

# FINANCIAL DIMENSIONS OF TRANSNATIONAL CORPORATIONS, GLOBAL VALUE CHAIN AND TECHNOLOGICAL INNOVATION

**Claude Serfati**

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# FINANCIAL DIMENSIONS OF TRANSNATIONAL CORPORATIONS, GLOBAL VALUE CHAIN AND TECHNOLOGICAL INNOVATION

Claude SERFATI

*C3ED, Université de Saint-Quentin-en-Yvelines  
and Research Network on Innovation, Paris/France  
Claude.Serfati@c3ed.uvsq.fr*

## INTRODUCTION

There is a growing agreement on the role held by large world companies in contemporary globalization. According to UNCTAD, in 2007 there were 79,000 transnational corporations (TNCs) with a total of 790,000 foreign affiliates. Their aggregate activity is straightforward. The value-added activity of foreign affiliates worldwide accounted for 11% of global gross domestic product (GDP) in 2007, and sales amounted to US\$ 31 trillion – a 21% increase compared with 2006 (UNCTAD, 2008). At the core of this large web, we find the top 100 Transnational corporations (hence TNCs). Over the past three years, on average they accounted for 10%, 16% and 12%, respectively, of the estimated foreign assets, sales and employment of all TNCs in the world. Developed countries dominate the scoreboard; with five countries (the United States, the United Kingdom, Japan, France and Germany) accounting for 73 of the top 100 firms (UNCTAD, 2008). The weight of large world companies in high tech activities is still more compelling. According to a study released by the European Commission, the top 2000 companies (1000 EU and 1000 non-EU) invested €372 billion in R&D in the year of reporting (i.e. 2006/7) (Industrial Research And Innovation, 2008). This corresponds to approximately 80% of global business expenditure on R&D.

Their might, an indication of which is given by these figures, can be confirmed by other factors less easily measurable. They include the way TNCs

have been reshaping international trade and production, close interaction between non-financial TNCs and financial (bank and non-bank) TNCs, the development of global networks, and the strength of relationships entertained by most of them with “their” governments. Dismissing claims that globalization means global companies had become ‘stateless’, governments and TNCs have understood in this decade the benefits of mutual cooperation in the context of the exacerbation of economic competition, compounded by financial and economic crisis now spreading all over the world.

A basic hypothesis of this paper which is focused on non-financial TNCs, is that they cannot be only defined by the fact that they are bigger and more internationalised than others firms. In our view, they constitute a category of their own. They act as financial centres with industrial activities, or as ‘an organizational modality of finance capital’. They have long developed financial activities, but they were given further opportunity in the last decade, with the triumph of deregulation of financial markets, innumerable financial products innovations, as well as with the ideology of maximisation of shareholder value. In recent years, the development of intangible assets has added a new layer to financial exuberance. Intangible assets are loosely defined, generally as identifiable non-monetary assets without physical substance which may provide benefits in the form of increased revenues, reduced costs or other benefits. Their value is to a large extent decided by stock markets, but this is not a game limited to financial markets. The quest for high valuation of their stocks by TNCs and the search of financial and other rent revenues exerts deep effects on their innovative activities.

The structure of this paper is as follows<sup>1</sup>. Section 1, after laying down the hypothesis of TNCs as a organizational form of finance capital, analyses the effects of financialization of TNCs and of their global value chain through changes in the distribution of value and an increase in appropriation of value and decline in production activities. In section 2, the extraordinary rise in the value of intangible assets is addressed both from an empirical and a theoretical perspective. Section 3 analyses the impact on innovative activities, underlining the emphasis for rent-generating activities, and the influence of financial activities on R&D activities.

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## TNCS AS FINANCIAL HOLDINGS

TNCS are not only distinct from other firms by their bigger size and the transnationalization of their activities. In our view, they constitute a category of their own. They can be defined as financial centres with industrial activities, or as “an organizational modality of finance capital”. Against this analytical framework, we outline the main transformations in the TNCS’ strategy and in the governance of their global value chain, converging with what is called *financialization* by some scholars.

### A category of their own

While large transnational corporations (TNCS) (or Multinational Enterprises, MNEs) have been instrumental in contemporary globalization, they have been long ignored by International (mainstream) economics. In a ricardian (and neo-) international economy, trade and production are based on comparative advantages derived from national endowments. Even though flows of capital, once ignored in the ricardian framework were integrated in later research by neoricardian economists, this did not bring about a real analysis of their deep singularities. Indeed, a ground-breaking step was made when non-mainstream economists dealt with Foreign Direct Investments (and obviously trade as well) as a firm-driven managerial decision. Edith Penrose, Stephen Hymer and John Dunning, by shedding a new light on FDI and TNCS, gave a considerable boost to the understanding of contemporary capitalist *modus operandi*.

In short, if we are to understand their core role, in particular in the financialization of non-financial corporations, through the accumulation of intangible assets as it is argued in this paper, we need to discard the vision of the firm as a function of production and the contractual approach based on an analysis of firms as ‘nexus of contracts’, based on costs of transaction and/or principal/agency theory between individuals making free and rational decisions. The contractual approach which underlies new trade theories which address globalization issues, sees the existence of firms and governance-related issues as an alternative to market failures. This falls short of accounting for the existence of different organizational configurations of firms, and also the way relations between finance and production activities are reorganised by TNCS in their process of globalization.

Given the power they hold in international trade and production, the widespread connections through which they organize world industries and markets, their mode of governance, TNCS represent a category of firms on their own, based upon a centralization of financial assets and a specific organizational structure (with the core role held by the *holding* company).

History is useful if we are to understand some contemporary issues. The process of *corporatization* that took place in the USA at the end of the nineteenth century reflected a broader process taking place in all industrialized countries, with the creation of companies in the UK and *sociétés* in France. It resulted in the creation of the *Joint stock Company*, as the legal and dominant form of large firms (For a comprehensive analysis, see John Scott, 1997). This definitively put an end to the fiction of the neoclassical approach of the producer-owner-of-capital (money and productive capital being confused under the same term) and to its circular logic as brilliantly demonstrated by Joan Robinson and the “Cambridge controversy”.

*Incorporation* of firms and transition from personal to impersonal forms of ownership and control, gave a strong impetus to investigations on the “double nature” of firms, both as a locus for industrial activity, i.e. production of value through conception and production of goods, and as a financial organization. Two distinct but related issues stemming from this evolution have been addressed in academic literature. The first perspective deals with the nature and effects of the separation between management and ownership. Ever since the Berle and Means’ seminal findings on the emergence of a powerful class of professional managers insulated from the pressure of stockholders (1932), these issues have triggered a considerable debate in the academic and managerial literature. Sociologists, lawyers, political scientists entered the debate very early, while mainstream economists turned their attention to this issue only in the 1960s. The other issue related to the double nature of firm, at odds with the hypothesis that capital invested in production is the outcome of saving by the entrepreneurs, invoked the abstract question of what *capital* means. With the development of joint stock companies, there is the need to establish a conceptual difference between *money* capital (brought by shareholders through stock markets or through credit by banks) and *productive* capital, which is the amount of money invested in means of production and labour wages, as prerequisite for the production of value. The separate existence of these two forms of capital is highly challenging as far as their prices are concerned. How can existing gaps between their respective prices (or in their values) be explained, if they only are two facets of a same capital? Indeed, we have to acknowledge that those gaps are inherent to capitalism. Capitalism is not a mode of economic (and social) organization based on barter “plus” money, i.e. with money acting as oil lubrication and easing the expansion of exchanges. This view, typical of the neoclassical approach to money as reduced to its function of means of payments, is at odds with capitalism as “a monetary economy of production” (Keynes, 1971-1989).

Rather surprisingly, while the separation of ownership and management has provoked a hot debate for decades (Chandler, 1977; Lazonick, 1991;

O'Sullivan, 2000), the double nature of capital was for a long time an issue of little concern. A possible and partial explanation could be that the former issue has been caught by a range of social scientists, while the latter issue has become an object of research "sliced up" between separated realms of economists specializing in finance, industrial economics, microeconomists, etc. who, for various reasons did not exchange with each others. Veblen is an exception, as he was one of the most acute observers of the transformation of capitalism brought about by the incorporation process. In his analysis of "Modern Business Capital" (title of his *Theory of modern enterprises'* chapter 6) he observes that, while "*capital' as a stock of the material means by which industry is carried on*" by the "*received body of (economists') doctrines*", for business, it means "*a fund of money values*" (Veblen, 1904, p. 135).

Indeed, Veblen was not the first economist to devote careful attention to these issues. Marx developed at length the notion of *fictitious* (money) capital (for the core role of this category, see Chesnais, 1994). He saw the origin of fictitious capital in the development of the credit system and the joint-stock system, with the active involvement of government through their public debt. He distinguished between the *property* (financial claims on value created thanks to the process of production of goods) and the *productive* (means of production, labour workforce) forms of capital. This separation between the two forms of capital, coupled with the fact that money is the "universal form of wealth" led Marx to explore the social (i.e. economic and political) power of finance capital: "*Money as such is potentially self-valorizing value, and it is as such that it is loaned, this being the form of sale for this peculiar commodity. Thus it becomes as completely the property of money to create value, to yield interest, as it is a faculty of a pear tree to bear pears*" (Marx, 1981, p. 516). For sure, Marx sees this ability for money to create value as 'fetishism', since for him the creation of value ultimately depends on the labour process. Drawing upon his careful analysis of the duality of capital (property and productive), he considered that significant changes in governance of companies were taking place, observing that "*Joint stock companies have the tendency to separate this work of management more and more from the ownership of capital, whether one's own or borrowed*" (Marx, 1981, p. 512).

Following on his research conducted in France in the late 1970s, it has been proposed by F. Morin to describe large industrial groups (i.e. the set of the holding/parent company and its subsidiaries) as a unitary structure of governance made up overlapping but hierarchical levels: the *financial* level which orients and monitors resource allocations (*economic* level), which encompasses the *production* (including work organization, etc.) level (Morin, 2006). In an approach which is close to Morin, we have underlined the dominance of a financial logic in the strategy of industrial groups; accordingly they

can be defined as an “*organizational modality of finance capital*” (Serfati, 1996, p. 144).

Thus, our reading of the category of *finance capital* is not limited to the one developed by Hilferding in his seminal work (1981, first edition 1910). Hilferding defines finance capital control as the control exerted by banks over large corporations through fixed capital loans. At an *organizational* level, this amounts to a fusion of banking and industrial capital (1970). This definition of finance capital meets serious limits. Firstly, it has been argued that this organizational structure was historically and geographically (the Rhenan capitalism) bounded. Secondly, in our view, finance capital takes on a double dimension. It is an *institutional* sector, made up of firms whose business is based on financial activity (the financial industry as distinct from the automotive or energy industry). However, it is also a *functional* process through which money becomes capital (that is an amount of money generating more money than the one advanced) for its owner thanks to its advance as property claims (stocks) and loans (bonds, credit...). In contemporary capitalism, this functional opportunity is not restricted to bank and non-bank financial institutions (mutual, investment funds, etc.). It also offered to industrial groups through the holding of financial assets or other rent-generating assets, which with regards to this opportunity can be considered as components of finance capital.

### **Financialization of TNCs and global value chain**

Against this analytical framework, we outline the main transformations of the TNCs strategy, which is in particular reflected in the governance of global value chain. Our findings converge with what is called *financialization* by some scholars. Financialization receives many meanings<sup>2</sup>, and is generally addressed with concerns and criticism<sup>3</sup>. At a macroeconomic level, it has been used by the French school of Régulation (the regulationists) as the emergence of a “wealth based growth regime” (Aglietta, Rebérioux, 2004). Others scholars give the word a very broad meaning: “*financialization means the increasing role of financial motives, financial markets, financial actors and financial institutions in*

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2. We still think that the category of *finance capital* remains analytically useful to analyze the so-called financialization, as it refers and expands on a very broad literature on the matter.

3. But not always. In a report commissioned by the French government and written by a group of practitioners and academics, it was noted that “*Financial globalization (which is synonymous of financialization in the report, C.S.) is unquestionably a force for economic growth in the world today. It increases the availability of capital and lowers transaction costs, thereby contributing to the widespread sense that “there has never been so much money available for business opportunities” (Morand, 2006, p. 48).*

*the operation of the domestic and international economies*” (Epstein, 2005, p. 3). In a convergent manner, some observe the emergence of “coupon pool capitalism”. They define it as “*a new generic type where the pool of new and issued coupons becomes a regulator of firm and household behaviour and a regulator of macro economic trajectory (...). Coupon pool capitalism is constituted when, under specific conditions, the capital market moves from intermediation to regulation of firm and household behavior*” (Feng, Froud, Haslam, Johal, Williams, 2001, p. 275).

At the company level, financialization has to be put into relation with the changes in corporate governance that occurred during the same period. In the early 1980s, a shareholder ‘revolt’ took place against the excess of power held by top executive managers. From an academic perspective, this revolt was buttressed by the agency theory which was critical of the strong imbalance existing in the relations between shareholders (the principal) and the managers (the agent). The latter were said to “spoil” the former because of asymmetrical information. The very goal of the reforms should be to “*motivate managers to disgorge the cash rather than investing it at below the cost of capital or wasting it on organization inefficiencies*” (Jensen, 1986, p. 324). The next sections address some changes in the governance of the GVC that highlight some aspects of financialization.

### **Changes in distribution of value**

The conventional assertion is that the “revolt of shareholders” marked a departure from the managerial or Chandlerian firm that had thrived in the post-War II decades. The changes in large companies’ corporate governance were associated with a double shift in distribution of value added. One, throughout the 1990s, saw an upward trend in the profit share, and consequently a downward trend in the wage share was observed in industrialized countries. In the EU 15, the share of labour income went through a gradual decline, down from 69.9% of GDP in 1975 to an historical low of 57.8% of GDP in 2006. In Japan, the share of labour income fell from 76% of GDP around 1975-1977 to 60% of GDP in 2006. In the US, it fell from 65.9% of GDP in 1970 to 60.9% of GDP in 2005 (European Commission, 2007). This evolution has been so deeply and worldwide established that they can be described as an epochal change (Ellis, Smith, 2007). In the second shift, the rise in the profit share was accompanied in the two last decades by a considerable rise in dividend pay-outs (together with strong gains in stock value) served up to shareholders (institutional and executive managers). It is clear that the dividend pay-out policy varies according to OECD countries: it is fairly high in some countries (in Italy 59%, Germany 57%, in France 45% of

profits after tax was distributed to shareholders), and the process accelerated in many countries between 2001 and 2005. The marginal payout (the change in distributed dividends between 2001 and 2005 divided by the change in profits after taxes) increased considerably in several OECD countries, to begin with in Italy, Netherlands, and France (figure 1).

Figure 1 – Dividend payouts in various OECD countries

	Average payout 1995-2000 <sup>1</sup>	Change in profits after tax 2001-2005	Marginal payout 2001-05 <sup>2</sup>
United States	36%	38%	51%
Japan	8%	27%	33%
Germany	57%	12%	8%
France	45%	19%	<b>78%</b>
Italy	59%	18%	<b>92%</b>
United Kingdom	57%	35%	8%
Canada	16%	50%	4%
Australia	36%	41%	27%
Austria	45%	34%	34%
Denmark	22%	26%	<b>38%</b>
Finland	28%	6%	<b>48%</b>
Greece	32%	56%	0%
Netherlands	32%	38%	<b>88%</b>
Spain	29%	26%	<b>46%</b>

Note: The average payout 1995-2000 is defined as the sum of distributed dividends over 1995-2000 divided by the sum of profits after tax. The marginal payout 2001-05 is defined as the change in dividends between 2001 and 2005 divided by the change in profits before taxes between 2001 and 2005.

1. 1999-2000 for Spain.

2. Figures in bold indicate a large payout over the recent period.

Source: (OECD, 2007)

The steep increase of dividends pay-outs in many industrialized countries is only one part of the story. Lazonick demonstrates that in the US, in the 1980s and 1990s, high yields on corporate stocks, came mainly from stock-price appreciation as distinct from dividend gains. Executives, and other employees, reaped benefits from this appreciation each time they exercised their stock options. Between the early 1980s and the end of the 1990s, we found, based on Lazonick's figures that price yield increased in yearly average over four times faster than dividend pay-outs (14.20% each year for stock price yield and 3.4% each year for dividends) (Lazonick, 2008). Interestingly, according to OECD, between 2001 and 2005 higher property income (mostly gained from intellectual property rights) contributed to the rise in profits in 9 out of the 14 countries under review in the study (2007).

## Increase in appropriation of value and decline in production activities

The search for a decline of labour costs (resulting in a fall in the labour share of value added) and the move towards a shareholder-value-oriented corporate policy have led to sweeping changes in TNCs' strategy. Here, the Global value chain (GVC) is a useful framework if we are to analyze these changes. Ever since it was introduced in the 1990s, the GVC literature considerably expanded. Other authors use different words to analyze rather similar process: international production networks (Borrus, Ernst and Haggard, 2000), global production systems (Milberg, 2008), and the French concept of *filière* developed in the late 1970s by French economists (For a review, see Bair, 2005).

A first significant change reflecting financialization of TNCs' activities is the creation of Special Purpose Entities (SPEs). They are used by TNCs for various purposes. They act as financing and holding companies on behalf of the non-resident parent company. This type of SPE is characterized by large cross-border financial transactions. Another category of SPEs have been given ownership of intellectual property rights by their parent companies and collect income in the form royalties or as fees on (sub) licenses. Clearly, the creation of such financial entities makes transactions in intellectual property (e.g. R&D) and related incomes widely unknown from statisticians in charge of presenting national accounts (Economic Commission for Europe, 2008). They note that intra-company flows of R&D services, ghost services from intellectual property return to capital for intellectual property as a means of determining economic profit are hardly accessible. Among a variety of motives to escape any control, one can include tax evasions. As expressed in a study on the US case, a substantial migration of intangible assets from the United States to foreign countries appears to have occurred over the last decade. That trend has been facilitated by the ability of U.S. firms to create hybrid entities in their affiliates abroad and to reach favourable cost sharing agreements with them (Mutti, Grubert, 2006).

In recent years, TNCs have been involved in substantial changes in the management of their GVC. A major goal was to cut down labour costs. "Vertical disintegration", "slicing up of the value chain", "refocusing on core competencies", "outsourcing and offshoring", are some of the words used to describe the process. These changes reflected the fragmentation of production processes within global value chains and the growing international sourcing of intermediates. According to OECD data, more than half (54% in 2003) of world manufactured imports are intermediate goods (primary goods, parts and components, and semi-finished goods).

A general trend for management has been to drop productions assessed to be insufficiently value creating or/and non strategic. Practically, “upgrading”<sup>4</sup> by refocusing on the two ends of the value chain has been the objective coupled with shorter time horizons in investment decisions. This means preserving strategic activities, such as trans-divisional research, technology and business intelligence, development and design, etc. Managers have also developed strategies focussed on the lower end of the value chain, i.e. the final integration of the product (often designed and described as a “system”) which is high margins-generating. Overall, we interpret the shift in TNCs’ strategy at the era of globalization in connection with the blurring of the frontiers between value appropriation through a direct production process and through rent capture gained momentum. Rent is a complex category which dates back to the very origins of political economy. In our view, rent exists when people and institutions hold private property rights, allowing them to be in a monopoly situation or/and create a (relative) scarcity, from which they can obtain a flow or revenues from other people and institutions in exchange of the use of resources. As rent could exist because of ‘natural’ scarcity (ground, natural resources), the extension of private property rights generating rents is a socio-economic embedded process which is buttressed by political institutions (generally State) in charge of enforcement and protection of private property rights. Capitalist markets would not exist without private property rights and governments able to enforce and protect them.

While the differences between profits and rents were strongly emphasized by Ricardo and his followers, the progressive blurring of boundaries over the history of capitalism made in reality highly challenging to distinguish between what proceeds from ‘entrepreneurial’ profits and from rent appropriation. To understand this trend, suffice to say that capitalism is in essence based on private property (means of production, land) on which social and economic relations between employers and labour developed. The two last decades, have witnessed a significant broadening of private property rights to a range of intellectual activity. In that context, TNCs have become more oriented toward the generation of revenues based upon their financial and intellectual property rights than on the production process proper. The strong decrease of investments in tangible assets documented above, coupled with a slowdown of accumulation in tangible assets (Stockhammer, 2003) could support this hypothesis. In some cases, the process is feared to lead to a ‘hollowing out’ of large corporations, in particular in higher valued added industries we are mainly dealing with in this article (OECD, 2008a, p. 6).

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4. We define this word in the narrow sense of a process allowing firms to increase value created or appropriated, and not in the broader sense given by the literature of the combined process of Upgrading in a Socially Sustainable Way.

Against this background, it should be made clear that the category of GVC cannot be restricted to the narrow sense of a description of the steps of transformation from raw materials to the final product. Rather, we use the notion to underline that large organizations are able to control a significant share of the process of value creation. Hence, they are in a position, not only to reap the value created internally (in their subsidiaries and branches), but also to capture a share of value created outside of the corporations in which they have enough voting stock to ensure control.

Capturing value can also be made through market power. This market power could be informal – when power asymmetry is large enough to constrain the smaller firm *vis-à-vis* the large organization – and could occur when large companies are tapping in technology designed by high-tech SMEs<sup>5</sup>. Market power could be formal, through the latter's possession of financial and property claims against which rents have to be paid to it. TNCs have increased those activities aimed both at strengthening market share and customer contact (branding, advertising) and increasing the appropriation of the related-value. It is even argued that “many ‘manufacturing’ firms do not manufacture at all, providing only brand design, marketing, supply chain logistics and financial management services” (Milberg, 2008, p. 425). Some of these property claims – patents, copyrights, design rights, trade secrets, trademarks, service marks which fall into Intellectual Property rights (IPR) – are capitalised as intangible assets by financial markets in a way explored in the next section. In our view, intangible assets add one new, less addressed layer to financialization of TNCs of their GVC. Only a minority of researchers have begun to look at the core role of financialization (Milberg, 2008; Newman, 2007; Tozanli, Palpacuer, 2008).

## INTANGIBLE ASSETS: A NEW LAYER FOR FINANCIALIZATION

Intangible assets<sup>6</sup> are now said to have supplanted tangible assets as the key value drivers in the economy. The real challenge is that they are defined in a very loose manner which to a large extent results from stock markets evaluation. While they are subject to large fluctuations of their valuation, they give further momentum to finance-driven logic of TNCs' strategy.

5. In a study commissioned by the French Ministry of industry we carried out in 2006-2007, the point has been made in several interviews with top managers in large world companies that SMEs are seen as “technology providers”.

6. *Intellectual*, Knowledge, and in French, *immatériels* assets (or capital) are often alternatively used in the literature are used as synonymous.

### **A loose definition...**

Intangible investments and assets have become a key component of modern economies. Unfortunately, there is no agreed definition among economists, let alone between economists and accountants, on what intangible assets mean (Value measurement, n.d.). Three core characteristics are generally agreed upon to define intellectual assets: i) they are sources of probable future economic profits; ii) lack physical substance; and iii) to some extent, they can be, retained and traded by a firm. The list generally includes at least R&D, patents, and trademarks (OECD, 2008b, p. 9). They include: a) Human capital defined as the knowledge, skills and know-how that employees “*take with them when they leave at night*” (Id., p. 10); b) Relational capital which concerns the resources arising from the external relationships of the firm with customers, suppliers and R&D partners, and c) Structural capital which refers to the knowledge that stays with the firm “*after the staff leaves at night*” (organizational routines, procedures, systems, cultures and databases).

### **...but an incredible rise in their (stock) market value**

Despite the diversity of definitions given, research findings converge and conclude to the steep rise in the growth of intangible assets in recent years. Still, given the vagueness of measuring (and before that, of defining) intangible assets, figures should be read with caution. On the US market, intangible book value as a proportion of S&P 500 total book value reached 43.2% in 2005 (Cardoza, 2006). In France, intangible assets accounted for 76.6% of the stock capitalisation in 2006, composed of non identified intangible assets accounting for 54.1%, Goodwill for 19.5%, Identified intangible assets for 13% (called *actifs incorporels* in French accounting) (Ricol, Lasteyrie and Associates, 2007, our computation). France has entered a new stage of accounting capitalism in which the imperatives are “*for the financial capitalism to distribute more and more and more and more rapidly dividends for more and more hurried managers and shareholders*” (Richard, 2003, p. 18). Significantly, while intangible assets have risen considerably, the undisclosed share of intangible assets has been the driving force in the rise of market capitalization, almost half (49%) of the top world 5000 companies (Global Intangible Tracker, 2007).

Intangible assets are thought to be *A new paradigm for shareholders* (Accenture, 2004). In the view of the consulting company, much of that future value depends not on the resources that traditional accounting practices handle well – monetary and physical assets – but on the resources they hardly handle at all – intangible and intellectual capital (Id.). The next section provides some theoretical hypothesis on what this *new paradigm* does mean.

## **Intangible assets, as a creation of markets (and of the financial community)**

In a strict sense, the impetus given to the tremendous rise in intangible assets in recent years – and as seen in a larger proportion, to the rise of the “undisclosed” assets component – comes from financial markets and the financial community (analysts, brokers, investment banks, etc.). The interest in the category of intangible assets followed the discovery of the rising gap between book values and stock market value. As the gap has existed ever since the creation of stock markets, since perspectives adopted by accountants and financial markets are in principle different, the continuing rise in the difference between book value and stock prices has been questioned only in recent years (Bourguignon, 2005). The increase in this gap has been tightly correlated to the Mergers-Acquisitions process that grew up in the 1990s and resumed, after the 2000-2001 stock market collapse, at higher levels between 2003 and 2007. In an endeavour to bridge this gap, it has seemed necessary to add to intangible assets identified in the book value, the value of intangible assets generated by the M&A which was reflected in the premium offered to the acquired company’s shareholders. Consequently, the difference between the purchase price and the sum of the fair value of the net assets is by definition the value of the “goodwill” of the purchased company. In other words: 1) the stock market gives a price which reveals the intrinsic value of the firm; 2) hence the value (the fair value) of the intangible assets of the firm is given by subtracting the value of its tangible assets from its market value.

In simpler terms, this valuation method is straightforward: If the equity market reveals the intrinsic value of the firm, then subtracting the value of the firm’s tangible assets from its market value reveals the value of the firm’s intangible assets (Cummins, 2004, p. 1). Professional accountants are more cautious. There is a broad agreement among them that there exists a great deal of discretion and judgment in valuing goodwill, since by definition it is made up of non-separable intangible assets which results from previous (intangible) investments which are embodied in organizations, management expertise, market share, etc. Transparency has not been improved by recent accounting rules such as IFRS3<sup>7</sup> (Forbes, 2007).

We are here confronted, under the intangible umbrella word, with a very specific type of capital. It does not correspond to any material good or

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7. The daunting task seems evident in the mandate given by IFRS3: IFRS 3’s role is to attempt to pin the value down more accurately, defining goodwill as “*future economic benefits arising from assets that are not capable of being individually identified and separately recognized*”, <http://www.ias-plus.com/standard/ifrs03.htm>, retrieved 27/10/2008.

equipment, or to any immaterial or intellectual activity. The value of those unidentified intangible assets represented by goodwill is a pure creation of stock markets, which is then transformed into ‘creative accounting’<sup>8</sup>. This fictitious nature of this kind of capital, the fact that capital is a claim over putative earning-capacity, on future earnings was underlined first by Marx, and then Veblen one century ago, in his careful analysis of goodwill (1904). In our view, the potential divergence between the stock market value and the real value of companies is inherent to the double nature of capital as recalled earlier in this paper. From a different perspective, the point was also strongly made by Keynes: “*the volume of trading in financial instrument, i.e. the activity of financial business, is not only highly variable but has no close connection with the volume of output whether of capital goods or of consumption goods*” (Keynes, 1971-1989, p. 222). This explains why the euphoria a company benefits from on the stock market ends up when intangible assets reveal themselves as a “wealth paper”. This perilous shift from “unidentified” to “undiscoverable” or “unlocatable” assets and the resulting evaporation of this fictitious capital is accounted for by a series of factors.

One, market distress reveals the large range of sunk costs – of which some of them would have been defined, from another analytical perspective, as unproductive or waste costs – which are generated by investments in communication (e.g. newspaper mastheads are included in the FAS 141 Intangible asset list), advertising, lobbying, etc. Despite that those expenditures are usually said to count as relational capital, the defined relations between, let us say, advertising or lobbying on the one hand and market’s share on the other hand are highly variable and scarcely measurable.

Two, R&D expenditures as well as vocational and in-company training increase what is called human capital. One of the objective of formalization and codification of knowledge and extension of IPR that occurred in the two last decades was for the companies to appropriate the knowledge, skills and know-how of their employees and to prevent them from “*taking* (their knowledge, skills, experiences and abilities) *with them when they leave at night*” (definition of human capital usually given, see OECD, 2006). Still, the limits to this private appropriation by companies through patenting and other means which are accounted for as intangible assets, are put into perspective by the singular status of the factor of production – the wage-earner – in which knowledge and skills are incorporated and who is the ultimate and real owner of his/her

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8. See the FASB opinion: “*Although purchased goodwill is not in itself an asset, its inclusion amongst the assets of the reporting entity, rather than as a deduction from shareholders’ equity, recognizes that goodwill is part of a larger asset, the investment, for which management remains accountable*” (FASB, 2005).

knowledge. Moreover, there could be some tension between on the one hand the need for skills and qualifications, based upon a high degree of autonomy, self-organization, discretion and last but not least, stability in work, and on the other hand the actual trend in Companies' strategies towards internalization of market principles into work processes and increased control (both legal and spatial) on workers (see Huws, ed., 2006).

Three, this fraction of intangibles which is called structural (or organizational) capital refers to the knowledge that stays with the firm "after the staff leaves at night". It comprises organizational routines, procedures, systems, cultures and databases (OECD, 2006). As they could really reflect an edge for the organization (the firm), attempts to give them a market price increasing the *goodwill*, occurs at the time of mergers, acquisitions and combinations. Ironically, this is also the very time when these *unique* attributes of the firm (which is not reducible to its core competencies) are seriously fragilized since they are amalgamated to or welded with other firms' *unique* attributes. This evidences that firms are not a nexus of contracts that can be easily rearranged and marketed: failures of M&As to deliver promises are now observed by consulting who strongly advocated them in the 1990s (and in the post-internet krach era as well). In case of disappointment, difficulties, or simply shareholders' impatience vis-à-vis the outcome of M&A, a bear cumulative process takes place, which is the very opposite to the bull process seen in the weeks preceding the M&A (and sometimes thanks to insiders, even before its announcement...).

### **Subject to large up and down changes**

The fluctuation of stock markets valuation existed well before intangible assets developed a strong presence in the market. These large changes in the stock value, otherwise analyzed by Hyman Minsky as the periodic return of the "Ponzi economy", reflect the autonomous life of stock market, in other words the fact that value of capital does not exist twice: one as a (physical) means of production and two as financial claims with (highly variable) monetary values. This holds both for tangible and intangible capital, still the might gained by financial markets and the changes in corporate governance combined with each others to increase the dominance of financial criteria in conception and production activities. The process gathered momentum with the development of *fair value* by the Financial Accounting Standards Board (FASB), applied to an increasing range of assets, including intangible assets (Perry, Nolke, 2006). The dominance of a financial logic on TNCs strategies has been accelerated by the inclusion of Intangible assets into stock market valuation, pushing them up to historical heights.

That the value of this capital, in large part fictitious, fluctuates according to stock markets' opinions does not mean that it is a pure stock market speculation issue. Instead, through its institutionalisation in the accounting books of large companies, it reflects the inflation of financial assets, which, notwithstanding their material reality, act as property claims on value created in the world of production. It is easy to understand that promises of such earnings, gained and registered through acquisitions, has become a mighty driving force, which reinforces the financialization of large companies and the resulting reorganization of their value chain.

## IMPACT ON INNOVATIVE ACTIVITIES

In this section, we address the way technological innovative activities in TNCs are transformed, in relation with their financialization, as evidenced by the rise of their intangible assets. Addressed here are the increase in rent appropriation and reorientation of R&D expenditures towards non-scientific activities and very downstream development.

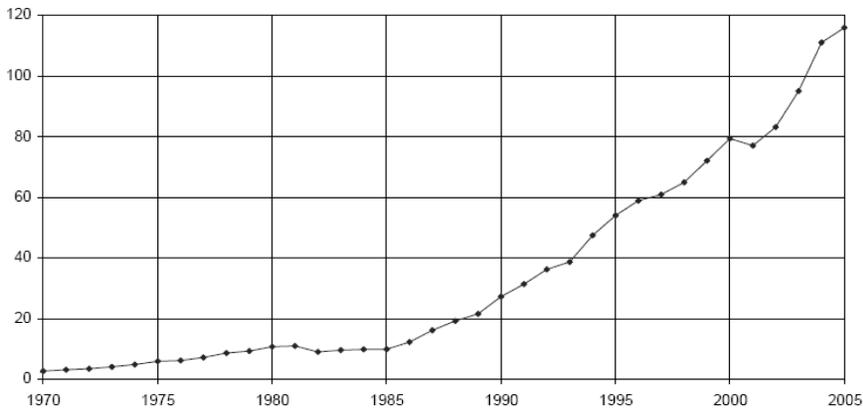
### Capturing more rents

In the last years, the development of rent strategies considerably developed through various channels related to innovative activities. Regarding the topics addressed in this article, the two last decades witnessed a broadening of private property rights to various intellectual activities. Central in the broadening of private property rights is the development of Intellectual Property Rights (IPRs), viewed by some as the “new enclosures” (May, 2000). Another analysis stresses that “*the solution searched for by capital is now to advance rights to intellectual property in order to collect monopoly rents*” (Vercellone, 2008, p. 19).

As it is well known, the development of IPR gained momentum in the 1990s through the TRIPs (Trade-related aspects of intellectual property rights) agenda, adopted under the auspices of WTO. As far as knowledge is widely acknowledged as a public good generating high positive economic and social effects (the so-called externalities), the construction of scarcity through the commodification of knowledge plays in contemporary global capitalism raises daunting challenges, which are ethical (Perelman, 2002) and economic efficiency related (Nelson, 2004). The break occurring from the 1980s onwards in long-term evolution is clear: the number of triadic patent families – which account for the bulk of total world patents – has more than doubled since the mid-1980s. In this process large world companies dominate patenting. In the US, the top 35 world companies accounted for around 9%

of utility patents in 2006; in France, concentration was still stronger, with the top 30 companies accounting for over 30% of utility patents in 2007. The rise of patenting can be explained by two main drivers. One, IPR is a significant source of revenues which considerably accelerated at the world level. Athreye and Cantwell show that technology licensing payments and receipts have accelerated considerably since the 1980s, after being roughly constant between 1950 and 1980 (2007) (see also figure 2).

Figure 2 – Growth in non-US held patents and worldwide (cross-border) royalty and license receipts

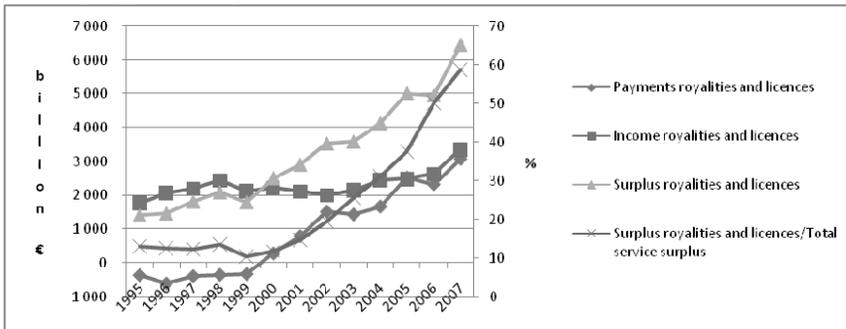


Source: World Bank, World Development Indicators online database

In the EU, the Commission estimates the global trade to be €100 billion, a 40-fold increase in the past 20 years. In the United States too, it has been estimated that patent licensing revenues rose from US\$ 15 billion in 1990 to more than USD 100 billion in 1998, and experts estimated that revenue could top half-trillion dollars annually by the middle of next decade (OECD, 2006). In France, royalties and licenses considerably increased between 1995 and 2007, the surplus (payments – incomes) contributing to as high as 59% of the overall service trade surplus, up from 12% in 1995 (figure 3).

The same process runs at the firm level. A study covering over 400 world-class European TNCs found that the average Revenue earned from the licensing of intellectual property reached 12% of their total revenue in 2007. According to this 2007 study, 53% say the use of intellectual property rights (IPR) will be very important or critical to their business model in a two years, compared with 35% who say this is the case today (The Economist Intelligence Unit, 2007) (see also convergent results in a Pricewaterhouse-Coopers' survey, 2007).

Figure 3 – Royalties and licenses, export, imports, and surplus in proportion of total service trade surplus in France (1995-2007)



Source: Author, data collected from *Balance des paiements*.

Two, technological innovation is only one of the driver of patenting. The idea that patent would spur technological innovation has been under sharp criticism of scholars of innovation. This ill-founded view comes from various reasons, including the implicit assumption that the nature of “knowledge” is totally captured by the notion of “information” thus technological knowledge may be institutionally treated in uniform ways (Dosi, Marengo, Pasquali, 2007). Others confirm that there “is so little empirical evidence that what is widely perceived to be a significant strengthening of intellectual property protection had significant impact on the innovation process” (Jaffe and Addam, 2000, p. 540).

Indeed, the considerable rise in patenting that occurred in the last decades is somewhat at odds with the cautious view adopted by academics and business as well on the weakness of patenting as far as protection from imitation is concerned. Imperfect protection conferred by patents induces firms to adopt other strategies, including secrecy, lead time over competitors, the tying of the innovation to complementary activities (manufacturing, sales and/or services) (Cohen, Nelson, Walsh, 2000). So, if preserving a technological advance is not a reason accounting for this overall steep rise, why firms run to file patents? An answer, which is in keeping with what has been described in section 1 as financialization of the global value chain, is as follows. On the one hand, the ownership of large portfolio of patents allows TNCs to increase their market power and capture part of the value created by other, generally smaller firms. On the other hand, in world oligopolistic industries and markets, IPRs play a double role. They facilitate, to borrow wordings from industrial economics findings, ‘mutual recognition’ and tacit collusion’ among lead firms. They also increase imbalances between the lead firms, endowed with a large portfolio of IPRs and smaller firms, both hardly able to finance

litigation and less able to avoid going to court to settle their conflicts (Lanjouw, Schankerman, 2004).

Finally, an underestimated driver could be is that patents may improve access to capital markets (Christensen, 2008). IPRs are increasingly seen as a financial asset (Christensen, 2008, p.16). In the USA, financial markets have developed sophisticated vehicles based on securitization and the Commission has begun to develop similar policies. "Patent race" could reflect that Venture capitalists and other financiers may be more reluctant to finance companies only based on soft intangibles rather than a documented portfolio of IPR (id.). As for large public companies, convergent results indicate that, while advertising, goodwill, and research and development do not have significant positive impact on shareholder value, intangible assets other than goodwill, which include the value of patents, copyrights, licenses, and trademarks, have a positive impact on shareholder value (Heiens, Pleshko, Leach, 2004).

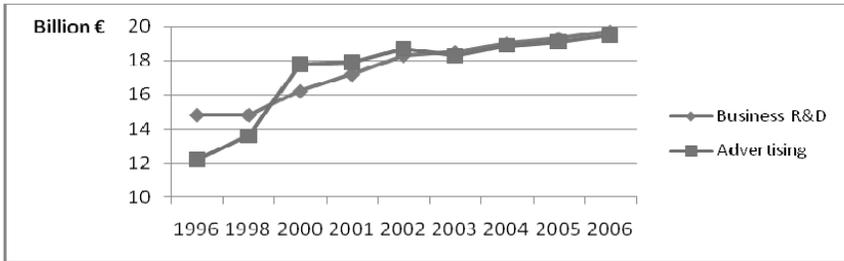
Overall, the mutual reinforcement of financial assets and intellectual property rights, both assets aimed at generating rents for shareholders, means emphasis put on increasing market power-oriented innovation. This could explain that other expenditures than research-development are on rise. They include marketing, advertising, communication, and the expenditures which are aimed at increasing the TNCs' organizational and relational capital<sup>9</sup>, both capital being a significant, albeit imprecise, component of their intangible capital (Marrano, Haskel, 2007). Marketing and advertising expenditures have risen so high as to match technology-related expenditures. It is in particular the case in the French manufacturing industry (figure 4). The trend is unambiguous: between 1996 and 2006, the growth in advertising has been twice faster (+59%) than the growth in R&D expenditures (33%).

As the preference given for advertising in France could reflect the traditional disaffection of French companies for self-funded R&D, it is by no means an exception. The same situation prevails in the US (Corrado, Hulten, Seichel, 2006). Not only intangible assets have risen faster than tangible assets, but among intangible assets, non-traditional types of intangible capital such as non-scientific R&D, brand equity and firm-specific resources (worker training and strategic planning and reorganization costs) together account for almost 60% of intangible capital deepening since 1995 (figure 5).

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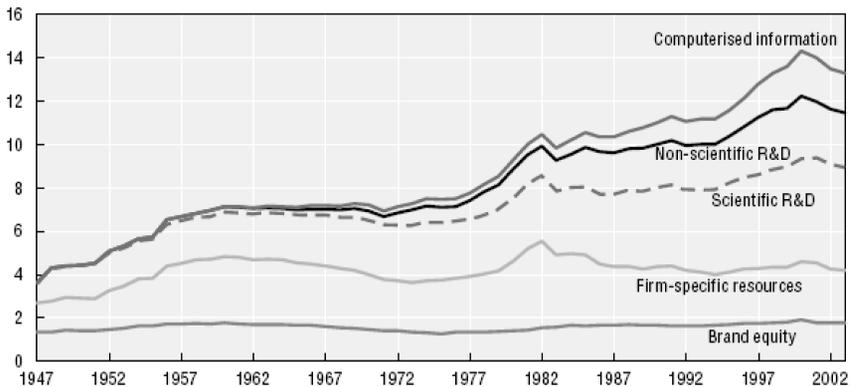
9. Relational capital includes, according OECD (2006, p. 14): "Brands, customers, customer loyalty, company names, backlog orders, distribution channels, business collaborations, licensing agreements, favourable contracts, franchising agreements".

Figure 4 – Growth of Business R&D and Advertising expenditures in the French manufacturing industry, 1996-2006



Source: Author from Rapport de la Commission Permanente de Concertation pour l'industrie

Figure 5 – Estimated Intangible Investments in the United States, 1947-2003 (Per cent of business output)



Source: Corrado, C., Hulten, C., Sichel D. (2006), "The Contribution of Intangible Investments to US Economic Growth: A Sources-of-growth Analysis", NBER Working Paper 11948.

Macroeconomic data on the increasing role held by non-scientific R&D in total intangible assets are buttressed by case studies. In an IBM's CEO study, which polled 750 CEOs, respondents ranked R&D as their eighth source for new ideas (Bednarz, 2006). Even High Tech industries, allegedly based on strong R&D expenditures, are not immune, and in recent years expenditures aimed at increasing rents gained momentum compared to R&D expenditures. In the US pharmaceutical companies spend almost twice as much on promotion as they do on R&D (Gagnon and Lexchin, 2008) <sup>10</sup>. Indeed, the percentage of sales spent on promotion for the industry as a

10. There are still divergences on the effects of marketing expenditures on R&D expenditures in the pharmaceutical and biotechnology industry: see Pattikawa, 2007.

whole increased from 14.2% in 1996 to 18.2% in 2005 (Donohue, Cevasco, Rosenthal, 2007). In France, similar data have been released showing that promotion expenditures account for over 12% of the total pharmaceutical business turnover, a figure slightly higher than the share of self-funded business R&D in business turnover (Bras, Ricordeau, Roussille, Saintoyant, 2007).

### Reorientation of R&D expenditures

The strategy of rent-seeking based on IPR (patents, brands...) also modified the nature of research-development which is undertaken by TNCs, including HT companies. Usually, at the industry level, R&D intensity (e.g. expenditures on R&D-to-value added ratio) is used as the main indicator of technological intensity, along with the level of technology used by industry but produced in other industries (measured by the technology embodied in intermediate and capital goods divided by production). In most cases, HT Companies belong to HT industrial sectors.

As indicated, non-R&D intangible expenditures are now much higher than R&D expenditures, including in HT companies. Moreover, R&D expenditures, despite efforts for normalisation, are ill-measured. When Companies R&D statistics coming from different official sources are compared, they show significant discrepancies, evidencing somehow the black hole on what R&D is about. To give an example, in the UK, Business Expenditures in Research&Development (BERD) as collected by the UK government in 2004, were only 46% of R&D tax credit companies credits (Caro, Grablowitz, 2008). Besides these divergences in the gathering of data, it is now increasingly acknowledged that some expenses accounted for as R&D have little to do with research or even with technological development. As signaled by R&D analysts: *“from a strict R&D standpoint, it’s somewhat questionable to count the two-thirds of the pharmaceutical spending that is dedicated to the execution of clinical testing. Similarly, nearly 85% of automotive spending is principally dedicated to the development of tooling for the year’s new models. These development funds have historically been included in a company’s general R&D funding program and difficult for analysts to financially separate from the company’s total research effort. When combined, clinical trials and automotive production tooling account for about 45% of the total spending of the top 25 companies. But while they’re essential to the execution of the overall product development program, the actual costs are for mostly low- or non-technical items”* (R&D Magazine, 2008, p. 14).

R&D data on US companies confirm this reorientation towards more short-term development, including expenditures aimed at reinforcing IPR policy rather than carrying out R&D *per se* (figure 6). The trend which has

been lasting ever since the forecast index was introduced is worrying enough to have led the authors of the survey to wonder: “Will there come a point where U.S. industry no longer conducts directed basic research?” (IRI, 2007, p. 20).

Figure 6 – “Sea change index”\*

Survey Question	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Total company R&D expenditures	0	5	-4	-15	-16	-2	4	12	21
2. Capital spending for R&D operations	4	3	-17	-18	-18	-15	-3	-2	21
3. Relative distribution of R&D costs:									
a) Support of existing business	-20	-10	-6	-24	-20	-5	-13	-19	-10
b) Directed basic research	-9	-21	-11	-21	-17	-21	-8	-6	3
c) New-business projects	34	44	30	7	1	8	31	31	26

Note: The Sea Change Index is calculated by taking the difference in the sum of the last two categories (more than 5 percent growth) and the sum of the first two categories (zero or negative growth).

Source: IRI 2008

From a more longer perspective (1995-2008), another report found there has always been a tendency for US companies to invest R&D dollars more toward new business projects than to the support of existing business or directed basic research<sup>11</sup>. Furthermore, the report noted that ambiguous nature of R&D, since *new business projects* could well refer to *new markets* (e.g. foreign markets) rather than new products or processes (*R&D Magazine*, 2008).

A negative correlation between financialization of TNCs and R&D expenditures is also argued by Lazonick (2008). Focusing his analysis on the role of stock repurchases, he clearly demonstrates that the ultimate justification was the ideology of maximizing shareholder value. This ideology led, according to data collected in his paper, 8 out of the 11 High Tech companies (defined by a R&D expenditures-to-sales higher than 10%) to devote, over the 2000-2007 period, more funds to repurchase and dividend payouts than to R&D expenditures. Blue-chip High Tech, including Cisco, Microsoft, Amgen, Oracle, Texas instruments are in this situation.

## CONCLUSION

This paper has described TNCs as an organizational form of finance capital. In recent years, they have increased the volume and the scope of their financial activities. The considerable rise of their intangible assets was accompa-

11. “Directed basic research,” as used in the industrial context, is most generally that effort which is directed toward research that is supportive of selected lines of business, rather than the type of basic research that is more commonly associated with academia.

nied by sweeping changes in their strategy, both with regards to their place in global value chain and changes in their technological innovation-oriented activities.

The rise of intangible assets reflects to some extent the sweeping changes that occurred in the competitive setting. An increasing body of the literature underlines the emerging of knowledge as an engine for capitalist development (El Mouhoub, Plihon, 2007). As far as we are concerned, the creation of intangible assets as a (financial) category of its own marks a further attempt to appropriate in a private way activities and outcomes which usually were out of direct control of companies and ruled out of valorization by stock markets. The subjugation of knowledge goes through speculation which is inherent to those markets. In the context of stock market collapses observed in 2008, the issue is to ponder the future of intangible assets. Based upon hypothesis put forward in this paper, our assumption is that attempts by to privately appropriate collective and non-market social activities will not abate in next years.

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