Valueless Knowledge-Commodities and Financialization: Productive and Financial Dimensions of Capital Autonomization

Rodrigo Alves Teixeira
Pontifícia Universidade Católica de São Paulo, Brazil. Department of Economics.
Central Bank of Brazil.
Email: rodrigo.teixeira@bcb.gov.br

Tomas Nielsen Rotta
University of Massachusetts at Amherst. Department of Economics.
Email: trotta@econs.umass.edu

Abstract

We present a Marxian theory of the capitalist production of knowledge and of financialization as two processes subsumed under the principle of autonomization of capital. Our approach consists of three tasks. The first is to develop the principle of autonomization. The second is to show how financialization can be a misleading term. The third is to develop a new theory of the production and distribution of valueless knowledge-commodities and knowledge-rent. Our Marxian framework demonstrates how the autonomization of capital manifests itself in its two active dimensions: the financial through financialization, and the productive through knowledge-commodities.

Key-words: Marx, Financialization, Autonomization, Intellectual Property Rights, Valueless Commodities, Knowledge-Rent
JEL Classification: B51, O33, O34[1]

Authors' Note: We are grateful to Jonathan Goldstein, Dorene Isenberg, Ron Baiman, Leda Paulani, and Iren Levina for their helpful comments on previous versions of this article. We are especially grateful to the extensive suggestions from Dorene Isenberg. We are also thankful to Leila Davis for the help with editing.

1. Introduction

We present a Marxian theory of the capitalist production of knowledge and of financialization as two processes subsumed under the principle of autonomization of capital. Our approach consists of three tasks. The first is to develop the principle of autonomization. The second is to show how financialization can be a misleading term. The third is to develop a new theory of the production and distribution of valueless knowledge-commodities and knowledge-rent. Our Marxian framework demonstrates how the autonomization of capital manifests itself in its two active dimensions: the financial through financialization, and the productive through knowledge-commodities.

The core idea that we develop is the general principle of autonomization: the tendency of social forms in capitalism to become increasingly separated from their material bases and material contents. The central autonomization that we identify is the autonomization of capital in relation to its material basis, namely real value-producing activities. A closer reading of Marx's ideas reveals that one of his central messages was the inherent tendency of capital to 'autonomize' itself from its own material support. The ultimate social form in capitalism is capital, self-expanding value. The ultimate material content is value, created through the productive exploitation of labor power. Capital's autonomization means that capital contradictorily tries to valorize itself while moving away from and undermining real value-creating activities.

The autonomization of capital is a contradictory 'valorization without value'; it is an attempt to valorize capital while concomitantly dispensing with labor exploitation. This paradoxical development has, as we identify, at least two dimensions.

One dimension is financial and is captured by the concept of ‘financialization’. In our Marxian framework financialization has a proper Marxian definition: financialization is a specific historical outgrowth of autonomization, and as such is the autonomization of value in relation to use-values. Financialization is the tendency of capital to valorize by contradictorily disconnecting value from the real creation and circulation of use-values. Our argument about autonomization and qualitative financialization, therefore, stands in contrast to current dominant heterodox approaches. Financialization is here understood as a higher stage in the development of capital; it is a continuing aspect of capitalism’s evolution – exchange-value becoming more separated from and undermining the production of use-values. Our attempt is to provide a Marxian concept of financialization that bridges the common definition gap identified by Epstein (2005) and Goldstein (2009). But unlike other heterodox economists we have another goal in mind when developing the notion of financialization, which is to link financialization back to production and to autonomization.

The other dimension is productive and is captured by our theory of knowledge and information production in capitalism. The production of knowledge is subsumed under the principle of autonomization as a specific development in production that also valorizes capital by doing without labor exploitation. It dispenses with labor exploitation because in the capitalist production of knowledge, despite the creation of new and more productive use-values, there is no production of value. Marx and Marxists have usually focused on the production of value. According to our approach capitalism is, on the contrary, increasingly producing valueless products due to the systematic application of knowledge in productive activities.

The task of theorizing the production and distribution of knowledge and information means that we update Marx's theory to incorporate recent developments in the production and application of scientific knowledge in capitalist societies. We do so by introducing two new Marxian concepts. The first is 'knowledge-commodity', namely the rapidly growing volume of privatized knowledge and commodified information protected by the 'new enclosures', i.e. patents and intellectual monopoly rights. The second is 'knowledge-rent' as a new source of revenue in modern-day capitalism. The value of the valueless knowledge-commodities bears no relation to use-values at all, and its price system becomes almost entirely arbitrary. We focus therefore on the creation, determination and distributional impacts of these two new categories.

Ironically enough, valueless commodities are the direct result of the increasing application of knowledge in commodity production. Patents and monopoly rights per se, the two central conditions for the emergence of the knowledge-commodities and the knowledge-rent, are not new phenomena. But with the rapid spread of the production of valueless knowledge-commodities and their new role in production, capitalism has undergone a qualitative change, the consequence of which is the growing role of knowledge-rents in profit creation and profit redistribution. In *Capital* Marx originally theorized interest, profits, wages and ground-rent as sources of revenue, but he did not theorize *knowledge* as the basis of a new and specific source of revenue - which we analyze in this article through the concept of knowledge-rent.

Contrary to the idea that capitalism is currently experiencing a change in the commodity form - as supported by theories of 'immaterial labor' - we advocate that in fact it is the commodity form that is encompassing a new activity in social life: the production of knowledge. As Marx states throughout *Capital*, every time that the commodity form incorporates a new social object we observe an original logical development of the capital form:

(a) When the commodity form incorporates labor products, they become commodities;

(b) When the commodity form incorporates labor power, societies experience the formation of capital as such;

(c) When the commodity form incorporates money we have the emergence of money traders, which leads to the formation of interest-bearing capital;

(d) When the commodity form incorporates land it creates ground-rent.

Now we theorize the idea that:

(e) When the commodity form incorporates knowledge production it produces a novel logical moment: the creation of knowledge-rent.

Knowledge and financialization are two recurrent elements in the theme of post-1970 capitalism. Even though important, they are yet not sufficiently related in economic theory, even less in Marxian economic theory.

Autonomization manifests itself with both financial and productive aspects. Current dominant heterodox approaches tend to focus on the financial dimension. We do not deny that the financial dimension has its own concrete consequences. What we do affirm is that the financial side is not the complete story. What is central to financialization as we conceive it is the underlying process of autonomization that has implications for both finance and production. The autonomization of capital also has a productive dimension, which consists of the increasing incorporation of knowledge within production and the consequent expansion of valueless commodities.

Financialization, therefore, is a misleading term for it places too much emphasis on finance and little on production. We suggest that a better term would be autonomization. Autonomization encompasses both our vision of financialization, which is based on value becoming ever more distant from and undermining use-value production, and our vision of the production of knowledge-commodities that do not rely on value creation at all. Financialization and valueless knowledge-commodities are subsumed as the financial and the productive aspects of the general principle of capital autonomization.

2. Financialization and Autonomization: A Marxian Framework

Our proposal to understand financialization within a Marxian framework is highly indebted to the works of Teixeira (2007), Paulani (2009 and 1991) and Fausto (1987a and 1987b), who first noticed that the definition of financialization depends on the proper definition of capital. In the Marxian tradition capital was mainly understood as simply 'self-expanding value', which is an idea present in Marx's definition of capital as a 'social subject'. Capital as a subject has commodity and money as its predicates and has productive capital, interest-bearing capital, rent-bearing capital, and fictitious capital as its developed forms. But the definition of capital as self-expanding value misses an important point. It misses the basic idea of capital as an abstract form: a social form that has the tendency to expel its own content. In concrete terms, the idea of capital as an abstract form implies that surplus value creation both depends on and expels productive labor. From *Capital I* to *Capital III* and also in the *Grundrisse,* Marx tries to show that capital, more than self-expanding value, is a social form with the inherent tendency to become 'autonomized':

> "The historical broadening and deepening of the phenomenon of exchange develops the opposition between use-value and value which is latent in the nature of the commodity. The need to give an external expression to this opposition for the purposes of commercial intercourse produces the drive towards an independent form of value, which neither finds rest nor peace until an independent form has been achieved" (Marx 1990, p.181)

We propose that in a Marxian framework the general principle of autonomization should be understood as the inherent tendency of social forms in capitalism to become independent of their own bases.

By presenting the concept of capital in a dialectical manner Marx tries to indicate that the financial, rentier and fictitious forms have a tendency to become autonomized in relation to the real value-creating activities, a tendency which is already inherent in the commodity and money forms. From the first chapter of *Capital I* Marx makes every effort to show how value becomes increasingly independent of use-value, implying that autonomization is present within the essence of the commodity and money forms. According to *Capital*'s chapter 1, every commodity has two constituents: value and use-value. When one commodity is exchanged for another the relative form is posited as value and the equivalent form is posited as use-value. The exchange externalizes the internal contradiction of each commodity between value and use-value. The quantitative exchange ratio between any two commodities is what Marx calls ‘exchange-value’. Most importantly, the emergence of exchange-value itself is the first ontological step of the autonomization tendency. The generalization of trade then creates the one universal exchange value that operates as the general equivalent, namely money:

> “The product becomes a commodity; the commodity becomes exchange value; the exchange value of the commodity is its immanent money-property; this, its money-property, separates itself from it in the form of money, and achieves a general social existence separated from all particular commodities and their natural mode of existence” (Marx 1973, p.146-147).

> “money owes its existence only to the tendency of exchange value to separate itself from the substance of commodities and to take on a pure form” (Marx 1973, p.160).

Marx’s attempt is, as we understand it, to show how each ontological development of commodity and money is one more step towards the increasing autonomization of capital from its own basis, real value creation. We can synthesize capital’s logical formation with a simple scheme: commodity → general equivalent → coin → money → capital → productive capital → continuous accumulation of capital → interest-bearing capital → rent-bearing capital → fictitious capital. The development of capital is, therefore, just a matter of developing what is presupposed - i.e. present as a potentiality - in its essence: the ever growing separation of social forms from their own material supports. Money, capital, accumulation of capital, interest-bearing capital and fictitious capital are all enhanced forms of the core tendency of autonomization:

> “All contradictions of the monetary system ... are the development of the relation of products as exchange values, of their definitions as exchange value or as value pure and simple” (Marx 1973, p.152).

The principle of autonomization relies upon the dialectical understanding that truth is becoming. For the dialectics, becoming, and not merely being, is the truth: “For the real issue is not exhausted by stating it as an aim, but by carrying it out, nor is the result the actual whole, but rather the result together with the process through which it came about” (Hegel 2002, p.26-27, §3). Lukács also understood the same point: “reality is by no means identical with empirical existence. This reality is not, it becomes. [...] In this Becoming, in this tendency, in this process the true nature of the object is revealed" (Lukács 1922, p.203). The dynamics of becoming is central to the Marxian dialectics as it is central to the Marxian principle of autonomization that we support in this article. Autonomization is the becoming of capital.

This way the notion of autonomization has a precise meaning: it is the introduction of new layers of ontological - both logical and historical - mediation between social forms and their material bases. If fictitious capital is the most autonomous form of capital it is so because as fictitious capital the social form is separated from its material basis by several mediations. For the mainstream economist autonomization merely appears as irrational exuberances when asset prices do not reflect the fundamentals of the system.

The conventional approach is to consider capital accumulation chiefly as an accumulation of technology, goods and services. On the other hand, the Marxist point of view treats capital as a social form. While Neoclassicals and Keynesians understand capital as simply an input, Marx treats capital in terms of sociability. Capital as M-C-M' can be abbreviated to M-M' exactly because the motive of capitalist production is not the expansion of the production of commodities (use-values) but rather the expansion of the valorization of value. In concrete terms, as often as possible capital tries to disencumber itself from real value-creating activities while still contradictorily attempting to self-expand as value. Autonomization appears as economic agents, be them financial or non-financial, trying to generate revenues without the actual production of new values through surplus labor extraction.

If by capital autonomization we mean the introduction of new ontological layers of mediation between the expansion of capital and the real production of value, then 'financialization' is just a higher stage and an outgrowth of autonomization. Financialization is a contemporaneous stage and one dimension - even though not the sole - through which the expansion of capital contradictorily tries to disentangle itself from the effective creation of surplus value. Financialization is the autonomization of value in relation to use-values, and as such is the most recent financial aspect of the general principle of capital autonomization. But the financial dimension is not the complete story. Production also plays a leading role in the autonomization of capital.

3. Financialization and Valueless Commodities: Two Dimensions of Autonomization

The autonomization of capital has at least two important dimensions. The first is financial. Finance is a dimension of autonomization because it is a specific form of autonomizing capital from surplus value extraction. Its specificity lies in the tendency to separate value (the social form) from use-value creation and circulation (its own material base). Finance contradictorily attempts to "valorize" capital without creating new use-values and also by distancing further the valorization process from the already existing use-values. The second dimension of autonomization that we identify is productive and is represented by the production of valueless knowledge-commodities, for which value bears no relation at all to use-values. In both cases, be it in finance or with the valueless commodities, the price system becomes almost entirely arbitrary and disconnected from real value creation.

How does our approach to financialization relate to the dominant heterodox approaches? First we briefly state the main current Marxian and near-Marxian theories of financialization:

(i) Epstein and Jayadev (2005) and the French Regulationist School (Boyer and Saillard 2002, Chesnais 2005): emphasis on the dominance of the financial forms of capital, such as interest-bearing capital and rentier capital, over productive capital. They introduce the idea of finance-dominated accumulation regime and of the rise of an international rentier class[2];

(ii) Arrighi (1994), Wallerstein (2003), Krippner (2005), and Suter and Pfister (1987): emphasis on Braudellian long-waves and on the sources and patterns of capital accumulation. The financial form is, for them, the most flexible form of capital and is not restricted to the financial sector: financial profits also occur in industrial firms;

[2] It is important to differentiate between "financial sphere" and "financial form", as financial activities are not restricted to purely financial firms. The expression "financial sphere" might lead to the mistaken idea that finance takes place in a certain economic compartment. The "financial form" expression is more flexible and allows finance to be an activity taking place anywhere in the economy.

(iii) Crotty (2003 and 2000) and Orhangazi (2003): emphasis on modes of competition, industrial organization and lack of aggregate demand growth that jointly produced a tendency towards indebtedness and the search for profits in financial activities. Financialization of non-financial firms means that financial investments are crowding out real productive investments;

(iv) Negri and Lazzarato (2001) and Gorz (2005): emphasis on the service and information economy and on the rise of ‘immaterial values’ and ‘immaterial labor’.

Each of the main heterodox approaches to financialization have their own important contributions, be it in theoretical or statistical terms. Each of them point to distinct features of the post-1970 capitalism and in most cases the positions in fact complement each other. We defend in this article the idea that all of the above approaches, ours included, share one point: that capital accumulation is paradoxically separating from and undermining real surplus creation. This common feature that we identify in the heterodox literature is captured by our Marxian concept of autonomization.

Our attempt is to overcome what Epstein (2005) and Goldstein (2009) have diagnosed as a yet absent common definition of financialization. For example, when Epstein and Jayadev (2005), Crotty (2003 and 2000), Krippner (2005) and Orhangazi (2003) demonstrate how non-financial firms were compelled to financialize (meaning that they were forced to make non-productive investments to somehow generate increased profits for shareholders) it implies exactly what is captured by our Marxian framework. According to the above-mentioned literature, financialization consists of at least two main aspects: (i) the unprecedented dynamics that financial activities achieved after the

1970s; (ii) the crowding out of non-financial investments by financial investments. Our Marxian definition of autonomization also incorporates these two central aspects of financialization as both of them are clearly ways to contradictorily "valorize" capital without producing new surplus value or new use-values. Financialization autonomizes capital from its own support.

The first dimension of capital autonomization is financial and is incorporated in the concept of financialization. But we must be careful with the terminology, for the heterodox theories share one caveat, namely that they excessively focus on finance as the active dimension. When production appears it appears passively: finance made production more short-sighted; shareholder revolution forced managers to care less about long-term profits (Stockhammer 2004); finance crowded out real productive investments etc. Production responds passively to finance. We overcome this deficiency with the second dimension of autonomization, production. The production of valueless knowledge-commodities and the emergence of the knowledge-rent represent a simultaneous and independent outgrowth of the autonomization of capital. In our approach, productive activities are not passive; they become instead agents of change. Financialization is one important dimension of autonomization, but it is not the only one.

What gives financialization its unique historical characterization is its institutional framework and the specific forms of class conflicts that emerged after the 1970s. We are not positing that in the current phase of capitalism there is nothing unique about financialization. Our argument, on the contrary, is situated at a higher level of abstraction and do not deal with more concrete specificities. The dominant heterodox approaches do a better job in investigating concrete transformations. The other authors writing on financialization situate it as a particular temporal moment that has produced concrete results: the rise of rentiers, the shareholder value, bubbles, and the Great Recession. Financialization, on the contrary, is conceptualized in this current article at a higher level of theoretical abstraction than is the work of the others we cite. Unlike other heterodox economists we have another goal in mind, which is to link financialization back to production and to autonomization without discussing specific financial institutions or assets.

The watershed for shifting the focus of the debate to productive activities is the post-1970 technological revolution underpinned by private appropriation and capitalistic production of knowledge. Instead of focusing on the monetary and financial forms of capital, our approach draws insights from Prado (2006a, 2006b, 2005) and Lysandrou (2005) to shed light on the commodity form.

The works of Prado represent a new attempt to shift the financialization debate to the inner components of the present mode of production. Prado's main argument is that present-day capitalism is increasingly heading towards the production of valueless commodities *sui generis* that we will call 'knowledge-commodities'. Knowledge-commodities are privatized knowledge and commodified information (such as computer software, chemical formulae, cultural and musical production, engineering secrets, and patented knowledge) that bear the central feature that they cannot be sold but only loaned or lent. Prado draws an interesting conclusion: the intellectual property and monopoly rights that protect the knowledge-commodities from free use give a financial character to commodity-producing firms as firms obtain financial revenues while lending their own products. Prado's attempt is to show that the revenues, as they accrue from lending activities, can be characterized as interest yields. The central argument is that we need to examine the radical changes that took place within productive activities and then analyze the impact of the changes on the circuit of global valorization. He asserts that one needs to shift the focus of the analysis from finance to transformations in production. For Prado we are currently experiencing a profound change in the mode of production of commodities and, according to him, Marxists should search for the novel essence of productive accumulation.

The main rationale behind Prado's assessments is the idea that the most advanced and dynamic sectors are increasingly dependent on intellectual workers. The valueless commodities *sui generis*, which can be seen both as final consumption goods and services and also as inputs for future production, demand substantial investments in R&D. Knowledge-commodities require huge amounts of highly skilled labor-time to be conceived, steeply increasing their cost. But despite the fact that their first-time production presupposes the investment of large sums of money these special commodities can easily be copied.

In concrete terms, if highly-skilled Microsoft employees spend three whole years developing a new operating system but if even a child of 8 can easily copy it, its value is nil. So even though large investments were necessary for the development of the software the fact that the commodity can be duplicated without any further complication makes it valueless. The same happens with the pharmaceutical industry. After years of investment and research, medicines can be easily copied by direct competitors.

The valueless property of the knowledge-commodities is an implication of what Marx himself stated in *Capital III*:

> "the value of commodities is determined *not* by the time that it took to be originally produced but by the labor time necessary to its *re*production" (Marx 1984a, p.298 – emphasis added)

The capitalist response to the known public-good and free-riding dilemma is clear: privatization of knowledge - that is, transform knowledge into a monopolized commodity through the creation of intellectual property rights that impede effortless reproduction. This way, knowledge-commodities will be protected by an institutional device that prevents people from freely acquiring and reproducing them. They will no longer be sold but only loaned or lent. The 'buyer' (actually a borrower) will only have the right of use, not of ownership. That is the logic behind licensing rights: the consumer becomes only a user, not the owner of the knowledge-commodity. Excludability is the solution to the inherent free-riding paradox of knowledge production in capitalism.

According to Prado the fact that the commodities *sui generis* cannot be sold but only lent creates the possibility for them to function as loaned or lent capital. The revenue obtained in the licensing transaction can then be identified as interest payments. The capitalist maintains knowledge as a commodity and transfers the right to use it by means of a contract that safeguards his own property rights through legal guarantees. He has to necessarily consider it as loanable capital (Prado 2005, p.107). The producer thus becomes a financial institution that lends its products and demands payments in the form of interest. The producer becomes a financial entrepreneur and the productive circuit becomes the production of interest-bearing capital, for which interest is its revenue. The basis of the system is no longer the sole appropriation of abstract labor but the increasing gains obtained over the appropriation of ideas through intellectual property rights. As a consequence, the form of valorization of the new dynamic companies that produce valueless use-values becomes increasingly similar to that of the interest-bearing capital form:

> "these products are, as stated by Marx, commodities *sui generis*. They receive the capital form as commodities. So Microsoft – and this seems to have become a general tendency – operates in the M – C ... P ... M' circuit, as does a typical company that lends money. The assertion is justified because, as Marx said, 'all loaned capital is always a particular form of monetary capital' (Prado 2006b, p. 222). And "that one who lends the commodities as capital lends the corresponding amount of money and he is, to all intents and purposes, a financial capitalist" (Prado 2005, p.108).

Valueless knowledge-commodities operate as lent money because the producer cedes the use of it but not its ownership.

Prado identifies the origin of the modern financial dynamics within productive activities and states that the real change in recent years is a more profound change that has taken place in production. Theories of financial dominance would thus be the embodiment of the essential change in productive conditions (Prado 2005, p.126). For modern times the new base of profit is not only the exploitation of waged labor but also the gains obtained through the monopolization of knowledge.

Such ideas are very appealing, especially within a Marxian framework. Prado's attempt to draw attention to the essence of production is insightful and deserves further investigation. He is right when stating that to assume the form of interest-bearing capital value does not necessarily need to be in money form as it can also be in commodity form. What matters is that interest-bearing capital presents itself as a sum of value[3]. Practical examples are the rent of a machine, of a building, of a vehicle, etc. In capitalism, as Marx himself asserts, every sum of value is potential capital, be it in money or in commodity form. Because any sum of value is potential capital this same sum of value can additionally assume the form of interest-bearing capital when loaned or lent, allowing its owner to cede its use-value while demanding a monetary payment in exchange. Marx says that any sum of commodities or money can become possible capital and, if lent, becomes interest-bearing capital. What allows any commodity or sum of money to become interest-bearing capital is because it is, above all, a sum of value. The characteristic of being a sum of value assures its transformation into loanable capital.

However, Prado's position has one very important caveat. Knowledge-commodities do not contain any value: they require huge amounts of labor-time to be invested in their creation but require almost no labor-time to be reproduced. Knowledge-commodities

[3] "Money – taken here as the independent expression of a certain amount of value existing either actually as money or as commodities — may be converted into capital on the basis of capitalist production, and may thereby be transformed from a given value into a self-expanding, or increasing, value. It produces profit, i.e., it enables the capitalist to extract a certain quantity of unpaid labor, surplus-product and surplus-value from the laborers, and to appropriate it. In this way, aside from its use-value as money, it acquires an additional use-value, namely that of serving as capital. Its use-value then consists precisely in the profit it produces when converted into capital. In this capacity of potential capital, as a means of producing profit, it becomes a commodity, but a commodity *sui generis*" (Marx 1985b, p.255).

have no value even though they usually have very high prices attached to them by virtue of the special monopoly rights (patents, intellectual rights etc.). Therefore, as they do not bear value they cannot become a sum of loanable value and, hence, cannot become interest-bearing capital! They are not a sum of value and cannot be lent as such. Contrary to Prado's view the knowledge-commodities cannot become interest-bearing capital; neither can the sum paid by the borrower be qualified as interest.

4. The Knowledge-Commodities: Commodity-Capital vs. Capital-Commodity

Knowledge-commodities consist of privatized ideas, commodified knowledge, know-hows, information and instructions. In the most important cases the information is about how to do and to produce things. In the pharmaceutical industry it is the chemical formulae to produce medicines. In the armaments industry it is the know-how to create and re-create weapons. In the entertainment industry it is the information and content (music, songs, pictures, software, movies) inside a CD, DVD or other storage media. Mokyr (2002) calls it the 'useful knowledge' of information, techniques and instructions stored in technical artifacts.

It is highly important to differentiate between the material support of the information (the actual material CD, DVD, flash drive, magnetic tape or any other artifact) and the information itself (the actual knowledge-commodity, i.e. instruction, technique, information, formulae, software, songs, movies etc.). The material aspect of the object is only the bearer of the knowledge-commodity. The immaterial aspect of the object or service is the actual knowledge-commodity. Our approach is about the intangible, not the tangible part. The material support is necessary only to allow the circulation of the immaterial content.

Knowledge and knowledge-commodities are intrinsically valueless. The material support necessary to transport and store them, such as storage media and chemical powder of medicines, also have little value. In the case of the ideas, know-hows and information there is labor employed to its first-time production but not to its continued re-production. The informational content inside this material support necessitates huge amounts of expenditures in R&D to be conceived as a profitable idea, but once produced it loses all of its value:

> "[the] product of mental labor – science - always stands far below its value, because the labor-time needed to *re*produce it has no relation at all to the labor-time required for its original production" (Marx 1861-1863, Addenda to Vol. 1 – emphasis added)[4].

Knowledge-commodities are still commodities as they have both use-value and value as their determinants. They are commodities *sui-generis* because even though they have value as a qualitative determinant this value is quantitatively negligible.

Privatized ideas and commodified information cannot be freely copied. They are subject to legal constraints such as patents, copyrights and authorial rights. The user cannot legally copy them if the duplication is not contemplated by the 'terms of use' demanded by the producer. The consumer does not buy the knowledge-commodity; he buys instead the license to use it. Virtually every industrial secret, computer software, musical composition, movie, book, academic article, chemical formula is protected by

[4] Perelman (2003, p.305) also quotes this passage.

copyright monopolies that severely limit the actions of the user. The knowledge monopoly legally limits the capacity to free ride. If one can destroy, give away or re-sell a CD or a DVD containing music, software or a movie, it is in fact not relevant. The material artifact *per se* is virtually irrelevant. What really matters is the content - the knowledge-commodity – and over this content *sui generis* users are powerless. They buy the artifact but not the content. The actual content is licensed or rented, not sold[5].

If the original enclosures in England were a way to deny labor access to land as means of production, nowadays we can say that the 'new enclosures', such as patents and intellectual property rights, are a way of denying labor access to knowledge as means of production. Knowledge in capitalism cannot be common property. Although it is an essential condition of production it must not belong to the labor-force that produces it. Harvey (1994) even used the term 'accumulation by dispossession' to describe the present-day primitive accumulation represented by such new enclosures. Accumulation by dispossession is not a historical pre-conditional phase to capitalism but rather an ongoing process that occurs with the struggle for relative surplus-value and for technological innovation. Harvey shows how technological progress can lead, contrary to what is generally stated, to a primitive accumulation.

If knowledge-commodities are valueless, then what are the revenues generated from their production and circulation? The revenue obtained from the creation or concession of knowledge-commodities, assured by the existence of monopoly rights, should not be compared with interest revenues. Knowledge-commodities are not a sum of value and cannot become interest-bearing capital. Our approach posits that the revenues created by

[5] In fact knowledge-commodities and patents themselves can sometimes be traded and actually sold. Section 6 will deal with this issue.

the knowledge-commodities have to be compared with rent revenues, in a similar way to what happens with the ground-rent. We call the special rent derived from knowledge and the knowledge-commodities ‘knowledge-rent’.

Commodified knowledge can be used as final consumption good by consumers or it can also be used as input in production by capitalists. A possible objection could then be raised, namely that knowledge-commodities only become capital when they penetrate the productive circuit. Our answer is definite: when commodities enter the productive circuit they are posited as use-values, not as values. On one hand, when commodities penetrate the productive circuit (…P…) they do so as commodity-capital, as any other concrete useful commodity that is used as input. On the other hand, it is not the concrete use-value of the input that converts it into interest-bearing capital through it being loaned, but rather its value. A loaned machine yields interest payments from the user of the machine to its actual owner because it figures not with its use-value as an input but rather as a sum of value. What matters is what is being posited: value or use-value. In *Capital III* Marx (1985a, p.257-259) devotes an entire page attempting to clarify his arguments about the difference between commodity-capital and capital-commodity, as set out below:

(1) **Commodity-capital** functions as a commodity and not as capital. It is only capital while considering the global circuit, but it is sold as a commodity and not as capital. It circulates as a use-value (e.g. means of production and productive inputs).

(2) **Capital-commodity** is commodity as capital. It is a sum of value that has the use-value of creating surplus-value. Despite being a lent commodity it does not

figure as a use-value but rather as a value (e.g. interest-bearing capital). It is money or a commodity as possible capital that becomes a commodity.

Misunderstanding of the distinct logical nature of commodity-capital (posited as use-value) and capital-commodity (posited as value) might mistakenly lead to a theory that use-values can generate interest revenues by themselves. Keynes is certainly the most striking example of such a mistake. As became known through Chapter 17 of his *General Theory* he thought that each commodity in the economy had its own particular interest rate according to its degree of profitability, liquidity and depreciation – what he termed “own-rates of interest” (Keynes 1964, p.223). For this precise reason Keynes also experienced great difficulty in dealing with interest rate issues. He understood commodities only in terms of use-values. And following his rationale one could also erroneously conclude that any commodity has the use-value of creating more value. Keynes' Chapter 17 is the best example of this mistake, in which he theorizes commodities and money and their respective ‘own interest rates’ as if money or any commodity in general also had the ability to create more value just by itself. What is missing in Keynes is the proper dialectical understanding of value and use-value. Keynes misses the core Marxist idea that use-value is the material support of value, not its cause.

To illustrate how our Marxian abstract ideas operate in practice we consider an important concrete case: industrial machinery. Machines have different impacts on production. An individual capitalist borrows a more productive machine and expects to gain surplus profits from it. But the surplus profits, in this case, consist of two different forms of revenue. The borrower of the machine receives extra profits if the machine allows her to be more productive than her competitors. Because the machine is a sum of value and because it is borrowed, the machine is an interest-bearing capital. Part of the surplus profits of the borrower must be paid back to the machine lender as interest payments. However, what allows the machine to be more productive is the new industrial and scientific knowledge embedded into it. What allows the machine to be more productive than average is the result of the knowledge-commodity. Therefore, the second form of revenue that the surplus profits consist of is a rent, the knowledge-rent. A part of the knowledge-rent remains with the productive capitalist that borrows the machine. Another part of the same knowledge-rent has to be paid back as a rent to the machine lender. We are therefore in fact dealing with two distinct forms of revenue:

(i) The first is **interest revenue**, based on the machine's value. It derives from the fact that the machine is lent as a sum of value and thus as interest-bearing capital. In this respect the value is posited and the use-value is presupposed;

(ii) The second form of revenue is the appropriation of the surplus-profit as **knowledge-rent**. It is based on the difference between the concrete productivity of the new machine (due to the new knowledge incorporated in it) and that of its competitors. It derives from the specific and differential use-value of this machine: "knowledge is firm-specific and kept proprietary as best as possible to earn technological rents" (Amsden 2001, p.3)[6].

The individual capitalist that owns the more productive machine and lends it to an industrial capitalist actually lends two different things at the same time. The first is the

[6] Ironically, even though knowledge is firm-specific and proprietary "in the new growth models, business do not exist at all, and so proprietary, firm-specific knowledge cannot constitute an entry barrier; information is a free good in any given economy, and the diffusion of information globally, which guides international growth rates, becomes mostly a matter of investing in education (rather than, for example, in firm formation)" (Amsden 2001, p.3).

value of the machine, for which he receives interest payments. The second is the differential use-value ('differential knowledge') incorporated in the machine, for which he receives knowledge-rent. The knowledge-rent is split among the creator of the knowledge-commodity, the capitalist that used the knowledge-commodity to create a more productive machine, and the productive capitalist that employs the more productive machine to gain surplus profits.

5. New Enclosures and the Knowledge-Rent: A Marxian Approach

Having defined what knowledge-commodities are and how their existence entails the distinction between capital-commodity and commodity-capital, the current section presents a Marxian theory of the origin, determination and distributional effects of the new enclosures and of the knowledge-rent.

Land, in Marx's perspective, does not have value as it is not reproducible by labor. Ground-rent, dependent on the legal setup of monopoly rights, consists of the appropriation of a certain amount of value generated in productive activities. Bearing land monopoly rights in mind we demonstrate how patents and authorial rights share the same categorical nature as the landed property rights[7].

According to Marx (1985b, p. 126) the ground-rent, like interest, is derived from the redistribution of value created in production. Land does not necessarily have to be rented by a capitalist with the objective of using it in production: even if the tenant wishes only to benefit from the use-value of land, and not to make a profit, the rent is a

[7] Although Perelman (2003, p.305) and Zeller (2008) also make the comparison between land property rights and patents they do not develop any theory from it.

specific revenue and must be considered as such. The same occurs with interest payments. Interest-bearing capital, to be considered as such, does not necessarily have to be directed to productive activities: “the further advance of interest-bearing capital by the credit system need not to be directed exclusively towards real capitalist accumulation but also towards other activities not productive of surplus value” (Itoh and Lapavitsas 1999, p.61). With regards to the interest-bearing capital form the interest is due whether the borrower uses the loaned sum of value (be it commodity or money) as capital or not. It can perfectly well be used to help offset government deficits or be advanced to waged laborers in the form of consumer credit. But despite similarities that may lead to theoretical misunderstandings the ground-rent determination is totally distinct from that of interest. Marx’s ground-rent elaboration derives from the differential rent of Ricardo and Malthus.

Firstly we make a distinction between the revenues generated by land. The first revenue is due to the raw land and, as such, is an element independent of human labor. It is called ‘ground-rent’ and constitutes rent-bearing capital. The second one is due to the improvements made to the raw land and, therefore, is the result of human labor. In this case the improvements can be regarded as commodities that posses value, namely interest-bearing capital. Hence, the difference between produced and unproduced means of production creates the difference between interest and rent. At first sight this distinction might be somewhat confusing: “The boundary between interest on capital and rent on land appears somewhat blurred until the investment is amortized, when any improvement becomes a free good and therefore in principle no different from free gifts of nature” (Harvey 2006, p.337).

Let us suppose that the majority of industries in a country use steam (coal) engines and that the minority are powered by natural waterfalls. Let us assume also that capitalists who use waterfalls have lower individual production prices in relation to the social production prices. Difference between individual and social production prices generates a surplus profit for the individual capital with the productive advantage. The first part of this surplus profit comes from a "natural power, the motive power of water, which is found ready at hand in nature and which is not itself a product of labor like coal, which transforms water into steam. The water has no value, it does not need to be paid by an equivalent, it costs nothing. It is a natural agency of production, which is not produced by labor" (Marx 1985b, p.143). There are natural elements and materials whose properties are favorable to those who work with steam engines, such as water (which can become steam) and coal (which can act as fuel) etc. Secondly, the surplus profit comes from the fact that one capitalist may employ a volume of capital greater than the average (the organic composition of this individual capital is higher than the sectorial average) or "from the fact that a capital of a certain magnitude functions in a specially productive manner", for example: "better methods of labor, new inventions, improved machinery, chemical secrets in manufacture, etc" (Marx 1985b, p.144-145). What is so particular about the waterfall case is that the waterfall is a "natural power, which can be monopolized", and is "not producible by certain capital investments" (Marx 1985b, p.145). Thus the surplus profit of the individual capitalist that uses the waterfall is converted into ground-rent, which is a differential rent that corresponds to the difference between the social production price and the individual production price. The price gap derives from the monopolized natural power that introduces a relative difference in labor productivity among capitalists.

Ground-rent, although a form of property rent, is not of the same nature as the revenues earned from interest. Interest is obtained from the property of a mass of value as potential capital, a quantity of value that can exist either as money or as commodity. Ground-rent, on the other hand, is obtained by a use-value not reproducible by labor and, therefore, that does not have value even though receiving a market price. The fact that the monopolized land receives rent and has a market price leads its revenue to be mistakenly understood as if it were interest revenue.

The super profits are "neutralized as soon as the exceptional method of production becomes general or is superseded by a still more developed one" (Marx 1985b, p.145). But not so with the "special circumstances" that Marx indicated. He concentrates on the property of natural powers, such as the waterfall, since he considers them: (a) a permanent source of surplus profit; (b) able to be monopolized; (c) non-reproducible by labor or by investments. From the moment that those "special circumstances" are no longer fortuitous but rather become producible by capital society creates the possibility that even knowledge, previously free and available to all, also becomes monopolized in the same way as land was privatized.

When knowledge production is performed as capitalist production investors will only continue with their plans if they can stand to make revenues from it. The profit motive creates the demand for intellectual property rights, patents and authorial rights that guarantee permanent or at least long-lasting surplus profits. Access to privatized knowledge is granted in the same way as with land. Productive use of privatized knowledge necessitates the permission of the knowledge owner. The price of the permit is the payment of a share of the super profits created by the new special techniques and ideas. The rent payment between the producer of knowledge and the user of knowledge is exactly what we mean by knowledge-rent: a new form of social differential rent. The right of an individual capitalist to use the special knowledge (the actual knowledge-commodity) sets his individual production price below the social production price, thus creating a surplus-profit for him. As with ground-rent the production price gap allows the transformation of surplus profit into knowledge-rent.

Why are interests different from ground and knowledge rents, considering that all the three are monopoly rents? Land and natural resources have different capacities to increase labor productivity (e.g. through greater fertility). The same goes for knowledge-commodities. Both land and knowledge play a role in valorization as use-values. Land and knowledge operate with the concrete capacity to increase labor productivity. In no way land or knowledge create value per se:

> "The natural power is not the source of the surplus profit, but only its natural basis, because this natural basis permits an increase in the productive power of labor. In the same way the use-value is the general bearer of the exchange-value, but not its cause. If the same use-value could be created without labor, it would have no exchange-value, yet it would have the same useful effect as ever" (Marx 1985b, p. 145).

The last underscored passage even reveals that Marx thinks, at least hypothetically, that there might exist use-values producible without labor that have the capacity to increase labor productivity. The special use-values have no exchange-value because they can be reproduced without labor. Our view is that Marx in the above passage in fact admitted the logical possibility of the existence of knowledge-commodities. Knowledge-commodities in fact do differ from land in the sense that knowledge-commodities are reproducible even without labor input.

Let us now consider the production of this knowledge-commodity, bearing in mind that its fundamental characteristic is that it does not require labor input to be reproduced. The circuit of the knowledge-commodity producing sector or firm is:

$$M - C \ldots P \ldots C - M' \qquad (1)$$

In the first metamorphosis (M-C) the capitalist producer of knowledge-commodities buys commodities such as fixed capital (laboratories, equipment etc.), circulating capital, and a special type of commodity: the services of intellectual workers. To produce ideas and knowledge it is necessary to hire thinkers and intellectuals who are separated from the means of production of ideas (such as laboratories and equipment) and, therefore, need to sell their services to a capitalist. The intellectual workers receive wages and constitute a "class that, like any other, is the immediate expression of production relations" (Haddad 1998, p. 22). The second metamorphosis (C-M') highlights the fact that …P… does not use any living labor: the commodities produced have the same value as the commodities used in their production. However, the produced commodities are sold at a market price (M') greater than their production price. How is that possible? Although knowledge to be produced does not require living labor-power[8], it requires huge sums of dead labor to be invested in laboratories,

[8] For Marx labor has a very precise meaning: it is the physical and intellectual activities employed in the reproduction – not production – of commodities. In concrete terms, even though the developers of MS-Windows at Microsoft are working, this is not considered to be 'labor time' according to Marx, mainly

equipment (R&D) and wage payments to the innovative class. Once produced the cost of reproduction of the knowledge-commodity is virtually nil and it can be copied by anyone, even by those unconnected to the company that originally created it. The capitalist would only be able to sell a commodity at its cost of reproduction, which is its social reproduction price, if no 'new enclosures' existed. Where does M' come from? As with the ground-rent the capitalist will produce the knowledge-commodities either as consumption goods or as means of production only if she is endowed with exclusivity rights to its production. Profits (M' minus M) derive from monopoly conditions acquired by the capitalist. If patents and new enclosures did not exist the commodity reproduced would be a public good: non-rival and non-exclusive.

We should also consider the circuit of the productive capitalist that use the knowledge-commodity but does not produce it. What happens to valorization when the initial monetary capital buys the knowledge-commodity as means of production? The circuit of the individual productive capital that uses the knowledge-commodity as an input can thus be presented as:

$$M - C \ldots P \ldots . C' - M'' \qquad (2)$$

The first metamorphosis (M-C) takes place when an individual capitalist buys labor power (variable capital), machinery and production materials (constant capital), and the knowledge-commodity. Through the acquisition of the knowledge-commodity the capitalist experiences an increase in labor productivity and is able to produce her final commodity at an individual production price (C') that is lower than the social production and market prices (M''), granting her surplus profits (M'' minus M). There

because they are producing the commodity, not *re*producing it. Labor creates value only if it is employed in the *re*production of commodities.

are two cases to be considered: the case in which the individual capitalist has paid to gain access to the technology produced by another capitalist and the case in which the individual capitalist is the actual owner of the technology. Marx states that this difference is irrelevant. Whether the capitalist rents the land (and, we add, the knowledge-commodity) or actually owns it, nothing changes. It is merely a case of rent redistribution.

In the case of knowledge-commodities the capitalist is expected to pay authorial rights to the actual owner of the knowledge-commodity and thus the system experience the transformation of surplus profits into knowledge-rent.

Different types of land and of knowledge affect labor productivity in various ways and they can only have different impacts because they play a role in production as different concrete use-values. Land and knowledge are posited with their concrete qualitative aspects. According to Harvey (2006, p.349-357) we have to differentiate between four forms of ground-rent. Monopoly rent and absolute rent exist when there are impediments to the free flow of capital and to the global equalization of the rate of profit. In this case the market prices in certain protected branches are set above their respective production prices. The level of absolute rent depends therefore on the economy's balance of supply and demand. On the other hand we have two additional types of differential rents. The first type of differential rent (DR-1) reflects the material conditions that make fertility differentials permanent production features. The second type (DR-2) expresses the effects of differential applications of capital to lands of equal fertility[9]. If all lands had equal fertility DR-1 would not exist; and if all lands received equal capital application DR-2 would not exist. When there is a differential rent at least one producer has a production price set below the market price. Nonetheless, new capital investments can erase the equal fertility condition and create a basis for the appropriation of DR-1. Fertility actively created through technological advances can become a social product. DR-2 is converted into DR-1 by transforming otherwise transient qualities of the former into permanent effects of the latter.

Slightly amended, Marx's rent theory is also applicable to knowledge-commodities. A concrete example can illustrate the case. If only certain companies use a special software to enhance their productivities, the 'privileged' companies will obtain DR-1. The distinctive software will give them a concrete productive differential. But if all companies use the same software the productive differential will be eroded and DR-1 will cease to exist. If the capital investments among the companies that use the software are not the same, even if all of them use the same software, DR-2 will emerge.

The knowledge-commodity producing firm receives both the differential and the absolute rents. Even if all capitalists in the productive sector use the same knowledge-commodity to increase their productivities, making both their individual super profits and differential rents to cease to exist, the knowledge-commodity producer would still receive the absolute knowledge-rent due to its legal intellectual rights. The absolute knowledge-rent is a share of the profits from productive activities. Patents and

[9] "The real theoretical problems, he [Marx] discovered, lay not so much with Ricardo's failure to admit of absolute rent, but in Ricardo's erroneous interpretation of differential rent" (Harvey 2006, p.353). The DR-1 is the differential rent as stated by Ricardo (which was also maintained in Marx's reasoning). The DR-2, however, is the second type of differential rent as originally developed by Marx in order to demonstrate the theoretical restrictions of Ricardo's formulation.

intellectual monopoly rights generate absolute rent and monopoly rent for the knowledge-commodity producer, enabling her to set market prices well above the value of her knowledge-commodities even if the differential DR-1 and DR-2 rents already ceased to exist.

The disparity between the semi-arbitrary price and the null value of knowledge-commodities is one measure of how the knowledge-commodity producing sector is absorbing surplus value generated from productive activities. The price is semi-arbitrary because it is concomitantly defined by arbitrary monopoly rights conferred by the state and because it also has a lower boundary determined by the production costs of maintaining laboratories, staff wages, scientists wages, studios, artists, R&D expenditures, depreciation of facilities, marketing etc.

Interest and rent payments are due whether or not the user of lent money, lent land, lent capital or lent knowledge-commodities is engaged in productive activities. The absorption of surplus value from elsewhere occurs through many channels, such as through wages (when wage laborers buy the knowledge-commodities for their own private consumption) or even through taxes (when the state uses the knowledge-commodity to enhance the productivity of public workers). The existence of the knowledge-rent does not necessarily imply that the rent is being paid solely by private capitals. Households and the state are also included in the list of payers.

6. The Modern Rent-Bearing Capital

The Marxian and heterodox literatures usually focus on the dynamics of financial markets and on the creation of fictitious capital to explain the tendency of capital to “valorize” contradictorily dispensing with labor exploitation. Our approach embeds financialization within the autonomization principle and presents another way through which capital accumulates wealth doing away with real surplus value creation, namely through the now pervasive production of valueless knowledge-commodities and the consequent emergence of the knowledge-rent. With the production of knowledge-commodities capitalism is increasingly producing valueless, even though not priceless commodities; a new form that the system uses to autonomize capital accumulation from real value creation.

The new enclosures, the knowledge-commodities, and the knowledge-rent create a new form of rentism and of rentier capital. But differently from the type of rentism that is usually emphasized, such as in Epstein and Jayadev (2005), our approach shows the emergence of a new form of rent proper to a capitalist society increasingly characterized by the role of privatized scientific knowledge. It is a form of rentism directly guaranteed by the state and one that does not depend on the financial sector or on financial activities.

The rentism that characterizes the rent-bearing capital proper to the emergence of the knowledge-rent is a form of accumulation that occurs without producing new values. The rentier capital that corresponds to the existence of the knowledge-rent is a contradictory form of ‘valorization without value’.

A potential counter-argument could be formulated by stating that the dynamics of the knowledge-rent made evident in this article are nothing more than past ‘returns to entrepreneurship’ and ‘monopoly powers’ that have always played a key role in surplus redistribution, implying that our argument is just a Marxian point of view of some already-developed theories of monopoly capital. To those possible criticisms we readily respond that the point being raised here is a new theoretical problem even within the Marxian tradition, for two main reasons: (i) the growing importance of knowledge-commodities is the evidence of a capitalist production increasingly dependent on the production of valueless commodities, contrary to Marx's original writings that heavily focused on the production of values; (ii) the growing importance of state laws to guarantee the reproduction of commodities highly dependent on the systematic application of knowledge. The knowledge monopoly power has, therefore, two inseparable facets: the reproduction of valueless commodities and the necessary monopoly rents assured by the state. These two aspects were not present in previous formulations of monopoly capital within the heterodox tradition.

The knowledge-rent is not simply a monopoly rent that derives from the discrepancy between market prices and production costs. The knowledge-rent derives from the qualitative existence of valueless commodities and is determined quantitatively by the share of surplus value that accrues to the owners of knowledge. The knowledge-rent is so important to capitalists owners of knowledge that strong international pressure is being put on several countries to prevent the illegal distribution and illegal duplication of patented contents. The Doha round of the WTO and the special agenda developed hitherto on the "trade-related aspects of intellectual property rights" (TRIPS) demonstrates the worldwide effort of capitalists to guarantee their flows of knowledge-rents.

Knowledge-commodity producers do more than only passively receiving rents. They actively use the revenues from patents and monopoly rights to pursue aggressive strategies in R&D investments, marketing, mergers and acquisitions. We can now speak of a 'modern rent-bearing capital': a form of capital that substantively draws its profits from monopoly rents. The 'modern' adjective is necessary to differentiate it from the original concept of 'rent-bearing capital' introduced by Marx in the *Theories of Surplus Value*, which for him was only associated with landlords:

> "Interest-bearing capital is personified in the moneyed capitalist, industrial capital in the industrial capitalist, rent-bearing capital in the landlord as the owner of the land, and lastly, labour in the wage-worker. […] rent-bearing capital exists only as agricultural capital, as capital which only yields rent in a particular sphere" (Marx 1861-1863, Addenda: Revenue and its Sources. Vulgar Political Economy, §5).

We have previously argued that knowledge-commodities cannot be sold but only rented or licensed. There are cases, however, in which they are in fact sold. Knowledge-commodities can in certain cases also be sold in the usual sense, such as when companies in fact sell their patents and authorial rights. The determination of the price of the knowledge-commodity is similar to the determination of the price of the privatized land. When it is actually sold its price is the present value of all expected streams of future revenues generated by this knowledge-commodity. Modern rent-bearing capitals are able to trade their own patents and monopoly rights as commodities. They can sell their own intellectual property rights to other buyers and make profits from these transactions on a special market: the patents market. The company can even potentially behave as a manager of patents of its own and of third parties by treating them as assets in a portfolio that demands strategic allocation. A modern rent-bearing company that also buys and speculates as a manager of patents in intellectual properties markets can make additional profits without even reproducing a single product: it simply makes money out of money (M-M').

Empirical evidence suggesting that both knowledge rents and patent markets are growing rapidly worldwide can be found in Gambardella et al. (2005), Robbins (2006), Zeller (2008) and Cockburn (2007). One important conclusion drawn by some of the empirical studies is that the existence of a market for patents (licensing, cross-licensing, IP fees, and royalties) increases the market price of the patents being traded.

Turned into commodity and privately appropriated, knowledge becomes the object of speculation in the same way that happens with securities, land and other assets. Patents can become a pure asset that is traded according to rents they generate. What is bought and sold is a claim upon future revenues, a title to the knowledge-rents yielded by it.

7. Conclusion and Implications

In the *Grundrisse* Marx wrote that the production of use-values in capitalism would increasingly depend on the 'general intellect' (Marx 1973, p.704-709) but he forgot to add the important detail that private agents would mobilize great forces to make the general intellect subject to private appropriation and private control.

Our emphasis on commodity and production derives from the understanding that capital is created simultaneously by its two predicates: money and commodity. Our Marxian framework allows one to understand the autonomization dynamics as the result of both financial and productive changes. The knowledge-commodity approach and the financialization theories are two complementary aspects of the paradoxical autonomization of capital from value-generating activities. The simultaneous movements of interest-bearing capital, fictitious capital, and of modern rent-bearing capital are complementary to each other.

The idea of this article was to theorize two dynamic forces that at first glance would appear unrelated: the growing productive importance of knowledge under capitalist conditions and growing financialization. The key issue is how one conceptualizes financialization. The usual heterodox meaning of the term partially disregards non-financial aspects. When the existing literature theorizes the impacts of financialization on production it does so by showing production responding passively to finance. It leaves out of consideration that the own essence of production might also be changing.

‘Financialization’ appears to be a misleading term, for it places too much emphasis on finance and little on production. We suggest that a better term would be ‘autonomization’. Our Marxian framework uses the idea of autonomization of social forms in relation to their material bases to avoid restricting the analysis only to financial considerations. Both production and finance play an active role in contributing to the contradictory autonomization of capital. The contradiction lies in the attempt of capital to valorize dispensing with value creation.

8. References

Amsden, A. 2001. *The Rise of 'The Rest'*. Oxford: University Press.

Arrighi, G. 1994. *The Long Twentieth Century*. Verso.

Boyer, R. and Saillard, Yves. 2002. *Regulation Theory: The State of the Art*. Routledge.

Chesnais, F. 2005. O Capital Portador de Juros: Acumulação, Internacionalização, Efeitos Econômicos e Políticos. In *A Finança Mundializada*, ed. F. Chesnais, pp. 35-68. São Paulo: Xamã.

Crotty, J. 2003. The Neoliberal Paradox: The Impact of Destructive Product Market Competition and Impatient Finance on Nonfinancial Corporations in the Neoliberal Era. *Review of Radical Political Economics*, Vol. 35, No. 3, 271-279.

________. 2000. Structural Contradictions of the Global Neoliberal Regime. *Review of Radical Political Economics*, Vol. 32, No. 3, 361-368.

Cockburn, I. M. 2007. *Is the Market for Technology Working? Obstacles to Licensing Inventions, and Ways to Reduce Them*. Conference on Economics of Technology Policy, Monte Verità. Available at: http://faculty.fuqua.duke.edu/~willm/Classes/PhD/PhD_2007-2008/Bocconi/S2_2008_02_11_MFT/Cockburn_-_Is_the_Market_for_Technology_Working.pdf

Epstein, G. 2005. *Financialization and the World Economy*. Cheltenham, UK and Northampton, MA: Edward Elgar.

Epstein, G. and Jayadev, A. 2005. The Rise of Rentier Incomes in OCDE Countries: Financialization, Central Bank Policy and Labor Solidarity. In *Financialization and the World Economy*, ed. G. Epstein. Edward Elgar.

Fausto, R. 1987a. *Marx: Lógica e Política – Tomo I*. São Paulo: Brasiliense.

Fausto, R. 1987b. *Marx: Lógica e Política – Tomo II*. São Paulo: Brasiliense.

Gambardella, A. , Paola Giuri, Myriam Mariani. 2005: *The Value of European Patents. Evidence From a Survey of European Inventors. Final Report of the PatVal-EU Project*. Pisa: Laboratory of Economics and Management (LEM), Sant' Anna School of Advanced Studies. Available at: www.alfonsogambardella.it/patvalfinalreport.pdf

Goldstein, J. P. 2009. Introduction: The Political Economy of Financialization. *Review of Radical Political Economics* 41 (4): 453-457.

Gorz, A. 2005. *O Imaterial: Conhecimento, Valor e Capital*. Sao Paulo: Annablume.

Haddad, F. 1998. *Em Defesa do Socialismo*. Petrópolis: Vozes.

Harvey, D. 2006. *The Limits to Capital*. Verso: New York.

________. 1994. *A Condição Pós-Moderna*. São Paulo: Loyola.

Hegel, G. W. F. 2002. *Fenomenologia do Espírito*. São Paulo: Vozes.

Itoh, M., and C. Lapavitsas. 1999. *Political Economy of Money and Finance*. London: MacMillan.

Keynes, J. M. (1964) *The General Theory of Employment, Interest, and Money*. New York: Harcourt.

Krippner, G. R. 2005. The Financialization of the American Economy. *Socio-Economic Review* 3: 173-208

Lukács, G. 1922. *History and Class Consciousness*. Cambridge: MIT Press.

Lysandrou, P. 2005. Globalisation as Commodification. *Cambridge Journal of Economics* 29: 769-797.

Marx, K. 1990. *Capital I*. Penguin Books.

________. 1985a. *O Capital: Livro III – Tomo I*. São Paulo: Abril Cultural. Coleção Os Economistas.

________. 1985b. *O Capital: Livro III – Tomo II*. Coleção Os Economistas. São Paulo: Abril Cultural.

________. 1973. *Grundrisse: Foundations of the Critique of Political Economy*. New York: Vintage Books.

________. 1861-1863. *Theories of Surplus Value*. 3 Volumes. Available at: http://www.marxists.org/archive/marx/works/1863/theories-surplus-value/index.htm

Mokyr, J. 2002. *The Gifts of Athena: Historical Origins of the Knowledge Economy*. Princeton: Princeton University Press.

Negri, A. and Lazzarato, M. 2001. *Trabalho Imaterial: Formas De Vida E Produçao De Subjetividade*. Sao Paulo: DP&A Editora.

Orhangazi, Ö. 2003. Financialisation and capital accumulation in the non-financial corporate sector: A theoretical and empirical investigation on the US economy: 1973–2003. *Cambridge Journal of Economics* 32: 863-886.

Perelman, M. 2003. Intellectual Property Rights and the Commodity Form: New Dimensions in the Legislated Transfer of Surplus Value. *Review of Radical Political Economics* 35 (3): 304-311.

Paulani, L. M. 2009. The Autonomization of the Truly Social Forms in Marx`s Theory: Comments on Money in Contemporaneous Capitalism. *Proceeding of*

ANPEC Congress - 2009. Available in Portuguese at: http://www.anpec.org.br/encontro2009/inscricao.on/arquivos/000-ef1d67621df728d0eca892bed24cdd23.doc

________. 1991. *From the Concept of Money to Money as a Concept*. PhD dissertation. University of São Paulo, Department of Economics.

Prado, E. F S. 2006a. Review of the book "A Finança Mundializada", ed. F. Chesnais. *Revista Outubro* 14.

________. 2006b. Uma Nova Fase do Capitalismo ou Um Novo Modo de Produção Capitalista? *Revista Outubro* 13.

________. 2005. *Desmedida do Valor: Crítica da Pós-Grande Indústria*. São Paulo: Xamã.

Robbins, C. 2006. *Measuring Payments for the Supply and Use of Intellectual Property*. NBER Working Paper. Available online at http://www.nber.org/books/criws06/robbins3-14-07.pdf

Stockhammer, E. 2004. Financialisation and the Slowdown of Accumulation. *Cambridge Journal of Economics* 28: 719–741.

Suter, C. and Pfister, U. 1987. International Financial Relations as Part of the World-System. *International Studies Quarterly* 31(3): 239-272.

Teixeira, R. A. 2007. *Desenvolvimento, Dependência e Dominância Financeira: A Economia Brasileira e o Capitalismo Mundial*. Doctoral dissertation. São Paulo: IPE-USP.

Vercellone, C. 2008. *The New Articulation of Wages, Rent and Profit in Cognitive Capitalism*. Author's manuscript available at: http://econpapers.repec.org/paper/halcesptp/halshs-00265584_5Fv1.htm

Wallerstein, I. 2003. Mundialização ou Era de Transição? Uma Visão de Longo Prazo da Trajetória do Sistema-Mundo. In *Uma Nova Fase do Capitalismo?*, eds. F. Chesnais, G. Duménil, D. Lévy and I. Wallerstein, pp.71-93. São Paulo: Xamã.

Zeller, C. 2008. From the Gene to the Globe: Extracting Rents Based on Intellectual Property Monopolies. *Review of International Political Economy* 15 (1): 86-115.