The fourth dimension: The derivatives in a financialized capitalism

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Abstract

This paper aims to discuss the role of derivatives in the contemporary capitalist dynamics. It suggests an analytical construction, from a particular reading of Marx, which features four dimensions of the capitalist mode of production. The purpose of this work is to highlight the derivatives markets as a development of the fictitious capital and as a particular sphere of the financial accumulation: the fourth dimension. The form of accumulation provided in this sphere differs from other forms of financial capital since the derivatives do not negotiate the ownership itself, but the variations of property values. It is argued that the derivatives markets act on the price dynamics of assets and conditions the capitalist accumulation to the determination of future prices in these markets. Thus, it is proposed that the derivatives are not only supporting the process of financial accumulation, but they play a central role which affects the entire process.

Key-words: Derivatives, Marx, Capitalism, Financialization.

JEL: P16; G10; G32

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1. Introduction

The derivatives market is the most important market of the world considering the volume of operations as the criterion. Despite the importance of this market, there is a great scarcity of studies about this subject from the Political Economy perspective, which means it does not exist a sufficient set of detailed analyses about the nature of this instrument, nor its impact in the capital accumulation process. However, some exploratory texts understands derivatives as a central variable for the economic dynamics, such as Lipuma and Lee (2005), Bryan and Rafferty (2006), Blackburn (2006) and McKenzie (2010).¹

This study aims to advance in the discussion of derivatives from the standpoint of Political Economy, dialoging with the authors cited above. For that, this paper analytically constructs four dimensions of capitalist accumulation. The objective of this construction is to highlight the derivative market as a development of the fictitious capital and as a particular sphere of financial accumulation. There are three methodological axis used to characterize each dimension. The first axis is the Marxist analysis of money circulation and the description of subordination relations in the capitalist accumulation process. The second axis comes from Bryan and Rafferty (2006) contribution, which identifies degrees of separation of capital ownership in the accumulation process. The third axis describes the logic of the system evolution and the transformations of capitalism in each dimension.

This construction, although wide, points to important characteristics that involve the logic of the financial accumulation proportioned by derivatives. When operating with derivatives with cash settlements, the transactions are monetary, so there is no transfer of ownership; these instruments are traded without changes in the ownership of the underlying assets. Given this and other characteristics of derivatives, which will be discussed in this text, the paper argues that these financial instruments became the locomotive of wealth valorization when forward markets take the prerogative of spot prices determination. In that moment, some of the most important spot markets became dependent of forward markets and the forward price variation is transmitted by arbitrage in the “opposite” direction of causality determination. In other words, in a contradictory causality, the spot prices “derive” from the forward prices.

Thus, this study also dialogues with the “financialization” literature – represented by Chesnais (1995; 1996; 2003; 2005), Aglietta and Rebérioux (2005), Aglietta (2006), Palley (2007), Guttmann (2008), and others – which argues that the increasing control over the ownership of companies by shareholders, it is responsible for the spread of a financial logic operation that guides economic agents. This paper infers that the fourth dimension exacerbates the financialization, besides it gives new outcomes. The core of the contemporary finance moves progressively from the trading of ownership in the stock markets towards derivatives markets, where operates the economic agents that commands the financial system dynamics, such as big banks and the hedge funds.² In these terms, derivatives markets subordinate the sphere of ownership under its own logic because forward markets stipulate pricing and transfer the epicenter of finance from stock markets to derivatives markets.

Beyond this introduction, the paper is divided into four sections. In the next one, it is discussed the nature of derivatives, a fulcrum point to initiate the argument, because derivatives are financial instruments that are often misunderstood in academic fields. The section 3 describes the so called four dimensions of capitalism, highlighting the new form of accumulation proportioned by derivatives markets. The section 4 illustrates how the derivatives logic can be observed in the contemporary capitalism, particularly with regard to the subordination of spot markets to derivatives. Finally, the last section presents final considerations and points to future researches.

¹ Blackburn (2006) inspired the use of the term “fourth dimension”, even though in here it’s used with a different meaning.
² “It is not household names like Nike or Coca-Cola that are the capstones of contemporary capitalism, but finance houses, hedge funds and private equity concerns, many of which are unknown to the general public. In the end even the largest and most famous of corporations have only a precarious and provisional autonomy within the new world of business – ultimately they are playthings of the capital markets.” (BLACKBURN, 2006:42).
2. On the nature of derivatives

Derivatives are not an invention of modern finance, its origin dates back to pre-capitalist periods. In the treatise Politics, Aristotle describes an option contract when referring to the sale of rice through forward contracts. The original function of these instruments is to protect farmers from fluctuations in agricultural prices. Derivatives are, therefore, instruments that emerge organically from the production process and afterwards are appropriated and remodeled by finance to enhance the process of capital accumulation.

The usual definition of derivatives, repeated in the finance textbooks, states that these financial contracts that provide future payments, and their values derive from an asset, financial instrument or event occurrence. This definition can be misleading once it suggests a causality direction that it’s not always true, in other words, it proposes that the price formation of forward results from the spot prices. However, there are derivatives markets in which spot and forward prices are simultaneously determined and others in which the determination locus is the forward. Therefore, we adopt the concept of derivative as a bilateral contract that provides future payments, whose value is tied to the value of another asset (good, index or rate) or in some cases depends on the occurrence of an event.

An important feature of a derivative transaction is that it represents a “zero-sum game” where earnings are equal to the losses:

“Virtual markets do not create wealth, only redistribute among participants. In aggregate, one can earn in the derivatives markets, the values lost by other participants. The only wealth created in these markets is made by the brokerage and fees paid by all participants, whether they had earnings or losses on its operations, (FARHI, 1998:7)”

Thus, if there is a speculative pressure in one direction on the derivatives market, there are necessarily agents assuming the opposite position, either to cover risk in commercial or financial operations, either for arbitrage transactions.

To understand better the derivatives, it is important to be attentive to the three motives that lead an agent to operate with derivatives: the hedging, arbitrage and speculation. The hedge agent is driven by the objective of covering risks of his activities on the spot market. For this agent, the operation with derivatives is compensatory, once its result covers gains or losses of the spot market activities. The speculative transactions with derivatives are the ones which the position assumed by an agent has no correspondence on the spot market, so they are exposed to price variation risks or the occurrence of events. Being a contract of two opposite positions, the common argument is that the speculator is essential to take the risks of productive enterprises and thus provide the hedge. This is not necessarily true, because the speculator may be dispensable in contracts where there are conflicting interests of companies that require hedge; for example, between an exporting firm whose risk is the exchange rate appreciation and an importer that fears an exchange rate depreciation. In this case, the exchange rate derivative attends two hedge motivated agents and provides risk reduction for both traders to “lock” the future price of the exchange rate. Finally, the arbitrage transaction is characterized by two simultaneous operations, one on the spot market and another on the forward market, and that is motivated by price differentials in these markets, which brings the opportunity of earnings without risks. In contrast to a

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3 This causality is in the origin of the term “derivative”.
4 This issue, taken up throughout this article, is corroborated by the statement of Bryan e Rafferty (2006, p. 12): “Many empirical studies have shown that prices are first formed in derivatives markets (a process called price discovery) and are transmitted back to cash markets, while others have found that this process occurs more or less simultaneously.”
5 In Chicago, for example, weather futures are negotiated to promote safeguards against climatic events. The insurance industry, in a particular way, also negotiates derivatives whose payments depend on the occurrence of future events. However, its treatment of risk is quite different from the derivatives markets themselves: an insurance company handles thousands of individual risks while in the derivatives market, a single specific risk is traded by thousands of agents.
6 Translated from Portuguese to English by the authors.
7 “The operations of hedging risks (hedge) consist, essentially, in assuming, for a future time, the opposite position that has been taken in the spot market” (FARHI, 1999: 94; translated from Portuguese to English by the authors).
speculative operation, where the result is only known \textit{ex post}, the arbitrage gain it is known \textit{ex ante}. This motivation is responsible for the transmission of prices between the spot market and future.

There are two forms to settle derivatives contracts, which are: trough physical delivery or trough cash settlement. The contracts in markets that operate with physical exchange require the delivery of the asset or good involved in the operation. For example, a forward contract with physical delivery of oil means that at a future date one of the participants is going to sell a specific amount of oil at a contractually predefined price. This type of market restricts the set of participants to those who actually work in the production, whether using the good as a supply input or, at least, have the logistic infrastructure to store the good. Therefore, the pricing in this market reflects the interaction of these agents, which are somehow linked to the production, processing or storing the underlying assets.

Meanwhile in the markets with cash settlements, there is no physical exchange, but an adjustment of margins on the financial differential, paid in cash. This factor allows the operation of agents unrelated neither to the production nor to the use of the underlying assets, and opens a wide opportunity for speculators. For example, a Japanese investor can sell US dollars against Brazilian real and the contract can stipulate the settlement in yen. In this situation, the investor can get involved in this transaction without owning dollars, and without intending to obtain Brazilian reals, once he only seeks the result of exchange rate variations of the US dollar to Brazilian real denominated in yen. Furthermore, derivatives markets with cash settlements allow the participants to operate with a great leverage. Restrictions on the degree of leverage can be resumed to a margin requirement corresponding to a small percentage of the notional value of the contract.\footnote{The notional value represents the face value of the derivative contract. As in most cases the contracts are settled by the financial difference, the amounts effectively transferred are much smaller. In over the counter markets, the margin requirement is at the discretion of the contract participants; meanwhile in the stock market, there are margin requirements since the settlement of the contract is guaranteed by a central counterparty.} In this context, McKenzie (2011) states that the growth of markets with cash settlement provides a substantial increase in the leverage of agents and a rise of trading volumes in the derivatives markets, certainly shaping a wide space for financial speculation.

Consequently, the derivative contract allows a separation between the assets themselves and the volatility of the price of the own asset. It is a negotiation of the attributes of assets and their risks, but not its ownership, or property, of the assets. A stock is a contract that establishes the property of part, or a share, of a company; a bond provides ownership rights of an amount of credit; but derivatives do not assume any ownership relation (BRYAN & RAFFERTY, 2006).\footnote{This “abstraction”, promoted by derivatives, is best qualified throughout this article.} The derivatives are priced, bought and sold without any change in the ownership of the asset to which it relates. In this way, agents can “sell what they do not have or buy what they do not want to own” (FARHI, 2010: 209).

It can be attributed to the derivatives market a specific and extremely important social, or macroeconomic, function: The risk transfer between agents. With the process of pricing risks and proportionating risk transfers, derivatives become a useful tool to deal with macro and microeconomic uncertainties.\footnote{Translated from Portuguese to English by the authors.} The derivatives play a stabilizing role, they coordinate agents’ expectations and strongly attenuate the transmission of financial instability to the sphere of production. In this sense, although derivatives do not directly create wealth, derivatives may generate positive indirect effects on the production of wealth that are consequences of how producers respond to uncertainty about prices.\footnote{Once the future knowledge is vague, unstable, uncertain, and assuming a non-ergodic economic reality, this has fundamental implications to the present decisions about wealth allocation, as discussed by Keynes (1970; 1937) and a vast post-Keynesian literature. For the purposes of this paper, it is important to clearly explain (though shortly) the meaning of uncertainty, which cannot be confused with probabilistic risk. The uncertainty means that there are events in the course of economic activities in which the probabilistic results are absolutely unknown. There are events whose effects are simply not measurable, or even unknown, in a world where the past does not repeats and the future is necessarily unknowable. Thus, when derivatives quantify the uncertainty about the price variation, or uncertainty about the occurrence of any event, in a measured “risk”, the uncertainty is reduced to a “risk” supposedly known and, therefore, as if something manageable. That leads agents to become prone to make mistakes and amplify volatilities.}
Naturally, the more volatile are the economic variables that affect the production of goods and services; greater is the importance of derivatives. However, the analysis of the importance of derivatives becomes more complex when admitting the possibility of endogenous macroeconomic and price instability generation in the market. In other words, derivatives can contribute to mitigate microeconomic difficulties, but at the same time enhance macroeconomic instability. According to that, Farhi (1998) argues that derivatives have a contradictory nature, where the initial logic becomes its contrary; even though they are essential mechanisms for hedging and privileged means of speculation that print volatility to markets:

“The systematic analysis of the impact of financial derivatives shows the dual role, and sometimes ambiguous, of these instruments. It plays a stabilizing role and coordinates agents' expectations and strongly attenuates the transmission of financial instability to the sphere of production. At the same time, the extensive use of derivatives made by economic agents, either to hedge risks, either for arbitrage transactions or to speculate, attached to the capacity of leverage present in these markets, have the potential to exacerbate the volatility and market instability” (FARHI, 1998: 262-263). 13

3. The four dimensions of capitalism

The four dimensions are analytical constructions that aim to describe the formation and development of the capitalist mode of production. The objective of this analytical framework is to bring to evidence that derivatives are a development of fictitious capital and it becomes a peculiar sphere of financial accumulation. There are three methodological axis used to describe each dimension and differentiate them. The first axis is the Marxist analysis of money circulation and the description of subordination relations in the capitalist accumulation process. The second axis comes from Bryan and Rafferty (2006) contribution, which identifies degrees of separation of capital ownership in the accumulation process. The third axis describes the logics (or motivations) in each dimension along the transformations of capitalism.

The four dimensions are not necessarily associated to a particular historical context, what means that historically there is a possibility of coexistence of them. Furthermore, these analytical separations do not mean that the spheres of accumulation are independent between them. Neither the relations of subordination between finance and production imply absolute autonomy of the first over the second. In other words, it is not assumed that there is a process of self-referenced valorization where finance determinates unlimitedly its own value; on the contrary, the suggested relationship of subordination does not dismiss the dependence of the financial sphere relative to the sphere of production; it is assumed that these spheres are inter-conditioned. In this sense, the potential detachments between the spheres are limited in time and tend to be adjusted recurrently through financial crises.

3.1. The first dimension: The sphere of commodity

Marx (2001, Book I, chap. III) defines the functions of money in a mercantile society, together with a scheme that highlights the exchange and circulation process of commodities. The money in Marx (2001) is seen as a peculiar commodity whose function – socially determined – is to be the universal equivalent. This means that the “social action” generates a specific commodity that represents universally the value of any existing commodity; as a result that universal equivalent is socially accepted as a mean of payment. Besides being the measure of values, the medium of circulation and means of payment, the money – universal equivalent – in a mercantile society meets another important function, namely, the store of value. Thus, money can be “hoarded” and that guarantees the preservation of value over time. 14

13 Translated from Portuguese to English by the authors.
14 The reasons to reserve value, to hoard or save money, are pointed out by Marx (2001) as necessary decisions to satisfy economic needs and also turns into expressions of the “desire”, the “fetish” and the “esthetic appeal” that the possession of gold and silver represent. The reasons to preserve value in the monetary form, regardless of what form money takes, such as
The “first dimension” is the most primitive form of commodity circulation. It is what Marx (2001) defined as the “direct form of commodity circulation”, an abstract way of commodity circulation in relations of production not necessarily capitalists.\(^1\) With that, Marx (2001) explains the way in a simple mercantile society (hypothetical), where exists the exchange of equivalent goods and money, but money has no role as capital, the values, or the products of human labor, are exchanged according to the scheme: Commodity (C) – Money (M) – Commodity (C). In this sphere, money is a means of circulation and is not an end itself of the process.

In that dimension there is no separation between labor and the ownership of means of production. As a result, in this stage of analysis, it is not already constituted notions such as social classes divided by ownership, production of surplus value, nor the idea of capital. The logic of the process is to obtain a new commodity, in other words, the production of a commodity is made to obtain use values, in a pre-capitalist mode of production.\(^1\) The movement of exchange of commodities C-C is divided in two distinct processes – separated temporal, spatial and logically – that Marx (2001) denominated as the “metamorphosis of commodities”: C-M, a sale; and M-C, a purchase. Synthetically, it represents the exchange of equivalent commodities intermediated by a peculiar commodity, that is, money. In this way, the production of a commodity creates the opportunity to obtain another commodity with the same value, without been motivated by the profit generation.

### 3.2. The second dimension: The sphere of production

Marx (2001, Book I, chap. IV) discusses the transformation of money into capital and shows the “general formula for capital”, that is an analytical stage subsequent to the first dimension shown above. In the commodity circuit, it begins with a commodity and finishes with the possession of another commodity with equivalent value, having the consumption as the motivation, or as Marx (2001) denominated, the objective is the use value in an exchange circuit of equivalent goods. Differently, in the second dimension, the relationship of production is transformed and the motivation of the system becomes the realization of profit, as argued below.

The first element to move away from the first dimension is the constitution of a different circuit: M-C-M, which the starting point is money and the in the end of the process it’s money again; and then, the objective of this process it’s not to obtain use values, but to possess exchange value. Therefore, unlike the first dimension with C-M-C, the money turns to the end of the circuit of exchange of equivalents. Accordingly to that, in the second dimension money is more than a medium of exchange, it becomes the motivation of commodities production.

The second dimension is established as a sphere of accumulation when the motivation of production is initiate with an amount of money and in the end of a process like M-C-M’ be with an increase of ΔM, what means: M’=M+ΔM. The increase of money in the second dimension is the profit gained through the production process, where the valorization is made possible because of labor. More than that, the additional wealth obtained in the second dimension is a result of the labor subordination to capital, what leads to the formation of the “surplus value” and profit.\(^1\)

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\(^1\) metallic, fiduciary or in the form of paper money guaranteed by the state, are best discussed by Keynes (1970), which exposes the concept of “liquidity preference” as a “propensity to hoard”. Although, the debate about money in the Keynesian and Marxist theory is very broad and is not presented here.

\(^1\) Or, eventually, one may say “pre-capitalist”, but that term might imply in a historical precedence, while the idea of the construction is to build an analytical precedence over Marx’s argument.


\(^1\) The circulation is an important stage that allows the commodities realization (or value realization), but, as highlighted by Marx (2001), the circulation itself does not creates value; value is created in the production process.
The constitution of profit in the second dimension requires the previous establishment of capitalist relations of production. Bryan and Rafferty (2006) refer to the separation of the worker from possession and ownership of the means of production as the “first degree of separation of capital ownership”. That separation allows the formation of a class of owners of capital, as capitalists, and another class of “free” workers available in the market. So the second dimension is marked by the subsumption of labor to capital, which in turn manifests itself in the relation of employment on a salary or wage basis. All this in a society whose production decisions are individual and it has as a main goal the achievement of additional money, or the valorization of capital.

Once such a society is established, the workforce becomes a commodity, with the peculiarity that its use value is the capacity to create value, when bought and “consumed” by capitalists in the production process; in other words, workforce is a commodity whose consumption provides a greater value than its own value. Since the wage is lower than the total wealth generated by the workforce in the production process, this enables the generation of an income to the capitalist. In the second dimension, obtaining profit is socially accepted as the share of capital income, although its origin lies in the value added by labor that is not paid to the worker (surplus value).18

Following this understanding, the circuit of capital in the second dimension can be presented as: M-C-[Production Process]-M’-D’. Money turns into productive capital in the production process because the capitalist combines commodities like the workforce and means of production. So, after the time of production, if the sales of goods produced are effective, there will be, at the end of the process of production and circulation, the possession of an M+ΔM in the hands of the capital. Thus, money becomes capital to produce surplus value, as Marx (2001) argues.

Therefore, the second dimension is defined with the general formula of capital, M-C-M’, where money is valorized in the sphere of production. Furthermore, in the second dimension is manifested the need for constant capital enhancement. The circuit of money in the form of capital means that the motivation of production is not to obtain use values; neither does money only matters for circulation; but the circuit of money that valorizes is an end itself. Given the conditions of inter-capitalist competition, the valorization process cannot be interrupted, after all, to stop accumulating means “losing ground” for a competitor and, ultimately, the end of the capitalist as such. Becomes the movement of capital valorization insatiable (MARX, 2001).

In summary, the second dimension is the process that begins with an amount of wealth and ends with an increase to the original wealth, what is made possible by the subordination of labor to capital and the surplus value. Thus, in the so called second dimension money becomes capital.19

3.3. The third dimension: The sphere of ownership

The first element to constitute the third dimension, in turn, is the occurrence of capital valorization without the need to be mediated by the production of commodities, so that the circuit is reduced to the extremes M-M’. The form M-M’ emerges within the second dimension, as a way to support the accumulation M-C-M’. This means that credit, for example, is born as a way to extend the ability to mobilize the workforce and the means of production. More than that, its worthy to remember that in between the process that begins with M, then generates a C’, until the end with M’ it takes a period of time for the circulation of commodities and another period of time for the execution of the production process, and that total period of time spent leads to what Marx (2001) called as “rotation speed of

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18 Further details about the concept of surplus-value, see Marx (2001, Book I), in summary: “This increment or excess over the original value I call “surplus-value”. The value originally advanced, therefore, not only remains intact while in circulation, but adds to itself a surplus-value or expands itself. It is this movement that converts it into capital.” (MARX, 2001, Vol. I: 216).

19 Marx (2001, Vol. I. p. 224) concludes: “Value therefore now becomes value in process, money in process, and, as such, capital. It comes out of circulation, enters into it again, preserves and multiplies itself within its circulation, enters into it again, preserves and multiplies itself within its circuit, comes back out of it with expanded bulk, and begins the same round ever afresh. M-M’, money which begets money, such is the description of Capital from the mouths of its first interpreters, the Mercantilists.”
capital.” Depending on this speed, there is a period of time to be followed that limits the pace of valorization. The credit, in turn, allows the capitalist to promote a greater advance of money-capital that reduces the time spent for rotation, or enhance the rotation speed of capital.\footnote{According to Marx (2001, vol. III, p. 585): “credit accelerates the velocity of the metamorphoses of commodities and thereby the velocity of money circulation”}.\footnote{Translated from Portuguese to English by the authors.}

In this context, the so called interest-bearing capital allows its owner to alienate his monetary capital to another individual, which will launch money into the circulation, go through the production process and the profit generated will be shared. In this sense, the origin of the interest-bearing capital is an intrinsic result of the second dimension, whose profit generated in the production process is an upper limit to the interest rate.

The separation of capitalists as financial capitalists and industrial capitalists, as people “juridically” different and also with different roles in the process of capital valorization, generates a competition amongst capitalists for interests and profits. The interests must vary according to the bargaining capacity of the financial capitalists. While the profits are extremely complex, because the realization of the production is uncertain, so that makes the profits unknown \emph{ex ante}. Furthermore, to compare different profit rates, of different economic activities, is an absolutely not precise task. Differently, the interest rate is known \emph{ex ante}, “tangible”, uniform and constantly set. According to Carneiro (2010: 35-36),

“with the capitalist development, capital gains autonomy, the general form of capital, which in the origin is just a duplication or a mirror, on the legal sphere or contractual, of the capital in process. That is because, with this development and the increase of the financial wealth amount, the return on capital in general, the interest rate, imposes itself as a general parameter of the return on capital, defining the opportunity cost of capital in the liquid form or the minimum return on capital of its concrete forms of application. The fluidity of this capital and the contractual relations proper to them support its use as a parameter. That is, interest is the return on capital in the most general way and, therefore, a standard for the other forms”.\footnote{So Marx (2001, Vol. III, p. 522) concludes: “Thus we get the fetish form of capital and the conception of fetish capital. In M-M' we have the meaningless form of capital, the perversion and objectification of production relations in their highest degree, the interest-bearing form, the simple form of capital, in which it antecedes its own process of reproduction. It is the capacity of money, or of a commodity, to expand its own value independently of reproduction – which is a mystification of capital in its most flagrant form”}

So it can be summarized that there is a quantitative difference (profits and interest) and qualitative difference (monetary capital and industrial capital), so that the relationship between interest and profit is conflicting, as presented in Marx (2001, Book III). These characteristics made money-capital gain the appearance, in the eyes of the money bearer, of something autonomous; in other words, interest appears to be something that is not a “share” of profit. The valorization becomes autonomous as if money could yield more money itself, as an inherent skill of money, the capital \emph{par excellence}, that returns in the form of interest.\footnote{From what was discussed until here, it should be clear that the accumulation as M-M’ is manifested intrinsically in the second dimension. But more than that, it becomes an autonomous form and it consolidates as a new form of accumulation when the dynamics of finance subordinates the dynamics of productive accumulation. In Marx, the sphere of M-M’ is able to subordinate the industrial capitalist, once the centralization and the concentration of capital are made under the tutelage of banks. The concentrated capital made by banks gives the banker the capacity to guide the course of production and bargain interest rates, in order to organize the accumulation, the progress of the production process and thus coordinate the “social capital”. Therefore, the financial valorization emerges, analytically, as a way to support the industrial capital, but its development and its concentration allow the financial sphere to exercise power over the second dimension.}

Beyond the implications of the interest-bearing capital, Marx (2001) brings the first elements of the so called “fictitious capital”, whose autonomy in relation to the industrial capital is even higher than what is seen in the interest-bearing capital – what it doesn’t mean that they are absolutely independent. The formation of financial instruments more complex than credit, such as bonds, bills of exchange, stocks, are forms of capital assets whose patrimonial value corresponds to the income flows expected
from an already consolidated or realized capital, discounted at an interest rate. So, variations in the expectations of flows, or in interest rates, means fluctuations in a stock of value: The magnitude of wealth can float. This appreciation represents a possible way of obtaining additional wealth without a necessary correspondence of the productive sphere, in other words, means more money without any additional labor-value. So the fictitious capital remunerates the capitalist in conditions even more autonomous and disguised of “real fundamentals”. Therefore, the logic of valorization in the third dimension is guided by the fictitious appreciation of capital, and the motivation of the process is the pursuit of wealth valorization.23

An extensive literature on the theoretical contributions of Marx and Keynes describes the dominance of finance and the transformations in contemporary capitalism. These authors promote the idea of a financial dominance, a capitalism dominated by the power of finance, a finance-dominated accumulation regime, or simply “financialization”. The financialization, as an accumulation regime, refers to a peculiar historical moment when the deregulation of markets and the financial liberalization in national and international basis – under the aegis of the so called “neoliberalism”, after the collapse of Bretton Woods – generated a massive increase of financial markets and its importance in relation to the “real” sector of economies.24

The financialization, described by authors such as Chesnais (1995; 1996; 2003; 2005), Epstein (2001), Plhlon (2005), Aglietta and Rebérioux (2005), Aglietta (2006), Carneiro (2007), Palley (2007) and Guttmann (2008), is characterized by the dominance of a patrimonial logic over the economies, or a “patrimonial capitalism”. These authors highlights that the financial logic penetrates in the modus operandi of economic agents. The internalization of the financial logic of stock valorization begins to make the economic agent decisions, about their own assets, be oriented by a short run horizon, seeking patrimonial gains and the maintenance of assets as liquid as possible. Therefore, as the central mark of the third dimension, the logic of patrimonial valorization ultimately subordinates the sphere of production to their interests. The dynamics of capital gains impose its interests and controls the behavior of the M-C-M’ sphere.

In the approach of Bryan and Rafferty (2006), the second degree of separation of capital ownership – central to the constitution of the third dimension – is the separation between ownership and production (or management, or control) promoted by the wide dispersion of share ownership. A share, or a stock, means the ownership of financial claims on a firm, what guarantees to the shareholder the right to obtain a portion of the production outcomes in the form of dividends. The separation of ownership, in the form of shares, and management is an antique mark, especially in the U.S. economy. The point is, on the interpretation of Aglietta and Rebérioux (2005), since the Second World War until the 1970s (known as the Bretton Woods period), in general, the power of markets were managed and contained by governments, particularly in the case of capital markets. The novelty after the 1970s, afterwards deregulations and liberalizations, is the progressive dominance of the shareholder interests over others.25

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23 In the Book I, Marx (2001) points out that through the exchange of equivalent values there is valorization in the form M-C-M”; in the Book III, the author explains that prices are “infidels” to the value and the accumulation is detached from the labor-value; that way, then, the accumulation of capital “transcends” from the material bases initially presented. The capital exacerbates the ongoing process of valorization and detaches from a material basis – which does not mean an absolute independence. Money as an objective itself, need and obsession manifests the possibility of valorization as M-M’. According to Tavares (1998) and Belluzzo (1998), the interest-bearing capital and the fictitious capital allow a specific process of accumulation without a counterpart of the production process. Manifests, this way, the central point of capitalism in Marx (2001): a system in which the logic that drives the decisions is the appreciation of values, so the reason of economic activities is guided by the pursuit of valuing wealth, whether through the production, or fictitious via.

24 This section only summarizes the financialization argument, developed in the complex historical moment of dismantling the Bretton Woods framework, which can be seen in detail in Chesnais (1995), Belluzzo (1997), Tavares and Melin (1997) and Carneiro (1999).

25 Different reasons (in addition to various specific features of European and American markets) such as the fragmentation of financial institutions, the stability in the ownership of shares and the relatively high dispersion of equity ownership in a capitalism under regulated finance, explains the inability of the shareholder to determine the decisions of managers during the Bretton Woods period, when managers had relative autonomy in the company’s strategic choices. The result of that autonomy is seen, during this period, in a significant reinvestment of profits in detriment of dividends (AGLIETTA & REBERIOUX, 2005). From de 1080’s this situation changes when it begins to consolidate a process of liberalization and integration of capital
Under the capitalism dominated by finance, the financial sphere is relatively decoupled from the sphere of production and tends to carry it on a relationship of dominance. To Chesnais (2005), the financial dynamics is established as the standard practice (or as the norm) and the market is not anymore guided with the purpose to create wealth through the increase of production capacity, but the logic becomes the valorization of assets. This financial logic is imposed on the production system, particularly as a consequence of the widespread of the shareholder and stock markets controlled by financial agents.

"Since the 1980s, shareholders expended considerable energy and legal means, or quasi-legal, to subordinate industrial-managers and turn them into people who internalize the priorities and the rules made by the power of stock market". (CHESNAIS, 2005: 54).

According with Aglietta (2006) and Aglietta and Rebérioux (2005), during the period of hegemony of finance, the stock markets have gained an increasing power to make their interests prevail and obtained the ability to coordinate the decisions of corporations. The success of a firm has to be measured, and guided, by the results in equity markets. The different shares, on the stock exchange, are compared by investors and can be traded at any moment, due to changes in dividends or variations in expectations about the future income and interest rates. With the high mobility of ownership and the institution of governance, the interests of shareholders end up imposing on corporations the need to maximize earnings per share, even though it compromises alternative strategies such as reinvesting profits, allocating resources on innovation researches, or any strategies beyond profit maximization, for example, practices to expand the market share. Thus, in the third dimension of capitalism, the corporation is obliged to adopt strategies and incentives to organize the company to maximize dividends and increase their patrimonial value.

Beyond the influence of shareholders on corporations’ decisions, the logic of patrimonial valorization is not limited to financial corporations, but it is also embedded by non-financial corporations and other economic agents, such as households. The pursuit for appreciating wealth becomes dominant even on the dynamics of income flows, as pointed out by Carneiro (2007, p. 3):

"As for morphology, referring to the agents and main markets involved in this process, and their relations, it is verified that the spread of this logic, of pursuing for patrimonial gains instead of other forms of incomes in all economic agents: households, not financial firms and financial companies. This corresponds, in turn, to an operational change in the major markets: the money, the credit and the capital markets".

In considerable part of the literature about financialization, derivatives appear tangentially, illustrating the operating mode of the firms, whose centrality is in the patrimonial logic represented by the stock market. The debate of derivatives appears, therefore, in the realm of property, where capitalism moves through the centralization of wealth, through mergers and acquisitions, the valorization of shares etc. It is from this point that this paper proposes a contribution.

3.4. The fourth dimension: The sphere of derivatives

In Physics, the discussion about the fourth dimension comes up with an attempt to introduce time in studies about natural events. The theories that incorporate time, such as general relativity, are known as theories that work in a four-dimensional standard. The space (or volume) can be described in three dimensions, or three axes, the fourth dimension on Physics come with the purpose of adding the markets; the adoption of the rules of governance; there was also growth in the volume traded in stock markets; an increase of open capital companies; increased participation of households and workers (employees) as owners of stocks; combined with high interest rates. In summary, a historical process that eroded the autonomy of the executive, vis-à-vis the shareholders.

26 Translated from Portuguese to English by the authors.

27 Corporate governance is, in short, the clear exposition and the adoption of a set of processes, policies, habits and institutions that regulate how a company is run. Furthermore, the relationship structure of the participants of the company (shareholders and executives) and the objectives that guides the firm, all must be transparent. Aglietta and Rebérioux (2005) discuss how the governance contributed to assure that the shareholders' interests can prevail over any other goal that may jeopardize the payment of dividends.

28 Translated from Portuguese to English by the authors.
implications of time in the space. The derivatives, in turn, are assets related to time and that justifies the nomination of a “fourth dimension” of capitalism. Derivatives treat the risks associated with the passage of time, rather reducing economic uncertainty to probabilistic measurable risks and negotiate these risks in a particular market. To the hedger agent, derivatives represent an effort to eliminate uncertainties of the process of reproduction of capital. In this sense, derivatives mean a microeconomic “reduction” of the Keynesian uncertainty. To the speculator agent, the time is the key element to obtain gains or losses. The speculation logic is a temporal logic, once to speculate is associated with anticipation of price movements or future events.

Derivatives are not an exceptionality of the fourth dimension of capitalism. These instruments, as presented in section 2, emerge organically in the productive process and can be observed in each of the four dimensions. In the first dimension, derivatives can guarantee the circulation of commodities with previously established prices, in other words, forward contracts constitutes a relation of future sells (C-M) or future purchases (M-C) at a pre-established price, ensuring protection against price variations in the exchange of goods circuit.

Derivatives are also functional with the productive accumulation logic, characterized in this work as the second dimension. They can exist in various stages of the production of commodities, whether to guarantee a specific purchasing price for the future of raw materials and inputs, or to purchase insurances against future events that may interfere in the production process, or to ensure the final product price. The assurance of production costs, or the final price of the commodity, mitigates the uncertainty surrounding the production process and increases the predictability of earnings (ΔM) resulting from this process.

In the third dimension, derivatives are specially used to safeguard the profitability of capital. The credit relations are flooded by uncertainties about the interest rate trajectory and about the compliance of credit contracts. The markets of stocks and bonds are also subject to uncertainty, particularly the process of capital appreciation is strongly uncertain. Given this, the third dimension gives the opportunity of deep and liquid derivatives markets intended to increase the predictability of earnings due to capital appreciation.

In the fourth dimension, however, derivatives assume an inherently speculative function. The speculation exists in each of the three first dimensions, although in the fourth dimension speculation becomes the leading way, even subordinating all spheres of accumulation. As proposed below, the derivatives become the locomotive of wealth valorization when forward markets assume the prerogative of price formation. In this sense, as argued by Lipuma and Lee (2005), derivatives are a “functional form that speculative capital assumes”. The fourth dimension is nothing more than a propose of a special treatment of this sphere of capital accumulation.

As developed in section 3.2, the capital has the power to produce profits through the production and appropriation of surplus value. The money is crucial because it moves the production process and generates additional wealth. That is, the money goes into the circuit, becomes capital through the production process and in the end of the process the form of money is back with an additional amount. So money is, therefore, the means and goal of the process. With the interest-bearing capital and fictitious capital, described in section 3.3, capitalism takes a more external and fetishized form. The money-capital gains apparent autonomy to follow the path of its own valorization. Either in the interest-bearing capital form, represented by the credit system, which provides to money the ability to create wealth or add value to its own independently of the production; either, in the patrimonial valorization form, that allows the appreciation of wealth without a counterpart of the “real” sphere. So, in the third dimension, the financialization qualified the form M-M’ to subordinate the accumulation through production and, also, the labor force.

In the new form of accumulation provided by derivatives markets, there is a fundamental specificity: The valorization process with derivatives is “independent” from an initial amount of investment. In that stage, the fictitious capital assumes its most abstract form. If before that, the formula of valorization was shown as M-M’, where M’=M+ΔM, after the constitution of derivatives it turns to a form seen simply as ΔM*. The notation ΔM* suggests, first, a “nonexistence” of prior money-capital side (M), and, second, denotes a difference in the nature of the operation of the gain.
Differently from the preceding dimensions, the form $\Delta M^*$ “dispenses” money as a means of valorization. This may appear odd, but it suggests that although money is still the end, or the motivation, of the process, money loses its relevance as a means, and so it happens with the credit system. The leverage, typical from derivatives markets, does not imply in actual credit relations. Credit relations and also the interest rate are incorporated in the prices of derivatives contracts. The forward price of any asset is given not only by the expectations of agents on price fluctuations of the underlying asset, but also by the interest rate, that represents a cost of holding this kind of contract.\footnote{The interest rate is a parameter that establishes the arbitrage between the spot and forward markets. The future exchange rate, for example, is given by the spot price plus the differential between interest rates of the two currencies traded. The future prices of commodities, in turn, incorporate, besides the interest rate, the costs of storage and transportation of the underlying asset.}

In that new dimension of capitalism, thus, the capital accumulation process transmutes from the genuine patrimonial sphere to another dimension. What happens because of an important feature of derivatives: The operation with derivatives does not imply in ownership of the underlying asset – not even a share of it.\footnote{Blackburn (2006), coining the term “grey capitalism” calls attention to this characteristic of asset ownership separation and the act of trading price variations of a not owned asset, as well as it calls attention for the “opacity” (McKENZIE, 2009: 2009) of social relations that lie behind each asset. That is, the relations of ownership and responsibility are “cloudy” given the complexity of financial transactions.} Bryan and Rafferty (2006, p. 74) refer to this as a third degree of separation of capital ownership, as quoted below:

“The third degree of separation of capital ownership involves the process by which capital ownership is separated from company ownership and capital competes as itself. We have already described this separation in its most obvious form: that ownership of a share derivative (option or futures contract) is different from ownership of a share itself. The share derivative (such as a futures contract on a firm or the market index) gives its owner exposure to the performance (price and profitability) of the company (or group of companies) in a form that is more flexible than direct share ownership.”

Nevertheless, the derivatives are able to deepen the abstraction of social relations already presented in the interest-bearing capital and fictitious capital (typical marks of the third dimension). In this sense, if the third dimension was built on a movement of autonomization of financial accumulation with respect to the real basis of capital appreciation, the fourth dimension moves forward in this process and consolidates a form of financial accumulation that seems even more autonomous, abstract and, thus, fetishized. After all, derivatives are instruments that allow the reproduction of capital by means of operations that “dispenses” the ownership of assets and even money as a means. The fetish assumes the most radical form of decoupling of concrete forms, once a derivative hides the real assets underlying the contract, on the same way it hides the arising social relations.

However, this abstraction does not imply absolute autonomy of the derivatives markets. The derivatives markets facilitate the prices detachments of economic fundamentals, both in times of boom and in times of crisis, which are transmitted to the “real” sphere and affect the relations of credit, production and ownership. The fictitious accumulation made possible by derivatives finds its own “limitations” (or its abstracted bases for the time being) at critical moments. In other words, when changes in the risk perception of economic agents happens, this generates price adjustments after movements of switching bets and quick contract settlements; so values and prices can easily be dented by huge percentage variations in such scenarios. At that moment, the social relations of ownership and credit return to the scene as protagonists, because they guarantee liquidity for agents and payments of contracts. Although it is possible to make a “bet” with derivatives without involving ownership or money previous and directly, when a critical moment emerges, it is necessary to liquidate assets, or borrow money, to settle the contract. So, it reveals the real social relations of power and ownership in a manner that previously were only appeared veiled.

The nature of earnings in the fourth dimension is distinct from the one seen in previous dimensions. As argued above, the return on capital of the second dimension is the profit generated through the surplus value; and in the third dimension the return comes from patrimonial valorization. What occurs in the fourth dimension, with derivatives, is that the capital development of economic
activities becomes a by-product of the activities of a “casino”,\textsuperscript{31} in other words, the earnings of the fourth dimension are a result of a simple bet on a price variation of an asset which the betting agent does not own.\textsuperscript{32} The gains of this kind of market are proportioned by the speculation that, in between great market players, is associated with consolidated strategies that seek to manipulate information and to form conventions that have the power to distort prices.

Another central feature of the derivatives markets is its transversal nature, understood as the ability to integrate various markets. The derivatives markets aim to transform the economic uncertainty in measurable probabilistic risk, price it and turn into something exchangeable. These financial instruments let different assets to be compared, against each other, under the same way of measuring, in a way that “commoditizes” risks and integrate different markets.\textsuperscript{33} Therefore, the derivatives markets take the mobility of capital to the highest position and permit a quick tradability of revenues of various stocks of wealth in a global scale. The figure 1 below illustrates this process: In the derivatives market it is possible to exchange a return on a stock for an interest rate variation of a country, or bet on an exchange rate appreciation, or on a sovereign debt default in another country etc.

**Figure 1 – The transversality and integration of markets through derivatives**

\begin{center}
\includegraphics[width=0.5\textwidth]{figure1.png}
\end{center}

Source: Authors elaboration

\textsuperscript{31} Following the nomenclature proposed by Strange (1997) and McKenzie (2010), describing the contemporary financial capitalism with the term Casino Capitalism. Particularly given the recent increasing role played by derivatives in the capital valorization process.

\textsuperscript{32} It is important to notice that the earning could result from an appreciation or depreciation of capital, in other words, a fall in the price of the underlying asset can bring gains if the bet was made in the correct direction.

\textsuperscript{33} This feature, already present in the third dimension but reinforced by the derivatives markets, is called by Bryan and Rafferty (2006) as “blending”, bringing with it many important aspects of derivatives markets. The fact that the derivatives are capable to commensurate different assets is directly related to the ability of derivatives to “commoditize risk”; or, as stated by Lipuma and Lee (2005), “objectify an abstract risk”. Rotta (2008), when highlighting this issue as a social process of abstraction from the concrete reality, states that: “the derivatives can only be priced if there is a process of abstracting reality from the specific concrete risks into an abstract risk – in the same way that the commodity only has a price because the sociability of the market reduced the various concrete forms into a single abstraction of reality”. (ROTTA, 2008: 189; translated from Portuguese to English by the authors).
In these derivatives markets, highly deregulated, the necessity of previous capital is very low or inexistent. In this way, derivatives are financial instruments used to avoid prudential regulations. Simply because an outstanding derivative contract does not affect a firm patrimony or either appears often in balance sheets.\(^{34}\) It is possible to make a bet without margin requirements (or very low), what stimulate economic agents to participate in these markets with a very high leverage. This fact allied, as argued in section 2, with the increase of cash settlement markets, it sanctions an astonishing growth of the volume of trade in derivatives markets.

As a result of the transversality feature – together with high leverage and the increasing volume of transactions – the dynamics of derivatives markets generates a constant process of pricing financial assets. So derivatives become the locomotive of wealth valorization when the forward markets assume the prerogative of price formation. At that moment, some of the most important spot markets converts dependent of its underlying forward market, considering that the arbitrage transmits the price variations from forward markets to spot markets. Thus, it is possible to affirm, even apparently as a contradiction, that the spot prices “derive” from forward prices.

In conclusion, the fourth dimension is consolidated when the logic of gains by betting on markets of high liquidity, high leverage and deep abstraction, is able to determine the price of goods and essential assets. Therefore, the derivatives market assumes the role of the main locus of capital circulation, of pricing and of fictitious capital valorization, what implies in a peculiar way of subordination of the previous dimensions. The next section presents some examples of markets in which this subordination is clearly apparent.

### 4. The fourth dimension and the contemporary capitalism

The derivative market is the most important market of the world considering the volume of operations as the criterion. According to the BIS (Bank for International Settlements), the notional value of over the counter operations around the world in December of 2009, was around US$600 trillion. This massive amount exceeds the “real” fundamentals of the economy. For example, it represents more or less 10 times the global GDP and 35 times of the global volume of stocks or equities.\(^{35}\) These numbers means that it is a market that, in addition to meeting the demands for hedge operations to support trade and services, is negotiating variations in the overall stock of wealth, exchanging different forms of returns on capital and constantly changing their currency denomination.

With that in mind, this section aims to illustrate how the logic of the derivatives, described in the previous section, can be observed in contemporary capitalism, particularly with regard to the subordination of spot markets to derivatives markets. This phenomenon is not homogeneously widespread in all countries, nor in all categories of assets, nevertheless can be identified in many major markets of contemporary capitalism. Among the markets dominated by the “logic of derivatives” it is possible to highlight four of the most important, that will be analyzed separately: the foreign exchange, interest rates, commodities and credit markets.

The derivatives market of foreign exchange rates is internationally connected through electronic platforms that allow operations between dozens of national (or regional) currencies.\(^{36}\) These platforms are operated by great banks that form speculative positions; work as brokers when attending retail demands and arbitrate with other markets, for example, futures stock markets and the spot market. In some economies, the derivatives foreign exchange market is representatively more liquid and deep than the spot market. Among the reasons for this asymmetry of liquidity is the facility to access, the lack of regulation and the costs of operations are usually smaller (taxes, capital controls and operating costs).

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\(^{34}\) Obviously, a lost bet implies the need to assure a payment and this may require liquidation of assets.

\(^{35}\) The IMF (International Monetary Fund) estimation, released in the World Economic Outlook of April 2010, for the global GDP was US$61.7 trillion. For the equity markets, the amount of global stocks was US$17.1 trillion, an amount that came to US$9 trillion after the financial crisis in 2008 (data from the CPIS, August 2010).

\(^{36}\) There are to main electronic platforms for transactions and foreign exchange brokerage: Reuters 2002-2 Dealing System (Reuters) and Electronic Broking System Spot Dealing System (EBS).
One of the consequences of this liquidity is that the formation of the exchange rate is transferred from the spot market to the forward market. So the fluctuation of the exchange rate turns into something genuinely financial. Moreover, this is true to central countries, with deep derivatives foreign exchange markets, and is also true for peripheral countries, as argued by Dodd and Griffith-Jones (2007), which studies the cases of Brazil and Chile.

A vast literature points the speculative carry trade operations as responsible for exchange rate alterations, whether in central or peripheral national currencies, among this works, for example, UNCTAD (2007), Galati et al. (2007), Flasbeck and La Marca (2007) and Rossi (2010). This literature argues that when exchange rate markets are under the speculation logic, the determination of the exchange rate becomes vulnerable to distortions from “fundamentals”. Thus, the relative prices of amounts of wealth in an economy, the prices of goods and services, and the productive sector becomes vulnerable to a price dynamic that is exogenous from productivity parameters, or any other “real fundamental”.38

The derivatives market of interest rates can hedge economic agents that want to protect their portfolio from the risk of interest rate variations. The formation of exchange rates in this market also expresses the expectations of agents about the official interest rate, defined by the monetary authority. This market is extremely important for the banking system, because it is in this market where the interest rate yield curve is formed, and is a basic reference for credit operations in the various deadlines.

The leading role of the interest rate derivatives market consolidates when the determination of the official interest rate of an economy (defined by the monetary authority) follows and meets the expectations drawn on forward markets. In that case, the interest rate is no longer a simple issue of liquid resources availability, but a political matter. In “normal” situations, the State, with the monopoly on currency issuing, has the power to define the interest rate that remunerates short run public bonds, considered one of the most liquid assets in an economy.

However, the mainstream economic theory states that the central bank must meet the expectations represented in the forward yield curve, because it is a result of the most efficient way of processing the information available. And indeed, many central banks meet the pricing of interest rate derivatives markets to maintain the so called “credibility” and “transparency”. In this regard, derivatives are instruments of pressure over the monetary authorities and works as a political instrument to influence the determination of the interest rate, a key price that pays stocks of wealth and burdens the income generation of the productive sector.

Various commodities markets are other examples of the derivatives markets dominance, where the spot prices are influenced by the speculation on forward markets. In the quotation below, Mayer (2009) clearly highlights the increasing importance of forward markets as responsible for a decoupling of commodity prices from their fundamentals of supply and demand:

“The increasing importance of financial investment in commodity trading appears to have caused commodity futures exchanges to function in such a way that prices may deviate, at least in the short run, quite far from levels that would reliably reflect fundamental supply and demand factors. Financial investment weakens the traditional mechanisms that would prevent prices from moving away from levels determined by fundamental supply and demand factors – efficient absorption of information and physical adjustment of markets. This weakening increases the proneness of commodity prices to overshooting and heightens the risk of speculative bubbles occurring.” (MAYER, 2009: 23)

Recently, the derivatives markets of some commodities, such as oil, became privileged spaces for speculation, inducing the spot prices trajectory to follow forward markets, which in turn are related to boom and bust cycles of international liquidity. The impact of this process over the “real” economy is

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37 The carry trade operation is a financial strategy to obtain returns with interest rates differentials between currencies, in this kind of operation the economic agent is exposed to exchange rate variations. In foreign exchange rate markets the agent assumes long positions on the high interest rate currency, and short on the low interest rate currency. When these operations move massive volume of operations, this tends to appreciate the currency with high interest rate.

38 According to Kregel (2010:1): “Derivatives contracts have been crucial in subverting the impact of exchange rates on the adjustment process and thus on the profitability of export firms in surplus countries”.

39 “Neo-classical (market efficiency) theorists view financial markets as consensus-creating systems of information exchange.” (TOPOROWSKI, 1999)
representative because the commodities have a relevant weight on inflation indexes around the globe. The decoupling from fundamentals are so significant that – as shown by UNCTAD (2011), which presents interviews with members of commodities markets – the actions of speculators ends by dismissing the producers of the derivatives market:

“The common view was that the role of financial investors had become more important in recent years. Due to their financial strength they could move prices in the short term, leading to increased volatility, which may harm markets and drive hedgers with an interest in the physical commodities away from commodity derivatives markets. The increased volatility had resulted in more margin calls and thus higher financing requirements.” (UNCTAD, 2011: 48)

Finally, the credit market is also affected by the logic of derivatives. Beyond the indirect effect over interest rates, especially in central economies, there is a direct impact of derivatives over credit markets. The most evident example are the conditions that drove the US economy to the 2008 financial crisis, where the boom of credit – that inflated housing and stock prices – was made possible by the systemic pulverization of risks created by derivatives. It is not suitable to resume here the description of the subprime crisis, but it is important to highlight the central role of derivatives in the process that affected the dynamics of prices in the sphere of ownership or property.

The years before the American crisis were marked by a widespread of credit derivatives instruments in the financial markets. The mortgages CDOs (Collateralized Debt Obligations), for example, are a structured product whose value depends on the mortgage payments of debtors with different profiles. The groups of mortgage were “packaged” in tranches and classified by rating agencies. This financial innovation is an example of a characteristic of derivatives in general: it separates the attributes of an asset to turn it in something tradable; in this case, credit portfolios were scrapped, reorganized, classified and sold as “commodities”40 in very liquid markets. Afterwards, aiming to guarantee the CDOs contracts another derivative was created, the CDS (Credit Default Swap) which, roughly, is an insurance against a CDO default. Theses derivatives, in one hand could cover risks of institutions that were buying CDOs, but in the other hand they enhanced the systemic risk of the american economy.41

The outbreak of the crisis also illustrates another important, and more general, characteristic of markets, in which derivatives do not provide an absolute autonomy of finance. In other words, there is no indefinite self-oriented process of valorization, in which finance determinates unlimitedly its own value; in reality, the crisis shows that the subordination relation – proposed with the four dimensions framework – do not relieve the dependence of the financial sphere to the production sphere, they are dialectically inter-conditioned spheres. In this sense, the decoupling proportioned by derivatives is limited and is often reversed by crisis.

5. Final comments

In order to organize a research agenda, this paper tried to look into the central role played by the derivatives markets in contemporary capitalism. What is argued in this work is that the derivatives, as financial instruments, have brought several implications for the dynamics of capitalist economies, in a way that constitute a new sphere of accumulation, here called the fourth dimension.

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40 Bryan and Rafferty (2006) discuss this characteristic of derivatives: “A unique asset, for which there may be quite a small market, can be dismantled into generic attributes for which there is a large market. By ‘dismantling’ assets into tradable attributes, the focus shifts from the particularity of the asset itself to the universality of its attributes.” (BRYAN & RAFFERTY, 2006: 52). Furthermore, the section 3.4 discussed this issue of “commoditizing risks”.

41 The process that led to the American financial crisis exemplifies the acute form of how competition works on the derivatives sphere. The institutions that were selling CDOs at the same time were buying CDSs to speculate against instruments they were recommending to their clients. Once they were expecting defaults, they were using this information to obtain gains at the expense of others’ loses. Furthermore, the operations with derivatives in the pre-crisis were also followed by frauds, manipulation of data and corruption on rating agencies.
In this new dimension, it’s possible to observe three major changes when compared to the previous dimensions. The first change is the emergence of new ownership relations, marked by the separation of ownership of assets and ownership on the performance of the underlying assets, leading to the abstraction of the valorization of wealth to the highest level. The second change concerns about the new nature of the returns, or gains, generated with derivatives, the so called gains by betting, or “casino” gains. Finally, these changes create the conditions to form a new relation of subordination, in which the fourth dimension imposes over the others. This subordination can be verified when the sphere of derivatives becomes the mains locus of spot prices determination, what is verified in key markets. The following chart summarizes the analytical argument developed along this paper.

Chart 1 - The four dimensions of capitalism

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Money circuit</th>
<th>Ownership relations</th>
<th>Relations of subordination</th>
<th>System logic (or motivation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st DIMENSION</td>
<td>C-M-C</td>
<td>Producer is the owner of the means of production</td>
<td>-</td>
<td>Subsistence</td>
</tr>
<tr>
<td>Commodity sphere</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd DIMENSION</td>
<td>M-C-M’</td>
<td>Worker is separated from possession and ownership of the means of production</td>
<td>Subordination of labor to capital</td>
<td>Profit through surplus value</td>
</tr>
<tr>
<td>Production sphere</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd DIMENSION</td>
<td>M-M’</td>
<td>Company ownership is separated from production management</td>
<td>Subordination of productive capital to financial capital</td>
<td>Patrimonial valorization</td>
</tr>
<tr>
<td>Ownership sphere</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4th DIMENSION</td>
<td>∆M’</td>
<td>Returns on capital is separated from the ownership of the underlying asset</td>
<td>Subordination of the ownership sphere to derivatives dynamics</td>
<td>Gains by betting</td>
</tr>
<tr>
<td>Derivatives sphere</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Authors elaboration

Understanding the relevance of these financial instruments in the contemporary capitalism allows the improvement of researches in several areas of Economics, such as Political Economy, Macroeconomics and Development Economics. The ideas shown in this work, far from definitive, are an invitation for further studies on the subject. The issue deserves a deeper theoretical treatment, either in the Marxist framework, that considers derivatives as a development of fictitious capital and as a particular sphere of capital accumulation; either in the Keynesian/Minskyan framework, in which analyses the derivatives as instruments that enhance the volatility and instability of economic systems.

References


