de elevada incerteza, as decisões de acumular capital dependem fortemente de lucros retidos e são afetadas negativamente pelo alto nível persistente de taxas de juros. Em nosso exercício econométrico observou-se que a participação nos lucros é positivamente correlacionada com a taxa de investimento nos anos 1990 e 2000, e a financeirização atua negativamente sobre o investimento em capital físico.

Abstract

The stabilization of inflation was conquered in the mid 1990s, but since then Brazilian economy has not shown a stable growth trend. This paper discusses that as interest rate has been kept very high in Brazil, it affects growth through its impact on investment decision. In a macroeconomic environment of relatively high degree of uncertainty, decisions to accumulate capital rely heavily on retained earnings and are negatively affected by the persistent high level of interest rates. In our econometric exercise it was observed that the profit share is positively correlated with the rate of investment in the 1990s and 2000s, and financialization negatively impacts physical capital accumulation.

Key words: Capital Accumulation, Economic Growth, Brazilian Economy.

JEL classification: E22, E12

1. Introduction

Recent Brazilian development has been disappointing. Compared with other emerging economies, the Brazilian performance has been one of the lowest among developing economies. In the 2011-13 period, for instance, according to the World Bank Indicators, Brazil grew 2.1% in average against 8.2% in China, 5.5%, in India, 2.9% in Russia, 2.6% in South Africa. Despite low growth, inflationary pressures have being increasing, although Brazilian real interest rates are among the highest in the world.

Conventional wisdom has being pointing out as the main causes to the dilemma of low growth and accelerating inflation lack of credibility in the political economy, constant delays in microeconomic reforms aiming at giving transparency to economic institutions, low investment in human capital and infrastructure. In this paper, although recognizing the relevance of these issues, we consider that they offer only a partial explanation for the dilemma of low growth and relatively high inflation, as they do not consider either the distributional impacts of economic policies measures or the long-term effects of these policies. In our view, they miss fundamental causal links that are essential to explain the main driving forces of economic growth.

The starting point to shed some light on the reasons why the Brazilian economy has lost its vigour is to assume that short-term stabilization policies relying on interest rate as the main instrument to control inflation have long-run effects on the level of output, and so on productivity, rather than on prices. This follows from two basic assumptions. On one hand, as in Keynes and Kalecki, we assume that prices are determined by costs, and so, when short-term interest rate rises, it raises the relative prices of goods in which interest payments are an especially important ‘ingredient’ (Hannsgen, 2006, p. 216). In this sense, monetary policy is not distributional neutral on the supply side. On the other hand, movements in the interest rate changes ‘the distribution of income between those who earn interest and those who have few investments’ (ibid, p. 216), and in this case it affects expenditures decisions. In both cases the rise of interest rate aiming at fighting inflation can lead not only to price increases, but also to the change in the composition and the amount of output. To put it in other words, monetary policy has permanent effects on the real side of the economy because it affects interest rate, and in Keynes’ view, it is the rate of profit, via the rate of investment, that is adjusted to the rate of interest.

The central role of interest rate in short-term economic policy in the so-called ‘macroeconomic consensus’ (Woodford, 2008, for instance) has facilitated the deepening of the financialization. Following Palley (2007), financialization is a process whereby financial markets, financial institutions, and financial elites gain greater influence over economic policy and economic outcomes. Financialization transforms the functioning of economic systems at both the macro and micro levels.¹

Since the economic opening in the early 1990s, Brazilian economy experienced several institutional reforms that favoured ‘financial motives’ as the main guidance for economic decision making. As a consequence, interest rates are among the highest in the world, investment rate did not recover and Brazil is falling behind in terms of productivity growth. According to Bruno *et al* (2011), this can lead to a stagnation or slowdown in the accumulation of productive capital in the economy. Therefore, "developing countries, financialization becomes an even greater structural obstacle because it causes the functional re-concentration of income in favor of capital holders without necessarily inducing them to raise the level of productive investment..." (op. cit., p 747).

In this paper we are interested in discussing how interest rate in Brazil affects growth through its impact on investment decision after price stabilization, in order to shed light on the reasons why investment rate does not improve. Investment might be sensitive to interest rate in many ways. A direct effect is on the cost of credit. As interest rate affects the price of credit, firms will not undertake an investment project if it yields a return less than this price. Another way of looking at this effect is consider the effect of interest rate changes on the generation of the cash flow. As cash flow is an important source of funding for the firm, changes in the cost of borrowing can either increase the preference for retained profits to finance investment or it can induce firms to purchase financial assets. In a less direct form, interest rate affects

¹ According to the author, the principal impacts of financialization are to (1) elevate the significance of the financial sector relative to the real sector, (2) transfer income from the real sector to the financial sector, and (3) increase income inequality and contribute to wage stagnation. Additionally, there are reasons to believe that financialization may put the economy at risk of debt deflation and prolonged recession.

consumer borrowing, which greatly contribute to consumption expenses and so to explain the dynamic of the domestic market. In open economies, the level of the interest rate can affect international flows of capital and so the supply of domestic credit.

Our assumption is that as the Brazilian economy has been maintaining high levels of real interest rate compared with other emerging and developed economies since price stabilization, capital accumulation in physical assets has not been stimulated and capital gains might be sustained by the accumulation of financial assets. High real interest rates also add more uncertainty to long-term decisions, what induces firms to invest in the financial market in order to sustain their profits gains. The cumulative result of this behavior along time shows low growth rates and lost of economic dynamism. Recent literature on globalization and financialization helps to understand the behavior of capital accumulation of productive firms in Brazil as it highlights the interaction between financial and non-financial firms. So, in what follows we shall investigate the behavior of investment in the context of greater financial integration of the Brazilian economy and so contribute to the debate of the causes of the slow growth of the Brazilian economy in the present decade.

This paper is organized in six sections, including this introduction. Section two presents a brief discussion about the relation between investment decision and the generation of profits. Next section introduces a discussion about the finance-led regime of capital accumulation. Section four, following recent financialization literature, analyses stylized facts of capital accumulation in Brazil in the 1990s and 2000s. Section five presents the results of an econometric estimation of the determinants of the investment rate in Brazil in the 1990s and 2000s, and Section six briefly concludes the paper.

2. Investment decision and the firm's flow of funds

We start with the theoretical assumption that the investment is an increasing function of profits, for two main reasons. The first argument considers the role of expected profits in investment decision and can be interpreted as explaining the motive to invest. Following Keynes's tradition, investment decision is supposed to be a portfolio choice, *ie* the entrepreneur chooses which portfolio composition to hold combining fixed assets and financial assets (Keynes, 1936, ch. 17). Basically, this combination will depend on the expected stream of profits from fixed assets compared with other applications. Different from conventional neoclassical theory, Keynes's investment theory is based on fundamental uncertainty, that is to say, the stream of expected profits depends not only on the productivity of the new investment but also on the firm's ability to estimate the size of the market for its products a number of years into the future.

The second argument shows the importance of increasing profits to provide internal resources to finance investment, that is to say, it explains the means to invest enabling new investments. In this case, it is assumed that an increase in the profit share means, *ceteris paribus*, expansion of internal resources to firms, which may alleviate any short-term restrictions on new investments in fixed capital (Eichner, 1991, Feijo, 1993).

We should consider now the importance of the interest rate to induce investment decisions. In Keynes's view, firms can only guess the returns their investment might yield. This exercise

is based on long-term expectations, rather than exact calculation². So, as estimates of the stream of returns involve expectations over a long time horizon, firms, in order to estimate the real rate of return must also make estimates for the expected rate of inflation (Hannsgen, *op. cit*), and in an open economy, for the rate of real exchange as well. As the nominal interest rate is exogenously fixed, this implies that the central bank can affect the real interest rate, and so influence investment decisions.³

However, Keynes also assumed that expectations on profit yields, as based on long term expectations under uncertainty, are likely to vary in a wide range and so interest rates ‘exercise a great, though not a decisive, influence on the rate of investment. Only experience, however, can show how far management of the rate of interest is capable of continuously stimulating the appropriate level of investment.’ (Keynes, 1936, p. 164, emphasis added.) In this case, the impact of short-term interest rate in financing investment should be analyzed considering the specificities of the financial and productive structure of the each economy in its historical context.⁴

Besides influencing investment decision, interest rate also impacts the preference for retained profits. One conventional well accepted explanation why firms rely more on retained profits is Kalecki’s principle of increasing risk. According to this principle, greater indebtedness increases the possibility of bankruptcy, and consequently the loss of control to creditors.⁵ Because of that Kalecki assumed investment to be a function of firm’s retained profit, as retained profits could either be used to directly finance investment as well as be an evidence of sound financial situation.

A simple way of showing how interest payments might affect internal funds is through a modified Eichner’s equation (1991, p.472), as presented by Hannsgen (*op. cit*). It explains the composition of the firm’s discretionary funds as follows:

$$E = (F_k + F_f) + \Delta D - DS$$

$$E = (F_k + \Delta D) + (F_f - DS) \quad (\text{eq. 1})$$

where E is the amount of discretionary funds available to the firm, F_k is the amount of internal funds obtained through the operational of the firm’s business and F_f is the amount of receipt obtained from financial application (note that both represent the firm’s cash flow); ΔD is the amount it borrows during a given period and DS is the firm’s debt service costs on previously incurred debt, which increases in proportion to $(r \cdot \Delta D)$, where r is the interest rate on the loan.

² This means to say that for firms to be able to obtain the receipts that will allow them to validate their debts and to earn the profits they expected it is necessary that they are able to anticipate the right volume and structure of aggregate demand to be generated. We can consider, with Keynes and Kalecki, that consumption expenditures are induced by income. In a closed economy without government, aggregate profits depend on investment. If investments are not realised, not only some firms have losses but also, through the financial linkages, suppliers of funds are hurt.

³ This is another way to say that it is the profit rate that adjusts to the interest rate.

⁴ Chick, 1987, argues that in order to deepened the understanding the role of the interest rate on capital accumulation in Keynes, one should care about the role of the speculative demand for money.

⁵ The emphasis on increasing risk is close to Minsky’s (1986) ‘two price’ theory.

In the presentation of equation 1 the terms are arranged to make explicit the options the firm has to increase its amount of discretionary funds (E). At first, the firm can increase E getting additional loans (ΔD term). However, additional loans affect E permanently adding to the DS term. But firms may also decide to allocate part of their internal funds in the financial market, obtaining part of their internal funds (F_f). So, eq. 1 shows that firms will try to balance the debt service with the receipt earned with cash applications in the financial market. The impact that an increase in the interest rate will have in the availability of future cash flow for discretionary purchases in the long term depends on the balance between debt commitments and the generation of cash flow to cover these commitments.⁶

In this theoretical construction, the interest rate will adversely affect investment in physical assets as much as the firm depends on debt to finance capital accumulation. In a scenario of increasing interest rates, the degree of the firm's indebtedness will rise, reducing the space for the financing of new investments.⁷ However, assuming as Kalecki, that firms rely most on retained profits to finance capital accumulation, one might take up that the interest rate will affect the allocation of internal resources of the firm, inducing them to the accumulation of financial capital when interest rate is increasing. This is a strategy to sustain the generation of internal profits, when investment in physical assets is not increasing. In aggregate terms this might mean that, in a scenario of increasing interest rates, the capital accumulation might not increase, not only because the debt service is increasing, but also because firms allocate resources in the financial market. In this case, capital accumulation follows a finance-led regime.

3. Financialization and Capital Accumulation

Accumulation of capital involves many variables and many possibilities. In a context of increasing financialization, that is to say, when economic decisions are mainly guided by 'finance motives', high interest rates affects income distribution and growth as it increases the profit share of wealth owners without necessarily increasing investment in physical assets, productivity and real wages.

Boyer (2000), for instance, makes a clear distinction between a growth regime induced by capital accumulation - known as 'Fordism', and a growth regime guided by financialization, when labor productivity increase is no longer a strategic target to non-financial firm. According to him, in a finance-led growth regime, what matters is the financial profitability of the firm, regardless of whether this is accomplished via rapid productivity growth, increase in workforce efficiency or oligopolistic rents arising from the innovation (op. cit., p. 123).

⁶ This is the basic reasoning of Minsky's financial postures describing how payment on debts and receipts of income must occur to keep the functioning of the firm in a smooth basis. (Minsky, 1986)

⁷ The relationship between debt financing of investment in physical capital implies the payment of interest by productive firms, that is to say, part of the firm's cash flow is appropriated by financial capitalists. Therefore, for a given increase in interest payment, investment in fixed capital decrease on the one hand and, while revenue from financial firms will increase by another. This is an important issue to be raised, as, according to Oreiro (2013, p 52), an increase in interest income will result, in Kaleckian terms, in a reduction in the share of profits appropriated by the capitalist in the productive sector. If this occurs, financialization - the increase in the percentage of income earned by financial firms - could generate conflicts among capitalists in spite of the conflict between capital and labor.

The financialization approach to economic growth implies that the accumulation of wealth is not limited to expanding the stock of productive capital, but also to the accumulation of a diversified basket of assets combining productive and financial capital. As much as the increase in aggregate wealth is the result of the increased accumulation of financial assets, aggregate rates of income and output growth will be low and liquidity preference and interest rates will tend to be high. Moreover, in a context of financial integration of international capital markets and flexible exchange rates, opportunities for speculation are intensified.

The reason for that is because, in a context of financialization, decisions involving long period of time end up depending mostly on decisions made by financial firms to expand (or contract) funding to meet the demand for acquisition of capital goods or to roll over past debt. Under the uncertainty assumption about future prospective yields of funds being offered by financial firms, a deterioration in expectations will imply a contraction in the provision of new loans, either absolutely or, more likely, in relative terms, raising interest rates. This reaction aims at avoiding the erosion of their safety margins on loans. In this sense, aggregate demand is contracted, but not necessarily the share of income earned by the financial sector.

Actually, in the finance-led growth regime, the income share earned by wealth owners would tend to increase regardless the pace of economic growth. In periods of optimistic expectations, larger volume of loans would guarantee financial firms' income, and periods of deteriorating expectations interest rates would rise when the volume of credit would be reduced and growth rate decelerated. This special role of the financial firms in the accumulation of capital allow the financial sector to increase its share in total income, increasing the financial wealth, despite the deceleration in the growth rate of aggregate income and output.

The share of profit of the non-financial sector in total income, on the other hand, depends on past capital accumulation. As shown by Kalecki, in a closed economy without government the amount of profits of non-financial firms is determined by past investment decisions (Kalecki [1965](1997), p.75). This reasoning shows a complex interconnection between the micro and macro levels of analysis: non-financial firm's form, at the micro level, expectations of sales to obtain profits; but the confirmation of these expectations depends on the firms themselves spending the amount necessary to validate the sales expectations.⁸

Since decisions to invest are made under uncertainty, confidence on expectations guiding investment in fixed assets is built based on the validation of previous plans and expectations. Two sorts of risks are actually incurred by firms when deciding to invest in physical capital. One deals with the behaviour of their markets that will or will not allow them to validate their production and pricing decisions. Another one deals with the validation of their debts, that is to say, with the ability of the firm to keep the value of its assets balanced with that of their liabilities.

The way that this balance can be assured is through the maintenance of an equilibrated cash flow along the periods. That is to say that the extent to which non-financial firms will be able

⁸ For individual firms the generation of profits on physical investment is a necessary condition to keep the value of their assets balanced with that of their liabilities.

to keep their business running in equilibrium will depend at first instance, on their ability to generate a cash inflow that is enough to meet their debt commitments, and, on a second instance, on their ability to keep their borrowing capacity in the financial market. At each moment in time the degree of vulnerability of the business will be given by the financial situation of the firm that will allow it to have more or less room for manoeuvre and keep its commitments updated in case production or sales expectations are disappointed.

Therefore, for non-financial firms, in an uncertain world to keep part of the firm's internal resources in financial assets, deviating resources from the accumulation of fixed assets, is a rational decision, as it makes options flexible in case expectations and confidence suffer a great change. This means to say that the higher (lower) the stock of financial assets in relation to its stock of debt, the higher (lower) will be its income from net interest.

Assuming that retained profit is the main source of finance to capital accumulation, a higher (lower) investment in physical capital will imply higher (lower) share of future profit of non-financial firms in aggregate income. So, in aggregate terms, non-financial firms will be able to increase their share of profit as much as investment in physical capital increases and aggregate income expands. This should occur when the expected return on physical capital should more than overcome the profit - or interest income - on the financial capital. If the opposite scenario occurs, retained earnings will not result in expansion of physical capital, but of finance capital, thus increasing the share of net interest income on total profit of non-financial firms. In the finance-led growth regime, less capital accumulation will imply a reduction in the growth rate of the economy and hence the aggregate income, without necessarily reducing the share of income appropriated by firms (financial and non-financial).

If it is assumed that firms debt finance their investment expenditures in a large scale, this means that they expect earnings generated through capital accumulation to grow at a faster rate than interest rate (as in eq. 1), so they can keep their cash flow balanced. A shortfall of profits in face of the needs for cash to validate debts and/or a change in the financial conditions to roll over past debt commitments, will increase the cost of additional debt (as demand for liquidity increases), implying an increase of income to be transferred to the financial sector, depressing investment expenditures.⁹

In short, finance-led growth has redistributive regressive aspects because financialization causes the relative decline in investment returns arising from fixed capital and an increase in returns from financial investments, increasing the share of income appropriated by firms without necessarily increasing aggregate income and aggregate product. Palley (2007, p. 3) argues that financialization can cause economic instability and financial fragility, which is why policy makers should be concerned about the downward trend in the real rate of growth and income distribution, because the crisis generated in the financial sector may worsen income distribution and, consequently, economic growth.

⁹ In so far we have made the distinction between the profit share considering financial and non financial firms. It should also be added a word in relation to the profit and wages conflict. Capital accumulation in physical assets should increase labor productivity, and to the extent that this gain is appropriated by wage earners, the share of wage and profit in total income should not change. But if productivity gains are not incorporated in total or partially by wage earners, than there will be a tendency to the concentration of wealth in the hands of capitalists.

4. The behavior of investment in the 1990s and 2000s: stylized facts for the Brazilian economy

According to Palley (2014), financialization is manifested through changes in three different channels: in the behavior of non-financial firms, in economic policy and in the structure and operation of financial markets. In Brazil, in the first case, throughout the 1990s and 2000s, despite important changes in the economic environment such as price stabilization and economic opening, the decision making process of private firms emphasized the short-term returns; economic policy, on its turn, has been characterized by a stop-and-go pattern, keeping the economy in a 'trap' low exchange rate and high interest rates; lastly, private financial firms did not evolve in providing resources to finance long-term investment. So, the three channels worked in the direction to deepen financialization process in the country.

To understand the change in the behavior of Brazilian firms in the 1990s, when the economy conquered price stability and opened its economy, we should first recall the period of high inflation of the 1980s and early 1990. During high inflation, contract indexation was a common practice that pervaded all monetary transactions. The wide acceptance of indexation of contracts worked as a defense mechanism for firms to ensure adequate profit margins and cash flow to preserve their financial capacity to face unexpected changes in costs and to finance investments necessary to maintain their participation in the market. Contract indexation allowed non-financial firms when setting their prices to incorporate inflationary expectations, feeding up the inflationary process whenever inflationary expectations were accelerated. As inflation rates increased continuously along the 1980s and early 1990s, being interrupted only when a stabilization plan was launched,¹⁰ the time horizon of private economic decisions has been shortened, and long-term commitment of financial resources were strongly discouraged. In this context, the financial sector developed short-term financial products to provide short-term financial application alternatives. So, after the success of the stabilization plan in 1994, the Brazilian economy was in a low debt situation. Also, as a consequence of the long period of high inflation regime, the share of the financial sector in GDP reached more than 30% in 1993, and sharply decreased afterwards with the end of the gains with inflationary floating.

It should be expected that price stabilization after 1994 should have contributed to enlarge the time horizon of private decisions of non-financial firms, improving investment rate and aggregate growth of the economy. However, for many different reasons the last two decades, this was not observed.¹¹

During the first phase of the stabilization period (1994-1998), under fixed exchange rate regime, economic policy relied a great deal in trade liberalization to increase competition and refrain price increase in tradables. Firms, in general, reacted investing in technological upgrading taking advantage of the appreciation of the real exchange rate, with relatively low

¹⁰ This occurred with the Cruzado Plan (February 1986), Bresser Plan (July 1987), Summer Plan (January 1989) and Collor Plan (March 1990).

¹¹ Investment rate was 21.4% in the 1970s, 22.2% in the 1980s, 17.9% in the 1990s and 16.8% in the 2000s.

investment in fixed capital. As a result, aggregate productivity increased in the first years of price stabilization, in spite of low aggregate growth.

One explanation why the rate of investment did not improve after the end of the high inflation regime is because economic opening added up other sort of uncertainties to the macroeconomic environment. Actually, stabilization of inflation did not go along with the recovery of growth, as GDP growth rates were 2.2% in average per year in the 1995-2003 period (Table 1). During the stabilization period external environment did not favoured growth as a succession of external shocks occurred: in 1994 the Mexican crisis, in 1997 the Asian crisis, in 1998 the Russian crisis. Additional to those events, in 2001 the Brazilian economy suffered a severe electric energy crisis and in 2002 the country faced capital flight as the result of negative expectations of the presidential election of a candidate (Luiz Inácio Lula da Silva), who was then adversely evaluated by markets in Brazil. In an environment of unstable macroeconomic expectations, the performance of gross capital formation was disappointing (0.4% in average per year). We should add to the list of reasons for low investment rate, the excessively conservatism of the economic policy, aiming mostly stabilization goals.¹²

The commodity boom in the first half of the 2000s allowed the Brazilian economy to perform better in relation to the previous period. However, the period of relatively high growth (2004-2008), when the average growth rate reached at 4.8% per year, was a short one. In this period gross fixed capital formation expanded 8.2% in average, and this expressive recovery was interrupted in 2009, after the international financial crisis, and the sudden change in expectations about the return of long term commitment of resources. Since then, the Brazilian economy is decelerating its growth rates (2.6% in the 2009-2014 period) and the investment rate fell to less than a half of the in the last period compared with the 2004-2008.

Table 1: Growth rates of GDP and Aggregate Demand - Brazil- 1947-2012 %

	GDP	Private Consumption	Government Consumption	Gross Capital Formation	Exports of goods and services	Imports of goods and services
Stagnation and high inflation: 1981-1994	2.0	0.2	7.1	3.3	1.3	0.3
Stabilization and low growth: 1995-2003	2.2	2.2	1.6	0.4	6.5	3.0
Recovery: 2004-2008	4.8	5.3	3.1	8.2	7.0	14.3
Deceleration:2009-2014	2.6	3.8	2.6	3.7	1.3	6.4

Source: IBGE National Accounts.

Therefore, since price stabilization, the Brazilian economy has not decreased its degree of external vulnerability, what did not contributed for the recovery of the investment rate. Actually, the degree of vulnerability has increased, as a consequence of the long period of overvaluation of the real exchange rate, which led to an early de-industrialization process, deepening the country's dependence on exports of primary products and industrial

¹² As Serrano and Summa (2011, p. 27) point out, even when external constraints were relaxed in mid 2000s, "Brazilian authorities were a bit slow in realizing this and beginning to take advantage of the considerable policy space that was opened". They conclude that although the economic policy did not change the economy showed a better performance due to the boom of exports, which was interrupted after the international financial crisis.

commodities based on natural resources.¹³ So, besides the external fragility, the implementation of neoliberal economic policies since the beginning of the 1990s, following the Washington Consensus recommendations, reduced policy space for pro-growth governmental initiatives. After the sequence of external shocks in the mid-1990s, the main policy instruments adopted aiming at stabilizing the economy were inflation targeting, primary fiscal surpluses and flexible exchange rate. This prescription resulted in the persistence of high levels of nominal and real interest rates and real exchange rate misalignment.¹⁴

Graph 1 shows the evolution of the gross capital formation since 1995 and long-term interest rate. From 1996-2003, average investment rate was 16.5% and economic growth rate was 2.5% per year; during the period of higher rates of growth (2004-2008), GDP growth rate was 4.8% per year and the rate of investment was 17% of GDP. In the more recent period (2009-2014), GDP growth rate was 2.6% per year and the investment rate 18.5% in average. The slow evolution of the investment rate (increase of 2 percentage points) is related to the slow decline in the nominal long-term interest rate, that reached a level around 5% in the last years. It should be observed that during the second mandate of president Lula da Silva (2007-2010), growth became an explicit concern of economic policy, with the launching of a governmental plan to stimulate investment: the *PAC - Política de Aceleração do Crescimento* (Policy for Accelerating Growth). Also, in the first mandate of president Rousseff, another attempt to promote growth was made with the launching in April 2013 of the *Plano Brasil Maior* (Mayor Brazilian Plan). As the main pillars of the neo-liberal macroeconomic agenda - inflation target and primary fiscal surplus were kept untouched – these initiatives showed a poor result, and growth rates, as well as investment rates, did not resume.

From the point of view of the financial sector, the end of high inflation and economic opening led to a strong concentration and internationalization of the banking sector. The consolidation process of the banking sector under price stability occurred through mergers and acquisitions that resulted in higher bank concentration and a reduction in the importance of public banks¹⁵. Banking sector was open to foreigners in 1997, based on the assumption that it would help to increase the sector's efficiency as well as to reduce bank rates and spreads. Expectations about the positive effects of greater weight of private institutions in the banking sector and the entry of foreign banks were largely disappointed. The share of credit to firms in GDP was reduced from 36% in December 1994 to around 27% in December 2003. In other words, after the stabilization there was a setback in the financial development of the Brazilian economy. When the macroeconomic environment changed, due to the boom in foreign trade and the improvement in the terms of trade from 2004 onwards, credit market showed a great recovery, increasing its share in GDP significantly. However, the remarkable change in the

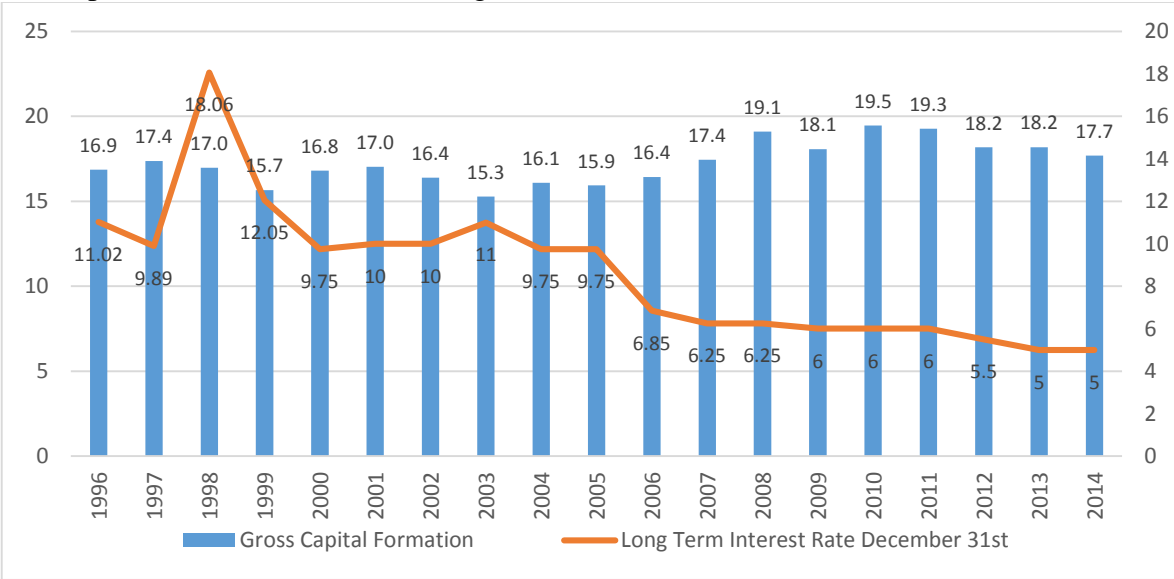
¹³ See, for instance, Oreiro and Feijo, 2010; Feijo and Lamonica, 2012, among others.

¹⁴ Several authors interpret that the formation of interest rate in Brazil is based on a 'convention'. Bresser-Pereira and Nakano (2002, p. 169) for instance, state that, "After the persistent maintenance of interest rates at very high level, it is natural that there is a fear of reduction and so that level becomes a convention in the Keynesian sense of the term, and also a trap. Therefore, there will not be easy to escape the perverse equilibrium of the interest rate that we got ourselves into many years ago

¹⁵ After 2008, the process of reducing the share of public banks in the financial sector was reversed.

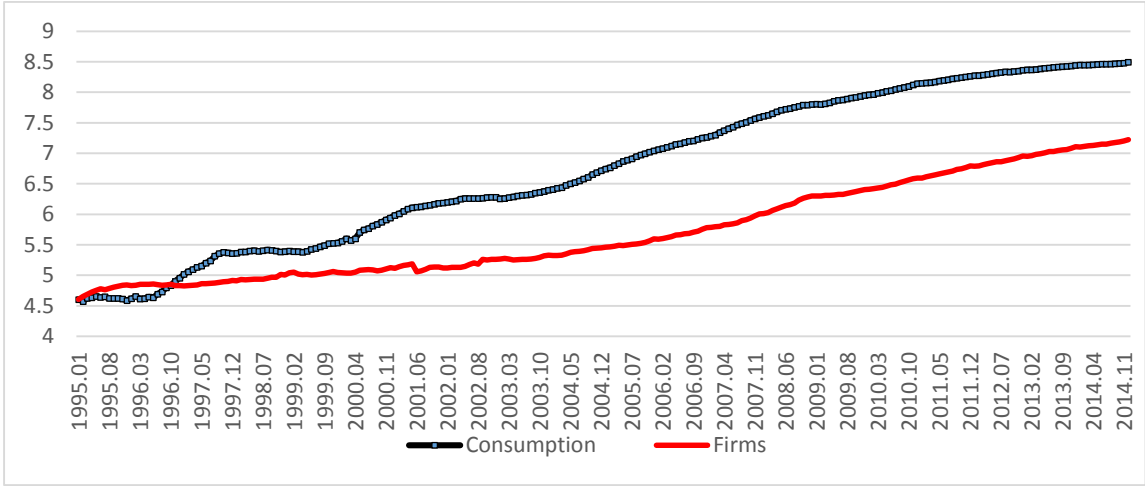
performance of the Brazilian banking sector was mostly due to an increase in credit to households (Graph 2).

Graph 1: Investment rate and Long-Term Nominal Interest Rate (31/12) – 1996-2014



Source: Brazilian Statistical Office Quarterly Annual Accounts and Brazilian Central Bank

Graph 2: Growth Rate (log) of Credit to Consumption and Private Firms 1995-2014 – Jan 1995 = 100



Source: Ipeadata.

Evidence from the evolution of private credit suggests that firms still rely a great deal on retained profit to finance capital accumulation in Brazil.¹⁶ Indeed, Table 2 shows that the ratio of retained profits to gross capital formation of non-financial firms covers around 80% or more of total investment in physical assets.¹⁷ In years of low growth, as 2001 and 2002

¹⁶ See Moreira e Puga (2001), for instance.

¹⁷ It should be mentioned that large companies and those working in specific sectors can get finance through public investment banks, allowing them to carry out investment projects using long-term debt finance supplied

and after the international financial crisis, the share of retained profits was over 100% in relation to gross capital formation. Such a high dependence of non-financial firms to internal resources is an expression, on one hand, of limited funding available to boost capital accumulation in the Brazilian economy, in spite of the highly sophisticated financial sector.

On the other hand, as investment rate is relatively low in comparison with other emerging economies in the period,¹⁸ one could suggest that part of retained profits might be allocated in the accumulation of financial capital. So, the investigation of the specificities of the financialization process in Brazil should consider the macroeconomic scenario susceptible to external shocks, reduced policy space for pro-growth policies,¹⁹ and persistent high nominal and real interest rates, as driving forces which induce the accumulation of financial capital.

Table 2: Non-financial firms: Retained Profit as share of Gross Capital Formation (%)

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
95.0	101.4	111.4	82.7	79.3	88.9	86.4	99.5	103.5	100.9

Source: Brazilian Statistical Office National Accounts

4.1- The specificities of the finance-led regime in Brazil

Bruno *et al* (2011, p. 735), argues that structural and cyclical conditions contributed to turn the Brazilian economy into a finance-led growth regime. For the authors, high real interest rate paid by governmental bonds strongly attracts savings from non-financial firms. This implies to say that in the Brazilian case, more than the increase in the private debt, it is the increase of the public debt that gives oxygen to the spreading of rentier's behavior.

It would be reasonable to say that the specificity of the Brazilian financialization process rests on a great deal on the management of the monetary policy since price stabilization. As already mentioned, the Brazilian real interest rates are among the highest in the world, and according to Bresser-Pereira and Nakano (2002), the high level of the nominal and real interest rates are due to a convention, which is harder to change in a inflation target regime. We should observe that inflation targeting has been showing relatively little effect to curb inflation in Brazil: since 1999, when inflation target regime has been implemented, until 2014 in only 4 years official inflation reached the center of the target: 2000; 2006; 2007; 2009. A large literature discusses the causes for such poor results (for instance, Modenesi 2008; Bresser-Pereira, 2012), focusing on the many causes for inflationary pressures, which are less affected by the interest rate policy.

On the other hand, persistent high levels of interest rate have several deleterious effects on other macroeconomic indicators, besides turning the management of the public debt costly.

by public development banks. But assuming that most non financial firms in Brazil do not have access to public or foreign funds the accumulation process of most Brazilian firms takes place via retained earnings.

¹⁸ According to the PenWorld Table statistics, from 1990-2011, the average rate of investment was 18.1% in Brazil; 20.8% in Russia, 22.6% in India; 33.3% in China and 20.1% in South Africa.

¹⁹ According to Ocampo and Vos (2008), the neoliberal agenda of economic policy, as the one followed by the Brazilian economy after stabilization, reduces policy space in developing economies, since their growth cycles are determined by the external environment, and little room is left for contra-cyclical measures.

Also it increases interest rate differential attracting speculative capital, increasing external vulnerability. In both cases, the degree of uncertainty in the economy is augmented, what deeply hurts capital accumulation. Thus, by adopting the inflation targeting since 1999, the Brazilian economy has been reducing its policy space to implement long lasting structural reforms to recover the investment rate.

So, the financialization process in Brazil is reinforced by short-term economic policies which negatively affect long-term investment plans. The low expected return of the investment in fixed capital compared to the returns offered by short-term financial assets, these ones relatively safe as they are in a large scale issued by the government, induces the allocation of savings of non-financial firms to financial accumulation, affecting long-term growth. In this sense, the financialization process that occurs in the Brazilian economy depresses capital accumulation via increased preference for financial assets within a purely rentier logic. The increase in basic interest rate contributes to the reduction of productive capital accumulation, most because it turns more attractive the allocation of resources in financial assets, than because the cost of funding has been raised.

In this context, the increased demand for financial assets does not imply an increase in the financing of investment in productive capacity, but rather a reduction in investment as the financial capital competes with productive capital.²⁰ In our interpretation, the process of financialization in Brazil, mainly in the 2000s, is largely due to the inflation targeting policy, maintaining high real interest rates and consequently increasing the liquidity preference of financial and non-financial firms.

In sum, as growth rates have been relatively low and unstable since stabilization, we suggest that the macroeconomic policy, following the neoliberal agenda of economic reforms, has not privileged capital accumulation in Brazil. The financeirization process in Brazil, differently from other international experiences, is not directly linked to the reduction of the wage share in total income, but it is the result of the increasing weight of financial income in total savings.²¹ So the financeirization process is explained, on one hand, by persistent high rates of interest in the financial market which establishes a too high floor to productive investment to compete, and on the other hand, by the high vulnerability of the Brazilian economy to external shocks, which reduces the degree of confidence in expectations that would support long term commitment of resources.

5. Estimating an Investment Function for the Brazilian Economy in the 1990s and 2000s

In the financialization literature, income distribution and its effects on capital accumulation play a key role in determining economic growth regimes. Our purpose in this section is to estimate the behavior of the investment rate in the Brazilian economy after price stabilization. According to the discussions briefly presented, at least three groups of variables, as in

²⁰ According to Bruno *et al* (2011, p. 745) ‘as firms do not get enough returns to justify productive allocation of resources, their gains or savings are allocated to the financial sector’.

²¹ The share of savings from financial firms to total domestic savings increased from 8.9% in 2000 to 17.0% in 2009, according to the National Accounts.

equation 2 below, can be tested to explain the investment rate: one expressing the weight of the cost of funds (r and δ), other the weight of aggregate demand and the role of the income distribution (u and π), and another the weight of the policy space to grow captured by a measure of the degree of external vulnerability and the cost to roll over public debt (α and β , respectively), that can affect the investment drive of firms.

In formal terms, the rate of investment (g), is expressed as:

$$g = \gamma_0 - \gamma_1 r - \gamma_2 \delta + \gamma_3 u + \gamma_4 \pi + \gamma_5 \alpha + \gamma_6 \beta + \varepsilon \quad (\text{eq. 2})$$

Where γ_0 stands for the growth rate of autonomous investment, r is the interest rate; δ is the average degree of firm's indebtedness; u is the degree of capacity utilization; π is the profit share; α the degree of external vulnerability; β the cost to roll over the public debt and ε stands for the term of the error (see description of the variables in the Appendix).

The estimation of the rate of investment with these blocks of variables is an attempt to capture the impact of the financialization channels on the capital accumulation behavior of firms in Brazil. The first block captures the impact of changes in the interest rate on the investment decision of the firms; the second block captures how firms react to changes in aggregate demand and the third block measures the impact of changes in the macroeconomic environment due to the administration of economic policy which are reflected in the foreign and public indebtedness.

The cost of external funds for firms is expressed by the level of the interest rate and the average degree of the firm's indebtedness. The access of firms to debt finance their investment plans contributes positively to the growth of investment, although increase in the cost of funding should affect negatively. In Brazil, considering that debt security market it is not well developed yet, and long term credit is only supplied by public banks, it will be assumed that firms greatly rely on retained profit to finance their capital accumulation. This will imply that greater investment rate shall be related to negative cost of funds and higher degree of indebtedness.

The pioneer work by Bhaduri and Marglin (1990) expressed the investment rate as a function of the capacity utilization and profit share. The impact of the profit share on growth depends on its effect on investment.²² The use of idle capacity as a proxy for variation aggregate demand in an investment function is supported by Steindl (1976), for whom, producers operating in a market with some degree of oligopoly deliberately maintain an adequate level of spare capacity which enables the firm accommodate fluctuations in effective demand, thus preventing the entry of new competitors or the expansion of the market share of firms already established. It follows from this competitive strategy that increased effective demand in a given sector will be accompanied by rising investment by established firms seeking to maintain the level of planned idle capacity. Increases (decreases) in aggregate demand in the short term, given a desired level of capacity utilization, will result in increases (decreases) in investment in physical capital.

²² The hypothesis that increased profit-share does not stimulate the expansion of investment has been made by Boyer (2000), Stockhammer (2007), Hein (2013) Palley (2014) among others, as, for them, the financialization process is responsible for the slow growth in developed economies.

Finally, given the structural dependence of the Brazilian economy on external savings, we add a variable to capture the importance of the external funds to domestic investment. Also the cost to roll over public debt is assumed to negatively affect capital accumulation, as the finance of public debt is a safe allocation of resources to increase financial accumulation of firms.

5.1 Methodological procedures

A first condition to be analyzed before applying the econometric analysis is to check if series are stationary. For this purpose, the Phillips and Perron (1988) test described by Hamilton (1994, Chapter 17) was carried out and the results are shown in Table A1 in the Appendix. The Phillips-Perron statistic adjusts the conventional t -statistic to allow for serial correlation in the regression error. This adjustment uses Newey and West's (1987) method to estimate the variance of the regression error.

The empirical analysis makes use of generalized method of moments (GMM). One reason for using GMM is that while ordinary least squares (OLS) (Table A2 in the Appendix) estimates have problems of serial autocorrelation, heteroskedasticity or non-linearity, which is typical in macroeconomic time series, this method provides consistent estimators for the regression (Hansen, 1982). Besides, a way of avoiding the problem of identification has been the use of GMM models (Hall, 2005). As pointed out by Wooldridge (2001, p. 95), “to obtain a more efficient estimator than two-stage least squares (or OLS), one must have overriding restrictions.” The weighting matrix in the equation was chosen to enable the GMM estimates to be robust, considering the possible presence of heteroskedasticity and autocorrelation of unknown form.

5.2 Results

All the coefficients of our proposed regression (eq.2) were significant and presented the expected signs. The basic interest rate, which is very high in Brazil, can be pointed out as one of the main reasons why investment rate is so low. In spite of the high level of interest rate, the degree of indebtedness, represented by the evolution of credit loans to firms, presented a positive sign, showing that firms, although relying on retained profits, would react positively to more credit. Besides credit, our estimation showed that the increase in the degree of capacity utilization also influenced positively decision to invest in the period.

The relationship between the investment rate and the profit share, in the context of our discussion, can be ambiguous. If profit share shows a positive coefficient, it validates the Keynesian-Kaleckian hypothesis, meaning that capitalists are accumulating more productive capital as profits increase. Otherwise, the profit-share is dominated by financialization, meaning that capitalists are using a larger fraction of retained earnings to accumulate financial capital without increasing the rate of investment. The estimation showed a positive relationship between g and π , implying that the income distribution between wage and profit has affected investment in the period.

Table 3: Specification 1 Equation 2 – GMM Method²³: Dependent Variable: g

Explanatory Variable	GMM estimates	Standard errors	t-statistics
<i>Constant</i> (γ_0)	-4.971	(3.539)	[-1.404]
r	-0.106*	(0.022)	[-4.803]
$u(-3)$	0.294*	(0.042)	[6.979]
d_π	107.213*	(34.862)	[3.075]
R^2	0.375		
<i>Adjusted R</i> ²	0.337		
<i>J</i> -statistic	12.017		
<i>Prob</i> (<i>J</i> -statistic)	0.939		

Notes: *Marginal significant at 0.01 level.

Source: author's elaboration

Table 4: Specification 2 Equation 2 – GMM Method²⁴: Dependent Variable: g

Explanatory Variable	GMM estimates	Standard errors	t-statistics
<i>Constant</i> (γ_0)	-4.397**	(2.533)	[-1.735]
r	-0.089*	(0.010)	[-8.380]
$d_\delta(-1)$	0.524*	(0.138)	[3.793]
$u(-3)$	0.283*	(0.031)	[9.001]
d_π	100.658*	(15.983)	[6.297]
R^2	0.430		
<i>Adjusted R</i> ²	0.384		
<i>J</i> -statistic	13.453		
<i>Prob</i> (<i>J</i> -statistic)	0.993		

Notes: *Marginal significant at 0.01 level, **Marginal significant at 0.1 level.

Source: author's elaboration

²³ Instrumental variables applied in GMM estimates: $g(-1); i(-1); i(-2); i(-3); i(-4); i(-5); i(-6); u(-4); u(-5); u(-6); u(-7); d_\pi(-1); d_\pi(-2); d_\pi(-3); d_\pi(-4); d_\pi(-5); d_\pi(-6); d_\pi(-7); d_\pi(-8); d_\pi(-9); d_\pi(-10); d_\pi(-11); d_\pi(-12); d_\pi(-13)$.

²⁴ Instrumental variables applied in GMM estimates: $g(-1); i(-1); i(-2); i(-3); i(-4); i(-5); i(-6); d_\delta(-2); d_\delta(-3); d_\delta(-4); d_\delta(-5); d_\delta(-6); d_\delta(-7); d_\delta(-8); d_\delta(-9); d_\delta(-10); u(-4); u(-5); u(-6); u(-7); d_\pi(-1); d_\pi(-2); d_\pi(-3); d_\pi(-4); d_\pi(-5); d_\pi(-6); d_\pi(-7); d_\pi(-8); d_\pi(-9); d_\pi(-10); d_\pi(-11); d_\pi(-12); d_\pi(-13)$.

Table 5: Specification 3 Equation 2 – GMM Method²⁵: Dependent Variable: g

Explanatory Variable	GMM estimates	Standard errors	t-statistics
<i>Constant</i> (γ_0)	3.420**	(1.746)	[1.958]
r	-0.075*	(0.004)	[-18.179]
$d_\delta(-1)$	0.424*	(0.047)	[8.933]
$u(-3)$	0.197*	(0.021)	[9.251]
d_π	102.630*	(12.611)	[8.138]
d_α	-1.432*	(0.048)	[-29.638]
$\beta(-2)$	-0,243*	(0.012)	[-19.232]
R^2	0.596		
<i>Adjusted R²</i>	0.545		
<i>J-statistic</i>	14.123		
<i>Prob (J-statistic)</i>	0.999		

Notes: *Marginal significant at 0.01 level, **Marginal significant at 0.1 level.

Source: author's elaboration

The variable α presented a negative sign, showing that the external vulnerability of the country negatively influences the investment decision. This is an expected result, since an increasing negative current account balance adds more uncertainty to the administration of the economic policy.

Finally, the coefficient of β also showed a negative sign, which can be interpreted as an expression of the financialization process in Brazil. A coherent behavior of firms, as suggested by eq. 1, is to allocate resources in financial papers in order to increase their cash flow for discretionary expenses. In Brazil, given that interest rates are very high, interest rate paid by governmental bonds strongly attracts savings from non-financial firms. In this sense, this sort of investment strongly competes with investment in capital accumulation.

6. Concluding remark

Stabilization of inflation was conquered in the mid 1990s, but since then Brazilian economy has not shown a stable growth trend. In particular investment rate has been relatively low when compared with other similar economies. In this paper we discussed the reasons why investment rate does not increase, exploring recent financialization literature.

Our main conclusion is that economic policy has not favoured long term decisions since price stabilization in the country. External vulnerability, which has always been a weakness of the economy, has not improved with the opening of the economy in the 1990s. Because of that, there is little space for pro-growth policies. In a macroeconomic environment of relatively

²⁵ Instrumental variables applied in GMM estimates: $g(-1); i(-1); i(-2); i(-3); i(-4); i(-5); i(-6); d_\delta(-2); d_\delta(-3); d_\delta(-4); d_\delta(-5); d_\delta(-6); d_\delta(-7); d_\delta(-8); d_\delta(-9); d_\delta(-10); u(-4); u(-5); u(-6); u(-7); d_\pi(-1); d_\pi(-2); d_\pi(-3); d_\pi(-4); d_\pi(-5); d_\pi(-6); d_\pi(-7); d_\pi(-8); d_\pi(-9); d_\pi(-10); d_\pi(-11); d_\pi(-12); d_\pi(-13); d_\alpha(-1); d_\alpha(-2); d_\alpha(-3); d_\alpha(-4); d_\alpha(-5); d_\alpha(-6); d_\alpha(-7); d_\alpha(-8); \beta(-3); \beta(-4); \beta(-5); \beta(-6); \beta(-7); \beta(-8)$.

high uncertainty, decisions to accumulate capital rely a great deal on retained profit and are negatively affected by the persistent high level of the interest rate. In our econometric exercise we observed that profit share has a positive correlation with the investment rate in the 1990s and 2000s, while financialization, evaluated through the cost to roll over public debt, presented a negative result.

Bibliographical references

- Bhaduri, A. and Marglin, S. A.. *Unemployment and the real wage: the economic basis for contesting political ideologies*, Cambridge Journal of Economics, v. 14, p. 375-393, 1990.
- Boyer, R. Is a Finance-led Growth Regime a Viable Alternative to Fordism? A Preliminary Analysis, *Economy and Society*, Vol 29 n° 1, 2000.
- Bresser-Pereira, L.C. O Governo Dilma frente ao “Tripé Macroeconômico” e à Direita Liberal e Dependente. *Novos Estudos*, vol 95, março 2012.
- Bresser-Pereira, L.C. Nakano, Y. Uma estratégia de Desenvolvimento com Estabilidade. *Revista de Economia Política*, vol 21, n° 2, 2002.
- Bruno, M. Diawara, H. Araujo, E. Reis, A.C. Rubens, M. Finance-led Growth Regime no Brasil: estatuto teórico, evidências empíricas e consequências macroeconômicas. *Revista de Economia Política*, Vol. 31 n° 5, 2011.
- Chick, V. Speculation, the rate of interest and the rate of profit, *Journal of Post Keynesian Economics*, vol. 10, no. 1, autumn 1987.
- Eichner, A.S. *The Macrodynamics of Advanced Market Economics*. Armonk N.Y. M.E. Sharpe, 1991.
- Feijó C. Decisões Empresariais numa Economia Monetária de Produção: notas para uma teoria pós Keynesiana da firma, *Revista de Economia Política*, vol. 13, jan-mar, p.82-100, 1993.
- Feijó, C. and Lamonica, M. T. The Importance of the Manufacturing Sector for Brazilian Economic Development. *CEPAL Review (ECLAC)*, n° 107, 2012.
- Kalecki, M. [1965]. *Teoria da Dinâmica Econômica: ensaio sobre as mudanças cíclicas e a longo prazo da economia capitalista*. Editora Nova Cultural, 1997.
- Keynes, J.M. [1936] *A Teoria Geral do Emprego, do Juro e da Moeda*, Editora Nova Cultural, 1997.
- Hamilton, J.D. *Time Series Analysis*. Princeton University Press, Princeton. 1994.
- Hall, A. *Generalized Method of Moments*, Oxford University Press, Oxford, 2005.
- Hannsgen, G. The Transmission Mechanism of Monetary Policy: a Critical Review, in Arestis, P and Sawyer, M (eds), *A Handbook of Alternative Monetary Economics*, Edward Elgar, 2006.
- Hansen, L.P. “Large sample properties of generalized method of moments estimators”, *Econometrica*, Vol. 50 No. 4, pp. 1029-1054, 1982.
- Hein, E. Finance-dominated Capitalism and re-distribution of income: a Kaleckian perspective. *Cambridge Journal of Economics*, 2013.
- Minsky, H. *Stabilizing an Unstable Economy*. New Haven, Yale University Press, 1986.
- Modenesi, A.M. *Convenção e Rigidez na Política Monetária: uma estimativa da função de reação do BCB – 2000-2007*. IPEA, TD1351, 2008.
- Moreira, M.M. e Puga, F.P. Como a Indústria Financia o seu Crescimento: uma análise do Brasil pós-real, *Revista de Economia Contemporânea*, vol 5, 2001.

- Newey, W.K., West, K.D., A simple, positive semi-definite, heteroskedasticity and Autocorrelation consistent covariance matrix. *Econometrica* 55, 703-708, 1987.
- Ocampo, J.A. Vos, R. Uneven Economic Development. Editors, Zed Books Limited, 2008.
- Oreiro, J.L. Some notes on “the Evolution of Financial Regulation Before and After the Crises”, *Revista Econômica*, vol 15, nº 1, 2013.
- Oreiro, J.L. Feijó, C. Desindustrialização: conceituação, causas, efeitos e o caso brasileiro. *Revista de Economia Política*, vol 30 nº 2 (118), 2010.
- Palley, T.I. Financialization: What it is and what it matters. The Levy Economic Institute of Bard College. WP 525, 2007.
- Palley, T. I. Rethinking Wage vs. Profit-led Growth Theory with Implications for Policy Analysis. Macroeconomic Policy Institute, Berlin, Germany, WP 141, 2014.
- Phillips, P.C.B., Perron, P. Testing for a unit root in time series regression. *Biometrika* 75,335-346, 1988.
- Serrano, F. Summa R. Macroeconomic Policy, Growth and Income Distribution in the Brazilian Economy in the 2000s. Center for Economic and Policy Research, Washington DC, 2011.
- Steindl, J. Maturity and Stagnation in American Capitalism. 2nd edition (New York, London: Monthly Review Press), 1976.
- Stockhammer, E. Some Stylized Facts on the Finance-dominated Accumulation Regime. *Political Economy Research Institute*. University of Massachusetts Amherst, WP 142, 2007.
- Woodford, M. *Convergence in Macroeconomics: Elements of the New Synthesis*. Prepared for the session “Convergence in Macroeconomics?” at the annual meeting of the American Economics Association, New Orleans, 2008.
- Wooldridge, J.M. “Applications of generalized method of moments estimation”, *Journal of Economic Perspectives*, Vol. 15 No. 4, pp. 87-100, 2001.
- World Bank Development Indicators. <http://databank.worldbank.org/data/home.aspx>.

Appendix - Table A1

Unit Root Test - PP (trend and intercept)

Serie	Lag	test	1% critical values	5% critical values
g	9	-4.713	-4.100	-3.478
i	6	-4.346	-4.100	-3.478
δ	4	-2.542	-4.100	-3.478
d_δ	4	-7.957	-4.103	-3.479
u	4	-4.955	-4.100	-3.478
π	1	-1.932	-4.100	-3.478
d_π	0	-8.111	-4.103	-3.479
α	5	-1.245	-4.100	-3.478
d_α	3	-4.077	-4.103	-3.479
β	4	-5.194	-4.100	-3.478

Source: author's elaboration

Table A2 - OLS Method: Dependent Variable: g

Explanatory Variable	GMM estimates	Standard errors	t-statistics
<i>Constant</i> (γ_0)	6.362	(6.855)	[0.928]
r	-0.045**	(0.021)	[-2.101]
$d_\delta(-1)$	0.310**	(0.153)	[2.025]
$u(-3)$	0.157***	(0.084)	[1.871]
d_π	83.374*	(23.870)	[3.492]
d_α	-1.580*	(0.318)	[-4.963]
$\beta(-2)$	-0,264*	(0.059)	[-4.478]
R^2	0.517		
<i>Adjusted R²</i>	0.467		
<i>F-statistic</i>	10.375		

Notes: *Marginal significant at 0.01 level, **Marginal significant at 0.05 level, and ***Marginal significant at 0,1 level. Source: author's elaboration

Description of the variables

(1995Q1 to 2011Q4)

The series are available at the website of the Central Bank of Brazil and at the Brazilian Statistical Office (IBGE)

g = (investment rate) Gross Fixed Capital Formation and Gross Domestic Product.

r =(basic interest rate) SELIC interest rate.

$\hat{\delta}$ =(debt ratio) Corresponds to the evolution of supply of loans to private firms, as a proxy to the degree of indebtedness.

u =(capacity utilization) Obtained from National Industrial Federation.

π = (profit share) Obtained by dividing the Gross Operating Surplus - including self-employed - by the sum of Gross Operating Surplus and Wages and Salaries. Gross Operating Surplus and Compensation of Employees estimates are only available as a total for the year, so they were transformed into a quarterly series according to the evolution of quarterly Gross Domestic Product estimates.

α = Share of the current account balance to GDP.

β =Share of interest paid by Public Sector to GDP (Brazil Central Bank, serie number 5321).