Credit-fueled demand and shrinking aggregate supply: a study on the hyperinflation in Venezuela

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Abstract:

Money supply adapts to the demand of credit and has a crucial impact in determining production levels. However, at the same time, under certain conditions the issuance of money may also boost inflation.

In this article, with the help of Shaikh's 'classical theory', we explain the main reasons for the recent hyperinflation experienced in Venezuela. On the supply side, we analyze the context of loss of competitiveness due to the overvaluation of the national currency. On the other hand, we explore how the credit to the oil company (PDVSA) has led to an exponential growth in aggregate demand.

Keywords: Monetary issuance, hyperinflation, Venezuela, endogenous money, PDVSA

JEL codes: E31, E51, E58

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1. Introduction

After decades of high inflation levels, with annual rates between 10% and 100%, Venezuela has experienced since 2017 a historically intense and long period of hyperinflation, with year-on-year peaks rising above 2,000,000% towards the end of 2018. Technically, Cagan's (1956, p.25) conventional definition allows us to identify hyperinflation as when there is a monthly price increase of 50% or over. That a national economy is around that threshold does not necessarily imply that a substantially different analysis must be made depending on whether the price increase is slightly below or slightly above that level: the factors that influence when inflation is technically 'high' will surely be determinant when it enters 'hyperinflation'.

The objective of this research is to understand the specific phenomenon of hyperinflation in Venezuela since 2017. Without wishing to carry out a chronological review of the country's recent economic history, we assume that for that objective it is necessary to understand the variables that have led this economy - and much of Latin America - to register high price inflation in recent decades.

Nevertheless, when inflation rises from an annual rate of 20% to monthly peaks close to 250%, as in the Venezuelan case from 2012 to 2018, it is necessary to investigate whether there are new and aggravating elements that explain such a leap. In this research we argue that hyperinflation and high inflation of previous years take place in a common context, essentially marked by structural problems typical of a mono-export economy and a high dependence on the foreign sector, coupled with more conjunctural factors derived from the geopolitical context or industrial and exchange rate policies. However, we show that hyperinflation has a specific nature, derived from the political decision to finance, through monetary emission by the Banco Central de Venezuela (BCV), large deficits registered by PDVSA, the public oil company.

We start from the consideration that the increase in the money supply does not generally lead to equivalent increases in the price level, but rather that monetary issuance is endogenous to economic activity. Having said that, we also warn about some conditions under which endogenous money issue does not lead to output increases but to higher inflation levels.

To identify such conditions, we have adopted the ‘classical’ approach advocated by Anwar Shaikh about the origins of modern inflation. Shaikh understands that inflation derives from changes in the aggregate demand and the inability of supply to adapt to those changes. On the

demand side, the monetized credit to PDVSA has made it possible to generate a new purchasing power much greater than the income generated in the accumulation process itself. On the supply side, there are signs of very low profitability levels that strongly condition the possibility of increasing the productive capacity in the country.

The analysis is divided into two sections, excluding the introduction and the conclusions. Firstly, we review the main theoretical contributions to the debate on the relationship between the endogenous nature of money supply[1] and inflation. Secondly, we present the case of Venezuela and focus on the main elements that allow us to understand the origins of hyperinflation.

2. Aggregate demand, supply and limits to growth

Understanding the practical case of Venezuela requires a certain level of theoretical support in order to understand the relationship between, on the one hand, the way in which money appears in the economy and, on the other hand, how the level of economic activity and the level of prices are determined. In this study, we start from the fact that the issuance of money, especially in its contemporary form of credit money, is endogenous to economic activity. (Moore, 1988). This has a double implication. First, that money is created from the decentralized relationship between agents for the financing of economic activities (Ulgen, 1994); second, that the monetary authority - the Central Bank - tries to influence the amount of money issued, but in no case can it determine it. (Niggle, 1989; Rochon, 2020). This condition can also apply to most developing countries, which generally have less sophisticated financial systems (Cifter and Ozun, 2007), and often adopt hard peg or dollarized regimes (Missaglia, 2020).

With this objective in mind, it is convenient to indicate that, in the dynamics of the endogenous process of money creation, a factor just as important as the money issuance in the form of a banking deposit is its reimbursement to the banking sector to cancel the initial credit. In this

[1] In this study, money is defined in a restrictive way, as the sum of bills and coins and current accounts in the national banking system.

regard, Lavoie (1987, pp.68-69) distinguishes two moments in production financing. The first stage, the so-called ‘initial financing’, corresponds to the initial demand of credit from firms to banks to pay for the work, the inputs and any other costs associated with the planned production process. The second stage is referred to as the final or definitive financing and “involves the reflux of circulatory money to business enterprises.” (Renaud, 2000, p.287). This reflux, in the form of sales, issuance of debt or securities is a necessary step for the reimbursement of credit within the banking system. The reimbursement leads to the ‘destruction’ of the deposit that was initially issued.

These two stages are repeated in each credit-financed investment project (Sawyer, 2019). Therefore, the positive association of 'monetary issuance-output increase' does not have a 'once-and-for-all' effect on the economy. On the contrary, this association is followed by its analogue ‘output sale-money destruction’. This special relationship involves the social validation of the investment through the sale of the production (if this is the case) and the monetary destruction via reimbursement of the initial credit. Thus, the way to sustain a given level of output over time is to achieve continued chaining over time of these processes of ‘monetary creation-output increase’, and their subsequent ‘output sale-money destruction’ (or by other means of achieving the final financing stage).

Once we have understood the nature of this continuous, decentralized and repeated association, we must now ask ourselves about the conditions under which this process can be completely distorted or altered in the economy as a whole; that is, when in the face of credit issuances, the increases in the output level become smaller or non-existent. In these cases, the monetary increase should be expected to eventually cause an increase in the level of prices.

The answer to this question depends on other assumptions that are made. For example, if the hypothesis of a long-term and stable output level of equilibrium is accepted, it can be assumed that money issue resulting from credit demand, generally ends up provoking proportional increases in the price level. This is what Milton Friedman (1970), representative of monetarism, indicated. From another perspective, Wicksell (1898) points in the same direction, pointing out that the variation of the price level is fundamentally due to the difference between the natural rate of interest and the market rate, both changing over time.

Contrary to this series of proposals, relatively close to the old Quantitative Theory of Money (e.g; Hume,1752; Fisher, 1911), we consider that credit is associated with the stimulation of the level of production not only at the decentralized/individual level but also at the aggregate level. That said, there are limits to such a stimulus that should be explored. Keynes already briefly described this possibility in his General Theory. According to him, the positive effects that more money entering into the economy could have on the output level are limited by a possible situation of full employment (Keynes, 1936, p. 270)

In recent decades, different authors have followed in Keynes' wake to explain inflation (e.g. Phillips, 1958, Modigliani and Papademos, 1975; Wray, 1998). However, instead of referring to the level of employment as a determining variable, some prefer to focus on the level of utilization of productive capacity. In this way, they warn that the problems of reaction of supply to demand can be caused not only by the lack of labor, but also of other resources (e.g. Lavoie, 2004; Hents and Höfgen, 2019).

In a more Kaleckian vein, some works interpret inflation essentially as a "conflict over the distribution of income", between different groups of workers or between labor and capital (Lavoie, 2014, p.542). Factors such as union density or full employment affect the bargaining power of wage earners while the degree of monopoly plays in favor of the firm owners' ability to pass on wage increases to the profit mark-up. Other types of alterations in the cost structure of production - such as sudden increases in input prices - exacerbate distributive struggles and accelerate inflation levels (Kalecki, 1971). This perspective, therefore, explains inflation by giving more weight to the aggregate supply side. Nevertheless, demand still plays a key role: wage demands and pressure on the prices of inputs with inelastic supply functions - such as raw materials - will tend to be higher the higher demand levels are (e.g. Kaldor, 1959; Dutt, 1990; Taylor, 1991; Lavoie 1992, Hein, 2008).

With certain similarities with the broad Keynesian current, the Latin American structuralist school has made great contributions to the explanation not only of inflationary phenomena but also of long-term growth problems, especially in the countries of that continent, since the mid-20th century (Olivera, 1967; Canavese, 1982; Furtado, 1977; Perez Caldentey, 2019). As for Keynesianism, the interaction between supply and demand is, for the different contributions within the structuralist school, the cause of changes in the price level. However, instead of paying attention exclusively to the levels of aggregate supply and demand, this school is more

focused on studying the *composition* of both of them, starting from the observation that agents and goods are not homogeneous; thus, for example, dynamic sectors with productivity improvements coexist with more lagging sectors. In this sense, it is argued, bottlenecks in the supply of goods may arise from the inability of one industrial branch to respond to increases in demand from another. This is a drag on the dynamics of accumulation as well as an inflationary factor.

From this point of view, the interrelation of the national economy with the rest of the world becomes important. In the first place, authors such as Noyola (1956) pointed out that the technical delay and the relatively small size of many of these economies reinforced the high dependence on imports. On the other hand, the export sector emerged, in many cases, as an engine of growth. But as opposed to what happens in developed countries, the expansion of that sector did not translate into a diversification of traded goods and services, nor did it manage to dynamize the rest of the national economy (Perez Caldentey, 2019, p.119). Moreover, specialization in the extraction and export of raw materials - such as fuels and poorly processed agricultural goods - accentuated the lack of productive diversification and the rentier nature of the economy in many of these countries. Hence, as Sunkel (1956) pointed out in the case of Chile in the early 1950s, the deterioration in the terms of trade of such exports plunged the countries into a balance of payments crisis that forced them to devalue the national currency in order to achieve a readjustment, both in trade and fiscal terms. An undesired but immediate effect of the exchange rate adjustment was the increase in inflation due to higher import prices.

In general terms, it is this inability to adapt domestic industry to changes in demand patterns - including devaluation due to the fall in exports - that is at the root of Latin America's fundamental development and inflationary problems according to this school of thought. From this it would be necessary to differentiate other elements that contribute to propagate and accelerate the pace of inflation but which are not at the root of the problem, such as the distributive struggle or fiscal policies (Noyola, 1956; Sunkel, 1956).

Beyond the criticisms received since its rise, connections can be seen between structuralism and later stylizations of facts related to the economic history of the continent. New Developmentalism, for example, studies the productive and export sector structure in the continent to warn that many of these countries show clear symptoms of the 'Dutch Disease' (Bresser-Pereira, 2012) previously exposed by Corden and Neary (1982). According to this

approach, the productivity of the raw material exporting sector sustains an overvalued exchange rate in the sense that it impedes the competitiveness of the rest of the productive sectors in the country. On the other hand, Krugman (1979) explained the perverse effects on growth caused by devaluation forced in turn by the accumulation of external deficits.

Finally, from a rather Marxist approach, Shaikh (2016) provides another explanation of the limitations on the output increase and the possible effects on inflation (see also Handfas, 2012). Shaikh's starting point is similar to that of the previous approaches: "individual commodity prices rise, market-by-market, when individual market demand is greater than the corresponding market supply." At the aggregate level, hence, inflation is the balance between a demand-pull and a supply response. The difference between this approach and the previous ones lies in the variables that determine demand and supply.

On the demand side, Shaikh points to two elements that increase the purchasing power of an economy beyond the income generated: foreign demand - surpluses in the external current account - and increase in the level of credit - domestic and foreign - directed toward expenditures on commodities. (Shaikh, 2016, 697-698). In the section on credit, Shaikh includes both the credit given to private agents - domestic or foreign - and to public institutions. In the second case, such institutions often gain privileged access to monetary finance of their deficits by the Central Bank, therefore increasing purchasing power.

By increasing purchasing power, both the level of credit and the external balance boost *nominal* output. This new purchasing power can also stimulate *real* growth, but always according to the room in which the economy actually has to grow. The main limit to real growth is the net profit rate, insofar as it conditions the decisions of the firm owners to expand production levels. This profit rate can differ from firm to firm, from sector to sector, giving rise to occasional bottlenecks; in the long run, however, competition keeps the rate of each sector around the average profit rate, in a process of 'turbulent regulation'. The volatility of the average rate of profit causes investment levels to fluctuate which, as a component of effective demand, make it unlikely that a national economy will remain at full employment levels for long.

Now, although profitability is the main determinant of investment, the latter can vary for multiple other reasons, such as future expectations. In this case, it should be noted that the rate of profit also acts as a ceiling for sustained growth, in the sense that it marks the maximum

surplus available for reinvestment in each period (Ricardo 1951[1817], pp.120-122; Marx, 1970; Shaikh, 2016, p.567). Therefore, the ratio between the rate of investment and the rate of profit is called by Shaikh the 'growth utilization rate'.

In conclusion, being equal to the difference between the real and nominal growth rates, inflation is affected by the three variables mentioned above. First, new purchasing power positively affects inflation if the resulting excess demand is not absorbed by supply. Second, by boosting investment and thus real output growth, profitability negatively affects inflation. Third, as the growth utilization rate approaches the threshold set by the realized rate of profit, the economy becomes more inflation-prone.

Shaikh's explanation is able to integrate the typical Keynesian approach regarding the link between growth and inflation: under high or full capacity utilization ratios, trade unions' demands for wage increase might affect firms' profitability; if the latter drops but aggregate demand does not, inflation may accelerate.

The relationship of inflation with the three variables is nonlinear, which implies that the intensity of changes in inflation is not constant. Thus, for example, the growth utilization rate will affect inflation more strongly the higher the value it takes. Regarding purchasing power, it is worth noting here a feature that differentiates it with respect to the other two variables: while net profitability and growth utilization rate move in limited ranges of values, the technical capacity of credit creation is unlimited (Shaikh, 2016, p. 703). Therefore, as the growth of new purchasing power gets larger, its influence on inflation increases.

Cases of private credit expansion are frequent in the current context of financialized capitalism. However, as credit is based on profitability expectations and trust in creditworthy clients and is subject to the solvency conditions of the banks themselves, credit expansion is limited by the duration of the financial cycle (Barredo-Zuriarrain, 2019). On the other hand, public-to-public credit, where the Central Bank is not conditioned by the same constraints and issuance is not based on expected profitability, can be subject to unlimited growth. If public deficits grow at disproportionate rhythms to the real output - especially if it happens in economies with significant obstacles to the expansion of their output - the resulting money issuance would become the main driver of inflation (Shaikh, 2016, p.718-723).

Within the recent literature on the phenomenon of hyperinflation in Venezuela we find diverse explanations, some clearly linked to one of the approaches presented here and others more difficult to classify. This difficulty in 'fitting' every explanation into a single theoretical current is due to the complexity of the country's economic reality, not only since hyperinflation officially began in 2017, but for decades.

In this regard, we identify a first group of works that attribute the historical rise in the price level mainly to geopolitical factors affecting supply. Curcio (2018) points to political sabotage from the manipulation of the parallel exchange rate of the bolivar and the shortage of commodities. Garzón (2018) points to that thesis and adds the financial embargo and distrust towards the bolivar as complementary explanations. Weisbrot and Sachs (2019) argue that the supply shock was fundamentally derived from the fall of foreign currency due to the collapse of oil production, the latter derived from the sanctions imposed by the United States. Related to this thesis is the contribution of Su, Khan, Tao and Umar (2020), who find that geopolitical risk negatively affects the price of oil and this contributes to higher inflation.

From a post-Keynesian perspective but with elements of structuralism, Kulesza (2017) draws on the work of Marie (2014) on Argentina to assert that the rising inflation in Venezuela observed to that date was the result of balance of payments problems stemming from weak productive diversification and a tendency to overvaluation, distrust of the domestic currency, expectations of future prices and strong distributional conflict between capital and wage earners.

The critical situation of the balance of payments after but also before 2017 is a recurrent variable in the literature on the topic. Thus, Vera (2015, 2017, 2018) places this, together with the financial crisis - significant deficits - and the production crisis - with price controls and totally inefficient nationalizations - at the origin of the hyperinflation period. Pittaluga et al (2020) carry out causality tests to contrast whether excessive money supply growth or exchange-rate depreciation triggered hyperinflation. Their result point to an extremely loose monetary policy originated in the need to cover growing fiscal deficits as being the main driver of price increases.

This hypothesis of hyperinflation as a result of the monetization of deficits has been endorsed from very different approaches. From a Marxist perspective (Sutherland, 2019) or a more conventional one (Haussman et al, 2018; Miller, 2019) it is pointed to monetary issuance

coupled with a declining output level. In the same vein, Huertas (2019) warns of the need to differentiate hyperinflation from high inflation. The latter is generally due to the overheating of the economy caused by strong demand; hyperinflation, on the contrary, " develops when governments finance their spending by printing money."

Like Huertas (2019), we insist on the need to distinguish the specificity of hyperinflation, at least for the Venezuelan case. We believe that there are elements of post-Keynesian and structuralist theory that help us to understand historical inflation as well as the problems in sustainably expanding the output level. As we will see, many of these problems come from the external sector: some are of a structural nature, others are due to more conjunctural policies with clearly negative effects on the dynamics of capital accumulation.

However, hyperinflation is the result of a specific way of responding to such a context of deep crisis, namely the decision to massively monetize the deficits of public institutions. To understand this, we believe that Shaikh's classical theory is the most powerful. It maintains clear connections with other approaches visited earlier. But on the supply side, instead of having to assume high levels of employment, it emphasizes - sectoral and aggregate – profitability as a constraint on real growth. And on the demand side, the creation of new purchasing power does not appear as a secondary or propagating element, but as a key factor in the development of the hyperinflationary phenomenon.

3. Venezuela’s hyperinflation

This section is structured in three parts. First, we review the main features of policies and problems in the macroeconomic sphere since the beginning of the 21st century. Later, we move on to study the phenomenon of rising inflation since 2013 and the subsequent hyperinflation since 2017. Knowing the main obstacles to growth in the country as well as the particular features of hyperinflation will subsequently allow us to evaluate the different proposals of recent years to curb the escalation of prices without damaging, even more, the weak Venezuelan economy.

3.1 Oil, exchange rate and unsustainable growth

Venezuela must be considered as one of the Latin American economies that has suffered the hardest from the tensions in its industry derived from the competitiveness of the oil sector. Further, although said sector has been the main engine of the national economy since the 1920s (Tugwell, 1975), it is since the 1970s and 1980s that Venezuela's inability to develop competitive alternative sectors to oil is clearly seen (Haussman and Rodriguez, 2014). A detailed chronological analysis of the national economic history is beyond the scope of this research. We will limit ourselves to point out the most relevant aspects of the period since the Chavez presidency (1999) and especially since 2002-2003, mainly because in that period we find structural long-term problems as well as macroeconomic tensions derived from socioeconomic conditions particular to the period.

Let us start with the basics: Venezuela is a country deeply dependent on the primary sector, specifically oil production. This sector represents around 20% of the national GDP, although it makes up more than 80% of exports. The public company 'Petroleos de Venezuela' (PDVSA) monopolizes its production and distribution. In addition, since the beginning of the century, PDVSA has expanded its functions to become a parallel state providing different services to the country in the so-called 'Missions': education, health, pensions, food distribution, sports federations, etc. Therefore, every aspect concerning this company has become of crucial importance for the country.

The foreign exchange regime affects the way in which domestic agents access foreign currency, which directly impacts on the balance of payments. But it also affects fiscal policy, since foreign currency obtained from the foreign sale of oil and sold to private firms and households is a very important way for the public authorities to raise bolivars - the national currency. Since the first mandate of Hugo Chávez and up to the present day, there have been several exchange schemes. But, as in the 80s and 90s, the Central Bank of Venezuela (BCV) has generally assumed a central role, either by limiting the fluctuation of the free price of the bolivar, or by fixing a rigid rate or even imposing capital controls.

At the beginning of 2003, the Government interrupted its efforts to keep the price of the bolivar free but stable, and started to apply a hard capital control while setting a fixed - nominal - exchange rate with respect to the dollar. Thus, the BCV - or a delegated institution - exchanges

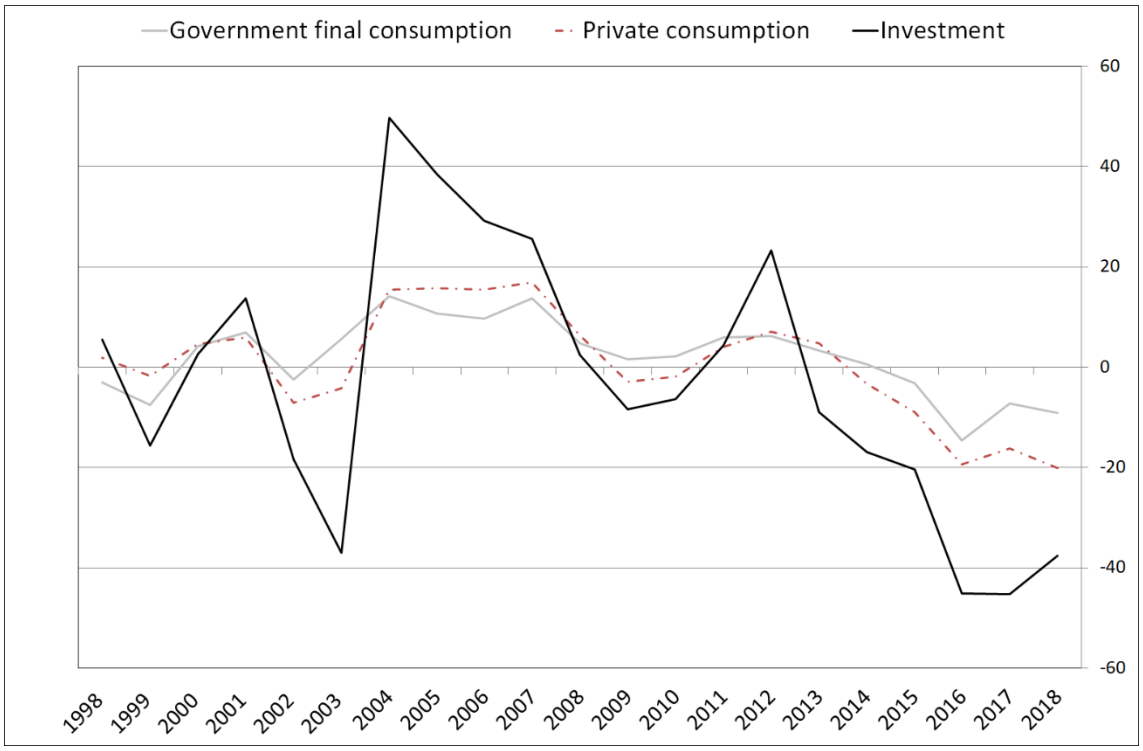
the foreign currency obtained by PDVSA in the international oil market for bolivars offered by national firms and individuals which, in turn, have to justify a supposedly efficient purpose for the exchange.

The capital control, which in its most severe version lasted until 2018, had the theoretical advantage of providing the country with a certain degree of monetary sovereignty, avoiding capital flight and being able to prioritize imports of capital goods, intermediate goods or any other good or service of public interest. In fact, in different years up to three official bolivar-dollar rates have coexisted, applicable to different items depending on their strategic nature. As we will see below, in practice, capital control was not entirely effective

On the other hand, with a constant nominal exchange rate, the price level of imports would vary in line with the international price level, thus helping to lower inflation in the country (Saez et al. 2019, pp.29-30). That said, at the beginning of the century, inflation in the country - around 10-30% depending on the year - was already considerably higher than in the rest of the world. This implied a growing loss of competitiveness of domestic production which, in turn, fed the demand for foreign currency (Palma, 2008, p.474-5). In this context, the possibility of financing the purchase of industrial equipment abroad while such imports served to contain inflation would depend, fundamentally, on the arrival of dollars at increasing rates

During the 2000s oil price boom, this policy showed promising signs. Current account surpluses and incoming investments allowed the boosting of public spending while keeping gasoline extremely cheap in the domestic market. Private investments and consumption were even more dynamic than public demand (see Figure 1). The negative gap between effective and potential output that the country had accumulated since the 1990s sharply contracted until it became positive in 2007-2008 (Kulesza, 2017). On the other hand, all this allowed poverty levels to be drastically reduced and the provision of basic public services to be extended, with the so-called 'Misiones' in education, health, social assistance... (Vaisset and Lapierre, 2012; Carosio, 2016). Of course, the boom in demand translated into higher levels of imports; but the strong inflow of capital, even allowed positive trade balances to be registered (see Figure 2) while increasing reserves. In addition, despite the increases in domestic aggregate demand, the fixed exchange rate and the abundance of dollars helped to contain inflation through imports.

Figure 1: Internal demand components of Gross Domestic Product (constant prices of 1997), growth rates

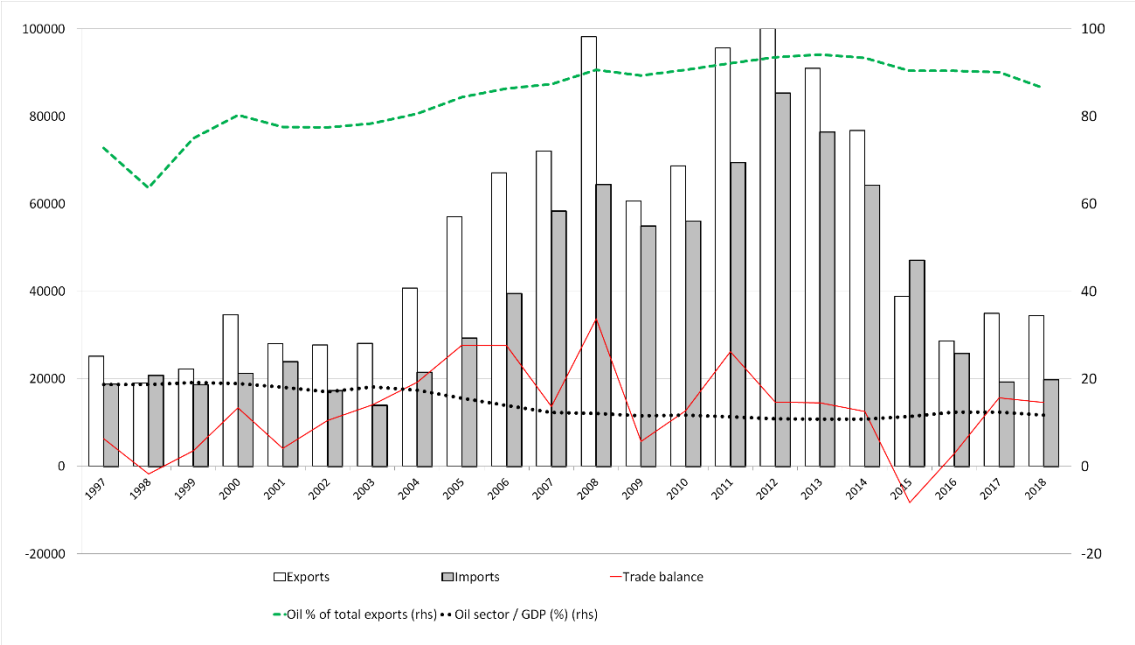


Source: Own elaboration from BCV data online

That said, even in this boom, this mechanism showed symptoms of a certain unsustainability. In the first place, the BCV's reserves were increasing, but not at a very high rate. In fact, as Vera (2015) shows, the increase was clearly lower than that of the large Latin American economies as a whole.

On the other hand, the various commitments of PDVSA and the BCV were growing, which reduced the stock of foreign currency available to satisfy private demand. Domestically, both institutions transferred large amounts to the Fund for the Development of the Nation (FONDEN); Vera (2015, p. 564) calculates that between 2005 and 2013 the transfer amounted to US$ 115 billion, which is equivalent to approximately 16.2% of exports in that period. At the external level, one must add the numerous foreign commitments. This reduced liquidity in dollars for private purposes.

Figure 2: Trade balance (millions $) and oil share



Source: Own elaboration from BCV data online

The good prospects prompted PDVSA and the Government to obtain liquidity through indebtedness. A paradigmatic example is the series of bilateral agreements with China and Russia since 2005, by means of which Venezuela was able to obtain immediate liquidity in exchange for future oil supplies or an increase in foreign debt, the servicing of which compromised the inflow of future liquidity.

To this must be added the deficiencies inherent to capital control. On the one hand, in the face of an official exchange rate with an undervalued dollar with respect to the international market, agents evaded the official mechanism for selling their foreign currency in the parallel market, strengthening the latter with respect to the former. On the other hand, the opacity in the allocation of foreign currency and subsequent accountability contributed to the practice of multimillionaire embezzlement and capital flight (Lander, 2016). In this sense, accusations of corruption from within the Government itself followed one after another, regardless of the name of the institution responsible for the allocation and the instrument used to fix the exchange rate (CADIVI, CENCOEX; DIPRO, DICOM...) Another indicator that reinforces this idea and arouses the suspicion of significant capital flight is given by the financial account in the balance

of payments: even in a capital control scheme where the use of foreign currency had to be justified, for every dollar hoarded in reserves between 2003 and 2008, private deposits abroad grew by more than two dollars (Armas, 2015).

In short: the official supply of foreign currency was becoming exhausted while the demand for it was reinforced as inflation annulled the country's competitiveness and fears of a devaluation grew. The foundations were thus laid for a balance of payments crisis as soon as the oil price interrupted its upward phase, as happened in 2008 and 2012. This change of scenario is reflected in the trade balance, with sharp falls on both occasions.

It is worth pointing out the risk of taking the trade balance - or even the current account - as an indicator of the country's possible tensions. In a context, such as Venezuela's, where the actual allocation of foreign currency and the exchange rate applied is a political decision, an improvement in the trade balance and even an increase in the level of reserves may be merely the result of a policy of restricting the amount of foreign currency on offer in the face of strong demand. In such a case, these 'good' indicators regarding the external balance would be hiding the tensions on the foreign exchange allocation scheme. It is therefore useful to look at the parallel market, a common practice - illegal in most cases - in countries with exchange and capital controls in the last century (Reinhart and Rogoff, 2004). In the case of Venezuela, taking DolarToday's estimate, a clear depreciation of the parallel exchange rate with respect to the official fixed rate can be observed as early as 2006, a year in which the price of oil reached historically high prices, approaching 70 dollars.

At the industrial level, the development of non-oil sectors was becoming difficult to sustain: the vast inflation differential with the rest of the world had made them lose competitiveness based on a strong and continuous appreciation of the real exchange rate (Vera, 2017, p.11; Kulesza, 2017, p.10). Nor did the cost and price control policies applied erratically since 2003 and tightened since 2011, as well as the expropriation and abandonment of all kinds of companies contribute to diversification and competitiveness. (Dugan and Profaizer, 2007). From 1999 to 2008, for example, non-oil sector had increased from representing 81% of GDP to 88%; but in terms of exports, they no longer contributed 26%, but only 10% of the total (see figure 2).

Also in terms of capital accumulation, the national industry was highly dependent on imports. It should be noted that in the period 2003-2013, capital goods and intermediate goods accounted for around 75-85% of imports (BCV, 2004, 2008, 2011, 2013). In this sense, the dramatic fall in operating reserves forced a slowdown in domestic production. This occurs between 2008 and 2009, with a drop of almost 15% in imports, but more clearly since 2012, with an accumulated drop of 70% of the latter.

As the bottleneck of the official foreign exchange allocation mechanism became more congested, the parallel exchange rate gained weight as a reference in the generation of expectations about the evolution of the future official exchange rate as well as about the evolution of prices (Cerra, 2016; Kuleszca, 2017).

At the same time as non-oil production was declining, PDVSA's financial state was worsening. Its foreign commitments increased; its expenses in bolivars grew at the pace of inflation and of the 'Missions' it undertook. To this must be added the lack of significant income in local currency from subsidizing the sale of gasoline. To the extent that the fixed nominal exchange rate was maintained, the bolivars raised from the sale of foreign currency were insufficient to cover costs. Between 2007 and 2013, the consolidated debt of the company rose from 1.6 to 46 billion dollars (PDVSA, 2007; 2013).

All this made apparent the need to capture more bolivars per dollar. However, until 2018, the government was characteristically reluctant to devalue even when the demand for dollars was much higher than the supply and the spread of the parallel exchange rate was soaring. For example, from 2005 to 2009, the same exchange rate of 2.15 bolivars/dollar was maintained despite an accumulated inflation over 250%. It is true that over time the more rigid regimes were abandoned in favor of supposedly more flexible systems, such as regular currency auctions. In practice, the BCV maintained a very inflexible price, accumulating demand for dollars much higher than the supply (El Economista, 2013).

When it was eventually decided to devalue the currency, it was done abruptly: between 2003 and 2018, in the various devaluations carried out, the dollar could become 60% more expensive in a single day. Each major official devaluation – 2010, 2011, 2013 and 2016 – was followed by months of higher inflation than the previous ones.

All this, moreover, reinforced the distributional conflict, which in itself reinforced further price increases. It should be noted in this regard that this South American country is characterized by the strong mobilization of the working class as well as by an oligopolistic structure in various sectors (Garzon, 2018). In such an economy, it is highly likely that the increase in the cost of imported inputs resulting from the devaluation encouraged wage demands and increases of profit margins. (Kulesza, 2017).

3.2. Hyperinflation

Inflation began to show clear signs of accelerating in the mid-2010s. In that period, the problems on the aggregate supply side already described became chronic; some problems related to the oil sector even more so. First, the price of domestic oil, which in 2012 exceeded US$ 100 per barrel, subsequently stagnated around US$ 40-60. Second, the embargo and sanctions promoted by the United States affected, among other things, access to international liquidity at low interest rates by government entities (Albert and Jude, 2016). The lack of foreign currency liquidity not only frustrated any attempt to industrialize the country, but also aggravated the situation of shortages of basic consumer products among the population.

In addition, the embargo and the debt incurred by PDVSA made it even more difficult to make the necessary investments to increase or even maintain the level of production (Weisbrot and Sachs, 2019); this has resulted in a drastic reduction in production since 2015 and until today (OPEC, 2020). All this, added to the above, exacerbated the country's difficulties to sustainably reproduce a high rate of capital accumulation.

To these obstacles, related to access to liquidity, we must add the problems arising from the profitability, that is, the mass of profit generated in relation to the total capital stock. Even without reliable data on the value of this stock, several elements allow us to intuit the fall in the rate of profit. First, there is a twofold appreciation of the elements of the rate of profit. On the one hand, the value of the stock of fixed capital, although it is being renewed with new investments, is relatively stable; on the other hand, given a stable profit share of around 55% of GDP, the very negative growth rates recorded (close to -15% for 2016 and 2017 and even worse in 2018 and 2019) imply the collapse of the volume of profit (in real terms). This idea of the falling profitability is reinforced by Kulesza's (2017) observation of the sharp drop in the output gap since 2014.

While the sinking aggregate supply is fundamental in explaining the crisis, this does not, *per se*, justify the phenomenon of hyperinflation. It is necessary to take into account the dimensions that the problem has taken since 2015. From 2012 to 2014 annual inflation from hovering around 20% soars to 50%, a high range but still around the values of the last decades. In 2015, inflation begins to register regular monthly increases of over 10%. Two years later the 50% monthly increase threshold commonly referred to when justifying the use of the term hyperinflation is surpassed. At the September 2018 peak, the price index increases by almost 250% per month. In other words, from 2012 to 2018, the year-on-year price increase rate goes from 20% to over 2,000,000%.

What drives such a hyperinflationary episode is not the obstacles to capital accumulation, but its interaction with a specific element that had been gaining strength since 2010 but has been severely exacerbated since 2014: the increase in purchasing power financed in new credit issued by the BCV. In the context of recession since 2014, it was neither the dwindling - in real terms - incomes (mainly wages and profits) generated in the country the drivers of aggregate demand. Nor was it credit granted by the banking sector; in fact, according to BCV data the deflated value of the latter has plummeted since the end of 2014. The key factor to understand the explosion of demand and, therefore, the record escalation of prices is the multiplication of purchasing power through exorbitant increases in credit from the BCV to public institutions, especially PDVSA. In this regard, BCV statistics show an increase in the weight of the public sector, from a stable level of 30% of GDP until 2013 to more than 46% in 2018, to the detriment of the private sector.

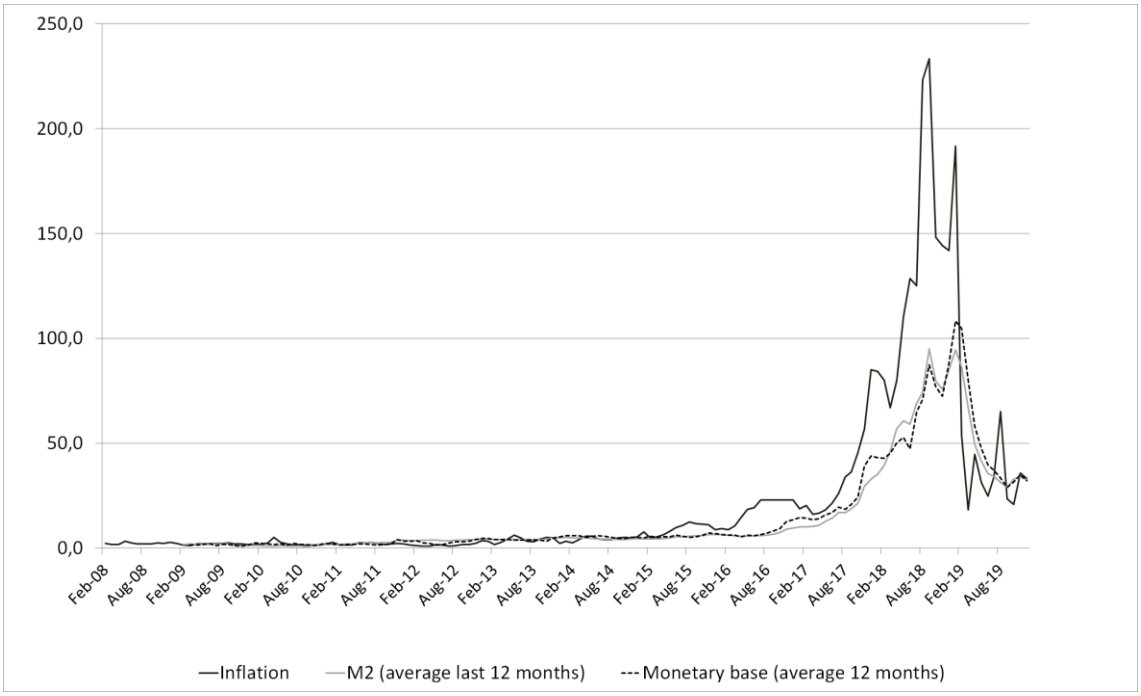
Let us recall from the previous section that the overvaluation of the national currency led to the impossibility of PDVSA to cover its expenditure with the few bolivars purchased from the national agents in exchange for dollars. In 2009, the National Assembly approved a legislative reform empowering the central bank to finance the oil company through the purchase of bonds. This has allowed, since 2010, the cost gap of PDVSA to be covered through massive monetary issuance by the BCV.

This spending was increasing primarily because of the inflation that already characterized the country's economy. In addition, the lack of mechanisms to raise bolivars at a sufficient level made it impossible for PDVSA to repay the loan advanced by the BCV. As a result, PDVSA's heavy spending also became a cause of inflation. Since 2014 and, more markedly, since 2017,

recourse to this financing took on historic proportions and the foundations of hyperinflation were laid.

A quick observation to the official data of the Central Bank allows us to verify two interesting facts. Since 2010, as seen in Figure 3, both the monetary base and liquidity (M1 and M2) have registered increasing growth rates. However, their evolution is not regular over time. From 2010 to 2014 their growth is sustained, around 50% per year for both; since 2014 they start to register increases above 100% per year; in 2017 they are already around 1000% per year and in 2018 they are higher than 40000% per year. This increase in the monetary base and liquidity is followed, at similar rates, by inflation and the parallel exchange rate, driven not only by the money injected but also by the same expectations of devaluation - parallel and official - in the future, which encourage capital flight and make imports more expensive.

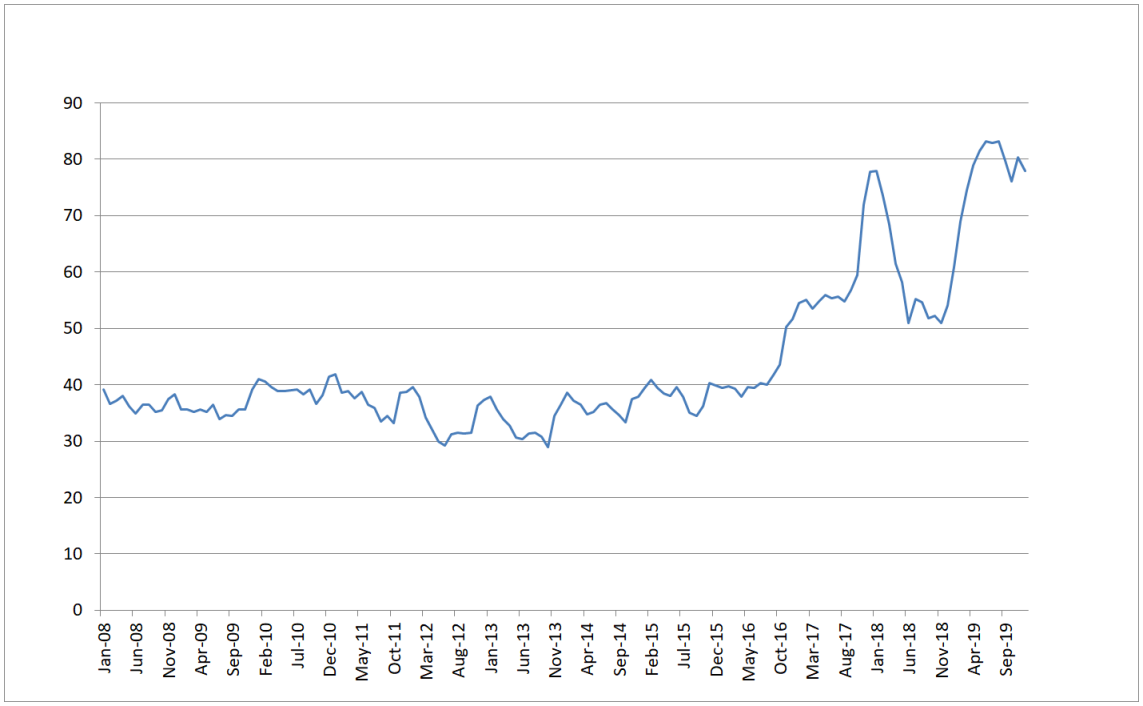
Figure 3: Inflation, liquidity (M2) and monetary base, monthly growth rates



Source: Own elaboration from BCV online data.

Secondly, as observed in Figure 4, since 2016 and with the worsening of inflation, the relative share of the monetary base to liquidity (M2) has grown steadily, reaching peaks of 90%. This is not due to the massive withdrawal of cash by agents for immediate spending, something common in high inflation phenomena (Wray, 2015, p.253-4); in fact, already since 2016 there was a generalized problem of lack of cash, only temporarily alleviated when the issuance of banknotes was increased or updated. The increase in the ratio between monetary base and M2 is rather due to the boom in banks' reserves - something also typical of hyperinflation periods - in relation to demand deposits which, like credit issued, plummet in real terms since 2014.

Figure 4: Ratio Monetary base/ Liquidity (M2)



Source: Own elaboration from BCV online data.

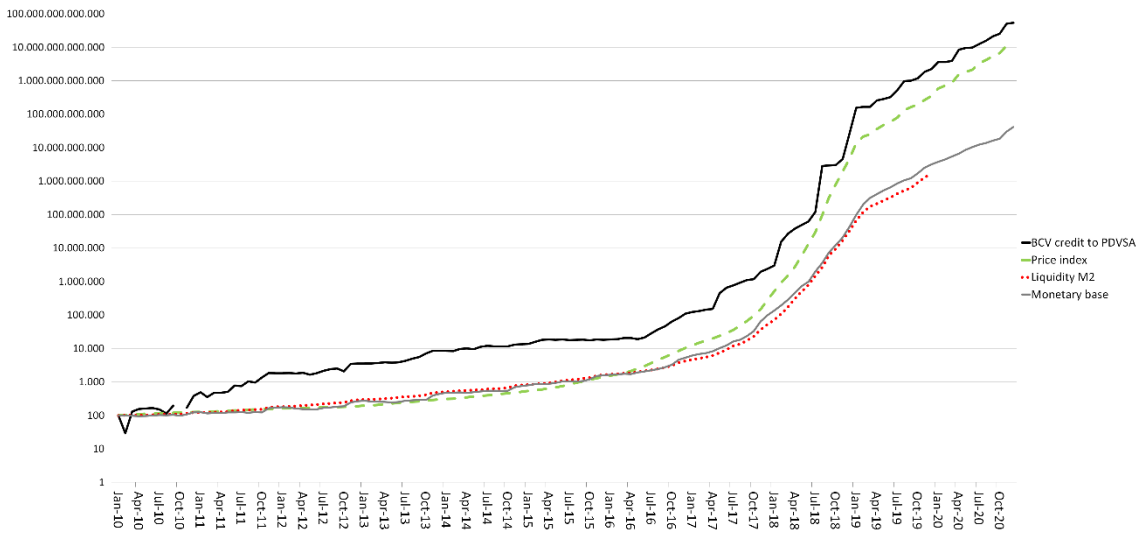
As we were saying, this exorbitant increase in the monetary base, liquidity and, therefore, inflation is a direct consequence of the BCV's loans to public entities, and fundamentally to PDVSA. A look at Figure 5 reveals a close relationship in the growth rate of the four variables since inflation takes on high rates, around 2014-2015. More specifically, it is observed that in the first years of the boom in credit to PDVSA, the price index evolves more smoothly, along

with the monetary base and liquidity. However, as the monetisation of PDVSA's deficit accelerates, from 2016-2017, inflation decoupled from the growth rates of the monetary base and liquidity and approached that of PDVSA's debt stock.

At this point, it is worth recalling what Shaikh (2016, p.718) pointed out about the 'technical' ability to create new purchasing power in an unlimited way through credit and about its non-linear relationship with inflation: as credit expansion accelerates, its impact on prices will be greater.

Given such an observation, one could logically argue that the causal order could be the inverse: inflation increases the different indicators of monetary mass and the amount of credit that PDVSA requests from the BCV also rises. According to this perspective, therefore, inflation may be the cause, and not the consequence, of the rising monetary base and liquidity. In fact, this kind of relation - from inflation to the amount of money - is the most typical one in modern economies: circulating money grows because a positive inflation implies higher nominal wages, rents, prices, profit margins...

Figure 5: BCV loan to PDVSA, the price index, M2 and the Monetary Base (100 = January 2010)

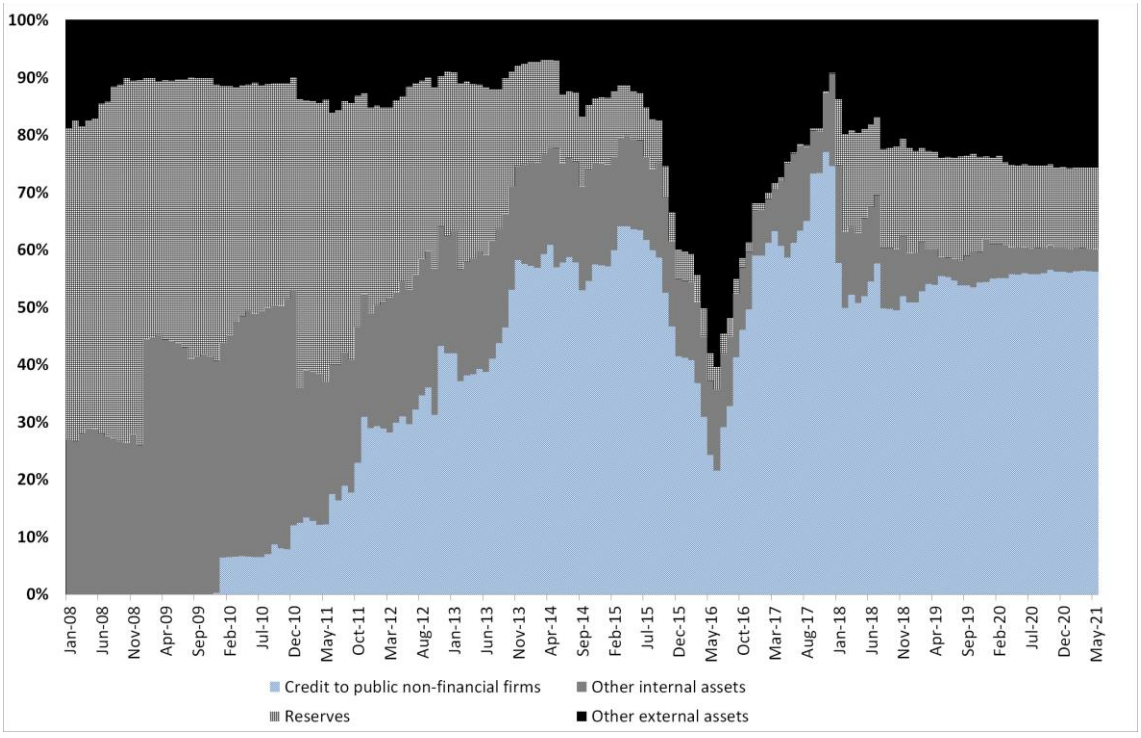


Source: Own elaboration from BCV online data.

This hypothetical case would have been reflected in the BCV's balance sheet, which has increased by more than 300,000,000% from the beginning of 2011 to mid-2021: not only PDVSA's debt but also that of other national institutions with access to BCV's financing - central and local governments and financial entities, fundamentally - would have grown more or less in similar proportions. And yet, Figure 6 reveals that the weight of these elements in the Central Bank's assets has fallen from more than 20% to 4% in less than 10 years. The largest increase, in absolute and relative terms, belongs to the financing of public non-financial firms (basically PDVSA).

On the other hand, external assets - monetary reserves and others - being mostly denominated in foreign currency, continue to have a significant weight in the balance sheet. However, within the latter, the evolution has been uneven: while international reserves plummeted sharply until 2018, 'other external assets' of the BCV, which include PDVSA debt securities in foreign currency, have soared since 2015 and stabilized from 2018 at around 20% of total assets.

Figure 6: Asset composition in the balance of the BCV



Source: Own elaboration from BCV online data.

3.3 The end of hyperinflation?

Since 2018, with record levels of inflation, significant reforms have been implemented at different levels. On the one hand, price controls have been relaxed, implicitly admitting that in a capitalist economy where prices double every month, any attempt to freeze prices of certain goods for long periods is almost impossible and completely inefficient. Moreover, as was the case with abrupt exchange rate adjustments, the readjustment of administered prices ends up creating supply shocks with perverse effects on inflation.

On the other hand, the Government began to gradually devalue the official exchange rate and has almost completely liberalized it since March 2019. The latter policy implies a progressive and continuous depreciation of the currency. This entails a continuous imported inflation. However, in this aspect, there is no substantial worsening with respect to the period prior to 2018, when the growing relevance of the parallel dollar as a reference for pricing and the inevitable and abrupt official devaluations were already increasing the prices of imports.

Beyond this aspect, the progressive depreciation slows down the deterioration of PDVSA's financial situation: at the pace of depreciation, the company obtains an increasing amount of bolivars for each dollar. However, this is not a sufficient condition to achieve financial equilibrium. PDVSA continues to face increasing costs with insufficient revenues. Only with the distribution of gasoline in the domestic market, in 2013, the energy minister counted the losses in this section at 12.5 billion dollars per year (Ramirez, 2013); Maduro, already in August 2018, publicly acknowledged that the loss in that aspect was close to 18 billion annually. The financial deterioration of the company continues to be covered with new money that is difficult to absorb by the output level in the country. Moreover, the operating reserves are at a very low level in 2020-2021, representing around one seventh of the value - in dollars - of 2009; their dwindling volume in relation to the total liquidity makes it impossible to absorb a significant part of the latter from imports.

This credit that the BCV monetizes continues to be, in absolute terms, the element that causes the monetary base and the total balance sheet of the entity to grow the most; nevertheless, Figures 5 and 6 show, in relative terms, a certain stabilization which translates into a drop and stabilization of inflation, still at high levels: between 30% and 60% per month since the second half of 2019 and with consecutive months below 50% in 2021.

On the other hand, by varying the nominal exchange rate at a rate closer to the inflationary margin with the rest of the world, the country's price-competitiveness level is stabilized. This may serve to lay the foundations for relaunching exports, especially non-oil exports.

More striking is the increase of the reserve requirement in the Central Bank, imposed by the government to be respected by commercial banks. This ratio increased in the second half of 2018 and again, more drastically, at the beginning of 2019, reaching an ordinary level of 57% and a 100% for the marginal ratio. This has made access to private credit more difficult and expensive. Although this rule has been relaxed since 2020, the ratio is around 80%, a level much higher than that of neighboring economies. The Government's argument is that, by hampering the issuance of new loans by the banking system, the high reserve ratio reduces the number of new bolivars that flow into the national economy through the banking system. And this would help to slow down the deterioration of the bolivar. However, as has been seen above, the ratio of central bank reserves to credit given has already increased vigorously since 2015. The tightening of reserve requirements makes it more attractive for banks to accept payments by PDVSA with newly created BCV money, while making the interest rate of credit to private agents more difficult and expensive; thus, the most probable result of this policy is the worsening of growth levels and the persistence of inflation.

Venezuela is far from its level of full capacity utilization - its GDP fell 53% between 2013 and 2018 according to official data - and from its level of full employment. Nevertheless, the lack of conditions for capital accumulation prevents resources and labor from being fully employed. In this context, and despite the improvement in its competitive position, high inflation levels persist in the economy due to the two conditions mentioned before: the impossibility to maintain high levels of growth and the lack of mechanisms to absorb much of the liquidity injected. Tightening access to credit for financing productive investments exacerbates the first problem and does not solve the second.

According to our interpretation, the solution to stagnation and hyperinflation in the country does not involve adopting tight monetary policies but lies in ensuring growth conditions, while guaranteeing tools that can absorb the liquidity provided to PDVSA. In this sense, and far from being original, we propose two tools – in fact, two historical challenges for the country – that might enable the continuity of the social missions in which PDVSA invests without its deficit soaring. First, we propose the gradual rise in the price of gasoline and second, the

implementation of a solid and progressive fiscal system, which could multiply the public income.

Conclusion

In this research the recent hyperinflationary phenomenon in Venezuela is explained with the help of Shaikh's 'classical theory'. The contribution of this research to the debate is twofold. On the one hand, it differentiates between the country's historically high inflation and the hyperinflation of recent years. Both phenomena share common characteristics, especially in relation to the supply side. But to hyperinflation we must add a very clear cause: the political decision to finance PDVSA's deficits with monetized loans from the BCV. The legal reform for such a practice took place in 2009. Since 2010, the monetization began to be applied, and in 2011-2012 it was normalised. But it was not until 2016-2017 that monetized lending became disproportionate to the size of the national economy. That is when hyperinflation took shape.

On the other hand, clues are provided as how to soften the pace of price increases. In this sense, we warn of the negative effects on the country's economy resulting from the restrictive monetary policy implemented since 2018: without resolving the effects of the disproportionate issuance of the BCV, the problems of capital reproduction is exacerbated. There are however other measures to be undertaken, such as the policy of bringing the exchange rate closer to its international price, which at the same time improves the country's price competitiveness and, thus, its firms' profitability, but also reduce PDVSA's dependence on BCV credit.

That said, hyperinflation is far from being the country's most serious economic and social problem; moreover, laying the foundations to put an end to it does not solve, at all, the depression that the Venezuelan economy is suffering. In fact, the long-term inflation that was already present in the country until the 2010s responds to more complex factors -many of them of a structural nature- than the simple monetary issuance by the BCV and these are the factors that will mark the development of the national economy. The design of proposals to address these, however, is beyond the scope of this paper.

Annex 1:

For inflation data, different sources have been taken due to the irregularity and lack of credibility related to BCV estimates. From 2008 to 2015, BCV data are used. Since 2017, monthly data from the ANV are taken. For the first 6 months of 2016, data have been taken from the open database 'datosmacro.com'. For the last 6 months of 2016, an average rate of 23% has been calculated with which the annual rate of 741% estimated by the ANV is obtained. If the monthly data provided by the BCV were taken for the entire period 2008-2020, it would have slightly varied the data related to the deflated variables. However, the main observations and conclusions of this study would remain the same.

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